SAR Compliance Test Report

Date of Report	5/02/2025	**Client's Contact person:**	Jari Pekka Savojoki
Number of pages:	134	**Responsible Test engineer:**	Jesper Varis
Testing laboratory:	**Verkotan Oy** Elektroniikkatie 17 90590 Oulu Finland	**Client:**	**Twig Com Ltd** Lairolantie 14 24910 Salo Finland
Tested device	**TWIG Neo (TLP54US)**		
Related reports:	-		
Testing has been carried out in accordance with:	**47CFR §2.1093** Radiofrequency Radiation Exposure Evaluation: Portable Devices **FCC published RF exposure KDB procedures** **IEC/IEEE 62209-1528, 2020** Measurement procedure for the assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices **RSS-102, Issue 6, 2023** Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory		
Test Results:	**The EUT complies with the requirements in respect of all parameters subject to the test.** The test results relate only to devices specified in this document		
Date and signatures:	05.02.2025 **Laboratory Manager** Miia Nurkkala		

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Equipment under Test (DUT):

Product:	TWIG NEO
Manufacturer:	Twig Com Ltd
Model:	TLP54US
Serial Number:	116X4820027228 (21132), 115X4820026887 (21124), 116X4820027223 (21122), 116X4820027225 (21123), 115X4820026886 (21127), 115X4820026899 (21133)
FCC ID Number:	2A95KTLP54US, contains 2A95KPLS63X and 2A95KNINAW15 modules
ISED ID Number:	30482-TLP54US, contains 30482-PLS63X and 30482-NINAW15 modules
Firmware Version:	This report applies for FW version: TT5P.02.013.0000-20231218-112016-321d2947 Testing has been executed on FW version: TT5P.02.013.0000-20240205.082802-62863211
DUT Number:	21132, 21124, 21122, 21123, 21127, 21133
Battery Type used in testing:	Li-Ion Battery
State of the Sample:	Production sample

Testing information:

Testing performed:	12.06.2023 – 15.06.2023, 24.11.2023 – 28.11.2023, 01.02-14.02.2024
Notes:	-
Document history & changes	This report replaces *FCC_ISED SAR report_TWIG Neo (TLP54US)BeltclipWristband ID7239_18112024.docx*. Cellular and WiFi/BLE module information added.
Document ID:	FCC_ISED SAR report_TWIG Neo (TLP54US)BeltclipWristband ID7239_05022025.docx
Temperature °C	22±2 / Controlled
Humidity RH%	30±20 / Controlled
Measurement performed by:	Jesper Varis, Kalle Orava, Kirsi Kyllönen
FCC Test Firm Designation Number:	FI0005
ISED Company Number:	22218

1.2 RSS-102 version update to Issue 6, 2023

Results of test report *FCC_ISED SAR report_TWIG Neo (TLP54US)BeltclipWristband ID6474_20022024* that were tested according to RSS-102 Issue 5 2015, Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) have been evaluated in this test report against the RSS-102 Issue 6 2023, Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) and have been found to be compliant.
The changes made to the standard RSS-102, Issue 6 from RSS-102, Issue 5 do not have affect on the compliance of tested results in the report *FCC_ISED SAR report_TWIG Neo (TLP54US)BeltclipWristband ID6474_20022024*.

The tested device is intended to be used with a belt-clip or wristband. The body SAR was tested from side which has the belt-clip attachment with belt-clip with 0mm separation. Low frequency cellular bands, WLAN 2.4GHz, BLE and SRD were measured with 5mm separation distance from the DUT without the belt-clip which is less than separation distance provided from belt-clip thus providing conservative minimum separation distance.

The Extremity SAR was tested from back side of the device with wristband attached with 0mm separation distance.

The test separation distances are compliant with the RSS-102, Issue 6.

Since all the transmitting technologies were tested in the test report, the changes in exemption limits have no effect on the results.

The *FCC_ISED SAR report_TWIG Neo (TLP54US)BeltclipWristband ID7239_18112024* complies with the RSS-102 Issue 6 2023, Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).

This compliance statement relates only for the DUT tested and identified in the revised report *FCC_ISED SAR report_TWIG Neo (TLP54US)BeltclipWristband ID7239_18112024*.

1.3 Maximum Results

The maximum reported* SAR values for Body-worn, Next-to-Mouth and for Extremity Exposure for transmitting systems are shown in a table below. The device conforms to the requirements of the standards when the maximum reported SAR value is less than or equal to the limit. The SAR limit specified in FCC 47 CFR part 2 (2.1093) and Health Canada's RF exposure guideline, Safety Code 6 for Head/Body SAR_{1g} is 1.6 W/kg and for Extremity is SAR_{10g} 4.0 W/kg.

1.3.1 Standalone SAR

System	Highest Reported* SAR_{1g}(W/kg) in Body-Worn Exposure Condition, Belt-clip	Highest Reported* SAR_{1g}(W/kg) in Next-to-Mouth Exposure Condition, Wristband	Highest Reported* SAR_{10g}(W/kg) in Extremity Exposure Condition, Wristband	Result
WCDMA 2	1.24	1.3	1.25	PASS
WCDMA 4	1.31	1.35	1.22	PASS
WCDMA 5	0.64	0.42	0.64	PASS
LTE 12	0.15	0.08	0.15	PASS
LTE 13	0.33	0.22	0.38	PASS
LTE 14	0.39	0.23	0.42	PASS
LTE 25	1.00	1.38	1.29	PASS
LTE 26	0.56	0.43	0.62	PASS
LTE 66	1.08	1.18	1.13	PASS
LTE 71	0.15	0.04	0.09	PASS
2.4 GHz WLAN	0.02	0.007	0.017	PASS
Bluetooth LE	0	0.0002	0.00002	PASS
SRD	0.00006	0.00003	0	PASS

* Reported SAR Values are scaled to upper limit of power tuning tolerance.

1.3.2 Simultaneous Transmission SAR

Highest Simultaneous Transmission SAR	SAR_{1g}(W/kg) in Head/Body-Worn Exposure Condition	Result
Cellular, 2.4 GHz WLAN + SRD	1.39	PASS

Highest Simultaneous Transmission SAR	SAR_{10g}(W/kg) in Extremity Exposure Condition	Result
Cellular, 2.4 GHz WLAN + SRD	1.31	PASS

1.3.3 Maximum Drift

Maximum Drift During Measurements	-0.86dB*

*Larger than 5% drifts included to scaling factors

1.3.4 Measurement Uncertainty

SAR 1g: 0.3 – 3 GHz:

Expanded Uncertainty (k=2) 95 %	±22.1 %

2. DESCRIPTION OF THE DEVICE UNDER TEST (DUT)

The DUT is a Lone Worker and Personal Safety alarm with two-way voice option. This device is intended to be used with a belt-clip or wristband.

The DUT supports Cellular, WLAN 2.4GHz, Bluetooth and SRD technologies.

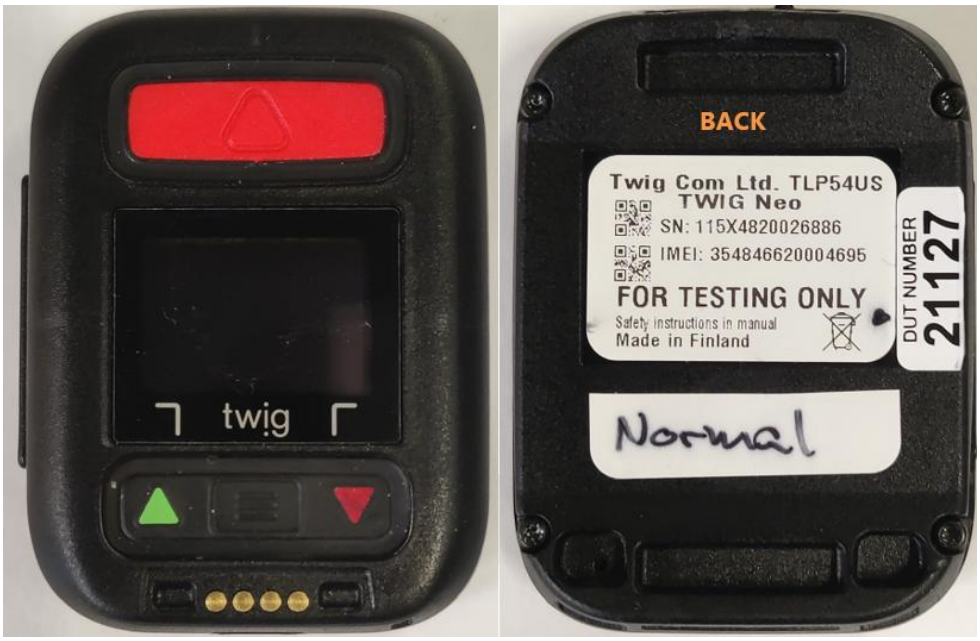


Figure 1 Overview of the DUT

Figure 2 The DUT with belt-clip

Figure 3 The DUT with wristband

Device Category	Portable
Exposure Environment	General population uncontrolled

2.1 Supported Frequency Bands and Operational Modes

	Modes of Operation	Transmitter Frequency Range [MHz]
TX Frequency bands	WCDMA 2	1850 – 1910
	WCDMA 4	1710 – 1755
	WCDMA 5	824 – 849
	LTE 2	1850 – 1910
	LTE 4	1710 – 1755
	LTE 5	824 – 849
	LTE 12	698 – 716
	LTE 13	777 – 787
	LTE 14	788 – 798
	LTE 25	1850 – 1915
	LTE 26	814 – 849
	LTE 66	1710 – 1780
	LTE 71	663 – 698
	2.4 GHz WLAN	2412 – 2462
	Bluetooth	2400 – 2483.5
	SRD	918.219, 918.675 MHz

2.2 Test Exclusions

2.2.1 Excluded Bands from Testing

According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands when the specified maximum output power, including tune-up tolerance, is less or same for the smaller band as for the larger band.
The channel bandwidth and other operating parameters for the smaller band must be fully supported by the larger band.

For this product:

- LTE 2 band, 1850-1910 MHz, is excluded from the testing as it is fully covered by LTE 25 band, 1850-1915 MHz
- LTE 4 band, 1710-1755 MHz, is excluded from the testing as it is fully covered by LTE 66 band, 1710-1780 MHz
- LTE 5 band, 824-849 MHz is excluded as it is fully covered by LTE 26 band, 814-849 MHz

2.3 Simultaneous transmission

Possible simultaneous transmissions are:

- Cellular & 2.4 GHz WLAN & SRD
- Cellular & Bluetooth & SRD

3. OUTPUT POWER

3.1 Maximum specified conducted output power

From the customer, including tune-up tolerances;

WCDMA	Max Output Power [dBm]
WCDMA 2	24
WCDMA 4	24
WCDMA 5	25

LTE	Max Output Power [dBm]
LTE 2	24
LTE 4	24
LTE 5	25
LTE 12	25
LTE 13	25
LTE 14	25
LTE 25	24
LTE 26	25
LTE 66	24
LTE 71	25

2.4GHz WLAN	Max Output Power [dBm]
802.11b	16
802.11g	16
802.11n	16

Bluetooth	Max Output Power [dBm]
Bluetooth BR/EDR	6
Bluetooth LE	6

SRD	Max Output Power [dBm]
SRD 918.219 MHz	5
SRD 918.675 MHz	-5

3.2 Tested conducted power

WCDMA:

Reference Channel	WCDMA 2			WCDMA 4			WCDMA 5		
	CH 9262 1852.4 MHz	CH 9400 1880.0 MHz	CH 9538 1907.6 MHz	CH 1312 1712.4 MHz	CH 1413 1732.6 MHz	CH 1513 1752.6 MHz	CH 4132 826.4 MHz	CH 4183 836.6 MHz	CH 4233 846.6 MHz
RMC 12.2K	23.95	24.2*	24.08*	24.16*	24.37*	23.98	24.16	24.43	24.26
HSDPA Subtest-1	23.1	23.29	23.03	23.14	23.38	23.08	23.1	23.32	23.26
HSDPA Subtest-2	23.09	23.03	22.92	23.19	23.34	23.11	23.07	23.29	23.27
HSDPA Subtest-3	22.49	22.45	22.45	22.55	22.83	22.63	22.47	22.78	22.91
HSDPA Subtest-4	22.41	22.48	22.37	22.52	22.77	22.66	22.44	22.75	22.88
HSUPA Subtest-1	23.0	23.15	23.04	23.18	23.41	23.08	23.08	23.28	23.33
HSUPA Subtest-2	22.65	22.5	22.55	22.8	22.87	22.56	22.53	22.78	22.74
HSUPA Subtest-3	23.05	23.01	22.91	23.15	23.27	23.18	22.98	23.18	23.33
HSUPA Subtest-4	23.12	23.04	23.08	23.2	23.33	23.15	23.0	23.12	23.1
HSUPA Subtest-5	23.07	23.05	22.98	23.17	23.32	23.1	22.96	23.25	23.26

*The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

LTE:

The DUT is LTE Cat 1 device and has limited data rate up to 5 Mb/s in uplink, for this reason the resource block allocations for 16QAM modulation vary from the KDB 941225 D05 SAR for LTE Devices v02r05.

Band / BW [MHz]	Modulation	RBs	RB Start	CH:18700 1860 MHz	CH:18900 1880 MHz	CH:19100 1900 MHz	MPR [dB]
B2 / BW:20	QPSK	1	0	22.82	22.8	22.76	0
			50	23.05	23.08	22.69	
			99	22.62	22.82	22.86	
		50	0	21.94	21.87	21.73	1
			50	21.73	21.74	21.73	
			25	21.82	21.95	21.87	
		100	0	21.76	21.83	21.74	
	16QAM	1	0	21.66	21.19	21.19	
			50	21.96	22.09	21.86	
			99	21.18	20.84	21.39	
		27	0	21.14	20.85	20.97	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:18675 1857.5 MHz	CH:18900 1880 MHz	CH:19125 1902.5 MHz	MPR [dB]
B2 / BW:15	QPSK	1	0	22.88	23.14	22.88	0
			37	22.97	23.05	23.08	
			74	23.03	22.7	22.9	
		36	0	21.98	21.91	21.79	1
			19	21.93	21.98	21.9	
			39	21.84	21.77	21.76	
		75	0	21.84	21.82	21.7	
	16QAM	1	0	21.86	21.77	21.12	
			37	22.08	21.86	21.73	
			74	21.18	21.0	21.41	
		27	0	21.15	20.83	20.77	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:18650 1855 MHz	CH:18900 1880 MHz	CH:19150 1905 MHz	MPR [dB]
B2 / BW:10	QPSK	1	0	22.94	23.0	22.67	0
			24	23.06	23.17	23.02	
			49	22.81	22.85	22.9	
		25	0	22.05	21.9	21.78	1
			12	22.05	22.03	21.84	
			25	21.8	21.77	21.83	
		50	0	21.98	21.9	21.78	
	16QAM	1	0	21.91	21.74	21.17	
			24	21.76	21.8	21.73	
			49	21.69	21.38	21.4	
		27	0	20.98	20.94	20.82	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:18625 1852.5 MHz	CH:18900 1880 MHz	CH:19175 1907.5 MHz	MPR [dB]
B2 / BW:5	QPSK	1	0	23.04	22.82	22.89	0
			12	23.01	22.92	23.34	
			24	22.7	22.76	22.88	
		12	0	21.91	22.01	21.99	1
			6	22.03	22.0	21.95	
			13	21.94	21.94	21.79	
		25	0	21.99	21.97	21.9	
	16QAM	1	0	21.62	21.9	21.63	
			12	21.87	21.8	21.8	
			24	21.62	21.73	21.67	
		12	0	20.84	21.03	20.7	2
			6	20.96	21.05	20.88	
			13	20.83	21.04	20.85	
		25	0	20.91	21.11	21.05	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:18615 1851.5 MHz	CH:18900 1880 MHz	CH:19185 1908.5 MHz	MPR [dB]
B2 / BW:3	QPSK	1	0	23.1	22.93	22.91	0
			7	23.3	23.07	22.89	
			14	23.04	22.97	22.89	
		8	0	22.05	22.07	21.93	1
			7	22.0	21.99	21.86	
			3	22.06	21.99	21.86	
		15	0	22.01	21.94	21.94	
	16QAM	1	0	21.69	21.77	21.7	
			7	21.62	21.86	21.83	
			14	21.6	21.74	21.7	
		8	0	21.37	20.99	21.01	2
			7	21.29	20.95	20.79	
			3	20.98	21.05	20.95	
		15	0	21.04	21.09	20.95	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:18607 1850.7 MHz	CH:18900 1880 MHz	CH:19193 1909.3 MHz	MPR [dB]
B2 / BW:1.4	QPSK	1	0	22.91	23.06	22.95	0
			2	23.1	23.07	23.02	
			5	23.0	23.03	22.99	
		3	0	23.14	23.14	22.96	
			1	23.07	23.16	23.1	
			3	22.88	23.08	23.0	
		6	0	21.86	21.89	21.84	1
	16QAM	1	0	21.79	21.79	21.85	

			2	21.93	21.67	21.95	
			5	21.83	21.61	21.83	
		3	0	21.8	21.81	21.77	
			1	21.92	21.94	21.89	
			3	21.85	22.07	21.91	
		6	0	20.81	20.97	20.67	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20050 1720 MHz	CH:20175 1732.5 MHz	CH:20300 1745 MHz	MPR [dB]
B4 / BW:20	QPSK	1	0	22.93	23.02	23.25	0
			50	23.43	23.29	23.13	
			99	23.06	23.07	23.12	
		50	0	22.19	22.34	22.41	1
			50	22.18	22.11	22.06	
			25	22.2	22.34	22.11	
		100	0	22.21	22.12	22.16	
	16QAM	1	0	21.15	21.79	21.91	
			50	22.14	22.1	21.91	
			99	21.87	21.6	21.71	
		27	0	20.95	21.0	21.35	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20025 1717.5 MHz	CH:20175 1732.5 MHz	CH:20325 1747.5 MHz	MPR [dB]
B4 / BW:15	QPSK	1	0	23.05	22.96	23.33	0
			37	23.59	23.35	23.33	
			74	23.01	22.96	23.09	
		36	0	22.19	22.32	22.22	1
			19	22.36	22.3	22.11	
			39	22.25	22.12	22.11	
		75	0	22.19	22.23	22.07	
	16QAM	1	0	21.67	22.01	22.03	
			37	21.76	22.21	22.04	
			74	21.33	21.81	21.96	
		27	0	20.93	21.09	20.98	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20000 1715 MHz	CH:20175 1732.5 MHz	CH:20350 1750 MHz	MPR [dB]
B4 / BW:10	QPSK	1	0	23.09	23.16	23.02	0
			24	23.37	23.29	23.06	
			49	23.28	23.11	23.26	
		25	0	22.2	22.33	22.18	1
			12	22.18	22.24	22.24	
			25	22.17	22.15	22.25	
		50	0	22.15	22.21	22.21	
	16QAM	1	0	21.7	22.0	21.47	
			24	22.05	22.09	21.87	
			49	22.0	21.84	21.53	
		27	0	21.03	21.15	20.92	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:19975 1712.5 MHz	CH:20175 1732.5 MHz	CH:20375 1752.5 MHz	MPR [dB]
B4 / BW:5	QPSK	1	0	23.03	23.25	23.04	0
			12	23.25	23.25	23.34	
			24	22.84	23.01	23.27	
		12	0	22.05	22.32	22.23	1
			6	22.12	22.32	22.28	
			13	22.26	22.25	22.25	
		25	0	22.1	22.29	22.24	

	16QAM	1	0	21.53	21.74	21.76	
			12	21.7	21.97	21.93	
			24	21.64	21.67	21.76	
		12	0	20.69	20.86	20.82	2
			6	20.87	20.92	20.95	
			13	20.86	21.13	20.99	
		25	0	21.28	21.16	21.02	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:19965 1711.5 MHz	CH:20175 1732.5 MHz	CH:20385 1753.5 MHz	MPR [dB]
B4 / BW:3	QPSK	1	0	22.85	23.25	23.09	0
			7	23.16	23.4	23.07	
			14	23.1	23.16	23.0	
		8	0	22.0	22.51	22.17	1
			7	22.12	22.37	22.17	
			3	22.08	22.42	22.2	
		15	0	22.04	22.26	22.04	
	16QAM	1	0	21.47	21.67	21.62	
			7	21.5	21.77	21.76	
			14	21.47	21.64	21.62	
		8	0	20.87	21.02	20.95	2
			7	20.75	21.08	20.99	
			3	20.78	21.0	20.83	
		15	0	20.81	21.14	21.05	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:19957 1710.7 MHz	CH:20175 1732.5 MHz	CH:20393 1754.3 MHz	MPR [dB]
B4 / BW:1.4	QPSK	1	0	23.13	23.29	23.0	0
			2	23.15	23.38	23.15	
			5	23.13	23.29	22.98	
		3	0	23.04	23.22	23.2	
			1	23.11	23.19	23.35	
			3	23.03	23.11	23.0	
		6	0	22.0	22.22	22.1	1
	16QAM	1	0	21.47	21.85	21.58	
			2	21.32	21.96	21.45	
			5	21.41	21.85	21.6	
		3	0	21.56	22.0	22.04	
			1	21.68	21.92	21.97	
			3	21.65	21.95	21.93	
		6	0	20.93	21.05	21.25	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20450 829 MHz	CH:20525 836.5 MHz	CH:20600 844 MHz	MPR [dB]
B5 / BW:10	QPSK	1	0	22.96	22.73	22.8	0
			24	22.9	23.11	23.02	
			49	22.83	22.88	22.83	
		25	0	21.99	22.04	22.03	1
			12	21.97	22.02	22.13	
			25	21.99	21.98	22.05	
		50	0	22.01	21.97	21.97	
	16QAM	1	0	21.5	21.4	21.5	
			24	21.42	21.38	21.37	
			49	21.35	21.07	21.26	
		27	0	20.79	21.03	20.86	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20425 826.5 MHz	CH:20525 836.5 MHz	CH:20625 846.5 MHz	MPR [dB]
B5 / BW:5	QPSK	1	0	22.87	22.78	22.7	0
			12	23.05	23.33	22.95	
			24	22.77	23.02	22.69	
		12	0	21.86	21.96	21.85	1
			6	21.91	22.06	21.98	
			13	21.87	21.89	22.03	
		25	0	21.87	21.95	21.94	
	16QAM	1	0	21.43	21.18	21.64	
			12	21.68	21.55	22.03	
			24	21.3	21.3	21.09	
		12	0	20.73	20.9	20.92	2
			6	20.89	20.99	21.1	
			13	20.79	20.93	21.01	
		25	0	20.93	21.01	20.87	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20415 825.5 MHz	CH:20525 836.5 MHz	CH:20635 847.5 MHz	MPR [dB]
B5 / BW:3	QPSK	1	0	22.88	22.72	22.88	0
			7	23.01	22.94	22.99	
			14	22.88	23.14	22.88	
		8	0	21.83	22.07	22.11	1
			7	21.88	21.95	22.0	
			3	21.9	22.02	22.14	
		15	0	21.86	21.98	22.06	
	16QAM	1	0	21.46	21.38	21.4	
			7	21.49	21.61	21.47	
			14	21.26	21.49	21.55	
		8	0	20.64	20.92	20.97	2
			7	20.93	21.08	21.11	
			3	20.88	20.96	21.0	
		15	0	21.0	21.08	21.29	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:20407 824.7 MHz	CH:20525 836.5 MHz	CH:20643 848.3 MHz	MPR [dB]
B5 / BW:1.4	QPSK	1	0	22.93	22.95	23.01	0
			2	22.99	22.99	23.04	
			5	22.85	23.02	22.9	
		3	0	22.97	23.06	23.14	
			1	23.0	23.1	23.01	
			3	22.82	23.04	22.98	
		6	0	21.91	21.93	21.96	1
	16QAM	1	0	21.57	21.4	21.54	
			2	21.45	21.56	21.52	
			5	21.25	21.39	21.64	
		3	0	21.89	21.91	22.09	
			1	21.92	21.94	21.95	
			3	21.89	22.01	21.85	
		6	0	20.87	20.96	21.22	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23060 704 MHz	CH:23095 707.5 MHz	CH:23130 711 MHz	MPR [dB]
B12 / BW:10	QPSK	1	0	23.12	23.04	23.08	0
			24	23.23	23.15	23.16	
			49	23.21	22.96	22.97	
		25	0	21.95	22.15	22.06	1
			12	22.15	22.02	22.07	

			25	22.05	21.95	21.93	
		50	0	22.12	22.03	22.01	
	16QAM	1	0	21.85	21.6	22.11	
			24	22.27	21.95	22.25	
			49	21.93	21.96	22.03	
		27	0	20.9	21.0	21.07	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23035 701.5 MHz	CH:23095 707.5 MHz	CH:23155 713.5 MHz	MPR [dB]
B12 / BW:5	QPSK	1	0	23.0	23.0	22.94	0
			12	23.12	23.26	23.17	
			24	23.08	22.99	22.87	
		12	0	21.99	22.09	21.93	1
			6	22.05	22.18	22.03	
			13	22.0	22.06	21.92	
		25	0	22.05	22.05	21.99	
	16QAM	1	0	21.83	21.81	21.92	
			12	22.18	22.25	22.25	
			24	22.04	21.75	21.79	
		12	0	21.07	21.02	20.99	2
			6	21.05	21.06	21.11	
			13	21.05	21.07	20.93	
		25	0	21.03	20.97	20.98	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23025 700.5 MHz	CH:23095 707.5 MHz	CH:23165 714.5 MHz	MPR [dB]
B12 / BW:3	QPSK	1	0	22.83	22.89	23.05	0
			7	23.03	23.05	23.16	
			14	22.88	23.01	23.01	
		8	0	22.05	22.0	22.08	1
			7	22.0	21.91	21.98	
			3	22.1	21.94	22.02	
		15	0	22.08	21.96	21.98	
	16QAM	1	0	21.73	21.77	21.78	
			7	22.24	21.97	21.66	
			14	21.78	21.61	21.55	
		8	0	21.08	21.02	21.05	2
			7	21.14	21.05	20.97	
			3	21.17	21.06	21.05	
		15	0	20.92	20.97	21.09	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23017 699.7 MHz	CH:23095 707.5 MHz	CH:23173 715.3 MHz	MPR [dB]
B12 / BW:1.4	QPSK	1	0	22.92	22.89	23.01	0
			2	23.06	22.86	23.16	
			5	22.97	23.0	22.7	
		3	0	23.03	23.11	23.09	
			1	23.05	23.15	23.02	
			3	23.13	23.17	23.03	
		6	0	22.08	21.91	22.06	1
	16QAM	1	0	21.98	21.96	21.8	
			2	22.38	22.03	21.65	
			5	22.07	22.11	21.57	
		3	0	22.14	22.08	21.77	
			1	22.17	22.29	22.02	
			3	22.17	22.19	21.92	
		6	0	21.27	21.1	21.06	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23230 782 MHz	MPR [dB]
B13 / BW:10	QPSK	1	0	23.02	0
			24	23.18	
			49	23.04	
		25	0	22.16	1
			12	22.2	
			25	22.17	
		50	0	22.04	
	16QAM	1	0	21.75	
			24	22.04	
			49	21.71	
		27	0	21.24	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23205 779.5 MHz	CH:23230 782 MHz	CH:23255 784.5 MHz	MPR [dB]
B13 / BW:5	QPSK	1	0	23.14	23.06	22.94	0
			12	23.38	23.28	23.49	
			24	23.11	23.13	23.2	
		12	0	22.12	22.01	22.14	1
			6	22.14	22.07	22.17	
			13	22.06	22.2	22.08	
		25	0	22.14	22.05	22.04	
	16QAM	1	0	21.66	21.92	21.71	
			12	21.79	22.07	22.04	
			24	21.65	21.75	21.47	
		12	0	20.93	21.0	20.98	2
			6	20.88	21.24	21.07	
			13	20.86	21.17	20.94	
		25	0	21.15	21.13	21.02	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23330 793 MHz	MPR [dB]
B14 / BW:10	QPSK	1	0	23.19	0
			24	23.44	
			49	23.19	
		25	0	22.52	1
			12	22.49	
			25	22.42	
		50	0	22.37	
	16QAM	1	0	22.15	
			24	22.27	
			49	22.24	
		27	0	21.3	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:23305 790.5 MHz	CH:23330 793 MHz	CH:23355 795.5 MHz	MPR [dB]
B14 / BW:5	QPSK	1	0	23.3	23.24	23.21	0
			12	23.65	23.22	23.23	
			24	23.24	23.03	23.2	
		12	0	22.46	22.39	22.4	1
			6	22.52	22.37	22.45	
			13	22.37	22.42	22.38	
		25	0	22.42	22.38	22.4	
	16QAM	1	0	22.11	22.22	22.12	
			12	22.35	22.29	22.53	
			24	22.13	22.09	22.25	
		12	0	21.22	21.21	21.21	2

			6	21.27	21.29	21.29	
			13	21.2	21.27	21.32	
		25	0	21.25	21.26	21.31	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26140 1860 MHz	CH:26365 1882.5 MHz	CH:26590 1905 MHz	MPR [dB]
B25 / BW:20	QPSK	1	0	23.26	23.13	23.22	0
			50	23.23	23.23	23.24	
			99	22.91	23.01	23.14	
		50	0	22.25	22.21	22.31	1
			50	22.26	22.12	22.26	
			25	22.23	22.12	22.38	
		100	0	22.18	22.15	22.3	
	16QAM	1	0	21.45	21.75	21.75	
			50	21.95	22.0	22.04	
			99	21.47	21.29	21.52	
		27	0	21.32	21.14	21.28	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26115 1857.5 MHz	CH:26365 1882.5 MHz	CH:26615 1907.5 MHz	MPR [dB]
B25 / BW:15	QPSK	1	0	23.14	23.17	23.06	0
			37	23.46	23.11	23.67	
			74	23.19	23.13	23.11	
		36	0	22.37	22.2	22.37	1
			19	22.2	22.24	22.32	
			39	22.21	22.1	22.32	
		75	0	22.15	22.1	22.39	
	16QAM	1	0	21.78	21.76	21.7	
			37	21.86	21.95	22.11	
			74	21.64	21.49	21.92	
		27	0	21.31	21.16	21.34	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26090 1855 MHz	CH:26365 1882.5 MHz	CH:26640 1910 MHz	MPR [dB]
B25 / BW:10	QPSK	1	0	23.35	23.32	23.35	0
			24	23.3	23.26	23.4	
			49	23.17	23.31	23.5	
		25	0	22.42	22.21	22.46	1
			12	22.42	22.23	22.42	
			25	22.3	22.05	22.31	
		50	0	22.35	22.17	22.42	
	16QAM	1	0	21.6	21.7	22.09	
			24	21.81	21.73	21.7	
			49	21.46	21.43	21.58	
		27	0	21.19	21.14	21.26	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26065 1852.5 MHz	CH:26365 1882.5 MHz	CH:26665 1912.5 MHz	MPR [dB]
B25 / BW:5	QPSK	1	0	23.22	23.04	23.26	0
			12	23.2	23.19	23.35	
			24	23.04	23.08	23.13	
		12	0	22.39	22.27	22.4	1
			6	22.38	22.29	22.37	
			13	22.28	22.14	22.3	
		25	0	22.34	22.17	22.4	
	16QAM	1	0	21.73	21.6	22.2	
			12	21.86	22.18	22.4	

			24	21.66	21.9	22.17	
		12	0	21.01	21.1	21.29	2
			6	21.01	21.07	21.36	
			13	21.02	21.12	21.37	
		25	0	21.19	21.14	21.3	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26055 1851.5 MHz	CH:26365 1882.5 MHz	CH:26675 1913.5 MHz	MPR [dB]
B25 / BW:3	QPSK	1	0	23.23	23.17	23.38	0
			7	23.27	23.13	23.46	
			14	23.24	23.03	23.39	
		8	0	22.38	22.19	22.37	1
			7	22.33	22.17	22.51	
			3	22.39	22.18	22.49	
		15	0	22.36	22.23	22.41	
	16QAM	1	0	22.15	21.99	21.79	
			7	22.31	22.36	21.95	
			14	22.29	22.07	21.82	
		8	0	21.23	21.18	21.29	2
			7	21.24	21.04	21.33	
			3	21.28	21.15	21.37	
		15	0	21.26	21.17	21.35	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26047 1850.7 MHz	CH:26365 1882.5 MHz	CH:26683 1914.3 MHz	MPR [dB]
B25 / BW:1.4	QPSK	1	0	23.21	23.17	23.18	0
			2	23.26	23.2	23.34	
			5	23.07	23.08	23.27	
		3	0	23.21	23.16	23.29	
			1	23.25	23.2	23.4	
			3	23.32	23.26	23.25	
		6	0	22.23	22.24	22.22	1
	16QAM	1	0	21.62	21.2	21.67	
			2	21.89	21.43	21.78	
			5	21.67	21.04	22.02	
		3	0	22.04	21.94	22.01	
			1	22.16	22.0	22.11	
			3	22.09	21.97	22.11	
		6	0	21.11	21.21	21.11	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26765 821.5 MHz	CH:26865 831.5 MHz	CH:26965 841.5 MHz	MPR [dB]
B26 / BW:15	QPSK	1	0	22.93	22.99	23.09	0
			37	23.43	23.38	23.34	
			74	23.14	23.18	23.0	
		36	0	22.16	22.06	22.11	1
			19	22.22	22.22	22.11	
			39	21.99	22.17	22.05	
		75	0	22.14	22.07	22.11	
	16QAM	1	0	22.0	21.8	21.81	
			37	21.95	21.99	21.95	
			74	21.48	21.76	21.82	
		27	0	21.13	21.02	21.23	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26740 819 MHz	CH:26865 831.5 MHz	CH:26990 844 MHz	MPR [dB]
B26 / BW:10	QPSK	1	0	23.06	23.11	23.03	0
			24	23.34	23.21	23.14	
			49	23.13	23.2	23.23	
		25	0	22.09	22.1	21.96	1
			12	22.18	22.27	22.26	
			25	22.14	22.2	22.16	
		50	0	22.13	22.11	22.1	
	16QAM	1	0	21.62	21.97	21.74	
			24	21.81	22.26	21.67	
			49	21.44	21.7	21.42	
		27	0	21.21	21.03	21.09	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26715 816.5 MHz	CH:26865 831.5 MHz	CH:27015 846.5 MHz	MPR [dB]
B26 / BW:5	QPSK	1	0	23.04	22.65	22.92	0
			12	23.23	23.29	23.34	
			24	23.0	23.02	22.91	
		12	0	21.97	22.02	22.14	1
			6	22.14	22.19	22.17	
			13	22.07	22.14	22.02	
		25	0	22.08	22.15	22.12	
	16QAM	1	0	21.73	21.66	21.36	
			12	22.05	22.01	22.02	
			24	21.71	21.59	21.37	
		12	0	20.86	21.12	21.02	2
			6	21.23	21.29	21.19	
			13	21.18	21.33	20.97	
		25	0	21.18	21.26	21.06	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26705 815.5 MHz	CH:26865 831.5 MHz	CH:27025 847.5 MHz	MPR [dB]
B26 / BW:3	QPSK	1	0	23.07	22.83	23.11	0
			7	23.3	23.41	23.01	
			14	23.05	23.26	22.86	
		8	0	22.09	22.12	22.06	1
			7	22.06	22.21	21.93	
			3	22.15	22.16	22.08	
		15	0	22.07	22.08	22.1	
	16QAM	1	0	21.65	21.57	21.66	
			7	22.02	21.99	21.73	
			14	21.61	21.63	21.88	
		8	0	21.24	21.17	21.0	2
			7	21.48	21.23	21.03	
			3	21.29	21.35	21.27	
		15	0	21.21	21.18	21.22	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:26697 814.7 MHz	CH:26865 831.5 MHz	CH:27033 848.3 MHz	MPR [dB]
B26 / BW:1.4	QPSK	1	0	22.99	23.06	23.0	0
			2	23.28	23.1	23.06	
			5	23.18	23.15	22.64	
		3	0	23.09	23.12	23.0	
			1	23.17	23.2	23.24	
			3	23.11	23.14	22.9	
		6	0	22.05	22.07	22.03	1
	16QAM	1	0	21.71	21.77	21.59	

			2	21.84	21.85	21.55	
			5	21.82	21.87	21.84	
		3	0	22.02	22.55	22.09	
			1	22.16	22.3	22.24	
			3	22.17	22.25	22.06	
		6	0	21.48	21.02	21.22	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:132072 1720 MHz	CH:132322 1745 MHz	CH:132572 1770 MHz	MPR [dB]
B66 / BW:20	QPSK	1	0	23.13	23.49	23.32	0
			50	23.4	23.56	23.08	
			99	23.14	23.42	23.06	
		50	0	22.32	22.55	22.23	1
			50	22.3	22.41	22.08	
			25	22.33	22.49	22.2	
		100	0	22.25	22.32	22.17	
	16QAM	1	0	20.85	22.04	21.44	
			50	22.0	22.03	21.82	
			99	21.54	21.43	21.3	
		27	0	20.95	21.18	21.04	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:132047 1717.5 MHz	CH:132322 1745 MHz	CH:132597 1772.5 MHz	MPR [dB]
B66 / BW:15	QPSK	1	0	23.35	23.53	23.25	0
			37	23.65	23.74	23.45	
			74	23.29	23.36	23.07	
		36	0	22.3	22.5	22.27	1
			19	22.28	22.42	22.21	
			39	22.25	22.38	22.15	
		75	0	22.17	22.38	22.24	
	16QAM	1	0	21.25	22.04	21.6	
			37	21.83	21.83	21.49	
			74	21.3	21.31	21.31	
		27	0	20.89	21.1	20.95	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:132022 1715 MHz	CH:132322 1745 MHz	CH:132622 1775 MHz	MPR [dB]
B66 / BW:10	QPSK	1	0	23.26	23.4	23.09	0
			24	23.35	23.42	23.29	
			49	23.14	23.51	23.03	
		25	0	22.31	22.67	22.34	1
			12	22.38	22.54	22.15	
			25	22.28	22.47	22.17	
		50	0	22.25	22.45	22.24	
	16QAM	1	0	20.97	21.7	21.59	
			24	21.8	21.73	21.26	
			49	21.17	21.54	21.36	
		27	0	20.86	21.19	21.2	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:131997 1712.5 MHz	CH:132322 1745 MHz	CH:132647 1777.5 MHz	MPR [dB]
B66 / BW:5	QPSK	1	0	23.04	23.34	23.23	0
			12	23.19	23.38	23.57	
			24	23.18	23.37	23.23	
		12	0	22.11	22.54	22.22	1
			6	22.19	22.49	22.22	
			13	22.23	22.48	22.2	
		25	0	22.19	22.47	22.26	

	16QAM	1	0	21.21	21.99	21.32	
			12	21.4	21.99	21.5	
			24	21.38	21.91	21.42	
		12	0	20.68	20.99	20.7	2
			6	20.74	20.88	20.64	
			13	20.74	20.93	20.7	
		25	0	20.83	21.1	20.89	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:131987 1711.5 MHz	CH:132322 1745 MHz	CH:132657 1778.5 MHz	MPR [dB]
B66 / BW:3	QPSK	1	0	23.32	23.28	23.26	0
			7	23.56	23.38	23.28	
			14	23.31	23.33	22.98	
		8	0	22.33	22.47	22.15	1
			7	22.14	22.42	22.29	
			3	22.26	22.43	22.15	
		15	0	22.19	22.41	22.28	
	16QAM	1	0	21.41	21.9	21.26	
			7	21.37	21.73	21.29	
			14	21.47	21.66	21.31	
		8	0	20.91	21.07	20.92	2
			7	20.97	21.04	20.9	
			3	20.89	21.06	20.9	
		15	0	20.92	21.19	20.98	

Band / BW [MHz]	Modulation	RBs	RB Start	CH:131979 1710.7 MHz	CH:132322 1745 MHz	CH:132665 1779.3 MHz	MPR [dB]
B66 / BW:1.4	QPSK	1	0	23.11	23.27	22.9	0
			2	23.34	23.28	23.02	
			5	23.24	23.2	22.84	
		3	0	23.14	23.3	22.91	
			1	23.34	23.3	22.92	
			3	23.24	23.24	22.92	
		6	0	22.15	22.23	22.03	1
	16QAM	1	0	21.64	21.61	21.86	
			2	21.71	21.75	21.95	
			5	21.61	21.7	21.86	
		3	0	21.8	22.23	21.88	
			1	21.81	22.14	22.01	
			3	21.84	22.01	21.88	
		6	0	20.83	21.0	20.92	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:133222 673 MHz	CH:133297 680.5 MHz	CH:133372 688 MHz	MPR [dB]
B71 / BW:20	QPSK	1	0	23.68	23.66	23.93	0
			50	23.75	23.98	24.16	
			99	23.7	23.59	23.83	
		50	0	22.96	22.89	22.93	1
			50	22.81	22.93	23.0	
			25	23.0	22.83	22.99	
		100	0	22.9	22.85	22.89	
	16QAM	1	0	22.91	22.93	22.66	
			50	23.05	23.15	22.75	
			99	22.88	22.91	22.7	
		27	0	21.92	21.86	21.75	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:133197 670.5 MHz	CH:133297 680.5 MHz	CH:133397 690.5 MHz	MPR [dB]
B71 / BW:15	QPSK	1	0	23.85	23.76	23.77	0
			37	24.04	23.93	24.16	
			74	23.72	23.67	23.84	
		36	0	22.99	23.01	22.94	1
			19	23.03	22.88	23.01	
			39	22.94	22.87	23.04	
		75	0	22.88	22.82	22.99	
	16QAM	1	0	22.93	22.92	22.86	
			37	23.15	23.01	23.28	
			74	22.82	22.98	22.96	
		27	0	21.92	21.87	21.92	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:133172 668 MHz	CH:133297 680.5 MHz	CH:133422 693 MHz	MPR [dB]
B71 / BW:10	QPSK	1	0	23.78	23.9	23.88	0
			24	24.04	23.91	24.1	
			49	23.87	24.03	23.86	
		25	0	22.94	22.94	23.01	1
			12	23.01	22.92	23.1	
			25	23.12	22.9	22.97	
		50	0	22.97	22.98	23.05	
	16QAM	1	0	23.01	23.08	22.81	
			24	23.11	23.05	23.07	
			49	22.86	23.15	22.8	
		27	0	21.98	21.86	21.94	2

Band / BW [MHz]	Modulation	RBs	RB Start	CH:133147 665.5 MHz	CH:133297 680.5 MHz	CH:133447 695.5 MHz	MPR [dB]
B71 / BW:5	QPSK	1	0	23.66	23.77	23.78	0
			12	24.05	24.03	23.96	
			24	24.04	23.74	23.77	
		12	0	23.04	22.84	23.0	1
			6	23.07	22.79	22.95	
			13	23.04	22.75	22.94	
		25	0	23.04	22.84	22.93	
	16QAM	1	0	23.09	23.05	22.94	
			12	23.53	23.27	23.18	
			24	23.14	23.03	22.89	
		12	0	21.96	21.74	22.11	2
			6	21.99	21.83	22.1	
			13	22.03	21.83	22.0	
		25	0	21.98	21.82	21.94	

WLAN 2.4 GHz:

Standard	Transmission mode	Data rate [Mbps]	Output power [dBm]		
			CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz
802.11g	OFDM	6	14.13	14.05	14.29

Bluetooth:

Standard	Output power [dBm]		
	CH 0 2402 MHz	CH 39 2441 MHz	CH 78 2480 MHz
BR/EDR	0.98	2.46	3.06

Standard	Output power [dBm]		
	CH 37 2402 MHz	CH 17 2440 MHz	CH 39 2480 MHz
LE	3.72	3.61	2.7

SRD:

SRD	Output Power [dBm]
918.219 MHz	4.69

4. TEST EQUIPMENT

Dasy52 near field scanning system, manufactured by SPEAG was used for SAR testing. The test system consists of high precision robotics system (Staubli), robot controller, computer, near-field probe, probe alignment sensor, and a phantom containing the tissue equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location of maximum electromagnetic field.

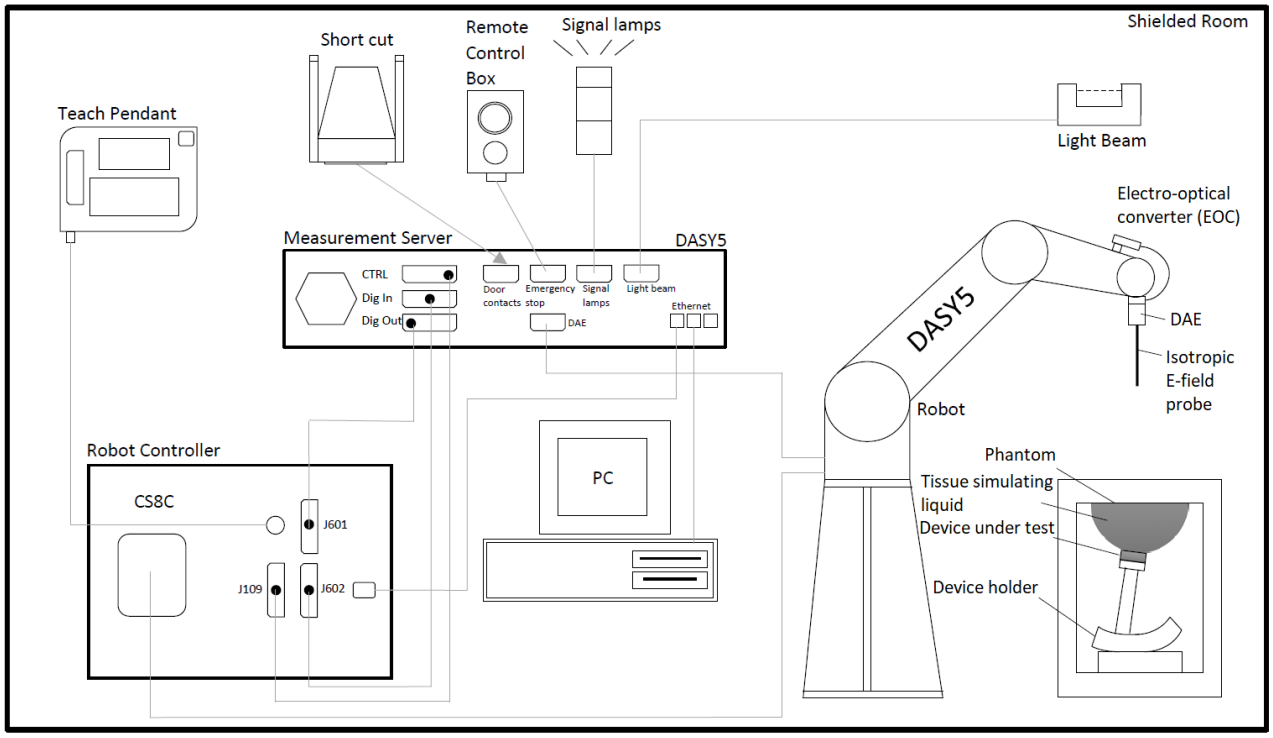


Figure 4 Schematic Laboratory Picture

4.1 Test Equipment List

Main used test system components are listed below. For full equipment list and calibration intervals, please contact the testing laboratory.

Used in testing during 12.6.2023 – 16.6.2023

Test Equipment	Model	Serial Number	Calibration Date	Interval [years]
DASY5 Software	52.8.8.1258	-	NA	NA
Amplifier, 800-4200MHz, 50W	5163F	1022	NA	NA
DAE4, converter	DAE4	710	10/2022	1
DAE4, converter	DAE4	1332	02/2023	1
Inline Peak Power Sensor	MA24105A	2102058	11/2022	1
Isotropic DOS probe	EX3DV4	7447	02/2023	1
Isotropic DOS probe	EX3DV4	3852	10/2022	1
Radio Communication Analyzer	MT8820C	6200951734	12/2022	1
Radio Communication Analyzer	MT8820C	6200930942	12/2022	1
Radio Communication Analyzer	MT8821C	6262170399	01/2023	1
System validation dipole	D750V3	1154	07/2022	3
System validation dipole	D835V2	455	07/2022	3
System validation dipole	D1800V2	249	07/2022	3
System validation dipole	D1900V2	511	03/2023	3
System validation dipole	D2450V2	729	07/2023	3
Vector Network Analyzer	P5008A	MY58100258	01/2023	1
Vector Signal Generator	MG3710E	6262028676	NA	1
Vector Signal Generator	SMP02	836402/004	NA	1

Used in testing during 20.11.2023 – 28.11.2023

Test Equipment	Model	Serial Number	Calibration Date	Interval [years]
DASY5 Software	52.8.8.1258	-	NA	NA
Amplifier, 800MHz-4200MHz, 10W	10S1G4A	320421	NA	NA
DAE4, converter	DAE4	1332	02/2023	1
Inline Peak Power Sensor	MA24105A	2102058	10/2023	1
Isotropic DOS probe	EX3DV4	7447	02/2023	1
Radio Communication Analyzer	MT8820C	6200951734	12/2022	1
Radio Communication Analyzer	MT8820C	6200930942	12/2022	1
Radio Communication Analyzer	MT8821C	6262170399	01/2023	1
System validation dipole	D2450V2	729	07/2023	3
System validation dipole	D750V3	1154	07/2022	3
System validation dipole	D835V2	455	07/2022	3
Vector Signal Generator	MG3710A	6201502519	NA	NA
Vector Network Analyzer	P5008A	MY58100258	01/2023	1
Power Sensor	NRP8S	1419.0006K02-108509-Zh	08/2023	2

Used in testing during 01.02.2024 – 14.02.2024

Test Equipment	Model	Serial Number	Calibration Date	Interval [years]
DASY5 Software	52.8.8.1258	-	NA	NA
Amplifier, 800-4200MHz, 50W	5163F	1022	NA	NA
DAE4, converter	DAE4	710	10/2023	1
Inline Peak Power Sensor	MA24105A	2102058	10/2023	1
Isotropic DOS probe	EX3DV4	7447	02/2023	1
Isotropic DOS probe	EX3DV4	3892	04/2023	1
Radio Communication Analyzer	MT8820C	6200883099	10/2023	1
Radio Communication Analyzer	MT8821C	6262170399	01/2024	1
System validation dipole	D750V3	1154	07/2022	3
System validation dipole	D835V2	455	07/2022	3
System validation dipole	D1800V2	249	07/2022	3
System validation dipole	D1900V2	511	03/2023	3
System validation dipole	D2450V2	729	07/2023	3
Vector Network Analyzer	E5071C	MY46102812	05/2023	1
Vector Signal Generator	MG3710A	6201502519	NA	1

Dipole calibration period supporting data:

		Measured on 09/2023			Calibrated		
Dipole and serial number	Frequency (MHz)	Return loss (dB)	Impedance [Ω]		Return loss [dB]	Impedance [Ω]	
D750V3-SN: 1154	750	-27	54.4	-1.5	-31.9	51.4	-2.1
D835V2-SN:455	835	-42.4	49.8	-0.7	-36.4	50.4	-1.5
D1800V2 - SN:249	1800	-28.3	48.5	-3.5	-33.4	51.8	-1.3

4.1.1 Isotropic E-field Probe Type EX3DV4

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix D
Frequency	10 MHz to >6 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g, Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 10 mm Body diameter: 12 mm
Application	General dosimetry up to 6 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

Eli Phantom:

The phantom used in SAR tests was an ELI phantom, manufactured by SPEAG. ELI phantom is used for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. The phantom conforms to the requirements of IEC/IEEE 62209-1528 and FCC published RF Exposure KDB Procedures.

4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEC/IEEE 62209-1528 and FCC published RF Exposure KDB Procedures. The dielectric parameters of the used tissue simulants were within ±10% of the recommended values at frequencies under 3GHz and ±5% at frequencies above 3GHz. A liquid compensation algorithm was used in DASY5 with which measured peak average SAR values were corrected for the deviation of used liquid. Depth of the tissue simulant was at least 15.0 cm from the inner surface of the flat phantom.

Tissue simulant liquid Ingredients
Deionized Water, tween, salt

4.4 System Validation Status

Frequency [MHz]	Dipole Type / SN	Probe Type / SN	Calibrated Signal Type	DAE Unit / SN	Dielectric Constant [ε']	Conductivity σ [S/m]	Date
750	D750V3 - SN: 635	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	45.44	0.86	03/2023
835	D835V2-SN:455	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	45.03	0.88	03/2023
1800	D1800V2-SN:249	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	43.51	1.35	02/2023
2450	D2450V2 - SN: 729	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	41.26	1.71	03/2023
1900	D1900V2-SN:511	EX3DV4 - SN: 3852	CW	DAE 4 / 710	40.05	1.39	11/2022
750	D750V3 - SN: 635	EX3DV4 - SN: 3892	CW	DAE 4 / 705	43.32	0.82	05/2023
835	D835V2-SN:448	EX3DV4 - SN: 3892	CW	DAE 4 / 705	42.86	0.86	05/2023

1800	D1800V2- SN:249	EX3DV4 - SN: 3892	CW	DAE 4 / 705	40.07	1.3	05/2023
1900	D1900V2-SN:511	EX3DV4 - SN: 3892	CW	DAE 4 / 705	40.65	1.36	05/2023

4.5 System Check

Date	Tissue Type	Tissue Temp. [°C]	Frequency [MHz]	Input Power [mW]	Measured SAR_{1g} [W/kg]	1 W Target SAR_{1g} [W/kg]	1 W Normalized SAR_{1g} [W/kg]	Deviation [%]	Plot #
12.06.2023	WB Head	22	750	250	2.04	8.54	8.16	-4.5	1
12.06.2023	WB Head	22	2450	250	11.8	52.3	47.2	-9.8	2
14.06.2023	WB Head	22	750	250	2.05	8.54	8.2	-4.0	3
15.06.2023	WB Head	22	835	250	2.5	9.69	10	3.2	4
06.07.2023	WB Head	22	1800	250	8.96	38.9	35.84	-7.9	5
06.07.2023	WB Head	22	1900	250	9.64	38.02	38.56	1.4	6
24.11.2023	WB Head	22	750	250	2.07	8.54	8.28	-3.0	7
27.11.2023	WB Head	22	835	250	2.46	9.69	9.84	1.55	8
27.11.2023	WB Head	22	2450	250	12	52.3	48	-8.22	9
01.02.2024	WB Head	22	2450	250	11.9	52.3	47.6	-8.99	10
06.02.2024	WB Head	22	1900	250	9.1	38.02	36.4	-4.3	11
07.02.2024	WB Head	22	1900	250	9.22	38.02	36.88	-3.0	12
07.02.2024	WB Head	22	1800	250	9.08	38.9	36.32	-6.6	13
08.02.2024	WB Head	22	1800	250	9.14	38.9	36.56	-6.0	14
12.02.2024	WB Head	22	835	250	2.34	9.69	9.36	-3.4	15
13.02.2024	WB Head	22	835	250	2.31	9.69	9.24	-4.6	16
14.02.2024	WB Head	22	750	250	1.99	8.54	7.96	-6.79	17

4.5.1 Tissue Simulant Verification

				Target		Measured		Deviation	
Date	**Tissue Type**	**Tissue Temp [°C]**	**Frequency [MHz]**	**Dielectric Constant [ε] Target**	**Conductivity σ [S/m] Target**	**Dielectric Constant [ε]**	**Conductivity σ [S/m]**	**ε [%]**	**σ [%]**
12.06.2023	WB Head	21.8	673.0	42.34	0.89	44.25	0.84	4.5	-5.5
12.06.2023	WB Head	21.8	680.5	42.31	0.89	44.19	0.84	4.5	-5.3
12.06.2023	WB Head	21.8	688.0	42.26	0.89	44.12	0.84	4.4	-5.0
12.06.2023	WB Head	21.8	704.0	42.18	0.89	44.01	0.85	4.3	-4.5
12.06.2023	WB Head	21.8	707.5	42.16	0.89	43.99	0.85	4.3	-4.4
12.06.2023	WB Head	21.8	711.0	42.14	0.89	43.96	0.85	4.3	-4.2
12.06.2023	WB Head	21.8	750.0	41.94	0.89	43.75	0.87	4.3	-3.1
12.06.2023	WB Head	21.8	826.4	41.59	0.91	43.32	0.89	4.2	-1.4
12.06.2023	WB Head	21.8	836.6	41.55	0.91	43.27	0.9	4.2	-1.4
12.06.2023	WB Head	21.8	846.6	41.51	0.92	43.23	0.9	4.1	-1.4
12.06.2023	WB Head	21.8	2412.0	39.27	1.77	39.47	1.69	0.5	-4.2
12.06.2023	WB Head	21.8	2437.0	39.22	1.79	39.43	1.71	0.5	-4.4
12.06.2023	WB Head	21.8	2450.0	39.2	1.8	39.41	1.72	0.5	-4.5
12.06.2023	WB Head	21.8	2462.0	39.18	1.81	39.39	1.73	0.5	-4.8
14.06.2023	WB Head	22	704.0	42.18	0.89	43.61	0.84	3.4	-5.1
14.06.2023	WB Head	22	750.0	41.94	0.89	43.34	0.86	3.3	-3.6
14.06.2023	WB Head	22	779.5	41.79	0.9	43.15	0.87	3.2	-2.8
14.06.2023	WB Head	22	782.0	41.78	0.9	43.13	0.87	3.2	-2.7
14.06.2023	WB Head	22	783.0	41.77	0.9	43.12	0.87	3.2	-2.7
14.06.2023	WB Head	22	784.5	41.76	0.9	43.12	0.87	3.2	-2.6
14.06.2023	WB Head	22	790.5	41.73	0.9	43.08	0.87	3.2	-2.4
14.06.2023	WB Head	22	793.0	41.72	0.9	43.07	0.88	3.2	-2.3
14.06.2023	WB Head	22	821.5	41.61	0.91	42.92	0.89	3.2	-2.1
14.06.2023	WB Head	22	831.5	41.57	0.91	42.87	0.89	3.1	-2.1
14.06.2023	WB Head	22	841.5	41.53	0.91	42.83	0.89	3.1	-2.1
15.06.2023	WB Head	22	835.0	41.55	0.91	42.55	0.93	2.4	2.1
15.06.2023	WB Head	22	918.219	41.48	0.98	42.15	0.96	1.6	-1.8
15.06.2023	WB Head	22	1720.0	40.13	1.35	39.85	1.32	-0.7	-2.3
15.06.2023	WB Head	22	1732.6	40.11	1.36	39.82	1.33	-0.7	-2.3
15.06.2023	WB Head	22	1745.0	40.09	1.37	39.79	1.34	-0.7	-2.3
15.06.2023	WB Head	22	1860.0	40.0	1.4	39.56	1.4	-1.1	-0.2
15.06.2023	WB Head	22	1880.0	40.0	1.4	39.53	1.41	-1.2	0.6
06.07.2023	WB Head	21.6	1712.4	40.13	1.35	37.2	1.23	-7.3	-8.7
06.07.2023	WB Head	21.6	1720.0	40.11	1.35	37.19	1.24	-7.3	-8.7
06.07.2023	WB Head	21.6	1732.6	40.1	1.36	37.17	1.25	-7.3	-8.6
06.07.2023	WB Head	21.6	1745.0	40.08	1.37	37.16	1.25	-7.3	-8.6
06.07.2023	WB Head	21.6	1752.6	40.07	1.37	37.14	1.26	-7.3	-8.6
06.07.2023	WB Head	21.6	1770.0	40.04	1.38	37.11	1.26	-7.3	-8.6
06.07.2023	WB Head	21.6	1800.0	40.0	1.4	37.05	1.28	-7.4	-8.6
06.07.2023	WB Head	21.6	1860.0	40.0	1.4	36.96	1.31	-7.6	-6.3
06.07.2023	WB Head	21.6	1882.5	40.0	1.4	36.91	1.32	-7.7	-5.4
06.07.2023	WB Head	22.4	1852.4	40.0	1.4	38.18	1.34	-4.6	-4.1
06.07.2023	WB Head	22.4	1880.0	40.0	1.4	38.1	1.36	-4.7	-3.1
06.07.2023	WB Head	22.4	1900.0	40.0	1.4	38.07	1.37	-4.8	-2.3
06.07.2023	WB Head	22.4	1907.6	40.0	1.4	38.05	1.37	-4.9	-2.0
24.11.2023	WB Head	22	673.0	42.31	0.88	45.05	0.8	6.5	-9.8

24.11.2023	WB Head	22	680.5	42.27	0.89	45.01	0.8	6.5	-9.6
24.11.2023	WB Head	22	707.5	42.13	0.89	44.93	0.81	6.7	-8.8
24.11.2023	WB Head	22	711.0	42.11	0.89	44.93	0.81	6.7	-8.6
24.11.2023	WB Head	22	750.0	41.9	0.89	44.86	0.82	7.1	-7.4
24.11.2023	WB Head	22	779.5	41.76	0.89	44.73	0.83	7.1	-6.8
24.11.2023	WB Head	22	784.5	41.74	0.89	44.71	0.83	7.1	-6.6
27.11.2023	WB Head	22	826.4	41.54	0.9	43.69	0.83	5.2	-8.2
27.11.2023	WB Head	22	831.5	41.52	0.9	43.68	0.83	5.2	-8.1
27.11.2023	WB Head	22	835.0	41.5	0.9	43.67	0.83	5.2	-8.0
27.11.2023	WB Head	22	841.5	41.5	0.91	43.66	0.83	5.2	-8.4
27.11.2023	WB Head	22	846.6	41.5	0.91	43.65	0.83	5.2	-8.9
27.11.2023	WB Head	22	2402.0	39.28	1.76	41.21	1.68	4.9	-4.6
27.11.2023	WB Head	22	2412.0	39.27	1.77	41.19	1.68	4.9	-4.6
27.11.2023	WB Head	22	2437.0	39.22	1.79	41.14	1.7	4.9	-4.8
27.11.2023	WB Head	22	2440.0	39.22	1.79	41.14	1.71	4.9	-4.8
27.11.2023	WB Head	22	2450.0	39.2	1.8	41.13	1.71	4.9	-4.8
27.11.2023	WB Head	22	2462.0	39.18	1.81	41.11	1.72	4.9	-4.9
27.11.2023	WB Head	22	2480.0	39.16	1.83	41.1	1.74	4.9	-5.1
01.02.2024	WB Head	22	2402	39.28	1.76	38.19	1.69	-2.8	-3.7
01.02.2024	WB Head	22	2412	39.27	1.77	38.18	1.7	-2.8	-3.7
01.02.2024	WB Head	22	2437	39.22	1.79	38.14	1.72	-2.8	-4.0
01.02.2024	WB Head	22	2440	39.22	1.79	38.14	1.72	-2.8	-4.1
01.02.2024	WB Head	22	2450	39.2	1.8	38.12	1.73	-2.7	-4.2
01.02.2024	WB Head	22	2462	39.18	1.81	38.09	1.73	-2.8	-4.4
01.02.2024	WB Head	22	2480	39.16	1.83	38.06	1.74	-2.8	-4.8
06.02.2024	WB Head	22	1852.4	40.0	1.4	38.41	1.35	-4.0	-3.3
06.02.2024	WB Head	22	1860	40.0	1.4	38.39	1.36	-4.0	-2.9
06.02.2024	WB Head	22	1880	40.0	1.4	38.36	1.37	-4.1	-2.2
06.02.2024	WB Head	22	1882.5	40.0	1.4	38.36	1.37	-4.1	-2.0
06.02.2024	WB Head	22	1900	40.0	1.4	38.34	1.38	-4.1	-1.4
06.02.2024	WB Head	22	1905	40.0	1.4	38.34	1.38	-4.2	-1.3
06.02.2024	WB Head	22	1907.6	40.0	1.4	38.33	1.38	-4.2	-1.2
07.02.2024	WB Head	22	1712.4	40.13	1.35	38.56	1.29	-3.9	-4.2
07.02.2024	WB Head	22	1732.6	40.1	1.36	38.51	1.3	-4.0	-4.4
07.02.2024	WB Head	22	1752.6	40.07	1.37	38.47	1.31	-4.0	-4.4
07.02.2024	WB Head	22	1800	40.0	1.4	38.42	1.34	-4.0	-4.6
07.02.2024	WB Head	22	1852.4	40.0	1.4	38.29	1.36	-4.3	-2.8
07.02.2024	WB Head	22	1880	40.0	1.4	38.28	1.38	-4.3	-1.7
07.02.2024	WB Head	22	1900	40.0	1.4	38.27	1.38	-4.3	-1.1
07.02.2024	WB Head	22	1907.6	40.0	1.4	38.24	1.39	-4.4	-0.9
08.02.2024	WB Head	22	1712.4	40.13	1.35	38.19	1.29	-4.8	-4.2
08.02.2024	WB Head	22	1720	40.11	1.35	38.17	1.3	-4.9	-4.2
08.02.2024	WB Head	22	1732.6	40.1	1.36	38.14	1.3	-4.9	-4.2
08.02.2024	WB Head	22	1745	40.08	1.37	38.12	1.31	-4.9	-4.3
08.02.2024	WB Head	22	1752.6	40.07	1.37	38.1	1.31	-4.9	-4.3
08.02.2024	WB Head	22	1770	40.04	1.38	38.07	1.32	-4.9	-4.3
08.02.2024	WB Head	22	1800	40.0	1.4	38.02	1.34	-5.0	-4.5
12.02.2024	WB Head	22	779.5	41.76	0.89	40.47	0.85	-3.1	-4.4
12.02.2024	WB Head	22	782	41.75	0.89	40.46	0.86	-3.1	-4.2
12.02.2024	WB Head	22	784.5	41.74	0.89	40.44	0.86	-3.1	-4.2
12.02.2024	WB Head	22	826.4	41.54	0.9	40.22	0.87	-3.2	-3.0
12.02.2024	WB Head	22	835	41.5	0.9	40.17	0.88	-3.2	-2.8

12.02.2024	WB Head	22	836.6	41.5	0.9	40.17	0.88	-3.2	-2.9
12.02.2024	WB Head	22	846.6	41.5	0.91	40.12	0.88	-3.3	-3.7
13.02.2024	WB Head	22	790.5	41.71	0.89	39.66	0.86	-4.9	-4.0
13.02.2024	WB Head	22	793	41.7	0.9	39.64	0.86	-4.9	-3.9
13.02.2024	WB Head	22	795.5	41.69	0.9	39.63	0.86	-4.9	-3.8
13.02.2024	WB Head	22	821.5	41.57	0.9	39.49	0.87	-5.0	-3.1
13.02.2024	WB Head	22	831.5	41.52	0.9	39.43	0.87	-5.0	-2.8
13.02.2024	WB Head	22	835	41.5	0.9	39.41	0.88	-5.0	-2.7
13.02.2024	WB Head	22	841.5	41.5	0.91	39.38	0.88	-5.1	-3.3
14.02.2024	WB Head	22	673	42.17	0.89	41.03	0.86	-2.7	-3.4
14.02.2024	WB Head	22	680.5	42.17	0.89	41.03	0.86	-2.7	-3.4
14.02.2024	WB Head	22	688	42.17	0.89	41.03	0.86	-2.7	-3.4
14.02.2024	WB Head	22	704	42.15	0.89	41.0	0.86	-2.7	-3.2
14.02.2024	WB Head	22	707.5	42.13	0.89	40.98	0.86	-2.7	-3.1
14.02.2024	WB Head	22	711	42.11	0.89	40.96	0.86	-2.7	-3.0
14.02.2024	WB Head	22	750	41.9	0.89	40.71	0.87	-2.8	-1.7

5. TEST PROCEDURE

Testing was carried out in accordance with FCC KDB Publications 447498 D04 Interim General RF Exposure Guidance v01, 248227 D01 802.11 Wi-Fi SAR and RSS-102, Issue 5.

Low, mid and high frequency channels for the configuration with the highest SAR value were tested as per ISED notice 2016-DRS001.

For the cellular technologies, the device was set to transmit using maximum power with a communication tester.

For SRD, the DUT was set to transmit at maximum power and duty cycle using test software.

A control software for WLAN and Bluetooth was used to set the DUT to transmit at maximum power. Since the Bluetooth LE has higher conducted output powers and duty cycle than Bluetooth BR/EDR, Bluetooth LE were selected to SAR measurements.

The WLAN transmission modes for testing were selected according to largest channel bandwidth configuration, lowest order modulation and lowest data rate.
WLAN 2.4GHz was tested with 802.11g standard with data rate of 6Mbit/s

SRD operates at two frequencies: 918.219 MHz and 918.675 MHz. Since the 918.219 MHz has higher output power, only 918.219 MHz has been measured and the results are overestimation for frequency of 918.675 MHz.

Maximum specified output powers of a high frequency cellular bands i.e. WCDMA 2, WCDMA 4, LTE B2, LTE B4, LTE B25 and LTE B66 has been reduced from 25 dBm (FW version TT5P.02.013.0000-20240205.082802-62863211) to 24 dBm (FW version TT5P.02.013.0000-20231218-112016-321d2947) including tune-up tolerance. The samples used for SAR testing exceeds the maximum specified power on bands WCDMA 2 and WCDMA 4 thus SAR results are overestimations.

5.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.

Device holder supplied by SPEAG

5.2 Test Positions

5.2.1 Belt-clip Body Configuration, 0mm separation distance / Without Belt-clip, 5mm separation distance

Body SAR was tested from side which has the belt clip attachment. The device was placed in the SPEAG holder/on the top of a Rohacell and lifted towards the phantom until the distance between the phantom and the device was 0mm.

Low frequency cellular bands WCDMA 5, LTE B12, B13, B14, B26, B71 & WLAN 2.4GHz & Bluetooth LE & SRD has been measured with 5mm separation distance without the belt-clip. Since the separation distance with the belt-clip is >5mm, SAR results with 5mm separation distance without the belt-clip are overestimation. The device was placed in the SPEAG holder and lifted towards the phantom until the distance between the phantom and the device was 5mm.

Photos of the test positions are presented in appendix A

5.2.2 Wristband Extremity Configuration 0mm separation distance

Extremity SAR was tested from back side of the device with wristband attached with 0mm separation distance.
Photos of the test positions are presented in appendix A

5.2.3 Wristband Next-to-Mouth Configuration 10mm separation distance

Next-to-Mouth SAR was tested from front side of the device, with wristband attached, with 10mm separation distance.
Photos of the test positions are presented in appendix A

5.3 Scan Procedures

First, area scans were used for determination of the field distribution. Next, a zoom scan was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

5.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within Dasy52 are all based on the modified Quadratic Shepard's method (Robert J. Renka," Multivariate Interpolation of Large Sets of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).
The interpolation scheme combines a least-square fitted function method with a weighted average method. A trivariate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighboring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

6. MEASUREMENT UNCERTAINTY

DASY5 Uncertainty Budget
According to IEC/IEEE 62209-1528
(Frequency band: 300MHz - 3GHz range)

Symbol	Error Description	Uncert. value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std. Unc. (1g)	Std. Unc. (10g)
Measurement System Errors								
CF	Probe Calibration	±12.0%	N	√2	1	1	±6.0%	±6.0%
CF_{drift}	Probe Calibration Drift	±1.7%	R	√3	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±3.0%	R	√3	1	1	±1.7%	±1.7%
ISO	Probe Isotropy	±7.6%	R	3	1	1	±4.4%	±4.4%
DAE	Data Acquisition	±0.3%	N	1	1	1	±0.3%	±0.3%
AMB	RF Ambient	±1.8%	N	1	1	1	±1.8%	±1.8%
Δ_{syz}	Probe Positioning	±3.9%	N	1	0.14	0.14	±0.5%	±0.5%
DAT	Data Processing	±1.2%	N	1	1	1	±1.2%	±1.2%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)[DAK]	±2.5%	N	√1	0.78	0.71	±2.0%	±1.8%
$LIQ(T_\sigma)$	Conductivity (temp.)[BB]	±3.3%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	3	0	0	±0%	±0%
DIS	Distance DUT - TSL	±2.0%	N	1	2	2	±4.0%	±4.0%
D_{xyz}	Device Positioning (±0.5mm)	±1.0%	N	1	1	1	±1.0%	±1.0%
H	Device Holder	±3.6%	N	√1	1	1	±3.6%	±3.6%
MOD	DUT Modulation[m]	±2.4%	R	√3	1	1	±1.4%	±1.4%
TAS	Time-average SAR	±2.6%	R	3	1	1	±1.5%	±1.5%
RF_{drift}	DUT drift	±2.5%	N	1	1	1	±2.5%	±2.5%
VAL	Val Antenna Unc.[val]	±0.0%	N	1	1	1	±0%	±0%
RF_{in}	Unc. Input Power[val]	±0.0%	N	1	1	1	±0%	±0%
Correction to the SAR results								
C(ε, σ)	Deviation to Target	±1.9%	N	√1	1	0.84	±1.9%	±1.6%
C(R)	SAR scaling[p]	±0%	R	3	1	1	±0%	±0%
u(ΔSAR)	Combined Uncertainty						±11.0%	±10.9%
U	**Expanded Uncertainty**						±22.1%	±21.9%

7. TEST RESULTS

7.1 SAR Results for Body Exposure Condition with belt-clip 0mm / 5mm separation without belt-clip

WCDMA:

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR1g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR1g [W/kg]	Plot #
WCDMA 2	9400	1880	RMC 12.2K	24	24.2**	Back w clip	1.15	-0.27*	1:1	1.02	1.17	
WCDMA 2	9400	1880	RMC 12.2K	24	24.2**	Back w clip Repeat	1.24	-0.08	1:1	1.00	1.24	18
WCDMA 2	9262	1852.4	RMC 12.2K	24	23.95	Back w clip	1.07	-0.14	1:1	1.01	1.08	
WCDMA 2	9262	1852.4	RMC 12.2K	24	23.95	Back w clip Repeat	1	0.36*	1:1	1.10	1.10	
WCDMA 2	9538	1907.6	RMC 12.2K	24	24.08**	Back w clip	0.999	-0.38*	1:1	1.07	1.07	
WCDMA 2	9538	1907.6	RMC 12.2K	24	24.08**	Back w clip Repeat	1.05	-0.25*	1:1	1.04	1.09	

*Larger than 5% drifts included to scaling factors
**The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR1g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR1g [W/kg]	Plot #
WCDMA 4	1413	1732.6	RMC 12.2K	24	24.37**	Back w clip	1.31	0.04	1:1	1.00	1.31	19
WCDMA 4	1413	1732.6	RMC 12.2K	24	24.37**	Back w clip Repeat	1.3	0.04	1:1	1.00	1.30	
WCDMA 4	1312	1712.4	RMC 12.2K	24	24.16**	Back w clip	1.17	-0.25*	1:1	1.02	1.19	
WCDMA 4	1312	1712.4	RMC 12.2K	24	24.16**	Back w clip Repeat	1.17	0.1	1:1	1.00	1.17	
WCDMA 4	1513	1752.6	RMC 12.2K	24	23.98**	Back w clip	1.23	0.16	1:1	1.00	1.24	
WCDMA 4	1513	1752.6	RMC 12.2K	24	23.98**	Back w clip Repeat	1.11	-0.16	1:1	1.00	1.12	

*Larger than 5% drifts included to scaling factors
**The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR1g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR1g [W/kg]	Plot #
WCDMA 5	4183	836.6	RMC 12.2K	25	24.43	Back 5mm	0.455	-0.07	1:1	1.14	0.52	
WCDMA 5	4132	826.4	RMC 12.2K	25	24.16	Back 5mm	0.427	-0.24*	1:1	1.28	0.55	
WCDMA 5	4233	846.6	RMC 12.2K	25	24.26	Back 5mm	0.541	0.06	1:1	1.19	0.64	20

*Larger than 5% drifts included to scaling factors

LTE:

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 12	23060	704	QPSK / 10	1	24	25	23.23	Back 5mm	0.0881	-0.29*	1:1	1.61	0.14	
LTE 12	23060	704	QPSK / 10	25	12	25	22.15	Back 5mm	0.0798	-0.19	1:1	1.93	0.15	
LTE 12	23095	707.5	QPSK / 10	1	24	25	23.15	Back 5mm	0.0858	-0.18	1:1	1.53	0.13	
LTE 12	23130	711	QPSK / 10	1	24	25	23.16	Back 5mm	0.1	0.05	1:1	1.53	0.15	21

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift* [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 13	23230	782	QPSK / 10	1	24	25	23.18	Back 5mm	0.188	-0.64*	1:1	1.76	0.33	
LTE 13	23230	782	QPSK / 10	25	12	25	22.2	Back 5mm	0.15	0.3*	1:1	2.04	0.31	
LTE 13	23205	779.5	QPSK / 5	1	12	25	23.38	Back 5mm	0.215	-0.24*	1:1	1.53	0.33	22
LTE 13	23255	784.5	QPSK / 5	1	12	25	23.49	Back 5mm	0.205	-0.12	1:1	1.42	0.29	

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift* [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 14	23330	793	QPSK / 10	1	24	25	23.44	Back 5mm	0.232	-0.18	1:1	1.43	0.33	
LTE 14	23330	793	QPSK / 10	25	0	25	22.52	Back 5mm	0.185	-0.22*	1:1	1.86	0.34	
LTE 14	23305	790.5	QPSK / 5	1	12	25	23.65	Back 5mm	0.228	-0.26*	1:1	1.45	0.33	
LTE 14	23355	795.5	QPSK / 5	1	12	25	23.23	Back 5mm	0.247	-0.23*	1:1	1.58	0.39	23

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 25	26140	1860	QPSK / 20	1	0	24	23.26	Back w clip	0.759	0.34*	1:1	1.28	0.97	
LTE 25	26140	1860	QPSK / 20	50	50	24	22.26	Back w clip	0.595	-0.11	1:1	1.49	0.89	
LTE 25	26140	1860	QPSK / 20	100	0	24	22.18	Back w clip	0.575	-0.14	1:1	1.52	0.87	
LTE 25	26365	1882.5	QPSK / 20	1	50	24	23.23	Back w clip	0.787	-0.23*	1:1	1.26	0.99	
LTE 25	26365	1882.5	QPSK / 20	50	0	24	22.21	Back w clip	0.587	-0.23*	1:1	1.59	0.93	
LTE 25	26365	1882.5	QPSK / 20	100	0	24	22.15	Back w clip	0.555	0.05	1:1	1.53	0.85	
LTE 25	26590	1905	QPSK / 20	1	50	24	23.24	Back w clip	0.789	0	1:1	1.19	0.94	
LTE 25	26590	1905	QPSK / 20	50	25	24	22.38	Back w clip	0.572	-0.29*	1:1	1.55	0.89	
LTE 25	26590	1905	QPSK / 20	100	0	24	22.3	Back w clip	0.676	0.17	1:1	1.48	1.00	24

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 26	26765	821.5	QPSK / 15	1	37	25	23.43	Back 5mm	0.329	-0.06	1:1	1.44	0.47	
LTE 26	26765	821.5	QPSK / 15	36	19	25	22.22	Back 5mm	0.242	0	1:1	1.90	0.46	
LTE 26	26865	831.5	QPSK / 15	1	37	25	23.38	Back 5mm	0.352	0.08	1:1	1.45	0.51	
LTE 26	26965	841.5	QPSK / 15	1	37	25	23.33	Back 5mm	0.378	0.09	1:1	1.47	0.56	25

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 66	132322	1745	QPSK / 20	1	50	24	23.56	Back w clip	0.795	-0.13	1:1	1.11	0.88	
LTE 66	132322	1745	QPSK / 20	50	0	24	22.55	Back w clip	0.652	-0.1	1:1	1.40	0.91	
LTE 66	132322	1745	QPSK / 20	100	0	24	22.32	Back w clip	0.673	0.13	1:1	1.47	0.99	
LTE 66	132072	1720	QPSK / 20	1	50	24	23.4	Back w clip	0.713	0.01	1:1	1.15	0.82	
LTE 66	132072	1720	QPSK / 20	50	25	24	22.33	Back w clip	0.732	-0.13	1:1	1.47	1.08	26
LTE 66	132072	1720	QPSK / 20	100	0	24	22.25	Back w clip	0.57	0.05	1:1	1.50	0.85	
LTE 66	132572	1770	QPSK / 20	1	0	24	23.32	Back w clip	0.833	0.05	1:1	1.17	0.97	
LTE 66	132572	1770	QPSK / 20	1	0	24	23.32	Back w clip Repeat	0.846	0.06	1:1	1.17	0.99	
LTE 66	132572	1770	QPSK / 20	50	0	24	22.23	Back w clip	0.642	0.03	1:1	1.50	0.97	

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 71	133372	688	QPSK / 20	1	50	25	24.16	Back 5mm	0.0932	0.18	1:1	1.21	0.11	
LTE 71	133372	688	QPSK / 20	50	50	25	23	Back 5mm	0.0791	-0.73*	1:1	1.87	0.15	27
LTE 71	133222	673	QPSK / 20	1	50	25	23.75	Back 5mm	0.0415	0.22*	1:1	1.40	0.06	
LTE 71	133297	680.5	QPSK / 20	1	50	25	23.98	Back 5mm	0.0519	0.47*	1:1	1.41	0.07	

*Larger than 5% drifts included to scaling factors

2.4GHz WLAN:

Standard	Data Rate [Mbps]	Frequency [MHz]	Channel	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR_{1g} [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR_{1g} [W/kg]	Plot #
802.11g	6	2462	11	16	14.29	Back 5mm	0.013	-0.37*	1.61	1:1	0.02	28
802.11g	6	2412	1	16	14.13	Back 5mm	0.012	-0.40*	1.69	1:1	0.02	
802.11g	6	2437	6	16	14.05	Back 5mm	0.011	0.12	1.57	1:1	0.02	

*Larger than 5% drifts included to scaling factors

Bluetooth LE:

Mode	Frequency [MHz]	Channel	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR_{1g} [W/kg]	Power Drift** [dB]	Scaling Factor	Duty Cycle	Reported SAR_{1g} [W/kg]	Plot #
BLE	2402	37	Back 5mm	6	3.72	0***	NA	1.69	1:1	NA***	
BLE	2440	17	Back 5mm	6	3.61	0***	NA	1.73	1:1	NA***	
BLE	2480	39	Back 5mm	6	2.7	0****	NA	2.14	1:1	NA***	

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.
***Due to low e-field generated by DUT, the measurements are not applicable
****Measured result of the area scan was below the dynamic range of the E-field Probe Type EX3DV4 thus zoom scan could not be measured. Area scan result was presented.

SRD:

Band	Frequency [MHz]	Modulation	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR_{1g} [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR_{1g} [W/kg]	Plot #
SRD	918.219	GFSK	5	4.69	Back 5mm	0.00005	NA**	1.07	1:1	0.00006	29

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.

7.2 SAR Results for Extremity Exposure Condition with wristband 0mm separation

WCDMA:

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR10g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR10g [W/kg]	Plot #
WCDMA 2	9400	1880	RMC 12.2K	24	24.2**	Back w wristband	1.2	-0.16	1:1	1.00	1.20	
WCDMA 2	9262	1852.4	RMC 12.2K	24	23.95	Back w wristband	1.24	0.17	1:1	1.01	1.25	30
WCDMA 2	9538	1907.6	RMC 12.2K	24	24.08**	Back w wristband	0.967	-0.14	1:1	1.00	0.97	

**The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR10g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR10g [W/kg]	Plot #
WCDMA 4	1413	1732.6	RMC 12.2K	24	24.37**	Back w wristband	1.14	0.1	1:1	1.00	1.14	
WCDMA 4	1312	1712.4	RMC 12.2K	24	24.16**	Back w wristband	1.22	-0.02	1:1	1.00	1.22	31
WCDMA 4	1513	1752.6	RMC 12.2K	24	23.98	Back w wristband	1.02	-0.01	1:1	1.00	1.02	

**The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR10g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR10g [W/kg]	Plot #
WCDMA 5	4183	836.6	RMC 12.2K	25	24.43	Back w wristband	0.533	-0.22*	1:1	1.20	0.64	
WCDMA 5	4132	826.4	RMC 12.2K	25	24.16	Back w wristband	0.44	0.2	1:1	1.21	0.53	
WCDMA 5	4233	846.6	RMC 12.2K	25	24.26	Back w wristband	0.54	-0.01	1:1	1.19	0.64	32

*Larger than 5% drifts included to scaling factors

LTE:

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 12	23060	704	QPSK / 10	1	24	25	23.23	Back w wristband	0.09	-0.33*	1:1	1.62	0.15	
LTE 12	23060	704	QPSK / 10	25	12	25	22.15	Back w wristband	0.073	0.27*	1:1	2.05	0.15	
LTE 12	23095	707.5	QPSK / 10	1	24	25	23.15	Back w wristband	0.095	-0.05	1:1	1.53	0.15	
LTE 12	23130	711	QPSK / 10	1	24	25	23.16	Back w wristband	0.095	0.18	1:1	1.53	0.15	33

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift* [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 13	23230	782	QPSK / 10	1	24	25	23.18	Back w wristband	0.25	-0.06	1:1	1.52	0.38	34
LTE 13	23230	782	QPSK / 10	25	12	25	22.2	Back w wristband	0.198	-0.01	1:1	1.91	0.38	
LTE 13	23205	779.5	QPSK / 5	1	12	25	23.38	Back w wristband	0.256	-0.09	1:1	1.45	0.37	
LTE 13	23255	784.5	QPSK / 5	1	12	25	23.49	Back w wristband	0.227	0.02	1:1	1.42	0.32	

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift* [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 14	23330	793	QPSK / 10	1	24	25	23.44	Back w wristband	0.255	-0.05	1:1	1.43	0.37	
LTE 14	23330	793	QPSK / 10	25	0	25	22.52	Back w wristband	0.202	-0.02	1:1	1.77	0.36	
LTE 14	23305	790.5	QPSK / 5	1	12	25	23.65	Back w wristband	0.247	0.28*	1:1	1.46	0.36	
LTE 14	23355	795.5	QPSK / 5	1	12	25	23.23	Back w wristband	0.257	0.41*	1:1	1.65	0.42	35

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 25	26140	1860	QPSK / 20	1	0	24	23.26	Back w wristband	1.09	0.12	1:1	1.19	1.29	36
LTE 25	26140	1860	QPSK / 20	50	50	24	22.26	Back w wristband	0.624	0.08	1:1	1.49	0.93	
LTE 25	26365	1882.5	QPSK / 20	1	50	24	23.23	Back w wristband	0.794	-0.18	1:1	1.19	0.95	
LTE 25	26590	1905	QPSK / 20	1	50	24	23.24	Back w wristband	0.963	0.06	1:1	1.19	1.15	

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 26	26765	821.5	QPSK / 15	1	37	25	23.43	Back w wristband	0.341	0.02	1:1	1.44	0.49	
LTE 26	26765	821.5	QPSK / 15	36	19	25	22.22	Back w wristband	0.265	-0.03	1:1	1.90	0.50	
LTE 26	26865	831.5	QPSK / 15	1	37	25	23.38	Back w wristband	0.417	-0.05	1:1	1.45	0.61	
LTE 26	26965	841.5	QPSK / 15	1	37	25	23.33	Back w wristband	0.388	-0.4	1:1	1.61	0.62	37

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 66	132322	1745	QPSK / 20	1	50	24	23.56	Back w wristband	0.962	0.25*	1:1	1.17	1.13	38
LTE 66	132322	1745	QPSK / 20	50	0	24	22.55	Back w wristband	0.725	0.07	1:1	1.40	1.01	
LTE 66	132072	1720	QPSK / 20	1	50	24	23.4	Back w wristband	0.978	0.11	1:1	1.15	1.12	
LTE 66	132572	1770	QPSK / 20	1	0	24	23.32	Back w wristband	0.854	0.05	1:1	1.17	1.00	

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{10g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{10g} [W/kg]	Plot #
LTE 71	133372	688	QPSK / 20	1	50	25	24.16	Back w wristband	0.0713	-0.06	1:1	1.21	0.09	39
LTE 71	133372	688	QPSK / 20	50	50	25	23	Back w wristband	0.0591	0.1	1:1	1.58	0.09	
LTE 71	133222	673	QPSK / 20	1	50	25	23.75	Back w wristband	0.0567	-0.19	1:1	1.33	0.08	
LTE 71	133297	680.5	QPSK / 20	1	50	25	23.98	Back w wristband	0.069	0.23*	1:1	1.26	0.09	

*Larger than 5% drifts included to scaling factors

2.4GHz WLAN:

Standard	Data Rate [Mbps]	Frequency [MHz]	Channel	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR_{10g} [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR_{10g} [W/kg]	Plot #
802.11g	6	2462	11	16	14.29	Back w wristband	0.00942	-0.86*	1.81	1:1	0.017	40
802.11g	6	2412	1	16	14.13	Back w wristband	0.004	NA**	1.54	1:1	0.006	
802.11g	6	2437	6	16	14.05	Back w wristband	0.002	NA**	1.57	1:1	0.003	

*Larger than 5% drifts included to scaling factors
**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.

Bluetooth LE:

Mode	Frequency [MHz]	Channel	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR_{10g} [W/kg]	Power Drift** [dB]	Scaling Factor	Duty Cycle	Reported SAR_{10g} [W/kg]	Plot #
BLE	2402	37	Back w wristband	6	3.72	0.00001	NA**	1.69	1:1	0.00002	41
BLE	2440	17	Back w wristband	6	3.61	0***	NA**	1.73	1:1	NA***	
BLE	2480	39	Back w wristband	6	2.7	0***	NA**	2.14	1:1	NA***	

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.
***Due to low e-field generated by DUT, the measurements are not applicable

SRD:

Band	Frequency [MHz]	Modulation	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR_{10g} [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR_{10g} [W/kg]	Plot #
SRD	918.219	GFSK	5	4.69	Back w wristband	0.00000034	NA**	1.07	1:1	0.00000037	42

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.

7.3 SAR Results for Next-to-mouth Condition with wristband 10mm separation

WCDMA:

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR1g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR1g [W/kg]	Plot #
WCDMA 2	9400	1880	RMC 12.2K	24	24.2**	Next-to-mouth w wristband	1.1	0.19	1:1	1.00	1.10	
WCDMA 2	9262	1852.4	RMC 12.2K	24	23.95	Next-to-mouth w wristband	1.28	-0.19	1:1	1.01	1.29	
WCDMA 2	9538	1907.6	RMC 12.2K	24	24.08**	Next-to-mouth w wristband	1.3	-0.03	1:1	1.00	1.30	43
WCDMA 2	9538	1907.6	RMC 12.2K	24	24.08**	Next-to-mouth w wristband Repeat	1.16	-0.12	1:1	1.00	1.16	

**The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR1g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR1g [W/kg]	Plot #
WCDMA 4	1413	1732.6	RMC 12.2K	24	24.37**	Next-to-mouth w wristband	1.27	-0.06	1:1	1.00	1.27	
WCDMA 4	1312	1712.4	RMC 12.2K	24	24.16**	Next-to-mouth w wristband	1.33	0.24*	1:1	1.02	1.35	44
WCDMA 4	1513	1752.6	RMC 12.2K	24	23.98**	Next-to-mouth w wristband	1.08	-0.1	1:1	1.00	1.08	
WCDMA 4	1312	1712.4	RMC 12.2K	24	24.16**	Next-to-mouth w wristband Repeat	1.18	-0.04	1:1	1.00	1.18	

*Larger than 5% drifts included to scaling factors
**The samples used for SAR testing exceeds the maximum specified power, thus SAR results are overestimations.

Band	Channel	Frequency [MHz]	Mode	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR1g [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR1g [W/kg]	Plot #
WCDMA 5	4183	836.6	RMC 12.2K	25	24.43	Next-to-mouth w wristband	0.314	0.02	1:1	1.14	0.36	
WCDMA 5	4132	826.4	RMC 12.2K	25	24.16	Next-to-mouth w wristband	0.261	-0.21	1:1	1.21	0.32	
WCDMA 5	4233	846.6	RMC 12.2K	25	24.26	Next-to-mouth w wristband	0.352	-0.05	1:1	1.19	0.42	45

*Larger than 5% drifts included to scaling factors

LTE:

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 12	23060	704	QPSK / 10	1	24	25	23.23	Next-to-mouth w wristband	0.045	-0.32*	1:1	1.62	0.07	
LTE 12	23060	704	QPSK / 10	25	12	25	22.15	Next-to-mouth w wristband	0.037	-0.06	1:1	1.93	0.07	
LTE 12	23095	707.5	QPSK / 10	1	24	25	23.15	Next-to-mouth w wristband	0.046	-0.35*	1:1	1.66	0.08	
LTE 12	23130	711	QPSK / 10	1	24	25	23.16	Next-to-mouth w wristband	0.052	-0.08	1:1	1.53	0.08	46

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift* [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 13	23230	782	QPSK / 10	1	24	25	23.18	Next-to-mouth w wristband	0.119	-0.32*	1:1	1.64	0.19	
LTE 13	23230	782	QPSK / 10	25	12	25	22.2	Next-to-mouth w wristband	0.0962	-0.33*	1:1	2.06	0.20	
LTE 13	23205	779.5	QPSK / 5	1	12	25	23.38	Next-to-mouth w wristband	0.133	-0.16	1:1	1.45	0.19	
LTE 13	23255	784.5	QPSK / 5	1	12	25	23.49	Next-to-mouth w wristband	0.145	0.27*	1:1	1.51	0.22	47

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift* [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 14	23330	793	QPSK / 10	1	24	25	23.44	Next-to-mouth w wristband	0.146	-0.06	1:1	1.43	0.21	
LTE 14	23330	793	QPSK / 10	25	0	25	22.52	Next-to-mouth w wristband	0.114	-0.1	1:1	1.77	0.20	
LTE 14	23305	790.5	QPSK / 5	1	12	25	23.65	Next-to-mouth w wristband	0.136	-0.44*	1:1	1.51	0.21	
LTE 14	23355	795.5	QPSK / 5	1	12	25	23.23	Next-to-mouth w wristband	0.153	-0.1	1:1	1.50	0.23	48

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 25	26140	1860	QPSK / 20	1	0	24	23.26	Next-to-mouth w wristband	0.813	0.3*	1:1	1.27	1.03	
LTE 25	26140	1860	QPSK / 20	50	50	24	22.26	Next-to-mouth w wristband	0.785	0.35*	1:1	1.62	1.27	
LTE 25	26140	1860	QPSK / 20	100	0	24	22.18	Next-to-mouth w wristband	0.852	0.04	1:1	1.52	1.30	
LTE 25	26365	1882.5	QPSK / 20	1	50	24	23.23	Next-to-mouth w wristband	1.08	0.28*	1:1	1.27	1.38	49
LTE 25	26365	1882.5	QPSK / 20	50	0	24	22.21	Next-to-mouth w wristband	0.832	0.05	1:1	1.51	1.26	
LTE 25	26365	1882.5	QPSK / 20	100	0	24	22.15	Next-to-mouth w wristband	0.864	0.12	1:1	1.53	1.32	
LTE 25	26590	1905	QPSK / 20	1	50	24	23.24	Next-to-mouth w wristband	1.02	0.39*	1:1	1.30	1.33	
LTE 25	26590	1905	QPSK / 20	50	25	24	22.38	Next-to-mouth w wristband	0.715	0.21	1:1	1.45	1.04	
LTE 25	26590	1905	QPSK / 20	100	0	24	22.3	Next-to-mouth w wristband	0.706	0.05	1:1	1.48	1.04	
LTE 25	26365	1882.5	QPSK / 20	1	50	24	23.23	Next-to-mouth w wristband Repeat	0.99	-0.19	1:1	1.19	1.18	

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	1:1	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 26	26765	821.5	QPSK / 15	1	37	25	23.43	Next-to-mouth w wristband	0.229	-0.05	1:1	1.44	0.33	
LTE 26	26765	821.5	QPSK / 15	36	19	25	22.22	Next-to-mouth w wristband	0.171	-0.16	1:1	1.90	0.32	
LTE 26	26865	831.5	QPSK / 15	1	37	25	23.38	Next-to-mouth w wristband	0.246	0.14	1:1	1.45	0.36	
LTE 26	26965	841.5	QPSK / 15	1	37	25	23.33	Next-to-mouth w wristband	0.273	0.35*	1:1	1.59	0.43	50

*Larger than 5% drifts included to scaling factors

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 66	132322	1745	QPSK / 20	1	50	24	23.56	Next-to-mouth w wristband	0.864	0.13	1:1	1.11	0.96	
LTE 66	132322	1745	QPSK / 20	50	0	24	22.55	Next-to-mouth w wristband	0.704	-0.05	1:1	1.40	0.98	
LTE 66	132322	1745	QPSK / 20	100	0	24	22.32	Next-to-mouth w wristband	0.697	0.18	1:1	1.47	1.03	
LTE 66	132072	1720	QPSK / 20	1	50	24	23.4	Next-to-mouth w wristband	0.923	0.07	1:1	1.15	1.06	
LTE 66	132072	1720	QPSK / 20	50	25	24	22.33	Next-to-mouth w wristband	0.788	0.06	1:1	1.47	1.16	
LTE 66	132072	1720	QPSK / 20	100	0	24	22.25	Next-to-mouth w wristband	0.789	-0.03	1:1	1.50	1.18	51
LTE 66	132572	1770	QPSK / 20	1	0	24	23.32	Next-to-mouth w wristband	0.789	0.14	1:1	1.17	0.92	
LTE 66	132572	1770	QPSK / 20	50	0	24	22.23	Next-to-mouth w wristband	0.616	0.01	1:1	1.50	0.93	
LTE 66	132572	1770	QPSK / 20	100	0	24	22.17	Next-to-mouth w wristband	0.631	0.18	1:1	1.52	0.96	
LTE 66	132072	1720	QPSK / 20	1	50	24	23.4	Next-to-mouth w wristband Repeat	1.01	0.09	1:1	1.15	1.16	

Band	Channel	Frequency [MHz]	Modulation / BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Measure SAR_{1g} [W/kg]	Power Drift [dB]	Duty Cycle	Scaling Factor	Reported SAR_{1g} [W/kg]	Plot #
LTE 71	133372	688	QPSK / 20	1	50	25	24.16	Next-to-mouth w wristband	0.03	-0.09	1:1	1.21	0.04	
LTE 71	133372	688	QPSK / 20	50	50	25	23	Next-to-mouth w wristband	0.025	-0.08	1:1	1.58	0.04	
LTE 71	133222	673	QPSK / 20	1	50	25	23.75	Next-to-mouth w wristband	0.023	-0.18	1:1	1.33	0.03	
LTE 71	133297	680.5	QPSK / 20	1	50	25	23.98	Next-to-mouth w wristband	0.028	-0.04	1:1	1.26	0.04	52

2.4GHz WLAN:

Standard	Data Rate [Mbps]	Frequency [MHz]	Channel	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR_{1g} [W/kg]	Power Drift** [dB]	Scaling Factor	Duty Cycle	Reported SAR_{1g} [W/kg]	Plot #
802.11g	6	2462	11	16	14.29	Next-to-mouth w wristband	0.0044	NA	1.48	1:1	0.007	53
802.11g	6	2412	1	16	14.13	Next-to-mouth w wristband	0.004	NA	1.54	1:1	0.005	
802.11g	6	2437	6	16	14.05	Next-to-mouth w wristband	0.00048	NA	1.57	1:1	0.001	

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.

Bluetooth LE:

Mode	Frequency [MHz]	Channel	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR_{1g} [W/kg]	Power Drift** [dB]	Scaling Factor	Duty Cycle	Reported SAR_{1g} [W/kg]	Plot #
BLE	2402	37	Next-to-mouth w wristband	6	3.72	0***	NA	1.69	1:1	NA***	
BLE	2440	17	Next-to-mouth w wristband	6	3.61	0.00012	NA	1.73	1:1	0.0002	54
BLE	2480	39	Next-to-mouth w wristband	6	2.7	0.00010	NA	2.14	1:1	0.0002	

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.
***Due to low e-field generated by DUT, the measurements are not applicable

SRD:

Band	Frequency [MHz]	Modulation	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Measured SAR_{1g} [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR_{1g} [W/kg]	Plot #
SRD	918.219	GFSK	5	4.69	Next-to-mouth w wristband	0.000024	NA**	1.07	1:1	0.000026	55

**Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable.

7.4 Simultaneous Transmission Analysis

Simultaneous transmission analysis for the maximum Cellular SAR, maximum WLAN/Bluetooth SAR and SRD SAR is in the table below. Direct summation of SAR results was performed.

Body, Extremity and Next-to-mouth Exposure Conditions:

	Exposure Condition	Body SAR_{1g} [W/kg]	Next-to-mouth SAR_{1g} [W/kg]
	Test Position	**Back**	**Front**
	WCDMA 2	1.24	1.3
	WCDMA 4	1.31	1.35
	WCDMA 5	0.64	0.42
	LTE 12	0.15	0.08
	LTE 13	0.33	0.22
	LTE 14	0.39	0.23
	LTE 25	1.00	1.38
	LTE 26	0.56	0.43
	LTE 66	1.08	1.18
	LTE 71	0.15	0.04
Maximum Cellular SAR		**1.31**	**1.38**
	2.4GHz WLAN	0.02	0.007
	Bluetooth LE	0	0.0002
Maximum WLAN / Bluetooth SAR		**0.02**	**0.007**
SRD		**0.00006**	**0.00003**
SAR Summation:		**1.33**	**1.39**

	Exposure Condition	Extremity SAR_{10g} [W/kg]
	Test Position	**Back**
	WCDMA 2	1.25
	WCDMA 4	1.22
	WCDMA 5	0.64
	LTE 12	0.15
	LTE 13	0.38
	LTE 14	0.42
	LTE 25	1.29
	LTE 26	0.62
	LTE 66	1.13
	LTE 71	0.09
Maximum Cellular SAR		**1.29**
	2.4GHz WLAN	0.017
	Bluetooth LE	0.00002
Maximum WLAN / Bluetooth SAR		**0.017**
SRD		**0**
SAR Summation:		**1.31**

7.5 IEC 62209-2 AMD1:2019

According to IEC 62209-2 AMD1:2019, the zoom scan complies if the peak spatial-average SAR is below 0.1 W/kg, or if the following criteria is met:

1. The smallest horizontal distance from the local SAR peaks to all points 3 dB below the SAR peak is larger than the horizontal grid step.

2. Ratio of SAR at the second measured point (M2) to the SAR at the closest measured point (M1) at the x-y location of the measured maximum is at least 30%.

Zoom scan compliance according to IEC 62209-2 AMD1:2019 is automatically verified by DASY5 software and all zoom scans in this test report do pass the criteria. The smallest horizontal distance and Ratio between measurement points M2 and M1 of the highest SAR results is available in Appendix C.

APPENDIX A: PHOTOS OF THE DUT

Size of the DUT is: 60 x 45 x 20 mm

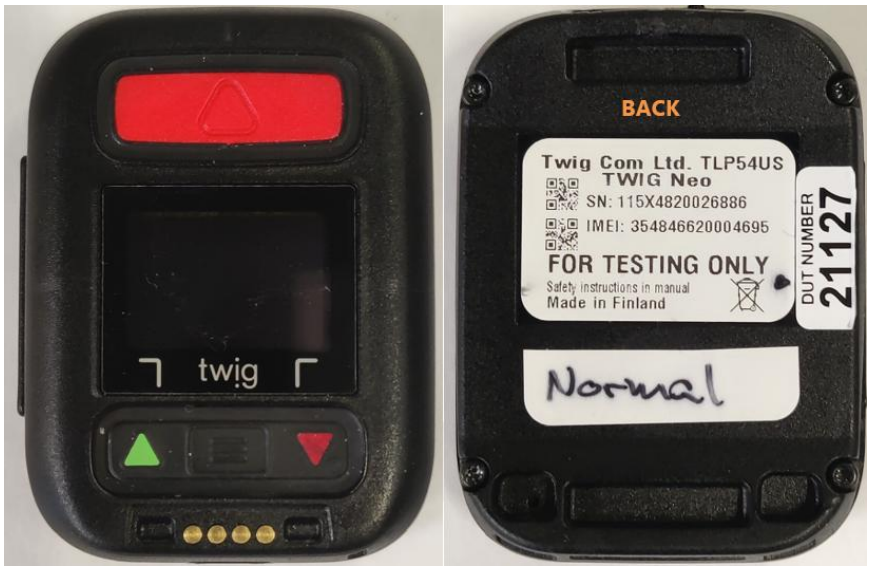


Figure 5 Overview of the DUT

Figure 6 The DUT with belt-clip

Figure 7 The Dut with wristband

Figure 8 Back side with belt-clip against the phantom, 0mm separation distance

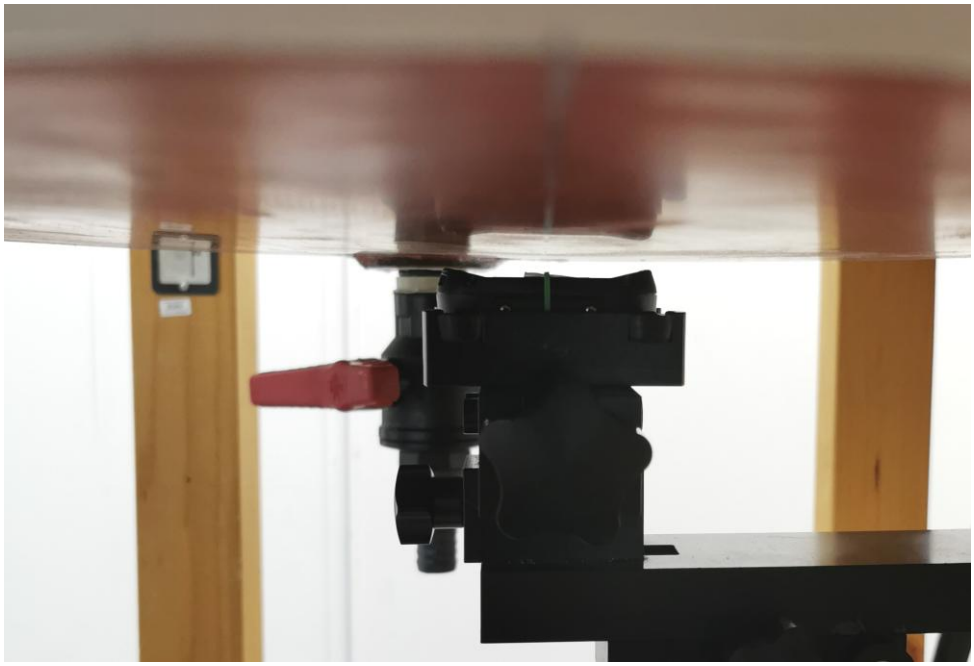


Figure 9 Back side of the DUT against the phantom, 5mm separation distance

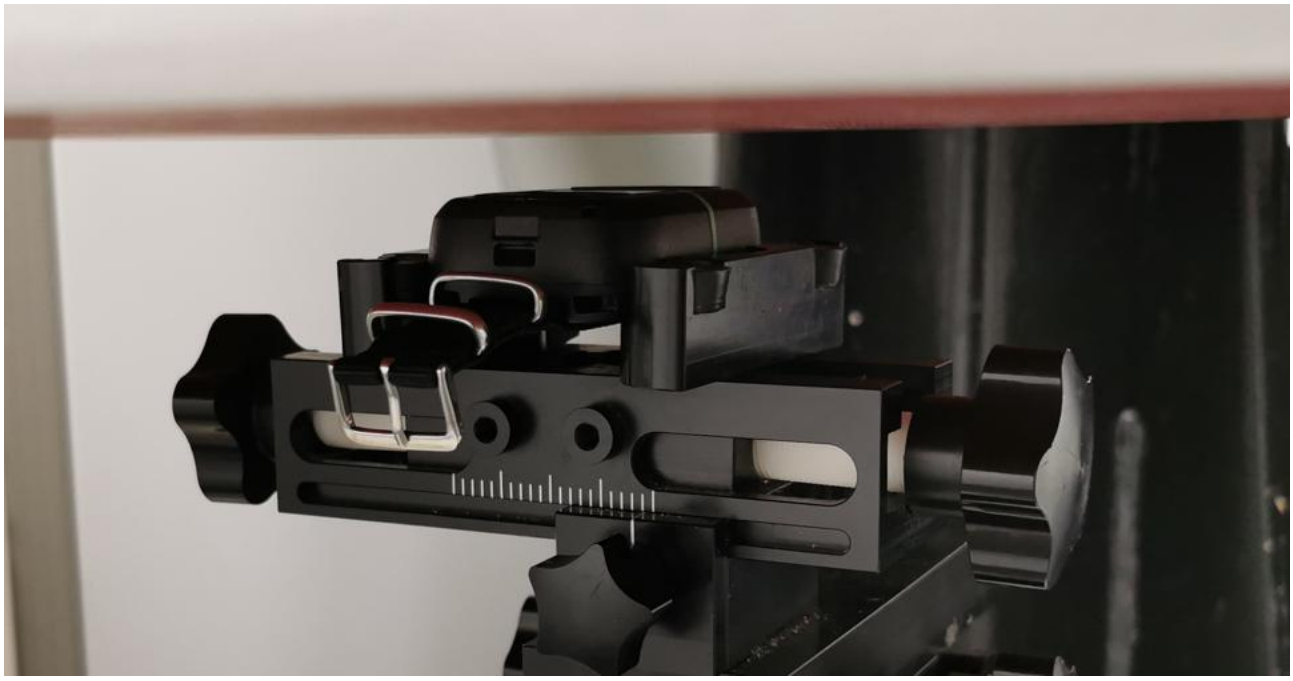


Figure 10 Front side of the DUT with wristband against the phantom, 10mm separation distance, next-to-mouth position.

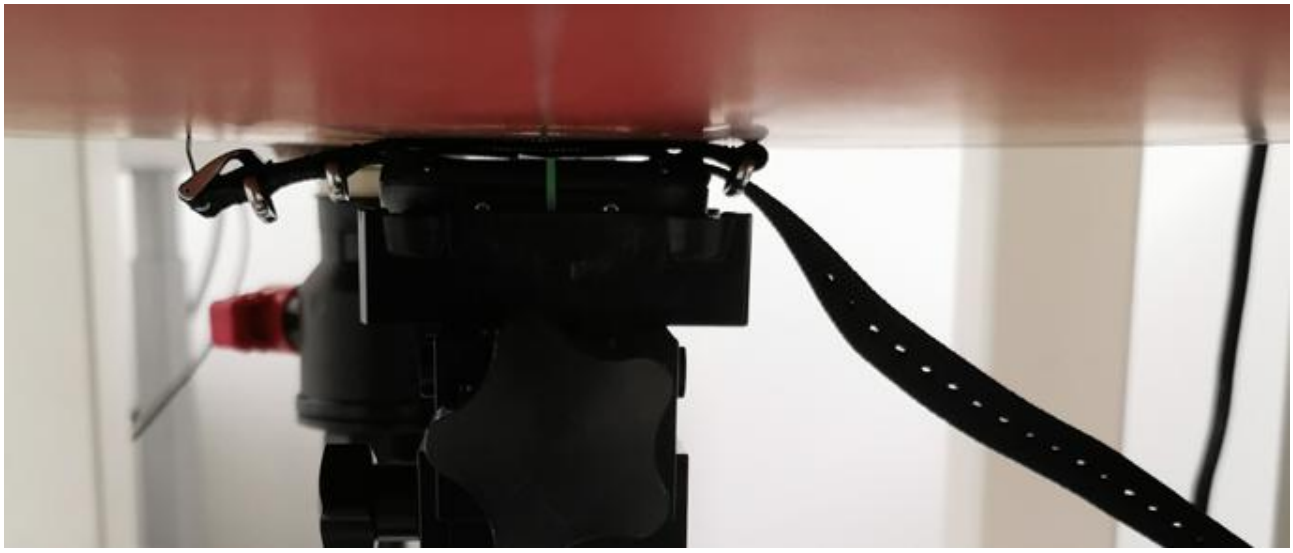


Figure 11 Back side of the DUT with wristband against the phantom, 0mm separation distance.

APPENDIX B: SYSTEM CHECK SCAN

Plot 1

Date/Time: 12.6.2023 13.18.59

Test Laboratory: Verkotan Oy

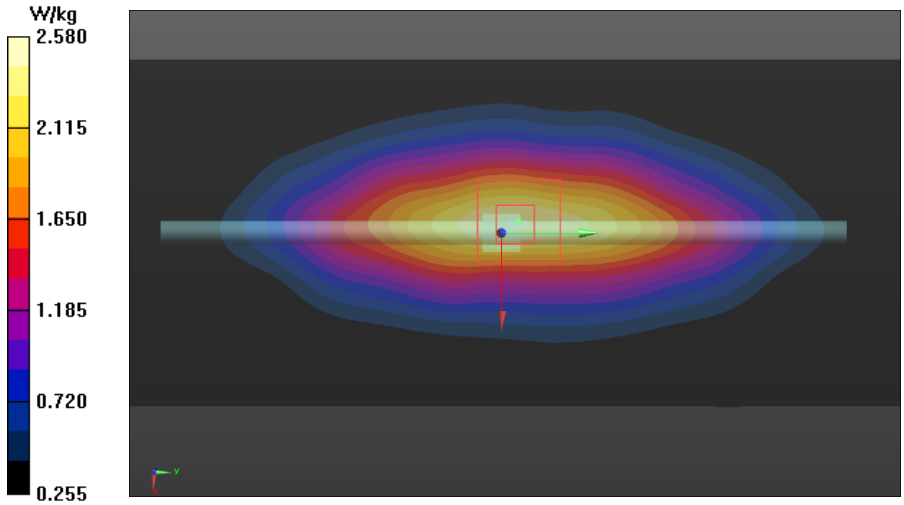
DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1154

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 750 MHz; σ = 0.866 S/m; ε_r = 43.748; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 750 MHz; Calibrated: 17.2.2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19.10.2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 750MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.44 W/kg
Configuration/System Check 750MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.31 V/m; Power Drift = -0.01 dB Peak SAR (extrapolated) = 2.92 W/kg
SAR(1 g) = 2.04 W/kg; SAR(10 g) = 1.34 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17 mm
Ratio of SAR at M2 to SAR at M1 = 68%
Maximum value of SAR (measured) = 2.58 W/kg



Plot 2

Date/Time: 12.6.2023 12.56.54

Test Laboratory: Verkotan Oy

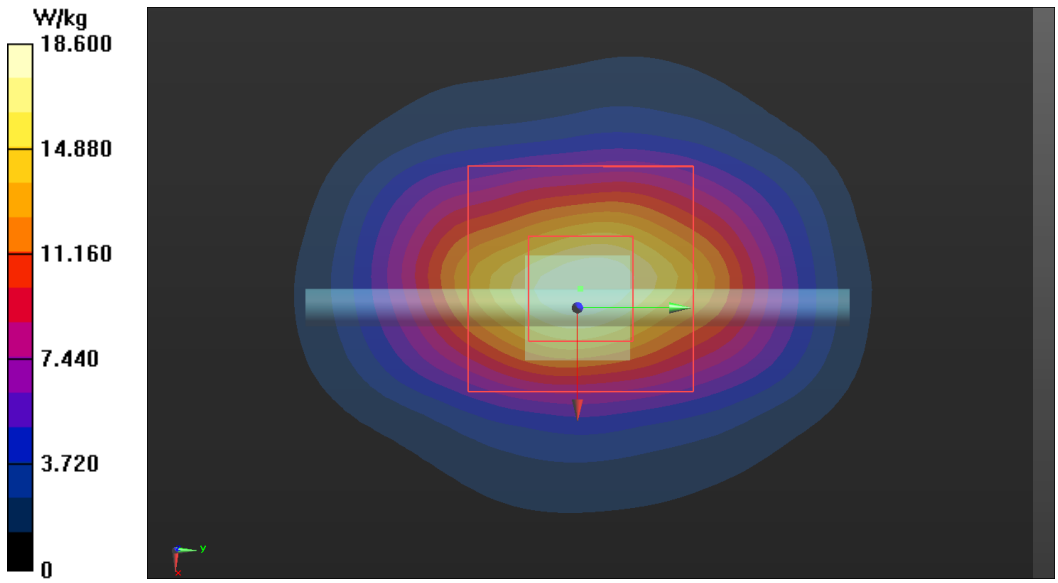
DUT: D2450V2 - SN729; Type: D2450V2; Serial: SN729

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.718 S/m; ε_r = 39.412; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2450 MHz; Calibrated: 17.2.2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 19.10.2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.4 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 22.1 W/kg
SAR(1 g) = 11.8 W/kg; SAR(10 g) = 5.64 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7 mm
Ratio of SAR at M2 to SAR at M1 = 52.6% Maximum value of SAR (measured) = 18.4 W/kg
Configuration/System Check 2450MHz/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 18.6 W/kg



Plot 3

Date/Time: 14.6.2023 9.07.35

Test Laboratory: Verkotan Oy

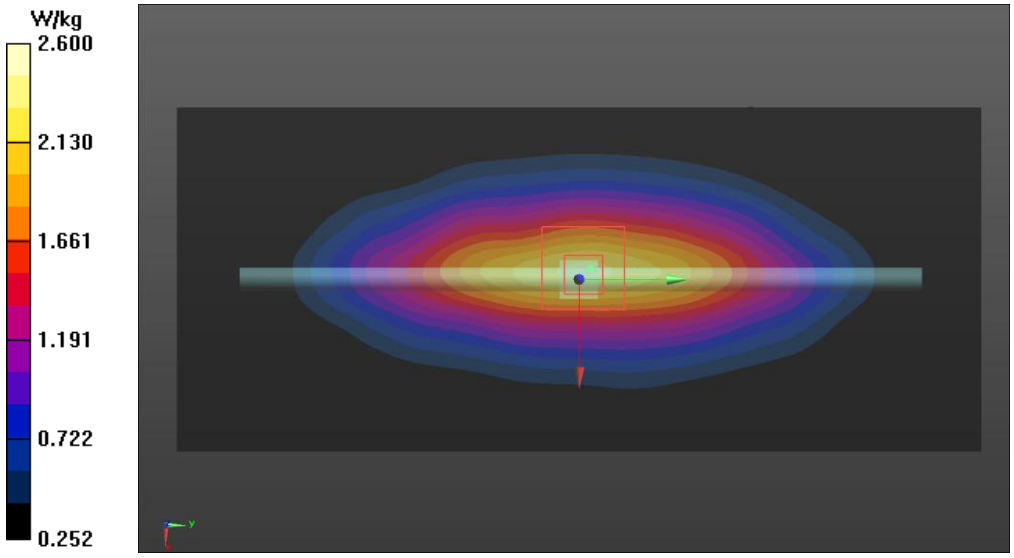
DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:1154

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 750 MHz; σ = 0.861 S/m; ε_r = 43.338; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 750 MHz; Calibrated: 17.2.2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19.10.2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 750MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.32 W/kg
Configuration/System Check 750MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.35 V/m; Power Drift = -0.24 dB
Peak SAR (extrapolated) = 2.89 W/kg
SAR(1 g) = 2.05 W/kg; SAR(10 g) = 1.35 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17 mm
Ratio of SAR at M2 to SAR at M1 = 68.6%
Maximum value of SAR (measured) = 2.60 W/kg



Plot 4

Date/Time: 15.6.2023 17.33.49

Test Laboratory: Verkotan Oy

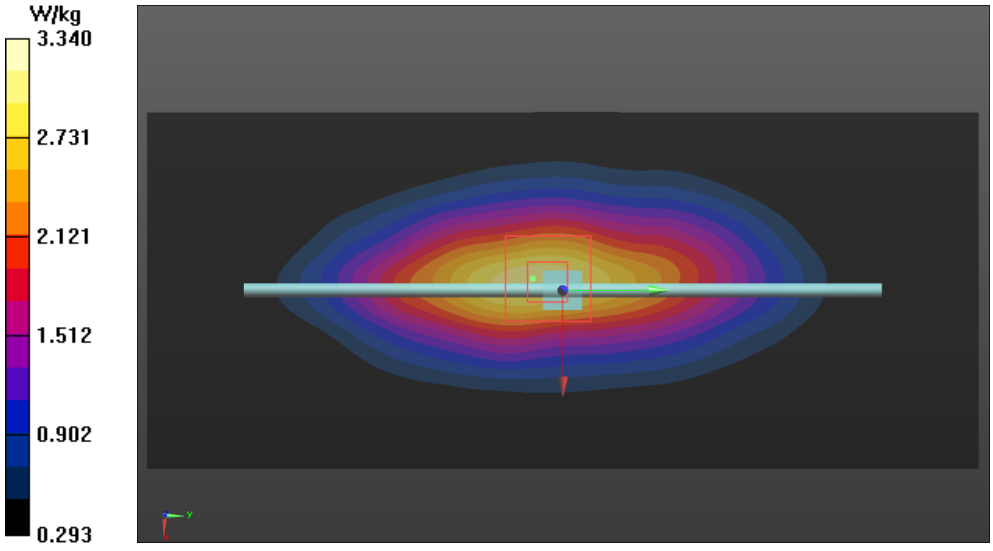
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:455

Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 835 MHz; σ = 0.929 S/m; ε_r = 42.553; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.37, 8.45, 8.89) @ 835 MHz; Calibrated: 17.2.2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19.10.2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 835MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.09 W/kg
Configuration/System Check 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.24 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 3.76 W/kg
SAR(1 g) = 2.5 W/kg; SAR(10 g) = 1.64 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17 mm
Ratio of SAR at M2 to SAR at M1 = 68.1%
Maximum value of SAR (measured) = 3.34 W/kg



Plot 5

Date/Time: 6.7.2023 14.10.56

Test Laboratory: Verkotan Oy

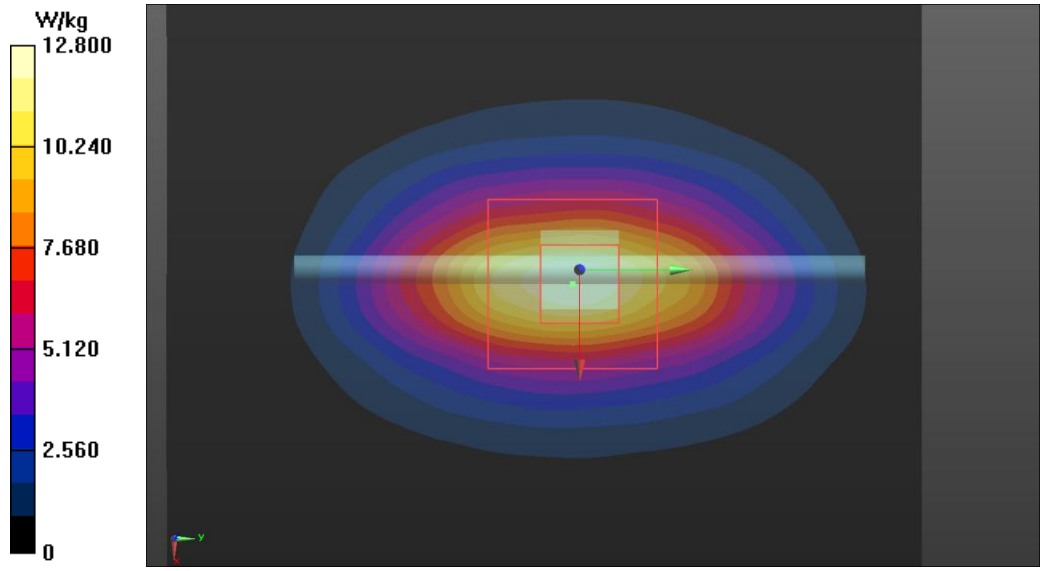
DUT: D1800V2 - SN249; Type: D1800V2; Serial: SN249

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1800 MHz; σ = 1.28 S/m; ε_r = 37.05; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.45, 7.97, 8.4) @ 1800 MHz; Calibrated: 17.2.2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 19.10.2022
  - Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.24 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 15.2 W/kg
SAR(1 g) = 8.96 W/kg; SAR(10 g) = 4.74 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 10 mm
Ratio of SAR at M2 to SAR at M1 = 57.2%
Maximum value of SAR (measured) = 13.0 W/kg
Configuration/System Check 1800MHz/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 12.8 W/kg



Plot 6

Date/Time: 6.7.2023 15.08.38

Test Laboratory: Verkotan Oy

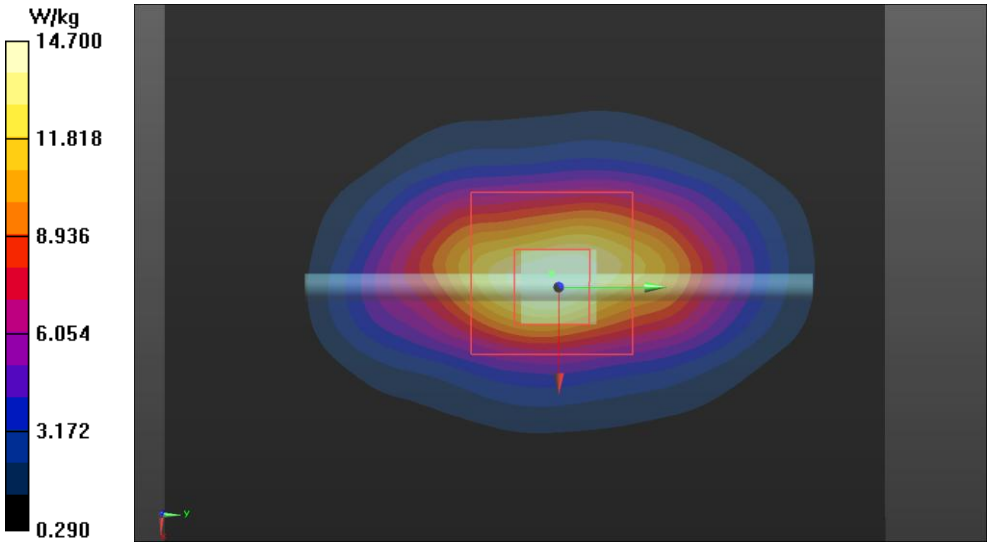
DUT: D1900V2 - SN511; Type: D1900V2; Serial: SN511

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1900 MHz; σ = 1.368 S/m; ε_r = 38.068; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(7.72, 7.72, 7.72) @ 1900 MHz; Calibrated: 27.10.2022
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15.2.2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 1900MHz/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 14.8 W/kg
Configuration/System Check 1900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.2 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 18.2 W/kg
SAR(1 g) = 9.64 W/kg; SAR(10 g) = 5.01 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.6 mm
Ratio of SAR at M2 to SAR at M1 = 55.2%
Maximum value of SAR (measured) = 14.7 W/kg



Plot 7

Date/Time: 24/11/2023 11:33:04

Test Laboratory: Verkotan Oy

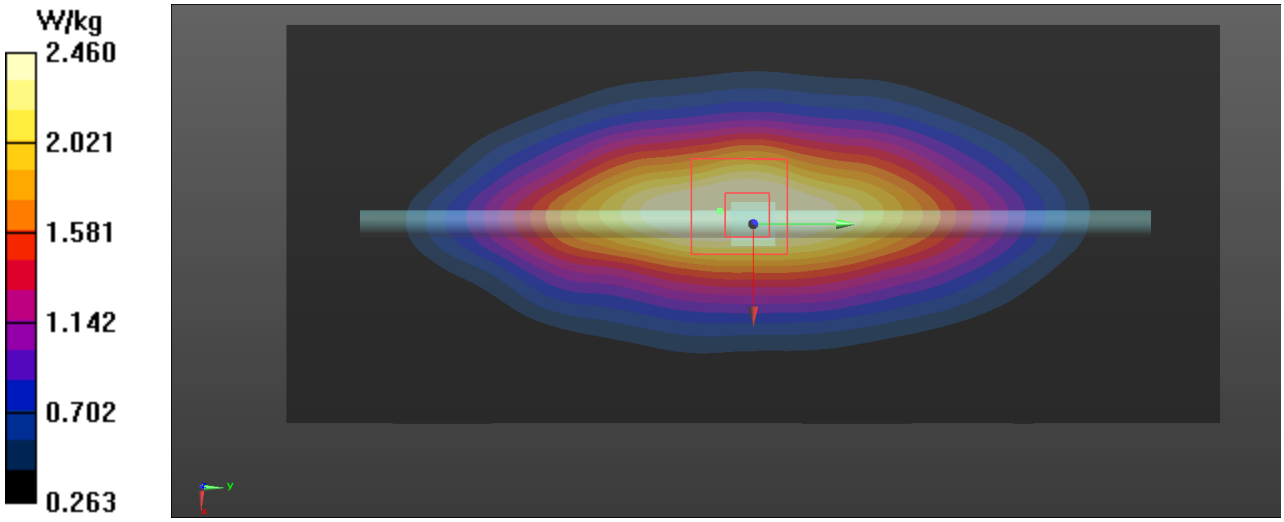
DUT: D750V3 - SN1154; Type: D750V3; Serial: SN1154

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 750 MHz; σ = 0.824 S/m; ε_r = 44.86; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 750 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/System Check 750MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.63 W/kg
Configuration/System Check 750MHz/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.75 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 2.76 W/kg
SAR(1 g) = 2.07 W/kg; SAR(10 g) = 1.38 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 2.46 W/kg



Plot 8

Date/Time: 27/11/2023 08:36:48

Test Laboratory: Verkotan Oy

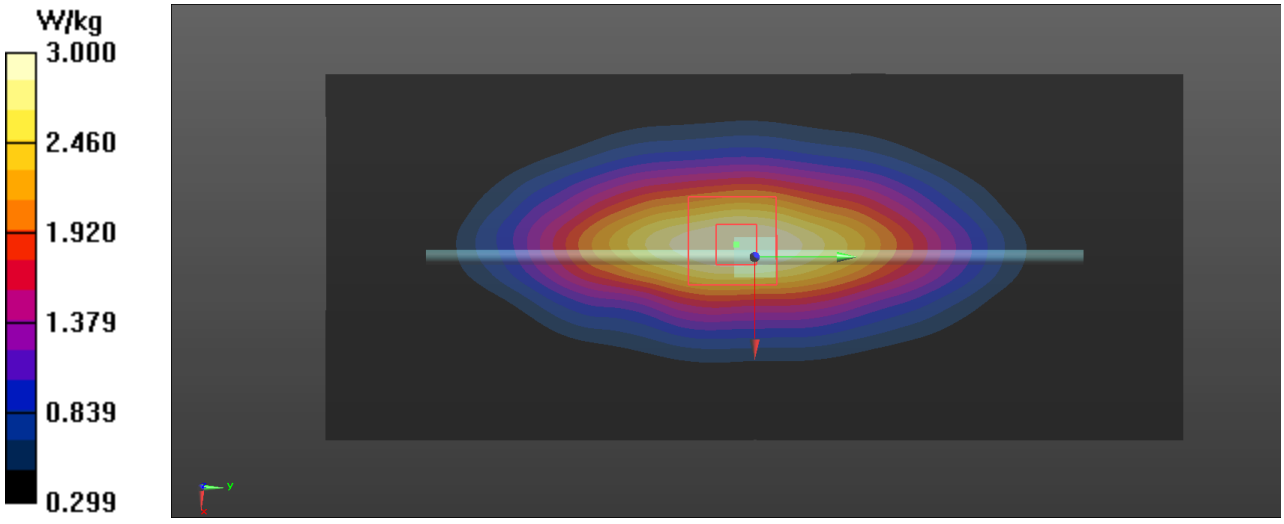
DUT: D835V2 - SN455; Type: D835V2; Serial: SN455

Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 835 MHz; σ = 0.828 S/m; ε_r = 43.674; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.37, 8.45, 8.89) @ 835 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/System Check 835MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.09 W/kg
Configuration/System Check 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.41 V/m; Power Drift = -0.11 dB Peak SAR (extrapolated) = 3.32 W/kg
SAR(1 g) = 2.46 W/kg; SAR(10 g) = 1.62 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 3.00 W/kg



Plot 9

Date/Time: 27/11/2023 09:05:09

Test Laboratory: Verkotan Oy

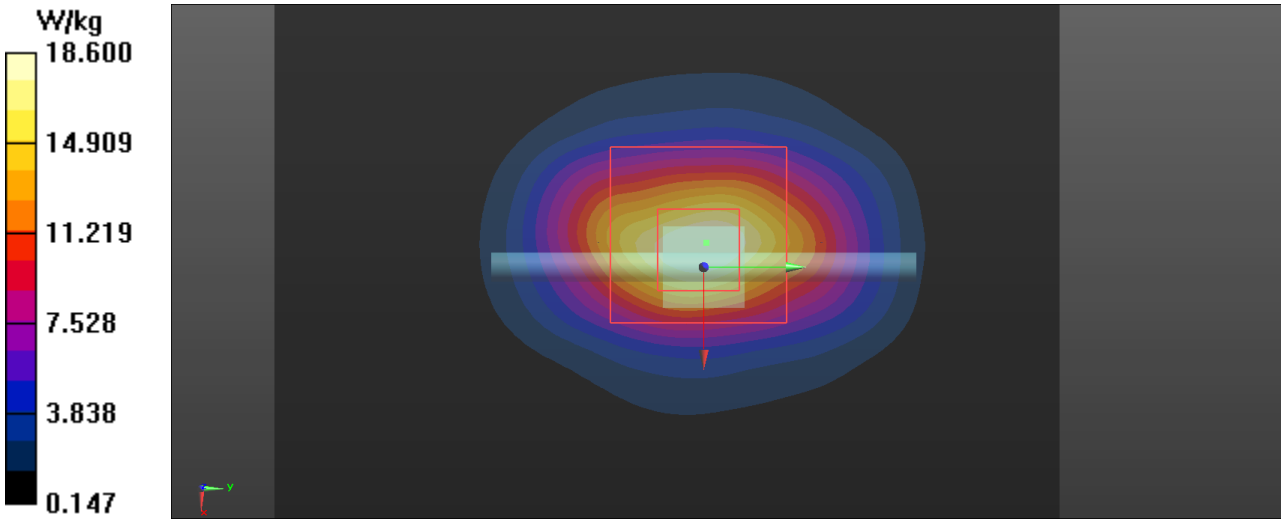
DUT: D2450V2 - SN729; Type: D2450V2; Serial: SN729

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.714 S/m; ε_r = 41.132; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2450 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/System Check 2450MHz/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 19.1 W/kg
Configuration/System Check 2450MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.7 V/m; Power Drift = -0.38 dB
Peak SAR (extrapolated) = 22.8 W/kg
SAR(1 g) = 12 W/kg; SAR(10 g) = 5.63 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 18.6 W/kg



Plot 10

Date/Time: 1.2.24 11:08:01

Test Laboratory: Verkotan Oy

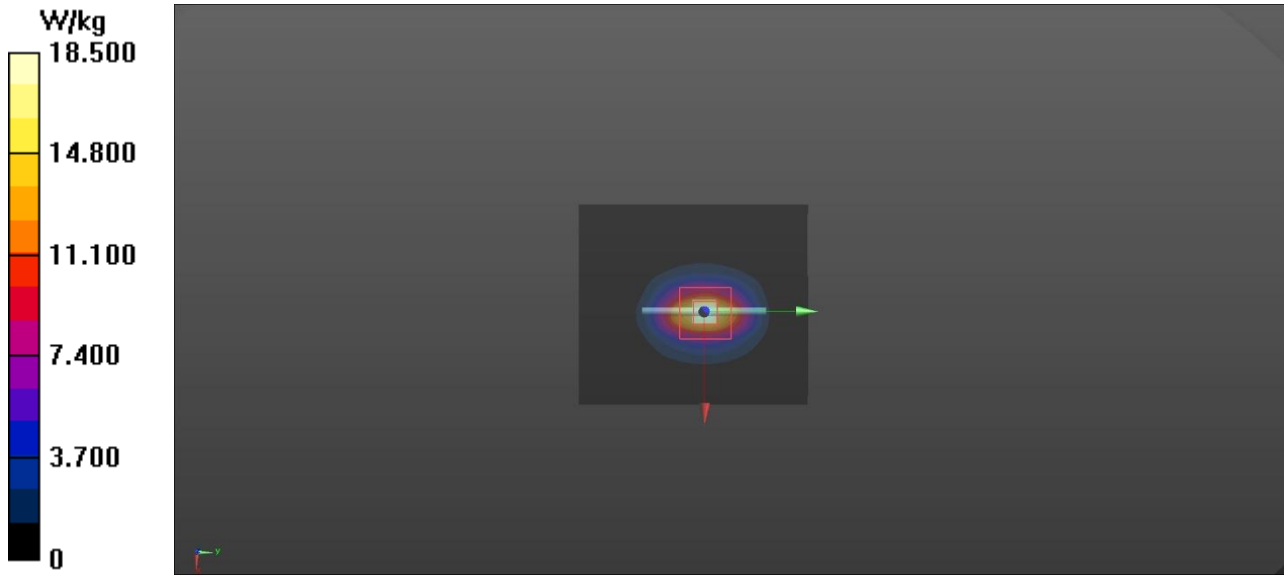
DUT: D2450V2 - SN729; Type: D2450V2; Serial: SN729

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.725 S/m; ε_r = 38.123; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2450 MHz; Calibrated: 17.2.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration 2/System Check 2450MHz 2/Area Scan (81x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 18.5 W/kg
Configuration 2/System Check 2450MHz 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 106.4 V/m; Power Drift = -0.29 dB Peak SAR (extrapolated) = 22.8 W/kg
SAR(1 g) = 11.9 W/kg; SAR(10 g) = 5.59 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 19.0 W/kg



Plot 11

Date/Time: 6.2.24 09:35:16

Test Laboratory: Verkotan Oy

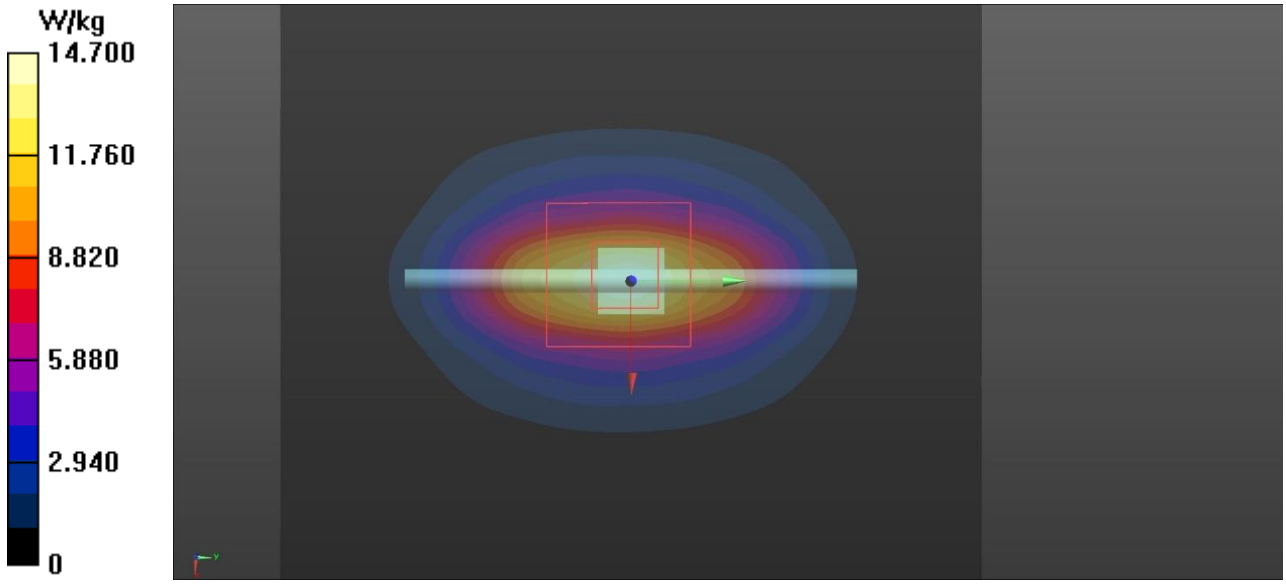
DUT: D1900V2 - SN511; Type: D1900V2; Serial: SN511

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1900 MHz; σ = 1.38 S/m; ε_r = 38.344; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.94, 8.14, 7.8) @ 1900 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 1900MHz/Area Scan (71x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.7 W/kg
Configuration/System Check 1900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.65 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 9.1 W/kg; SAR(10 g) = 4.77 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 14.0 W/kg



Plot 12

Date/Time: 7.2.24 08:46:18

Test Laboratory: Verkotan Oy

DUT: D1900V2 - SN511; Type: D1900V2; Serial: SN511

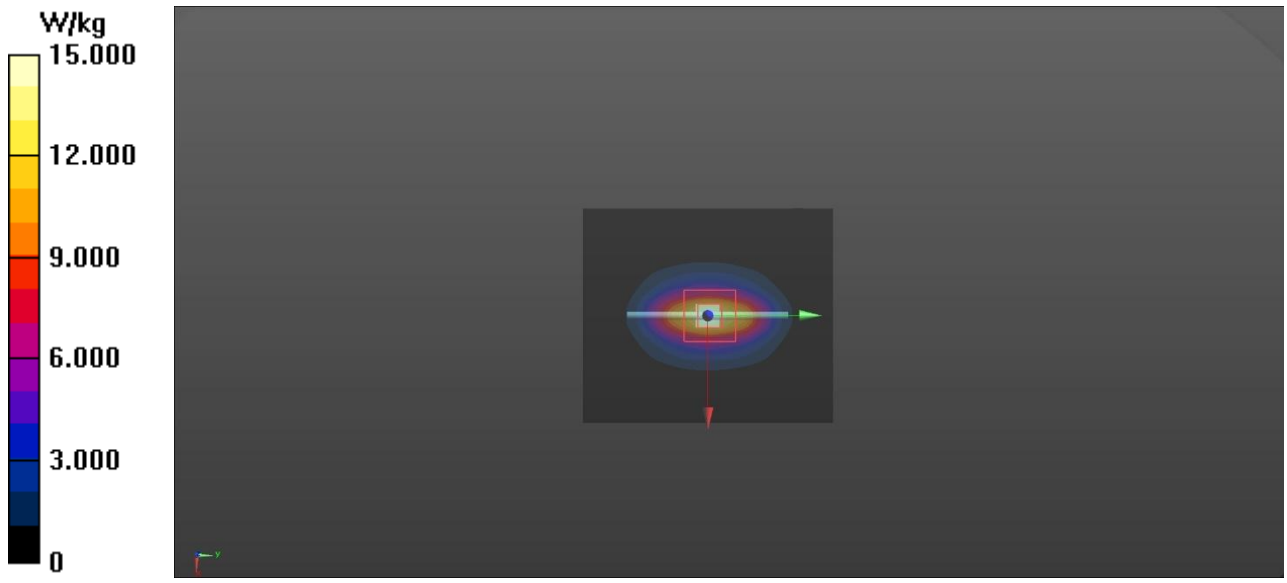
Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1900 MHz; σ = 1.385 S/m; ε_r = 38.265; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.94, 8.14, 7.8) @ 1900 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 1900MHz/Area Scan (71x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.0 W/kg

Configuration/System Check 1900MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.7 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 16.8 W/kg
SAR(1 g) = 9.22 W/kg; SAR(10 g) = 4.84 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 14.3 W/kg



Plot 13

Date/Time: 7.2.24 13:58:56

Test Laboratory: Verkotan Oy

DUT: D1800V2 - SN249; Type: D1800V2; Serial: SN249

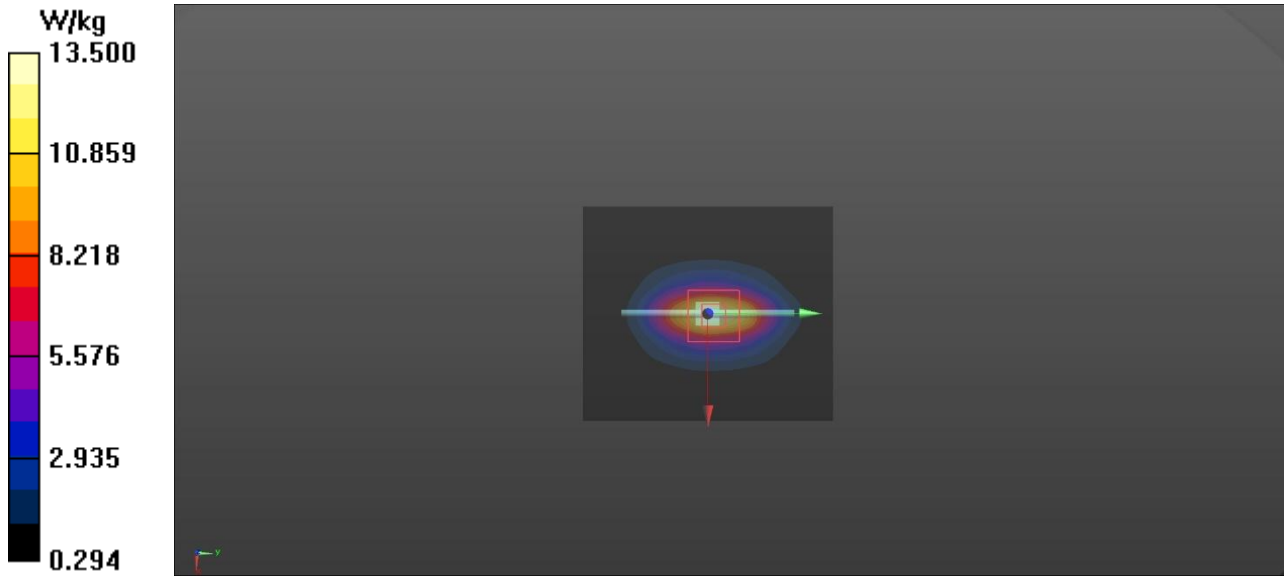
Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1800 MHz; σ = 1.336 S/m; ε_r = 38.418; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(8.12, 8.3, 8.01) @ 1800 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.8 V/m; Power Drift = -0.30 dB
Peak SAR (extrapolated) = 16.1 W/kg
SAR(1 g) = 9.08 W/kg; SAR(10 g) = 4.81 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 13.5 W/kg

Configuration/System Check 1800MHz/Area Scan (71x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.4 W/kg



Plot 14

Date/Time: 8.2.24 13:09:02

Test Laboratory: Verkotan Oy

DUT: D1800V2 - SN249; Type: D1800V2; Serial: SN249

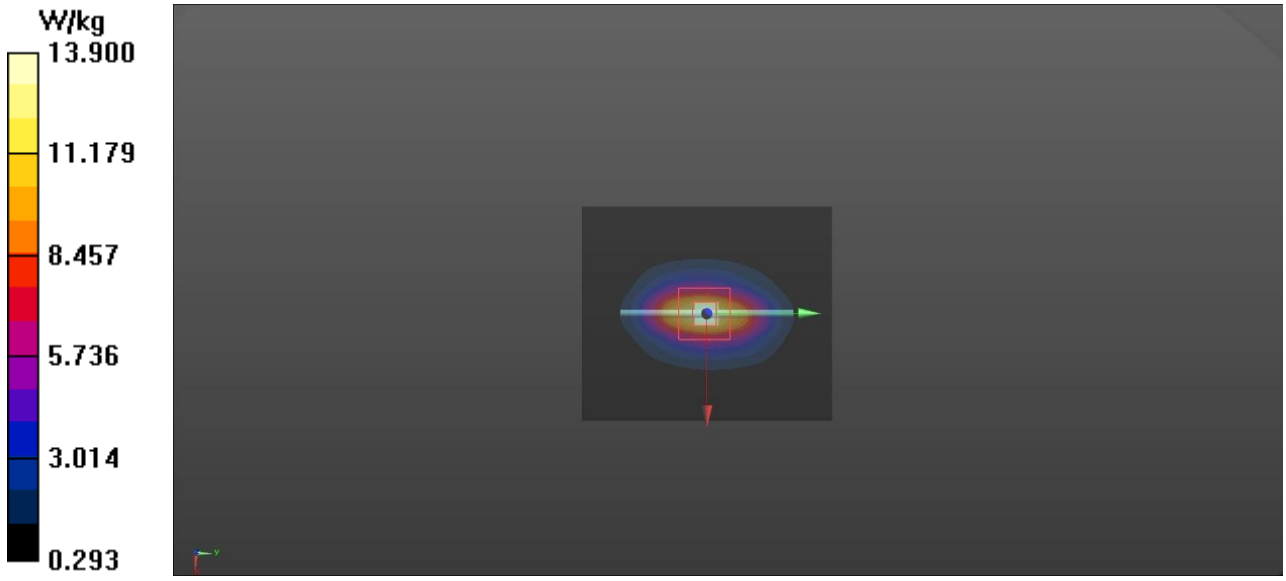
Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1800 MHz; σ = 1.337 S/m; ε_r = 38.019; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(8.12, 8.3, 8.01) @ 1800 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 1800MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 102.4 V/m; Power Drift = -0.26 dB
Peak SAR (extrapolated) = 16.4 W/kg
SAR(1 g) = 9.14 W/kg; SAR(10 g) = 4.8 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 13.9 W/kg

Configuration/System Check 1800MHz/Area Scan (71x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 14.5 W/kg



Plot 15

Date/Time: 12.2.24 10:10:30

Test Laboratory: Verkotan Oy

DUT: D835V2 - SN455; Type: D835V2; Serial: SN455

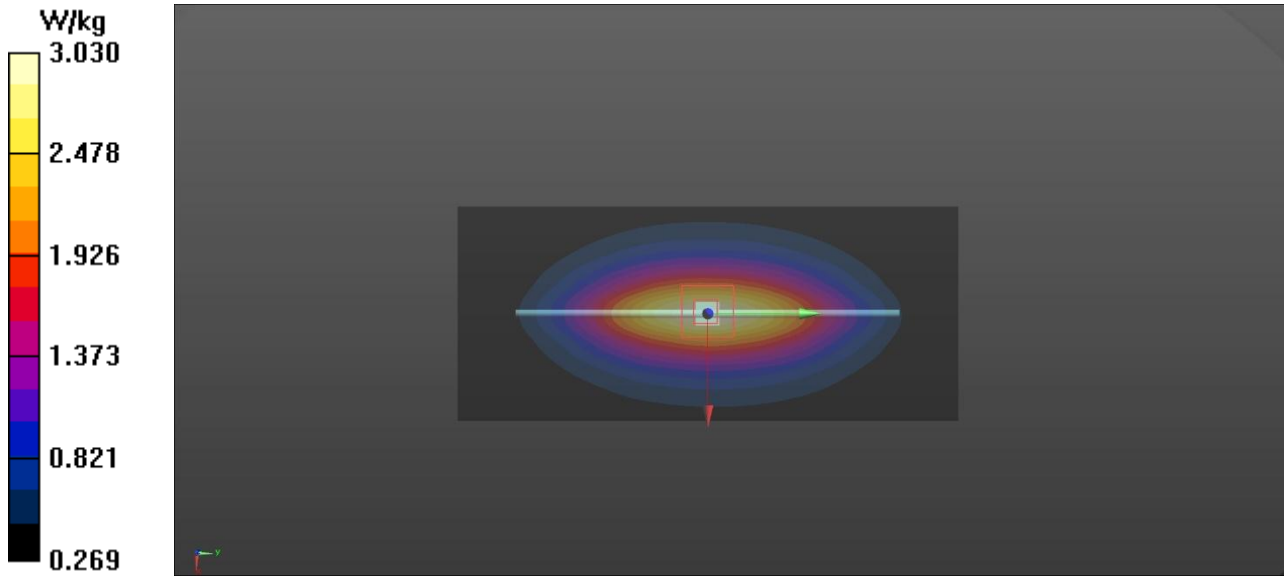
Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 835 MHz; σ = 0.875 S/m; ε_r = 40.174; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 835 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.22 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 3.36 W/kg
SAR(1 g) = 2.34 W/kg; SAR(10 g) = 1.53 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 3.03 W/kg

Configuration/System Check 835MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.98 W/kg



Plot 16

Date/Time: 13.2.24 10:46:12

Test Laboratory: Verkotan Oy

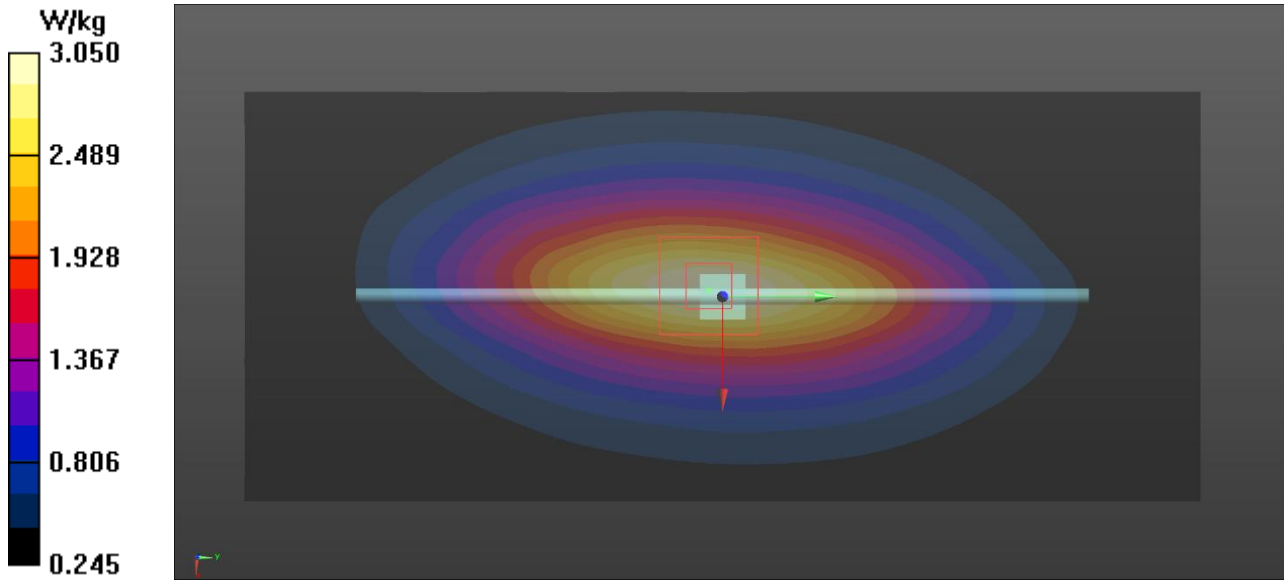
DUT: D835V2 - SN455; Type: D835V2; Serial: SN455

Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 835 MHz; σ = 0.876 S/m; ε_r = 39.412; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 835 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.18 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 3.39 W/kg
SAR(1 g) = 2.31 W/kg; SAR(10 g) = 1.49 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 3.05 W/kg
Configuration/System Check 835MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.98 W/kg



Plot 17

Date/Time: 14.2.24 10:40:08

Test Laboratory: Verkotan Oy

DUT: D750V3 - SN1154; Type: D750V3; Serial: SN1154

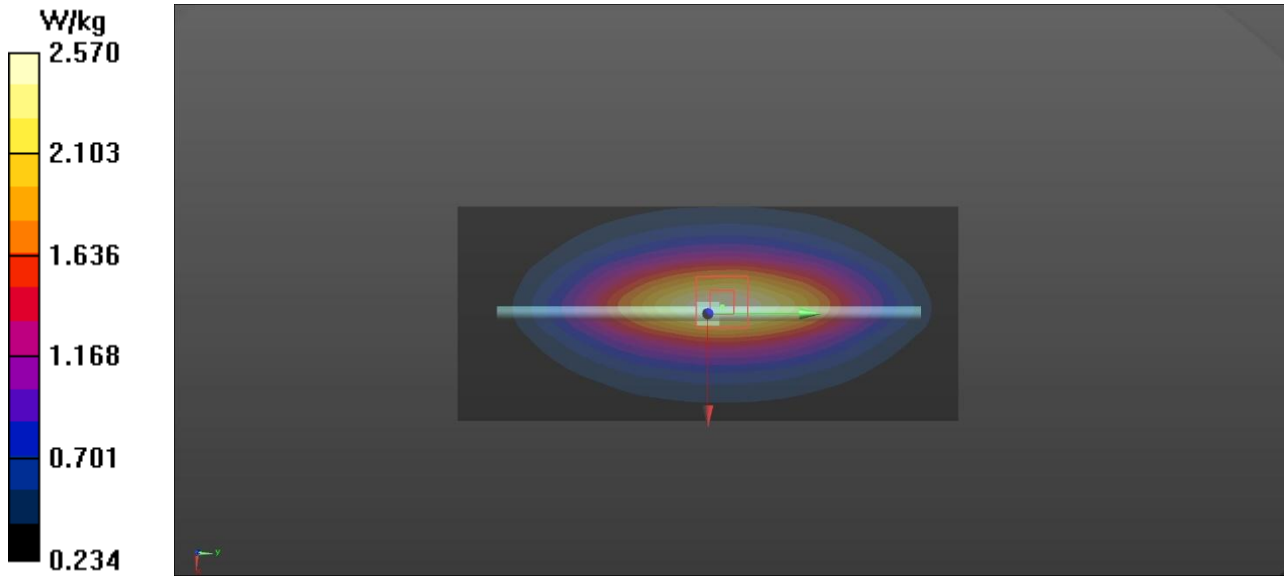
Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 750 MHz; σ = 0.875 S/m; ε_r = 40.714; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 750 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 750MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.35 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 2.81 W/kg
SAR(1 g) = 1.99 W/kg; SAR(10 g) = 1.31 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 2.57 W/kg

Configuration/System Check 750MHz/Area Scan (141x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.49 W/kg



APPENDIX C: MEASUREMENT SCANS

Plot 18

Date/Time: 07/07/2023 10:06:03

Test Laboratory: Verkotan Oy

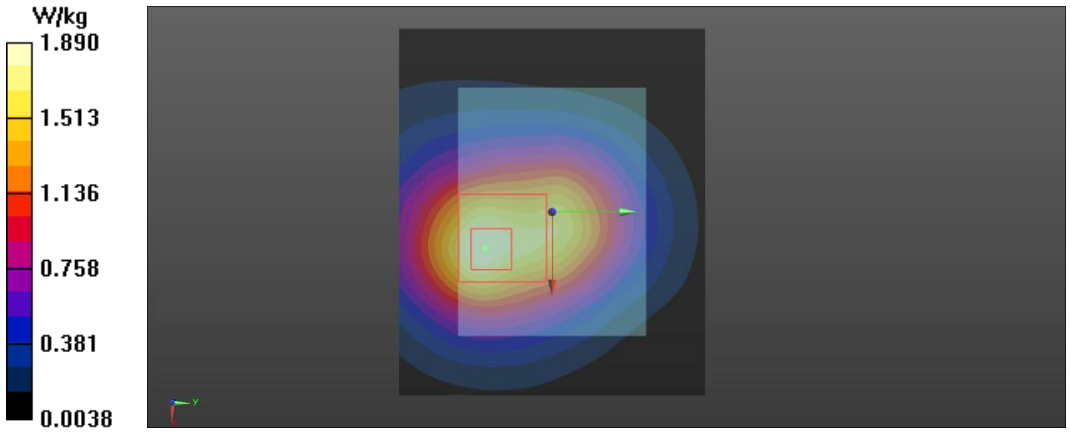
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 2; Frequency: 1880 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1880 MHz; σ = 1.357 S/m; ε_r = 38.103; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(7.72, 7.72, 7.72) @ 1880 MHz; Calibrated: 27/10/2022
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, WCDMA 2, CH9400, RMC 12.2k, Back with clip 0mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.52 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.24 W/kg; SAR(10 g) = 0.789 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.67 W/kg
Configuration/TLP54US, WCDMA 2, CH9400, RMC 12.2k, Back with clip 0mm 2/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.89 W/kg



Plot 19

Date/Time: 06/07/2023 16:22:29

Test Laboratory: Verkotan Oy

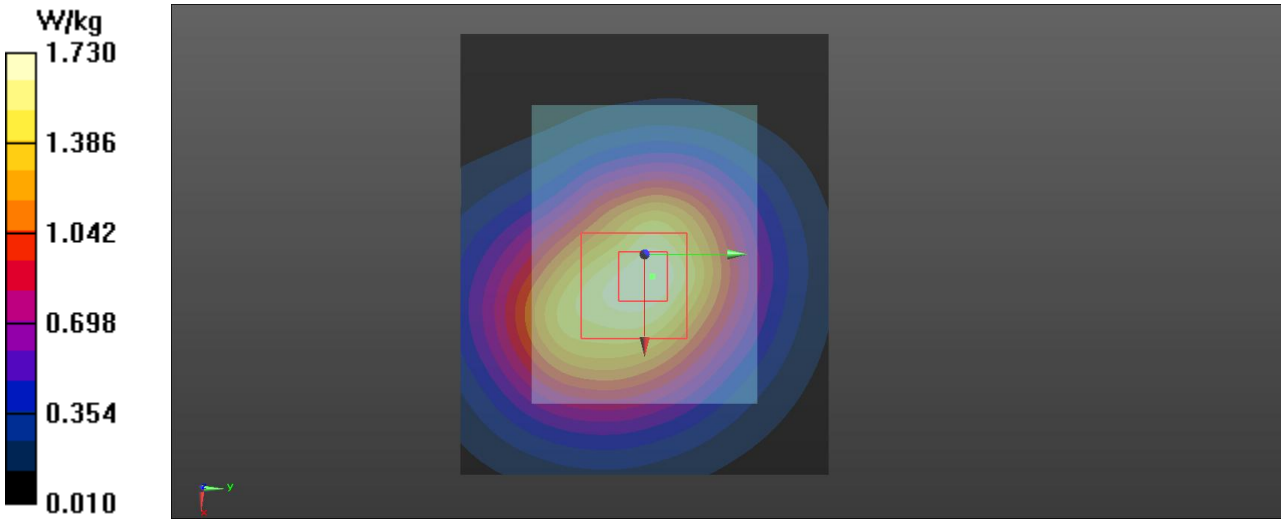
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 4; Frequency: 1732.6 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1733 MHz; σ = 1.245 S/m; ε_r = 37.174; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.45, 7.97, 8.4) @ 1732.6 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 19/10/2022
  - Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, WCDMA 4 CH 1413, Back with clip 0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.43 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.836 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 1.63 W/kg
Configuration/TLP54US, WCDMA 4 CH 1413, Back with clip 0mm/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.73 W/kg



Plot 20

Date/Time: 27/11/2023 10:00:07

Test Laboratory: Verkotan Oy

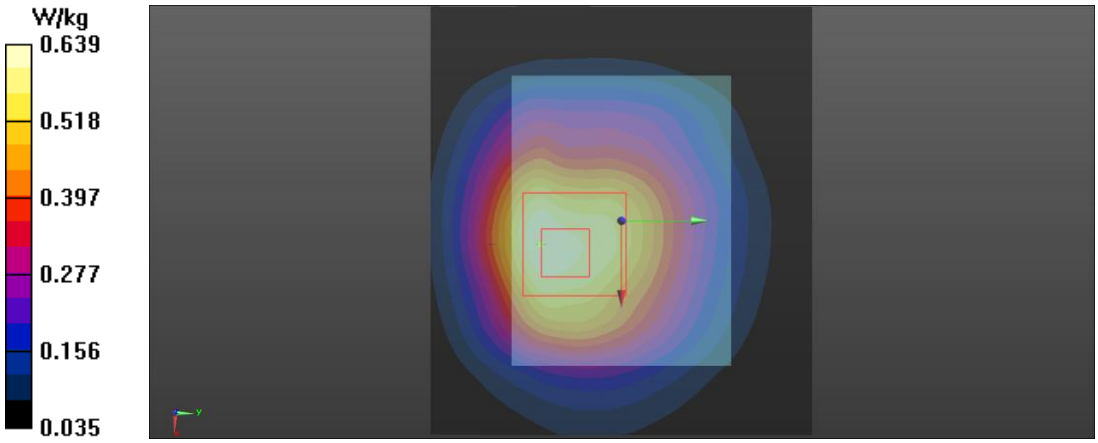
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 5; Frequency: 846.6 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 847 MHz; σ = 0.832 S/m; ε_r = 43.649; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.37, 8.45, 8.89) @ 846.6 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US DUT21124, WCDMA 5 HIGH CH4132, Back 5mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.644 W/kg
Configuration/TLP54US DUT21124, WCDMA 5 HIGH CH4132, Back 5mm/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.16 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.732 W/kg
SAR(1 g) = 0.541 W/kg; SAR(10 g) = 0.354 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.639 W/kg



Plot 21

Date/Time: 24/11/2023 12:37:33

Test Laboratory: Verkotan Oy

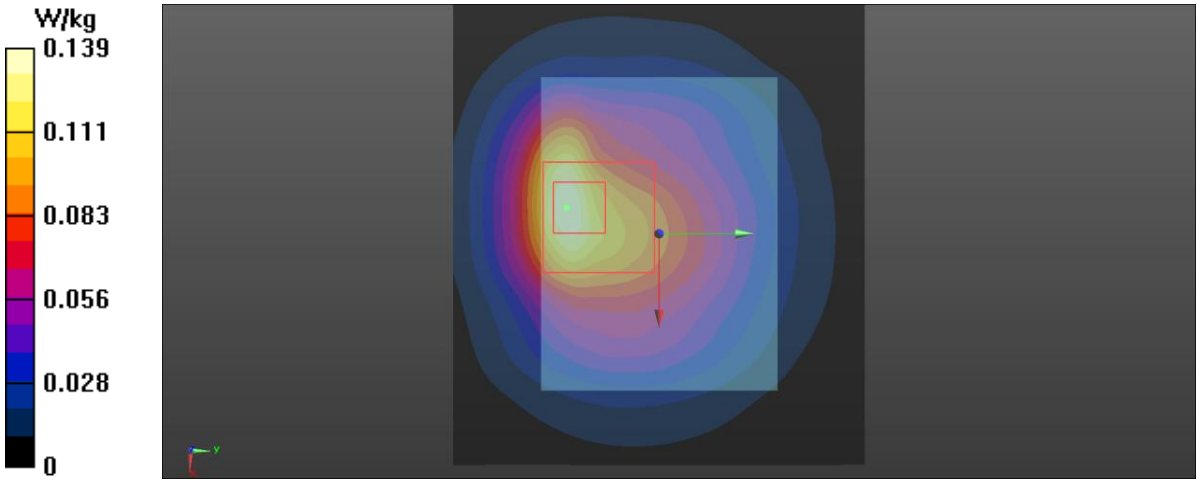
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 12, E-UTRA/FDD (698.0 - 716.0 MHz); Frequency: 711 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 711 MHz; σ = 0.811 S/m; ε_r = 44.928; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 711 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, LTE12 HIGH CH23130, QPSK, BW 10, RB 1 Offset 24, Back 5mm/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.326 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.173 W/kg
SAR(1 g) = 0.100 W/kg; SAR(10 g) = 0.061 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.139 W/kg
Configuration/TLP54US, LTE12 HIGH CH23130, QPSK, BW 10, RB 1 Offset 24, Back 5mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.139 W/kg



Plot 22

Date/Time: 24/11/2023 13:04:11

Test Laboratory: Verkotan Oy

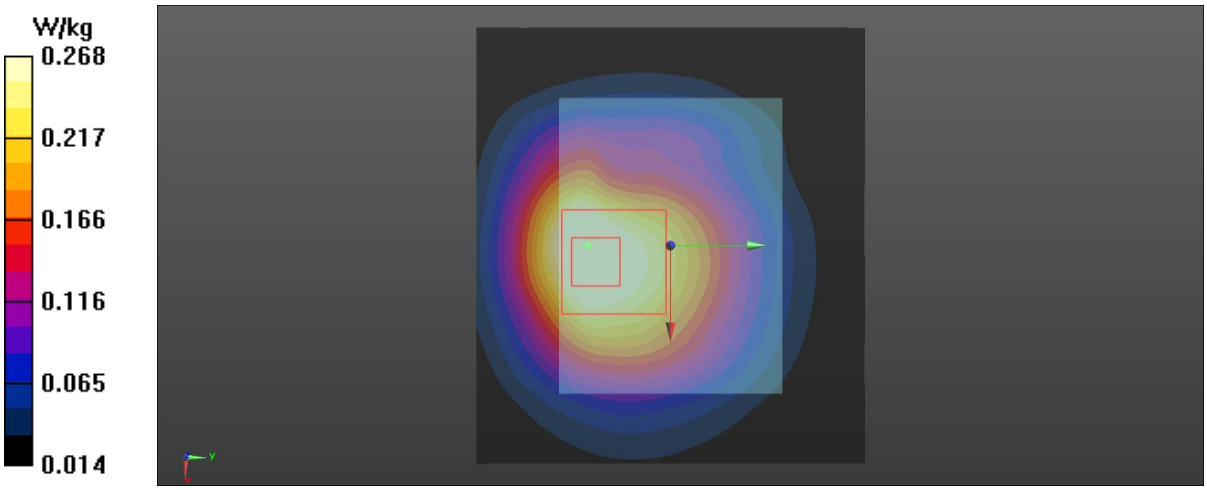
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 13, E-UTRA/FDD (777.0 - 787.0 MHz); Frequency: 779.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 779.5 MHz; σ = 0.833 S/m; ε_r = 44.727; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 779.5 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, LTE13 LOW CH23205, QPSK, BW 5, RB 1 Offset 12, Back 5mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.305 W/kg
Configuration/TLP54US, LTE13 LOW CH23205, QPSK, BW 5, RB 1 Offset 12, Back 5mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.84 V/m; Power Drift = -0.24 dB
Peak SAR (extrapolated) = 0.304 W/kg
SAR(1 g) = 0.215 W/kg; SAR(10 g) = 0.143 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.268 W/kg



Plot 23

Date/Time: 24/11/2023 14:54:39

Test Laboratory: Verkotan Oy

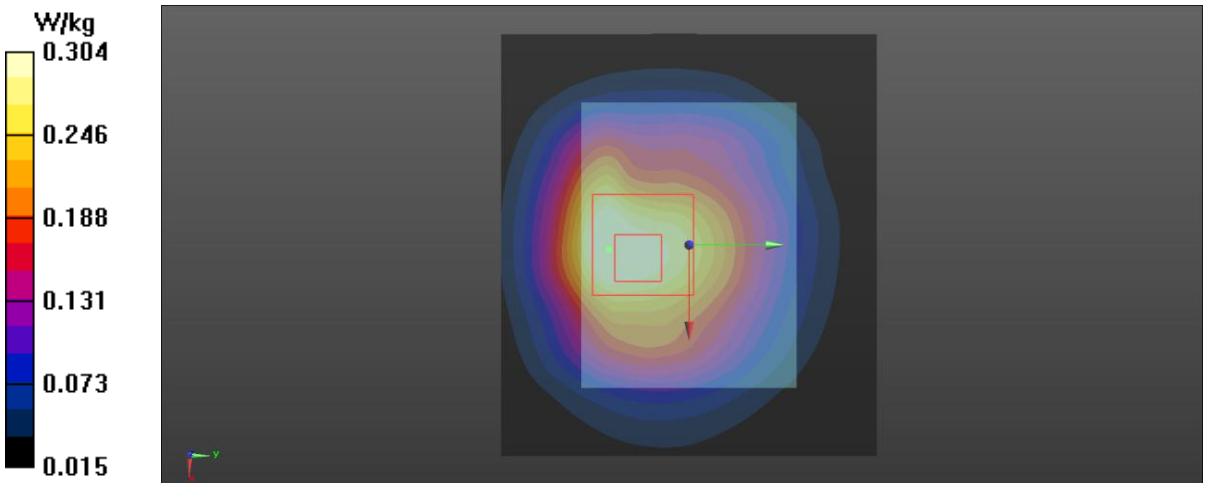
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 14, E-UTRA/FDD (788.0 - 798.0 MHz); Frequency: 795.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 795.5 MHz; σ = 0.839 S/m; ε_r = 44.669; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 795.5 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, LTE14 HIGH CH23355, QPSK, BW 5, RB 1 Offset 24, Back 5mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.326 W/kg
Configuration/TLP54US, LTE14 HIGH CH23355, QPSK, BW 5, RB 1 Offset 24, Back 5mm/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.27 V/m; Power Drift = -0.23 dB
Peak SAR (extrapolated) = 0.343 W/kg
SAR(1 g) = 0.247 W/kg; SAR(10 g) = 0.163 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.304 W/kg



Plot 24

Date/Time: 07/07/2023 14:19:55

Test Laboratory: Verkotan Oy

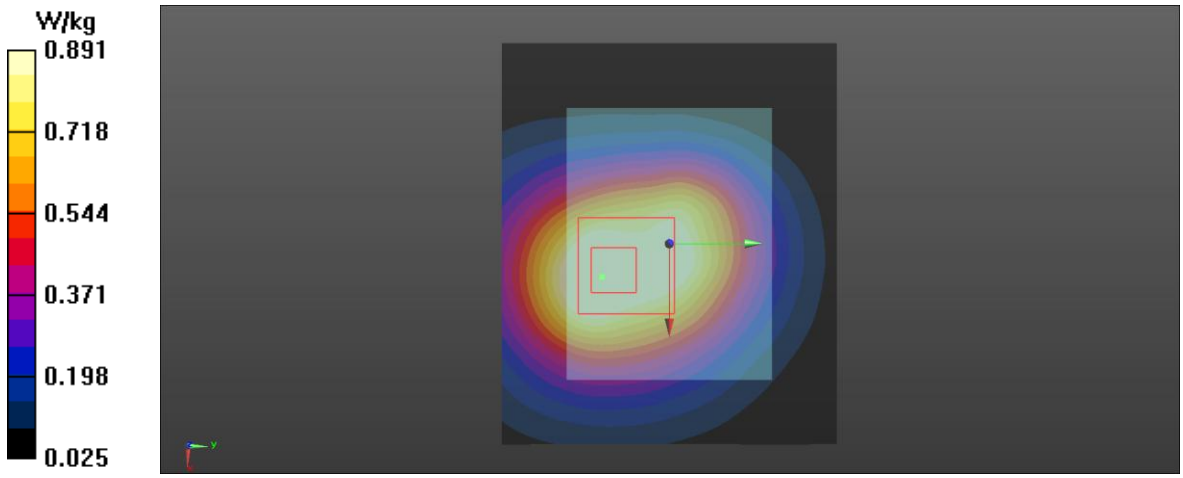
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 25, E-UTRA/FDD (1850.0 - 1915.0 MHz); Frequency: 1905 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 1905 MHz; σ = 1.337 S/m; ε_r = 36.882; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.05, 7.59, 7.97) @ 1905 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19/10/2022
  - Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.12(7450)

Configuration/TLP54US,LTE 25 CH 26590, QPSK BW 20, RB 100 offset 0, Back with clip 0mm/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.03 W/kg
Configuration/TLP54US,LTE 25 CH 26590, QPSK BW 20, RB 100 offset 0, Back with clip 0mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.35 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.997 W/kg
SAR(1 g) = 0.676 W/kg; SAR(10 g) = 0.432 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.891 W/kg



Plot 25

Date/Time: 27/11/2023 10:40:48

Test Laboratory: Verkotan Oy

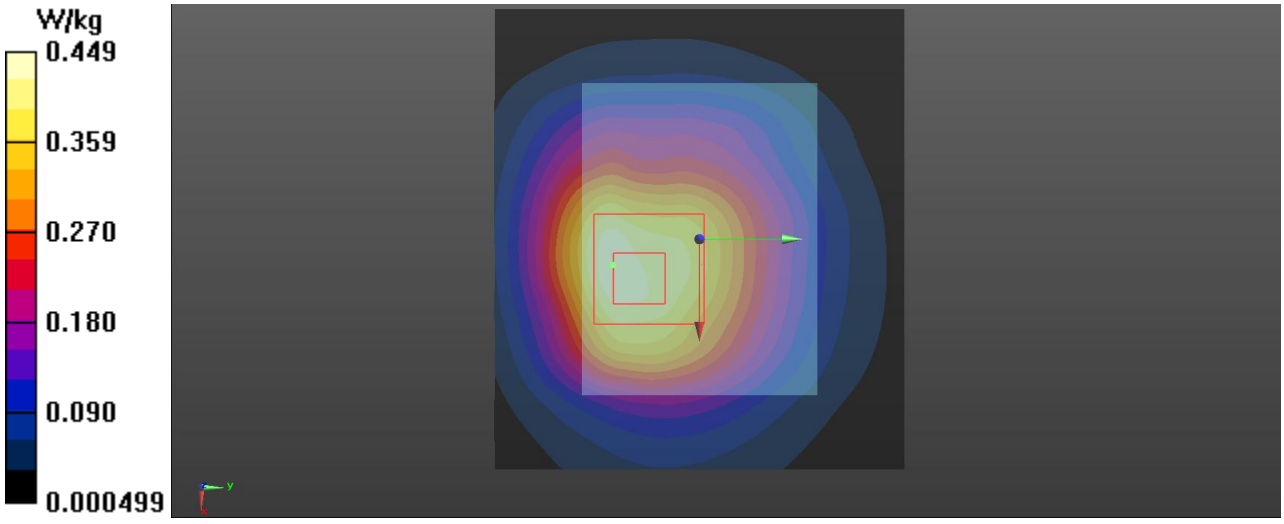
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 26; Frequency: 841.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.83 S/m; ε_r = 43.662; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.37, 8.45, 8.89) @ 841.5 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn1332; Calibrated: 15/02/2023
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, LTE26 MID CH26965, QPSK, BW 15, RB 1 Offset 37, Back 5mm/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.63 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.524 W/kg
SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.257 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.467 W/kg
Configuration/TLP54US, LTE26 MID CH26965, QPSK, BW 15, RB 1 Offset 37, Back 5mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.449 W/kg



Plot 26

Date/Time: 06/07/2023 20:33:02

Test Laboratory: Verkotan Oy

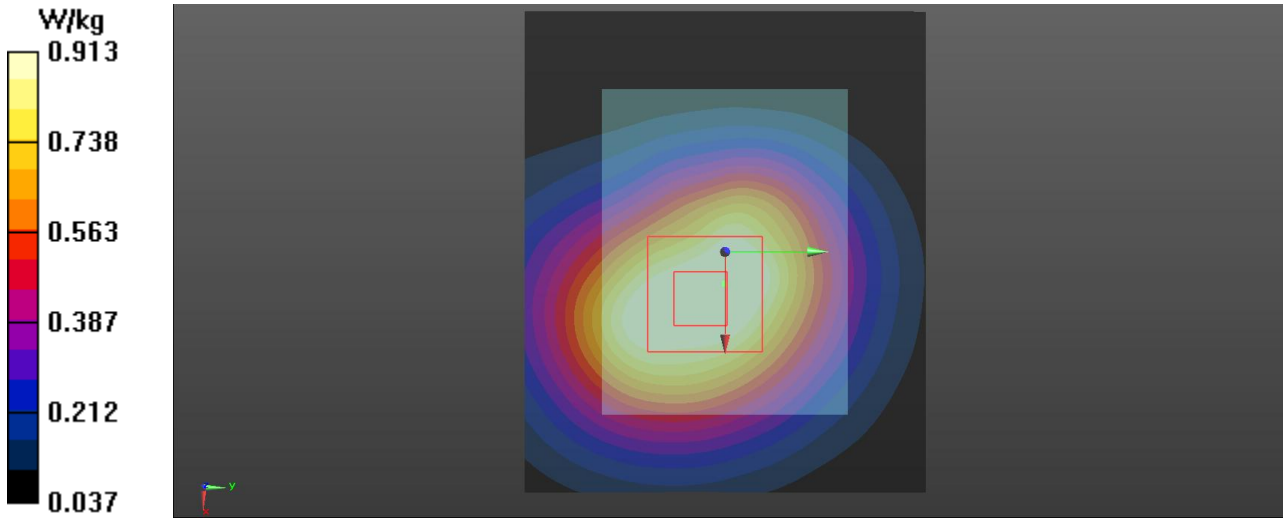
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 66; Frequency: 1720 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1720 MHz; σ = 1.237 S/m; ε_r = 37.191; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.45, 7.97, 8.4) @ 1720 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19/10/2022
  - Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, LTE 66 CH 132072, QPSK BW 20, RB 50 offset 25, Back with clip 0mm/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.991 W/kg
Configuration/TLP54US, LTE 66 CH 132072, QPSK BW 20, RB 50 offset 25, Back with clip 0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.62 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.732 W/kg; SAR(10 g) = 0.468 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.913 W/kg



Plot 27

Date/Time: 12/06/2023 21:53:35

Test Laboratory: Verkotan Oy

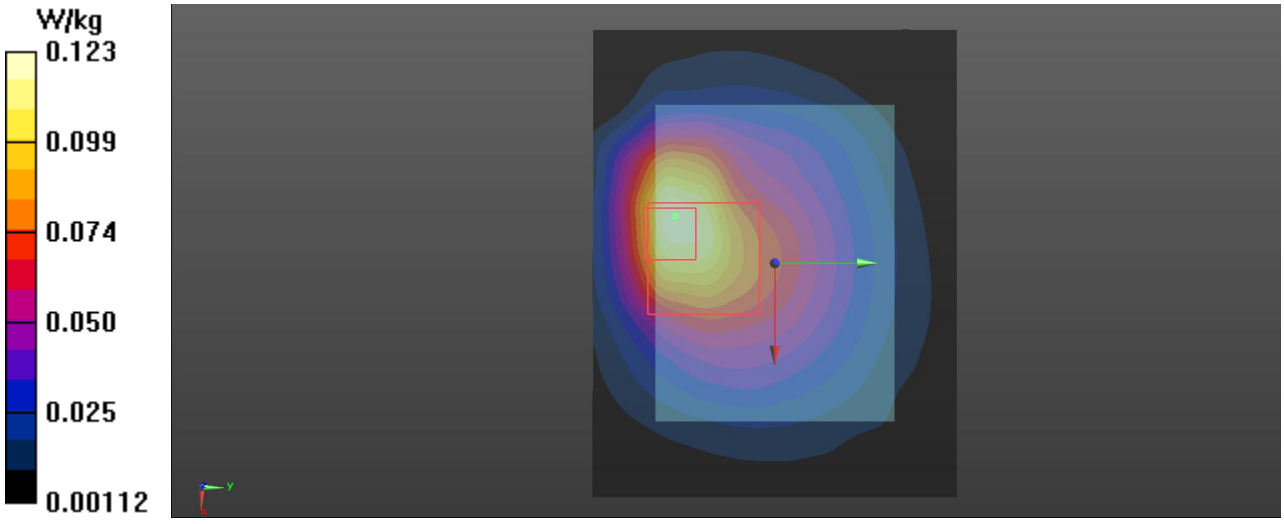
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 71; Frequency: 688 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 688 MHz; σ = 0.844 S/m; ε_r = 44.122; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.91, 8.74, 9.52) @ 688 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19/10/2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, LTE 71, QPSK 20, CH133372, RB 50, Offset 50, Back 5 mm/Area Scan (91x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.120 W/kg
Configuration/TLP54US, LTE 71, QPSK 20, CH133372, RB 50, Offset 50, Back 5 mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.500 V/m; Power Drift = -0.73 dB
Peak SAR (extrapolated) = 0.175 W/kg
SAR(1 g) = 0.079 W/kg; SAR(10 g) = 0.045 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.123 W/kg



Plot 28

Date/Time: 13/06/2023 13:04:07

Test Laboratory: Verkotan Oy

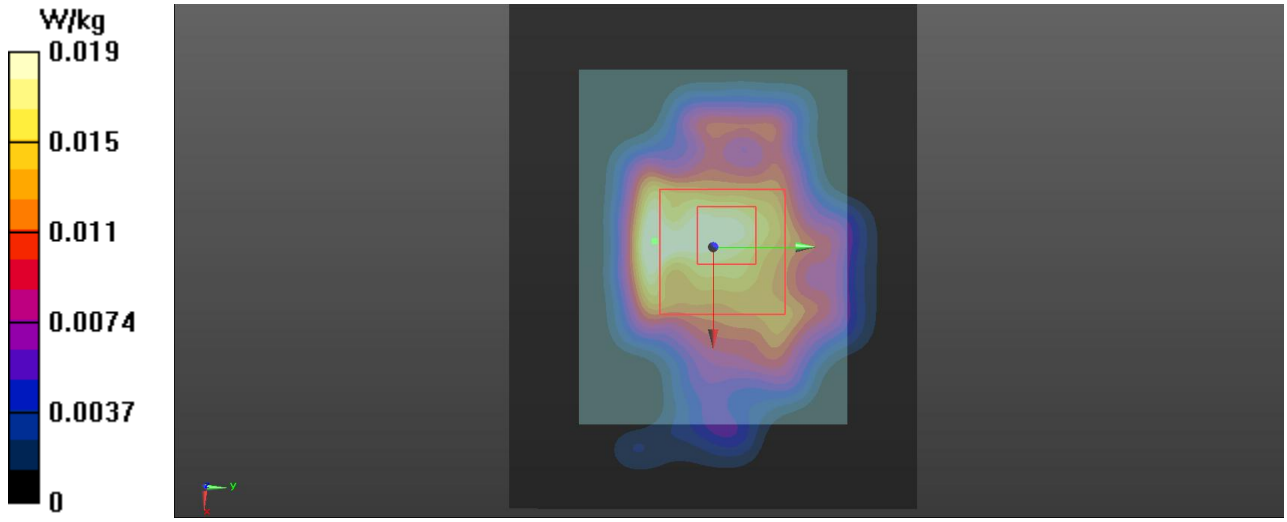
DUT: Twigcom Neo

Communication System: UID 0, WLAN 2.4 (0); Communication System Band: WLAN2.4GHz; Frequency: 2462 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 2462 MHz; σ = 1.726 S/m; ε_r = 39.387; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2462 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19/10/2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.2(1495); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, WLAN 2.4GHz, 802.11g, 6Mbps, CH11, Back 5 mm/Area Scan (91x71x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0210 W/kg
Configuration/TLP54US, WLAN 2.4GHz, 802.11g, 6Mbps, CH11, Back 5 mm/Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.894 V/m; Power Drift = -0.37 dB
Peak SAR (extrapolated) = 0.0260 W/kg
SAR(1 g) = 0.013 W/kg; SAR(10 g) = 0.00553 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.0185 W/kg



Plot 29

Date/Time: 15/06/2023 19:22:48

Test Laboratory: Verkotan Oy

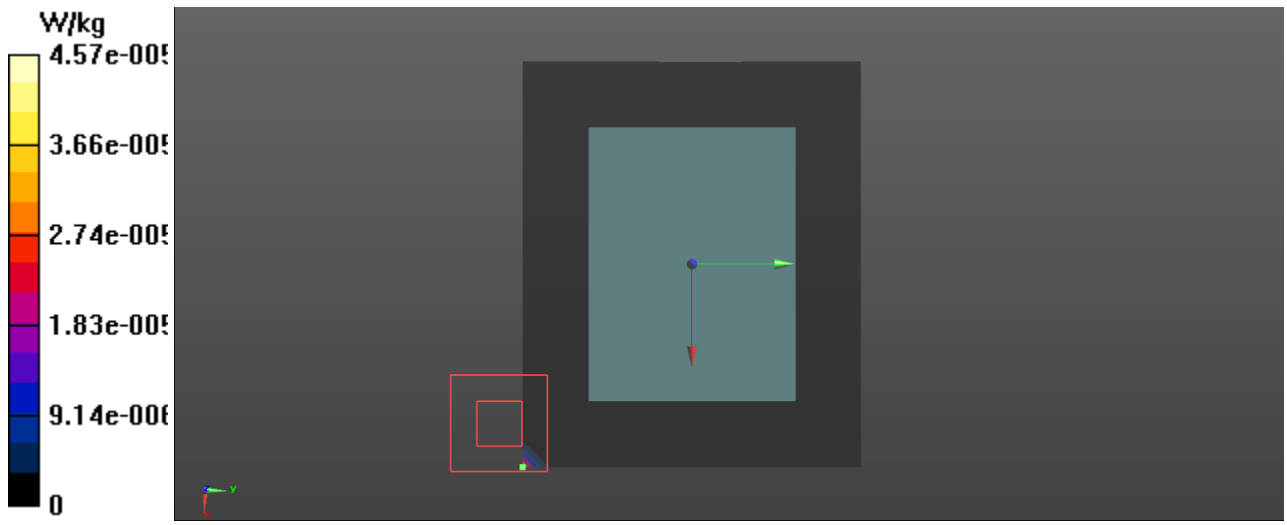
DUT: Twigcom Neo

Communication System: UID 0, SRD (0); Communication System Band: SRD; Frequency: 918.219 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 918.219 MHz; σ = 0.961 S/m; ε_r = 42.147; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.37, 8.45, 8.89) @ 918.219 MHz; Calibrated: 17/02/2023
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 19/10/2022
  - Phantom: SAR2_Phantom1_ELI; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.12(7450)

Configuration/TLP54US, SRD 918.219MHz Back 5mm/Zoom Scan (9x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.494 V/m; Power Drift = NA
Peak SAR (extrapolated) = 0.00520 W/kg
SAR(1 g) = 5.42e-005 W/kg; SAR(10 g) = 5.41e-006 W/kg (SAR corrected for target medium)
Maximum value of SAR (measured) = 0.00301 W/kg
Configuration/TLP54US, SRD 918.219MHz Back 5mm/Area Scan (61x51x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.0000457 W/kg



Plot 30

Date/Time: 7.2.24 10:45:00

Test Laboratory: Verkotan Oy

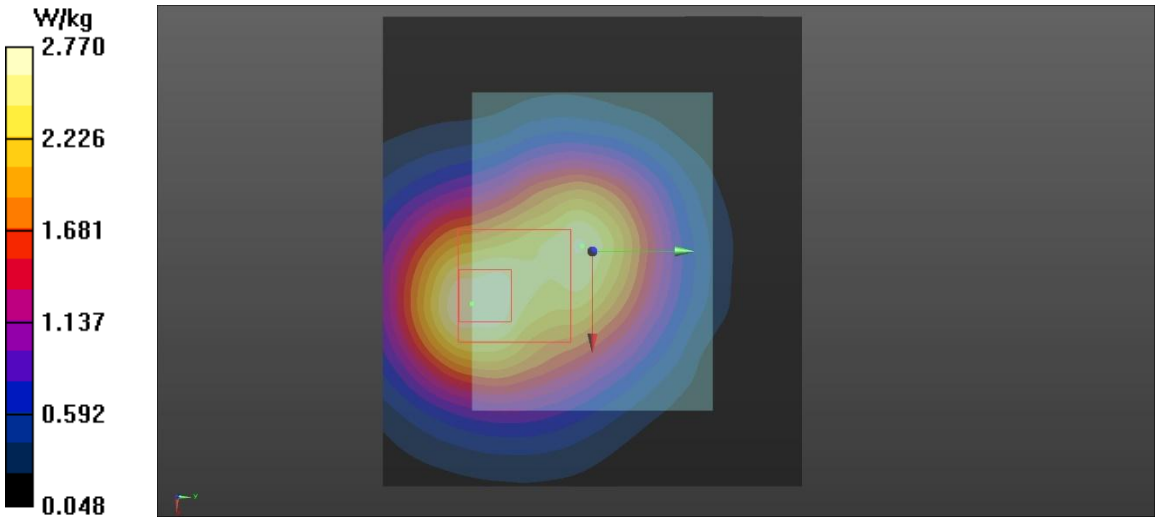
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 2; Frequency: 1852.4 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.361 S/m; ε_r = 38.292; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.94, 8.14, 7.8) @ 1852.4 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

TLP54US WCDMA 2, RMC 12.2K, CH9262, Back 0 mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 37.37 V/m; Power Drift = 0.17 dB Peak SAR (extrapolated) = 3.14 W/kg
SAR(1 g) = 1.98 W/kg; SAR(10 g) = 1.24 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 13.3 mm
Ratio of SAR at M2 to SAR at M1 = 62.7% Maximum value of SAR (measured) = 2.77 W/kg
Back 2/TLP54US , WCDMA 2, RMC 12.2K, CH9262, Back 0 mm/Area Scan 2 (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 2.54 W/kg



Plot 31

Date/Time: 8.2.24 15:30:44

Test Laboratory: Verkotan Oy

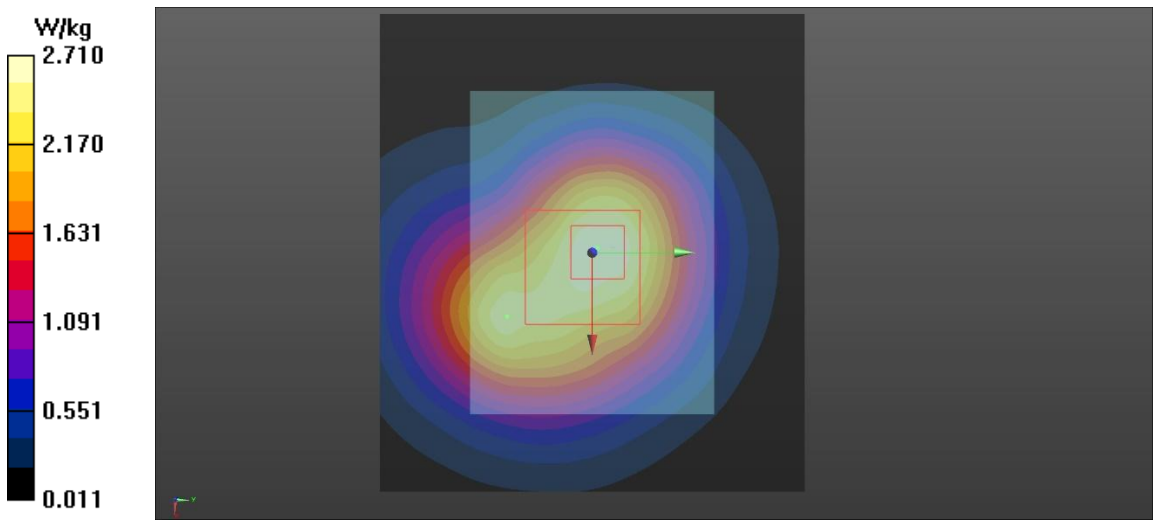
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 4; Frequency: 1712.4 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.293 S/m; ε_r = 38.184; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(8.12, 8.3, 8.01) @ 1712.4 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US DUT21127, WCDMA 4 LOW CH1312 Back 0mm 2/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 2.71 W/kg
Configuration/TLP54US , WCDMA 4 LOW CH1312 Back 0mm 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 40.41 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 2.92 W/kg
SAR(1 g) = 1.98 W/kg; SAR(10 g) = 1.22 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 15.5 mm
Ratio of SAR at M2 to SAR at M1 = 67.2% Maximum value of SAR (measured) = 2.63 W/kg



Plot 32

Date/Time: 12.2.24 11:29:55

Test Laboratory: Verkotan Oy

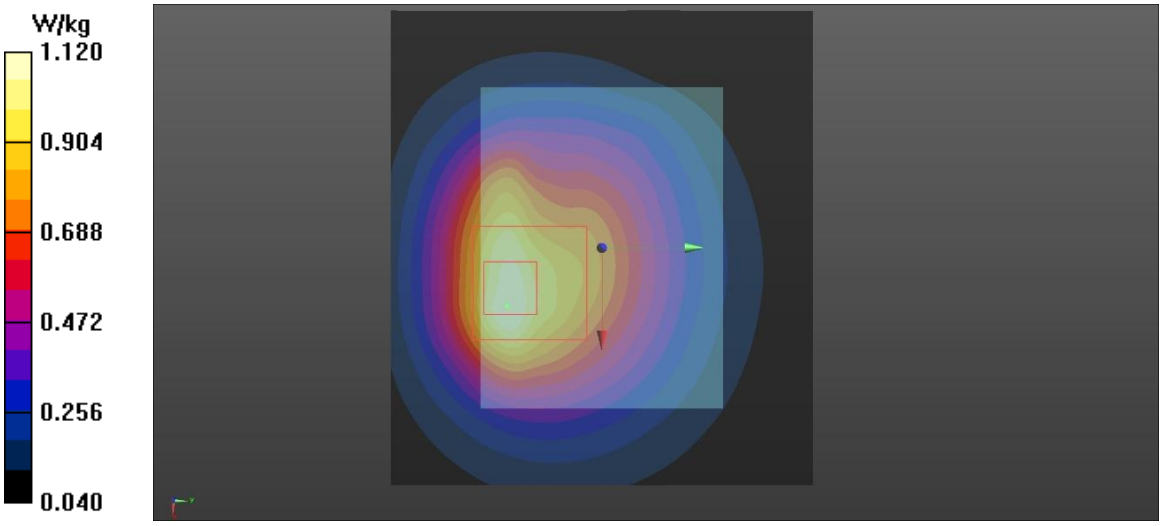
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 5; Frequency: 846.6 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 847 MHz; σ = 0.879 S/m; ε_r = 40.121; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 846.6 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US , WCDMA 5 HIGH CH4233 Back 0mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 27.62 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.845 W/kg; SAR(10 g) = 0.540 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 9 mm
Ratio of SAR at M2 to SAR at M1 = 55.8% Maximum value of SAR (measured) = 1.12 W/kg
Back/TLP54US , WCDMA 5 HIGH CH4233 Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.20 W/kg



Plot 33

Date/Time: 14.2.24 12:28:09

Test Laboratory: Verkotan Oy

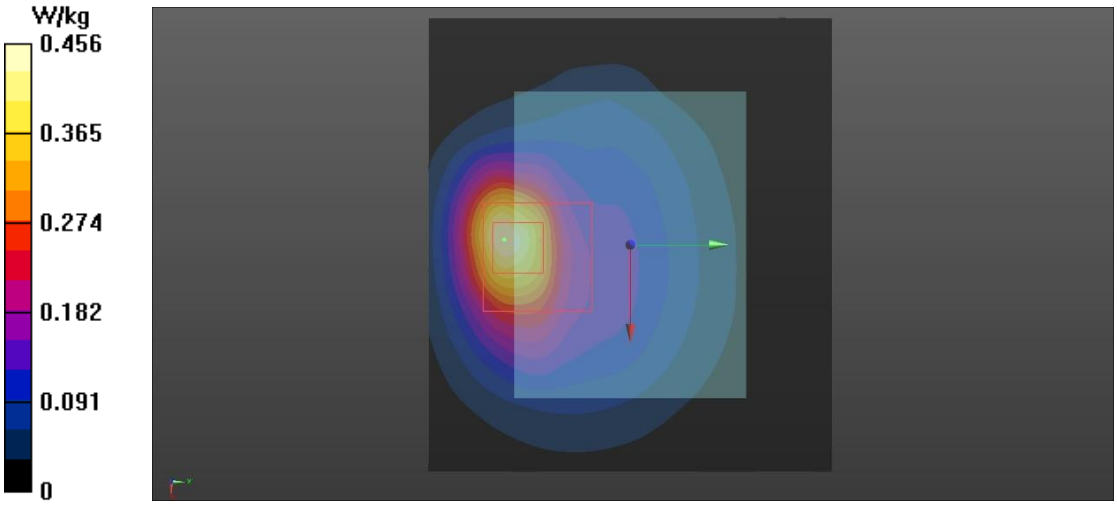
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 12, E-UTRA/FDD (698.0 - 716.0 MHz); Frequency: 711 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 711 MHz; σ = 0.861 S/m; ε_r = 40.956; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 711 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US , LTE12 High CH23130, QPSK, BW 10, RB 1 Offset 24, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.456 W/kg
Back/TLP54US , LTE12 High CH23130, QPSK, BW 10, RB 1 Offset 24, Back 0mm/Zoom Scan (8x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 9.906 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.374 W/kg
SAR(1 g) = 0.173 W/kg; SAR(10 g) = 0.095 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.6 mm
Ratio of SAR at M2 to SAR at M1 = 44.7% Maximum value of SAR (measured) = 0.285 W/kg



Plot 34

Date/Time: 12.2.24 12:02:33

Test Laboratory: Verkotan Oy

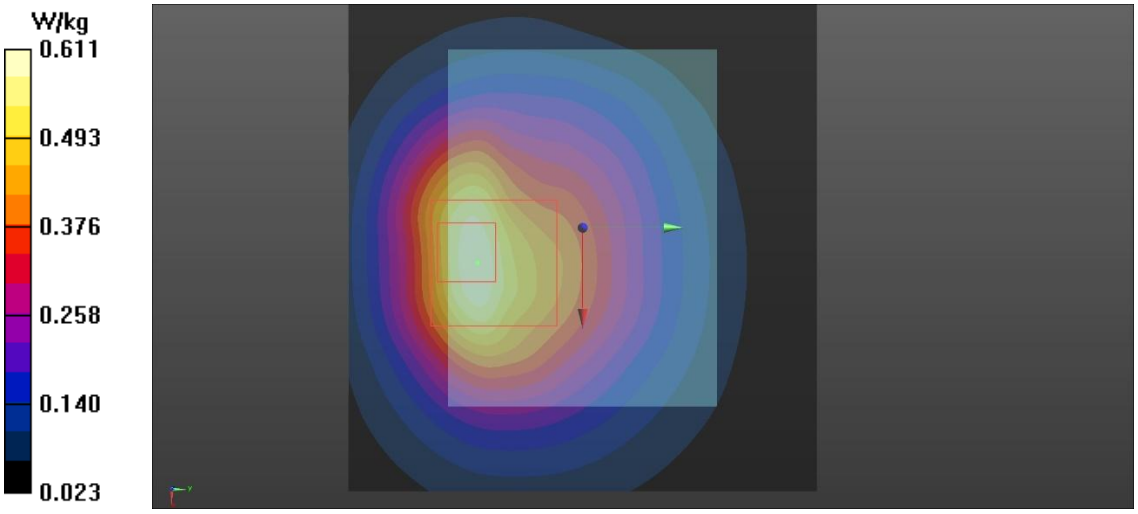
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 13, E-UTRA/FDD (777.0 - 787.0 MHz); Frequency: 782 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 782 MHz; σ = 0.856 S/m; ε_r = 40.457; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 782 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US , LTE13 MID CH23230, QPSK, BW 10, RB 1 Offset 24, Back 0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 18.26 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.760 W/kg
SAR(1 g) = 0.410 W/kg; SAR(10 g) = 0.250 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 8 mm
Ratio of SAR at M2 to SAR at M1 = 52.6% Maximum value of SAR (measured) = 0.611 W/kg
Back/TLP54US , LTE13 MID CH23230, QPSK, BW 10, RB 1 Offset 24, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.492 W/kg



Plot 35

Date/Time: 13.2.24 12:37:54

Test Laboratory: Verkotan Oy

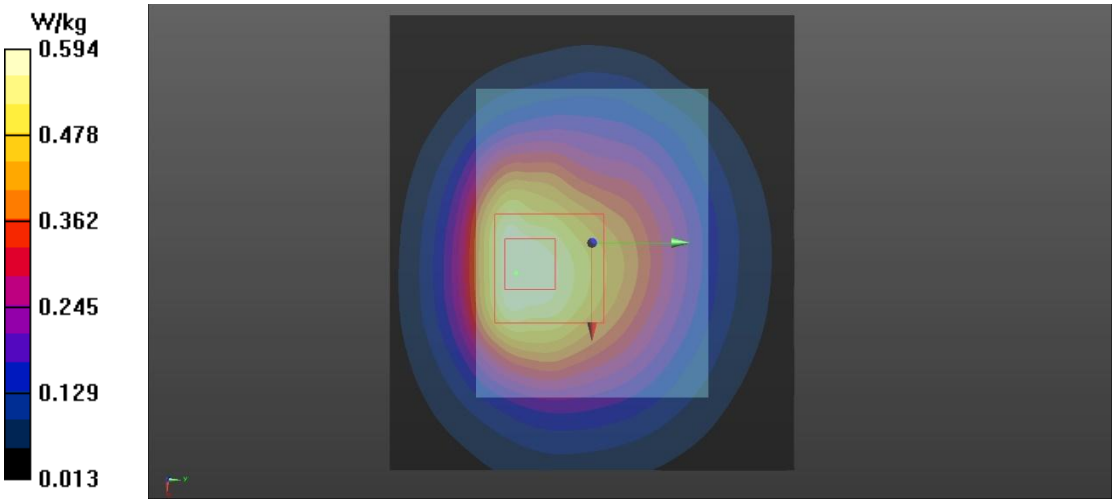
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 14, E-UTRA/FDD (788.0 - 798.0 MHz); Frequency: 795.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 795.5 MHz; σ = 0.861 S/m; ε_r = 39.627; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 795.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US , LTE14 High CH23355, QPSK, BW 5, RB 1 Offset 12, Back 0mm /Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 19.36 V/m; Power Drift = 0.41 dB
Peak SAR (extrapolated) = 0.696 W/kg
SAR(1 g) = 0.407 W/kg; SAR(10 g) = 0.257 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 10 mm
Ratio of SAR at M2 to SAR at M1 = 58.6%
Maximum value of SAR (measured) = 0.594 W/kg
Back/TLP54US , LTE14 High CH23355, QPSK, BW 5, RB 1 Offset 12, Back 0mm 2/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.532 W/kg



Plot 36

Date/Time: 6.2.24 11:04:06

Test Laboratory: Verkotan Oy

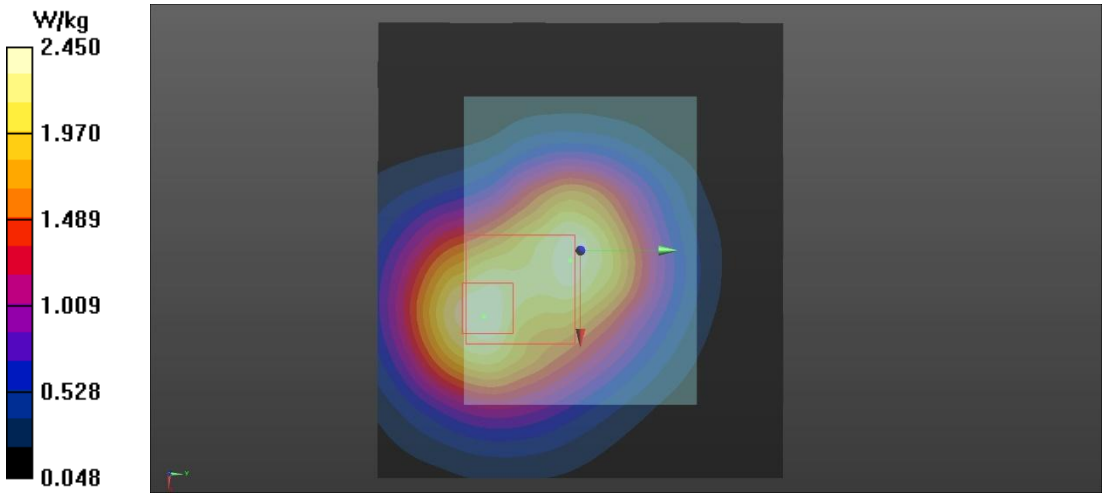
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 25, E-UTRA/FDD (1850.0 - 1915.0 MHz); Frequency: 1860 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1860 MHz; σ = 1.359 S/m; ε_r = 38.392; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.94, 8.14, 7.8) @ 1860 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US , LTE25 LOW CH26140, QPSK, BW 20, RB 1 Offset 0, Back 0mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 35.68 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 2.79 W/kg
SAR(1 g) = 1.75 W/kg; SAR(10 g) = 1.09 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 13.4 mm
Ratio of SAR at M2 to SAR at M1 = 64.1% Maximum value of SAR (measured) = 2.45 W/kg
Configuration/TLP54US , LTE25 LOW CH26140, QPSK, BW 20, RB 1 Offset 0, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 2.28 W/kg



Plot 37

Date/Time: 13.2.24 15:07:40

Test Laboratory: Verkotan Oy

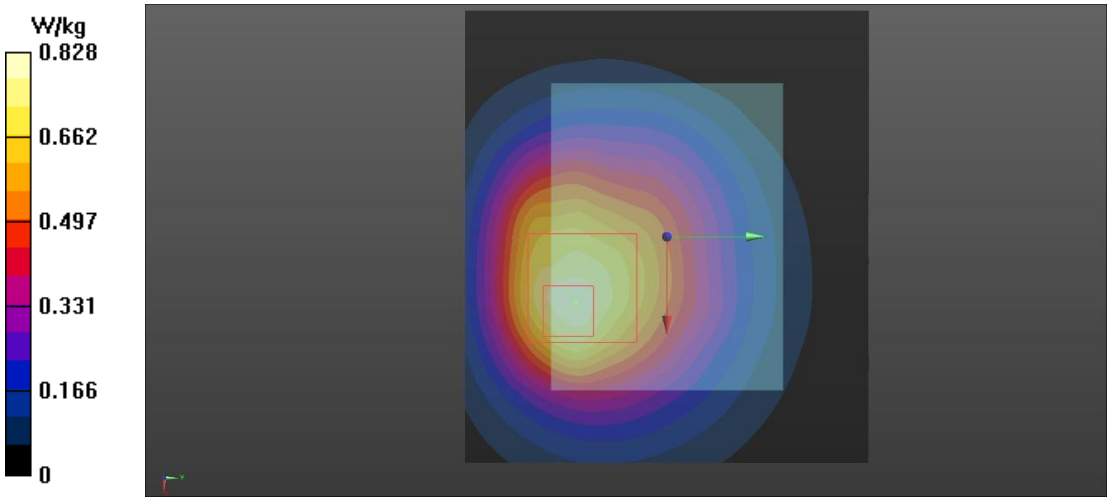
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 26; Frequency: 841.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.878 S/m; ε_r = 39.383; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 841.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US , LTE26 High CH26965, QPSK, BW 15, RB 1 Offset 37, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.828 W/kg
Back/TLP54US , LTE26 High CH26965, QPSK, BW 15, RB 1 Offset 37, Back 0mm/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 22.93 V/m; Power Drift = -0.40 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.612 W/kg; SAR(10 g) = 0.388 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 9.2 mm Ratio of SAR at M2 to SAR at M1 = 54%
Maximum value of SAR (measured) = 0.908 W/kg



Plot 38

Date/Time: 9.2.24 10:15:15

Test Laboratory: Verkotan Oy

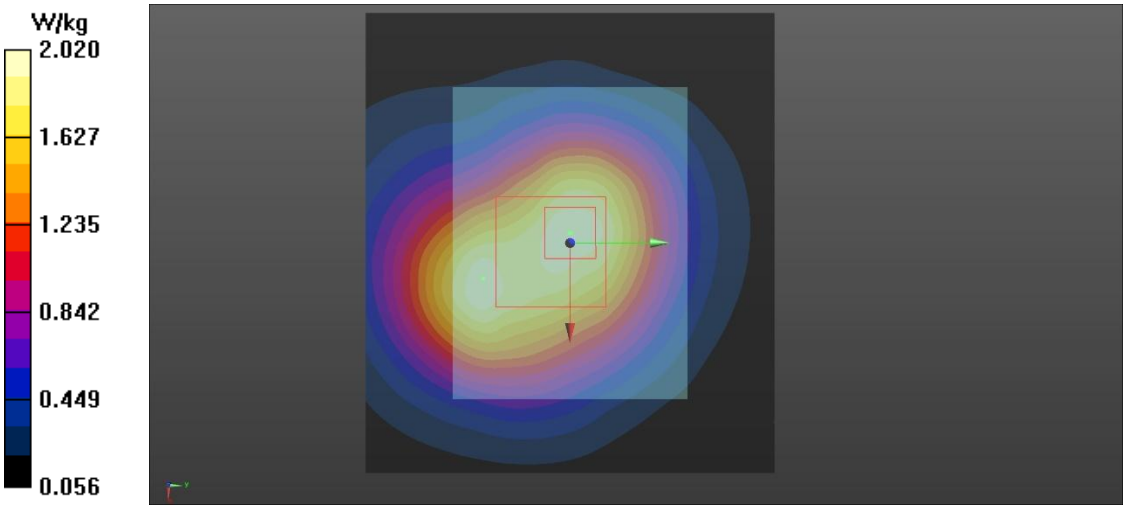
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 66; Frequency: 1745 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 1745 MHz; σ = 1.31 S/m; ε_r = 38.116; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(8.12, 8.3, 8.01) @ 1745 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US , LTE66 MID CH132322, QPSK, BW 20, RB 1 Offset 50, Back 0mm 3/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 35.30 V/m; Power Drift = 0.25 dB
Peak SAR (extrapolated) = 2.24 W/kg
SAR(1 g) = 1.53 W/kg; SAR(10 g) = 0.962 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 16.6 mm Ratio of SAR at M2 to SAR at M1 = 67.7%
Maximum value of SAR (measured) = 2.02 W/kg
Configuration/TLP54US , LTE66 MID CH132322, QPSK, BW 20, RB 1 Offset 50, Back 0mm 3/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 2.29 W/kg



Plot 39

Date/Time: 14.2.24 17:30:49

Test Laboratory: Verkotan Oy

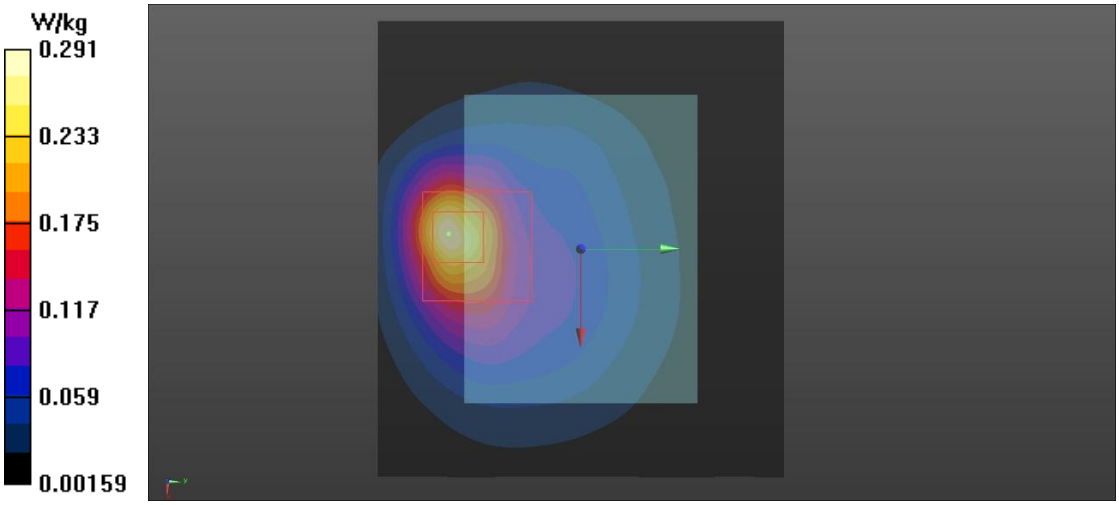
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 71; Frequency: 688 MHz;
Communication System PAR: 0 dB;
Medium parameters used (extrapolated): f = 688 MHz; σ = 0.852 S/m; ε_r = 41.108; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 688 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US , LTE71 High CH133372, QPSK, BW 20, RB 1 Offset 50, Back 0mm/Zoom Scan (8x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 8.289 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.147 W/kg; SAR(10 g) = 0.071 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 6.7 mm Ratio of SAR at M2 to SAR at M1 = 33.9%
Maximum value of SAR (measured) = 0.291 W/kg
Back/TLP54US , LTE71 High CH133372, QPSK, BW 20, RB 1 Offset 50, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.274 W/kg



Plot 40

Date/Time: 2.2.24 08:54:42

Test Laboratory: Verkotan Oy

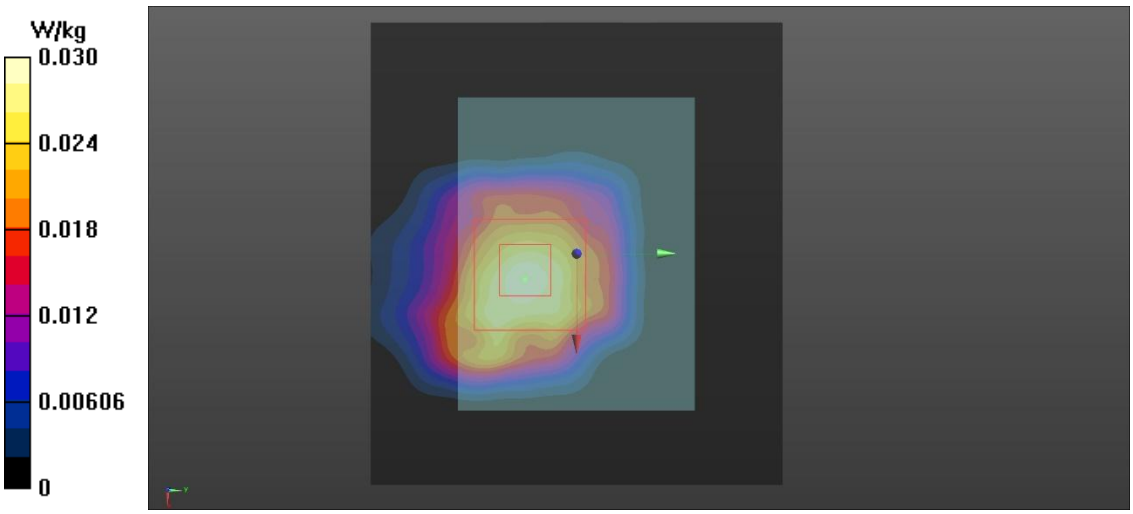
DUT: Twigcom Neo

Communication System: UID 0, WLAN 2.4 (0); Communication System Band: WLAN2.4GHz; Frequency: 2462 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 2462 MHz; σ = 1.733 S/m; ε_r = 38.094; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2462 MHz; Calibrated: 17.2.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US, WLAN 2.4GHz CH 11 Data Rate 6, Back 0mm 2 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.475 V/m; Power Drift = -0.86 dB Peak SAR (extrapolated) = 0.0360 W/kg
SAR(1 g) = 0.021 W/kg; SAR(10 g) = 0.00942 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 54.9% Maximum value of SAR (measured) = 0.0303 W/kg
Configuration/TLP54US, WLAN 2.4GHz CH 11 Data Rate 6, Back 0mm 2 2/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.0307 W/kg



Plot 41

Date/Time: 2.2.24 09:45:59

Test Laboratory: Verkotan Oy

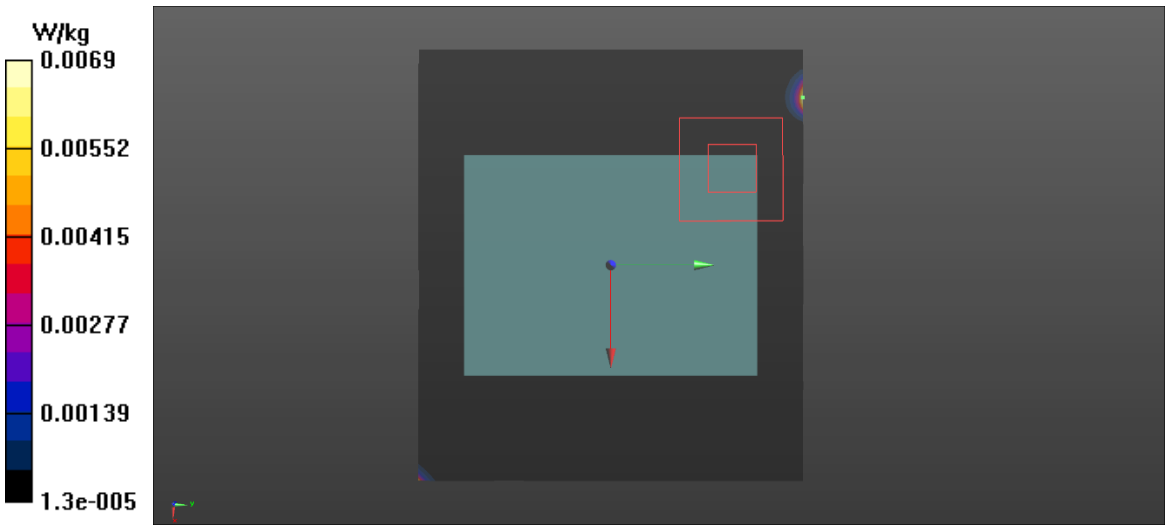
DUT: Twigcom Neo

Communication System: UID 0, Bluetooth (0); Communication System Band: BLE; Frequency: 2402 MHz;
Communication System PAR: 4.771 dB;
Medium parameters used (interpolated): f = 2402 MHz; σ = 1.692 S/m; ε_r = 38.192; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2402 MHz; Calibrated: 17.2.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US, BLE 2402 MHz , Back 0mm/Zoom Scan (10x10x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 2.138 V/m; Power Drift = NA
Peak SAR (extrapolated) = 0.0110 W/kg
SAR(1 g) = 0.000123 W/kg; SAR(10 g) = 1.23e-005 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 44.4% Maximum value of SAR (measured) = 0.00690 W/kg
Configuration/TLP54US, BLE 2402 MHz , Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.000364 W/kg



Plot 42

Date/Time: 14.2.24 09:22:03

Test Laboratory: Verkotan Oy

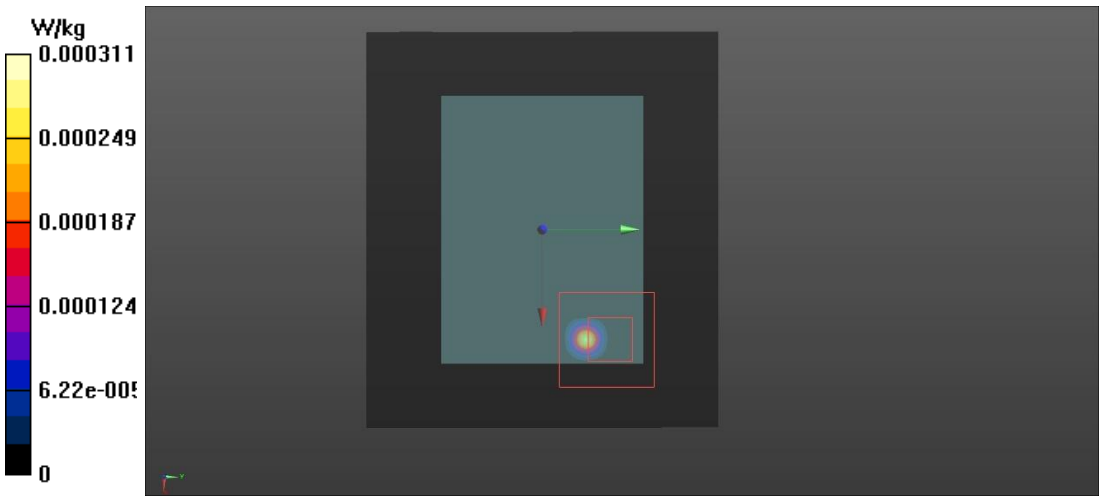
DUT: Twigcom Neo

Communication System: UID 0, SRD (0); Communication System Band: SRD; Frequency: 918.219 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 918.219 MHz; σ = 0.906 S/m; ε_r = 39.005; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 918.219 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Back/TLP54US SRD 915MHz, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.000311 W/kg
Back/TLP54US DUT SRD 915MHz, Back 0mm/Zoom Scan (7x9x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0 V/m; Power Drift = NA; Peak SAR (extrapolated) = 0.000329 W/kg
SAR(1 g) = 3.41e-006 W/kg; SAR(10 g) = 3.38e-007 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 26.2%
Maximum value of SAR (measured) = 0.000588 W/kg



Plot 43

Date/Time: 6.2.24 18:01:33

Test Laboratory: Verkotan Oy

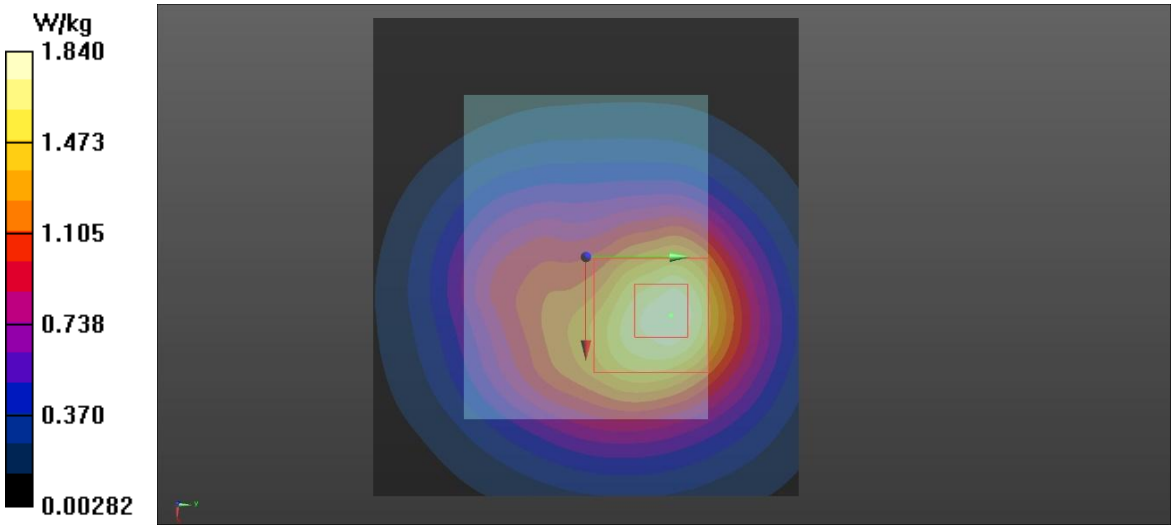
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 2; Frequency: 1907.6 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1908 MHz; σ = 1.384 S/m; ε_r = 38.328; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.94, 8.14, 7.8) @ 1907.6 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US, WCDMA 2, RMC 12.2K, CH9538, Front 10 mm/Area Scan 2 (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 1.84 W/kg
Front/TLP54US, WCDMA 2, RMC 12.2K, CH9538, Front 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.61 V/m; Power Drift = -0.03 dB Peak SAR (extrapolated) = 2.12 W/kg
SAR(1 g) = 1.3 W/kg; SAR(10 g) = 0.764 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 14.9 mm
Ratio of SAR at M2 to SAR at M1 = 60.1% Maximum value of SAR (measured) = 1.83 W/kg



Plot 44

Date/Time: 7.2.24 14:56:25

Test Laboratory: Verkotan Oy

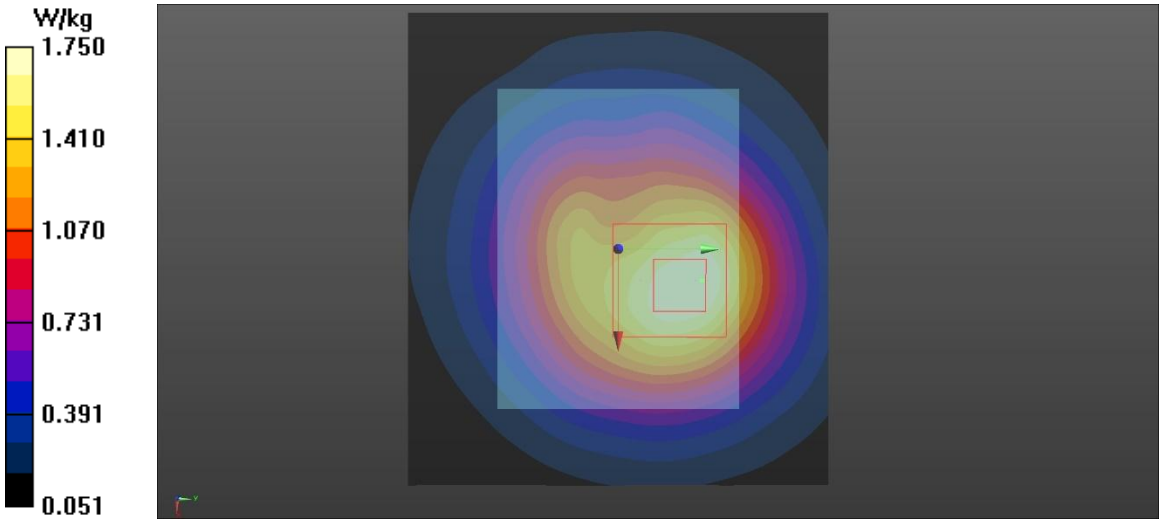
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 4; Frequency: 1712.4 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 1712.4 MHz; σ = 1.293 S/m; ε_r = 38.559; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(8.12, 8.3, 8.01) @ 1712.4 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , WCDMA 4, RMC 12.2K, CH1312, Front 10 mm/Zoom Scan (7x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 28.11 V/m; Power Drift = 0.24 dB
Peak SAR (extrapolated) = 1.93 W/kg
SAR(1 g) = 1.33 W/kg; SAR(10 g) = 0.815 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17.5 mm Ratio of SAR at M2 to SAR at M1 = 68.5%
Maximum value of SAR (measured) = 1.75 W/kg
Front/TLP54US , WCDMA 4, RMC 12.2K, CH1312, Front 10 mm/Area Scan 2 (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 1.68 W/kg



Plot 45

Date/Time: 12.2.24 15:08:04

Test Laboratory: Verkotan Oy

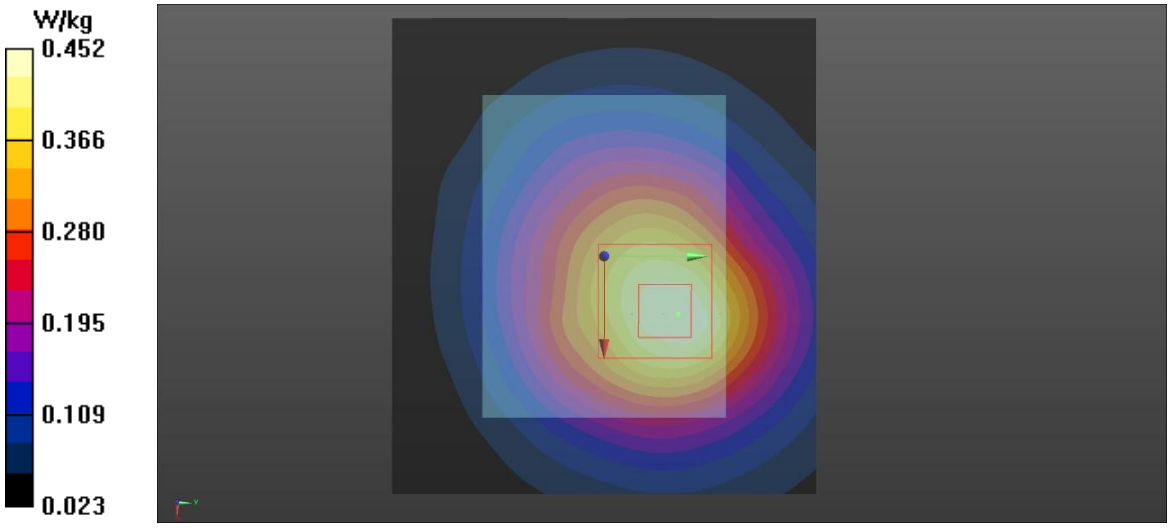
DUT: Twigcom Neo

Communication System: UID 0, WCDMA (0); Communication System Band: Band 5; Frequency: 846.6 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 847 MHz; σ = 0.879 S/m; ε_r = 40.121; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 846.6 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , WCDMA 5 HIGH CH4233 Front 10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 18.77 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.503 W/kg
SAR(1 g) = 0.352 W/kg; SAR(10 g) = 0.234 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17.5 mm
Ratio of SAR at M2 to SAR at M1 = 68.1% Maximum value of SAR (measured) = 0.452 W/kg
Front/TLP54US , WCDMA 5 HIGH CH4233 Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.444 W/kg



Plot 46

Date/Time: 14.2.24 14:44:37

Test Laboratory: Verkotan Oy

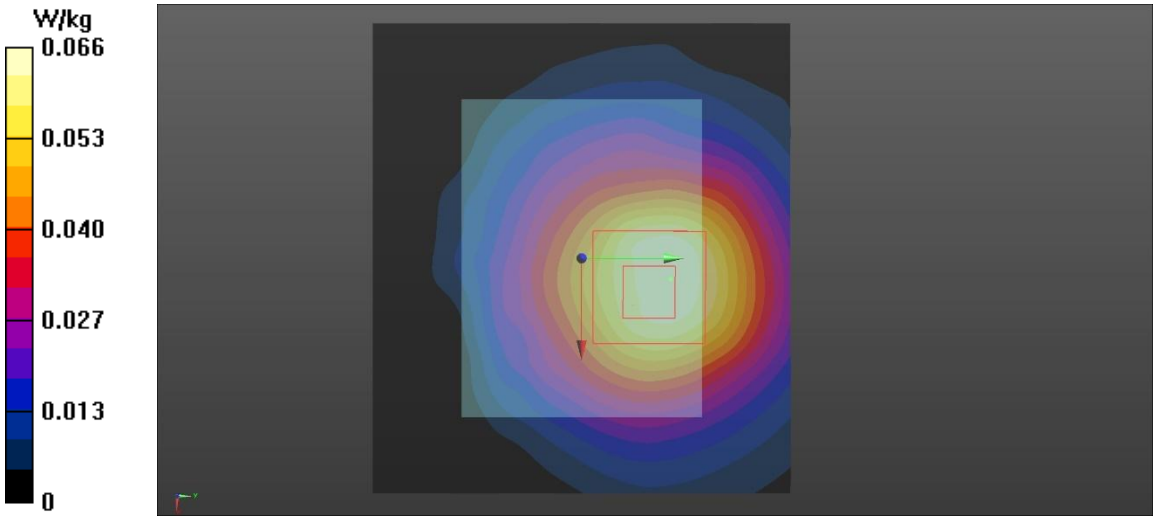
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 12, E-UTRA/FDD (698.0 - 716.0 MHz); Frequency: 711 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 711 MHz; σ = 0.861 S/m; ε_r = 40.956; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 711 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE12 High CH23130, QPSK, BW 10, RB 1 Offset 24, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.0664 W/kg
Front/TLP54US , LTE12 High CH23130, QPSK, BW 10, RB 1 Offset 24, Front 10mm/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 6.866 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.0690 W/kg
SAR(1 g) = 0.052 W/kg; SAR(10 g) = 0.034 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 72% Maximum value of SAR (measured) = 0.0636 W/kg



Plot 47

Date/Time: 12.2.24 16:46:52

Test Laboratory: Verkotan Oy

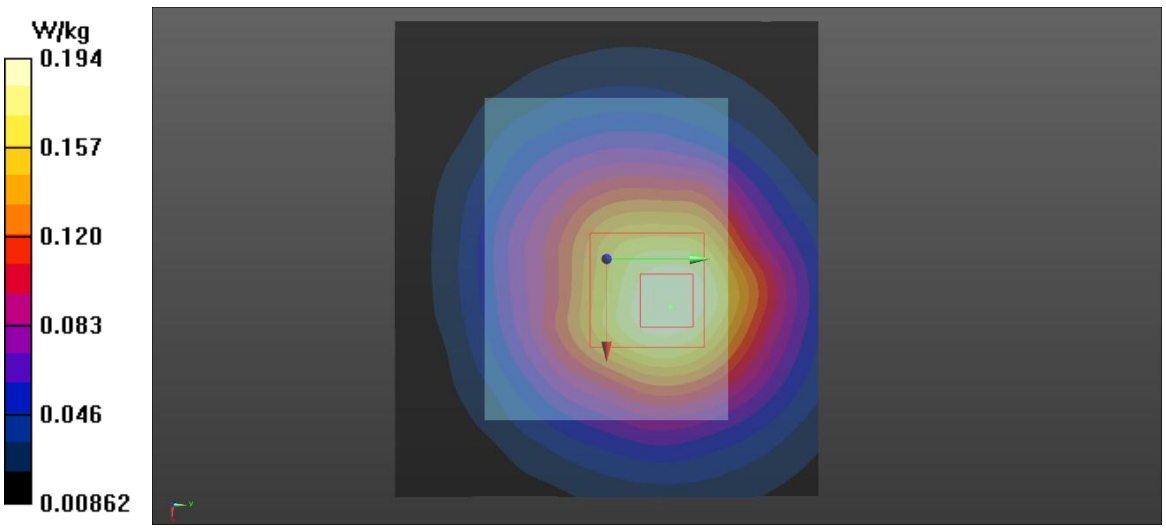
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 13, E-UTRA/FDD (777.0 - 787.0 MHz); Frequency: 784.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 784.5 MHz; σ = 0.856 S/m; ε_r = 40.441; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 784.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE13 HIGH CH23255, QPSK, BW 5, RB 1 Offset 12, Front 10mm/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 11.99 V/m; Power Drift = 0.27 dB
Peak SAR (extrapolated) = 0.211 W/kg
SAR(1 g) = 0.145 W/kg; SAR(10 g) = 0.096 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17 mm Ratio of SAR at M2 to SAR at M1 = 68.6%
Maximum value of SAR (measured) = 0.194 W/kg
Front/TLP54US , LTE13 HIGH CH23255, QPSK, BW 5, RB 1 Offset 12, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.181 W/kg



Plot 48

Date/Time: 13.2.24 16:45:11

Test Laboratory: Verkotan Oy

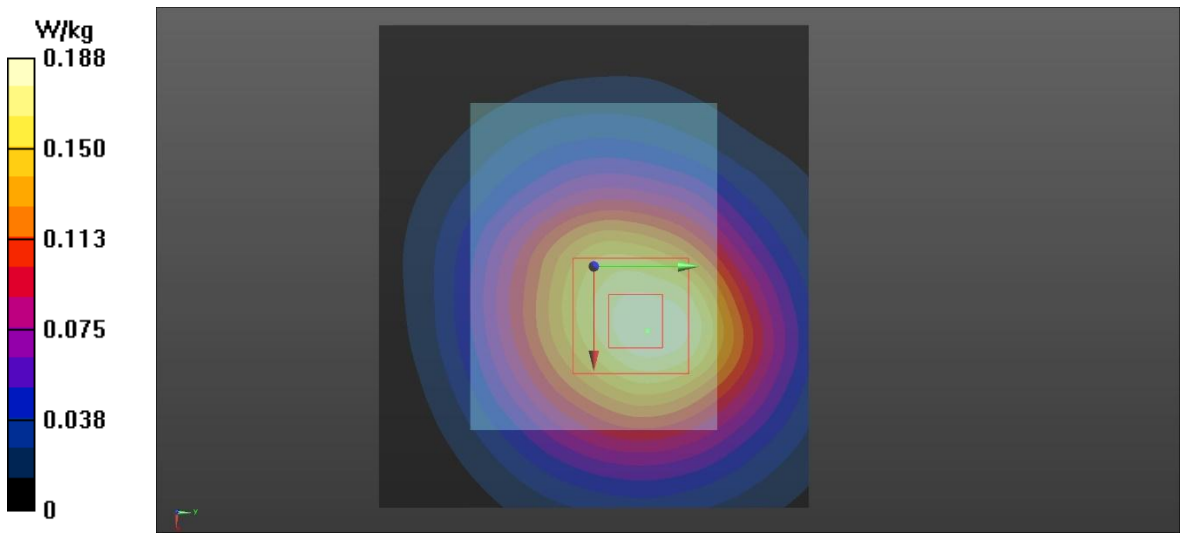
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 14, E-UTRA/FDD (788.0 - 798.0 MHz); Frequency: 795.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 795.5 MHz; σ = 0.861 S/m; ε_r = 39.627; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 795.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE14 High CH23355, QPSK, BW 5, RB 1 Offset 12, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.188 W/kg
Front/TLP54US , LTE14 High CH23355, QPSK, BW 5, RB 1 Offset 12, Front 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 12.54 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.153 W/kg; SAR(10 g) = 0.100 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 21.4 mm Ratio of SAR at M2 to SAR at M1 = 73.2%
Maximum value of SAR (measured) = 0.192 W/kg



Plot 49

Date/Time: 6.2.24 15:21:50

Test Laboratory: Verkotan Oy

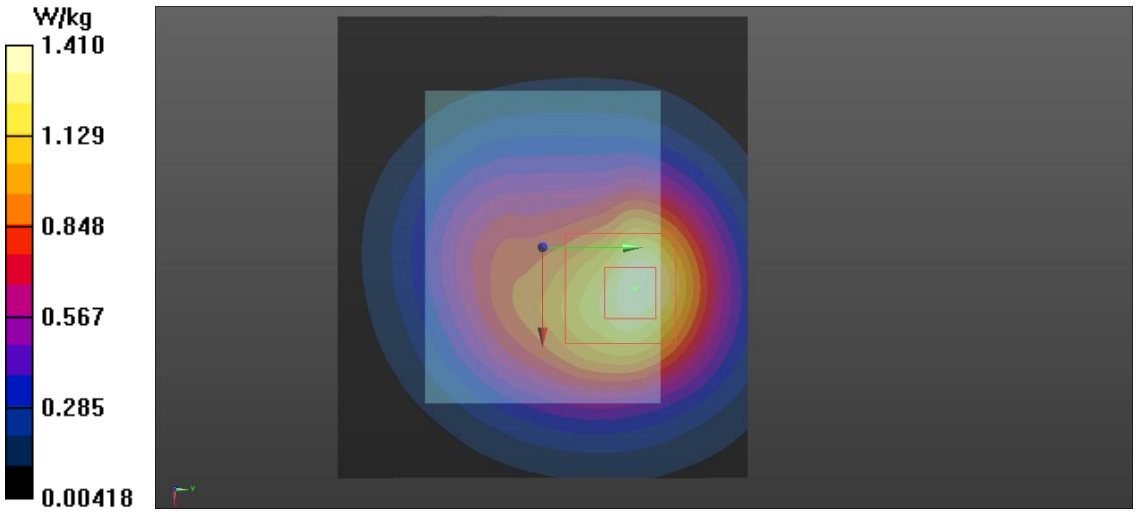
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 25, E-UTRA/FDD (1850.0 - 1915.0 MHz); Frequency: 1882.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 1882.5 MHz; σ = 1.371 S/m; ε_r = 38.358; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.94, 8.14, 7.8) @ 1882.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE25 MID CH26365, QPSK, BW 20, RB 1 Offset 50, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 1.41 W/kg
Front/TLP54US , LTE25 MID CH26365, QPSK, BW 20, RB 1 Offset 50, Front 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 22.06 V/m; Power Drift = 0.28 dB
Peak SAR (extrapolated) = 1.81 W/kg
SAR(1 g) = 1.08 W/kg; SAR(10 g) = 0.628 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 14.2 mm
Ratio of SAR at M2 to SAR at M1 = 61.1% Maximum value of SAR (measured) = 1.57 W/kg



Plot 50

Date/Time: 13.2.24 18:23:31

Test Laboratory: Verkotan Oy

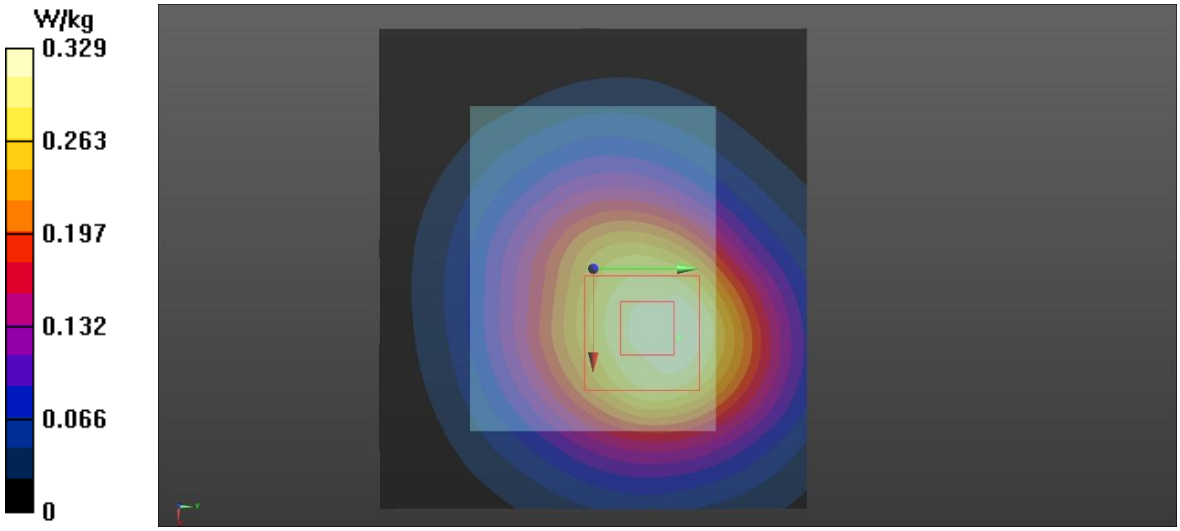
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 26; Frequency: 841.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 841.5 MHz; σ = 0.878 S/m; ε_r = 39.383; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 841.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE26 High CH26965, QPSK, BW 15, RB 1 Offset 37, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.329 W/kg
Front/TLP54US , LTE26 High CH26965, QPSK, BW 15, RB 1 Offset 37, Front 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 14.95 V/m; Power Drift = 0.35 dB
Peak SAR (extrapolated) = 0.377 W/kg
SAR(1 g) = 0.273 W/kg; SAR(10 g) = 0.176 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 19.2 mm Ratio of SAR at M2 to SAR at M1 = 70.6%
Maximum value of SAR (measured) = 0.343 W/kg



Plot 51

Date/Time: 8.2.24 10:14:41

Test Laboratory: Verkotan Oy

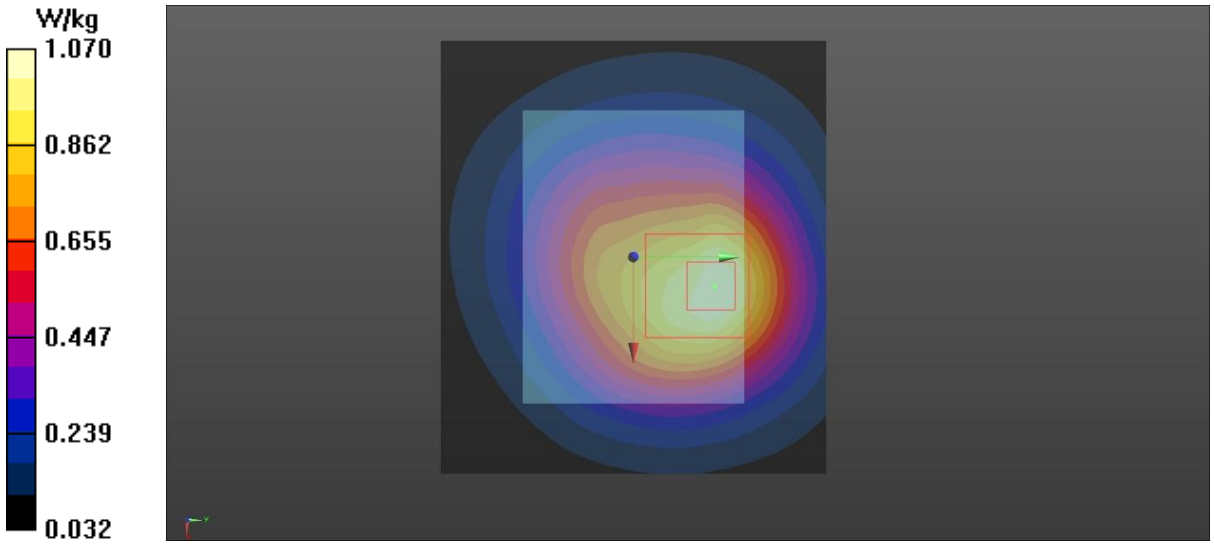
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 66; Frequency: 1720 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 1720 MHz; σ = 1.296 S/m; ε_r = 38.534; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(8.12, 8.3, 8.01) @ 1720 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE66 LOW CH132072, QPSK, BW 20, RB 100 Offset 0, Front 10mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 22.18 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.789 W/kg; SAR(10 g) = 0.484 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 16 mm Ratio of SAR at M2 to SAR at M1 = 63.1%
Maximum value of SAR (measured) = 1.07 W/kg
Front/TLP54US , LTE66 LOW CH132072, QPSK, BW 20, RB 100 Offset 0, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 1.06 W/kg



Plot 52

Date/Time: 14.2.24 16:29:08

Test Laboratory: Verkotan Oy

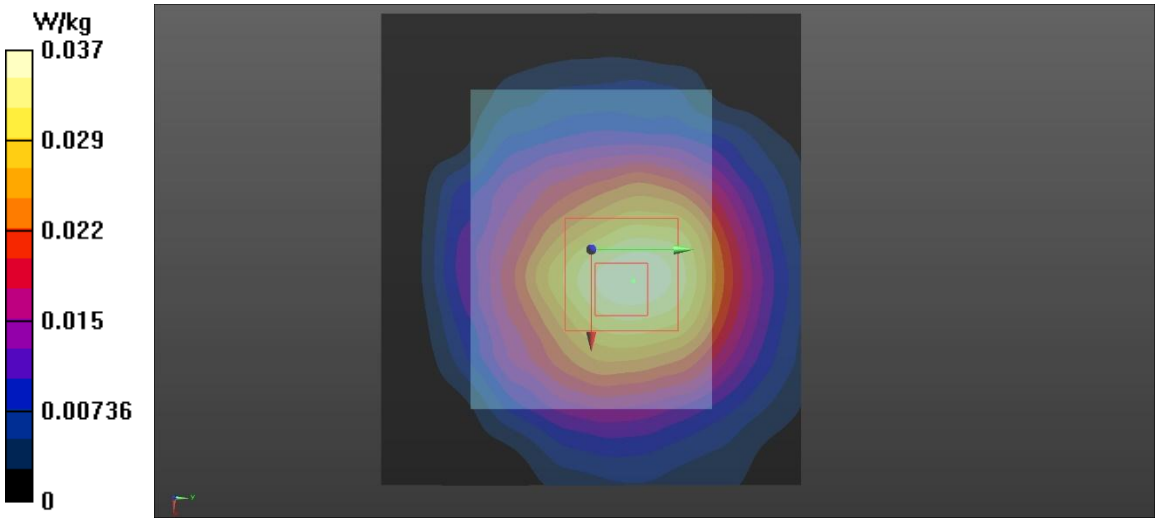
DUT: Twigcom Neo

Communication System: UID 0, Generic LTE (0); Communication System Band: Band 71; Frequency: 680.5 MHz;
Communication System PAR: 0 dB;
Medium parameters used (extrapolated): f = 680.5 MHz; σ = 0.85 S/m; ε_r = 41.155; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.64, 9.72, 9.33) @ 680.5 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US , LTE71 Mid CH133297, QPSK, BW 20, RB 1 Offset 50, Back 0mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.0368 W/kg
Front/TLP54US , LTE71 Mid CH133297, QPSK, BW 20, RB 1 Offset 50, Back 0mm/Zoom Scan (8x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 5.577 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.0400 W/kg
SAR(1 g) = 0.028 W/kg; SAR(10 g) = 0.018 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 70.5%
Maximum value of SAR (measured) = 0.0358 W/kg



Plot 53

Date/Time: 2.2.24 09:07:32

Test Laboratory: Verkotan Oy

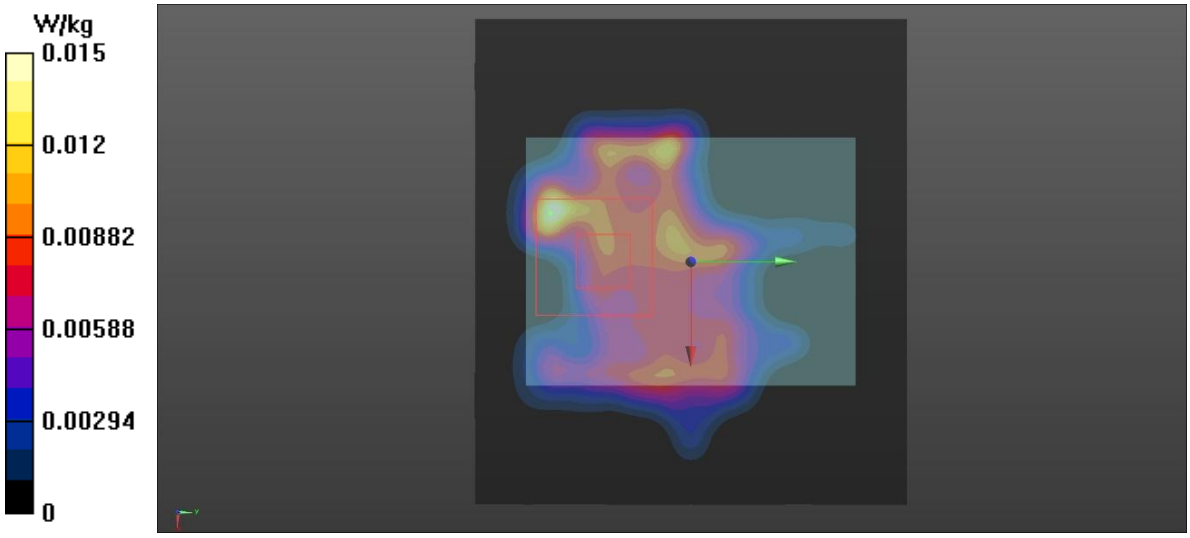
DUT: Twigcom Neo

Communication System: UID 0, WLAN 2.4 (0); Communication System Band: WLAN2.4GHz; Frequency: 2462 MHz;
Communication System PAR: 0 dB;
Medium parameters used: f = 2462 MHz; σ = 1.733 S/m; ε_r = 38.094; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2462 MHz; Calibrated: 17.2.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US DUT21122, WLAN 2.4GHz CH 11 Data Rate 6, Front 10mm 2/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.0147 W/kg
Configuration/TLP54US DUT21122, WLAN 2.4GHz CH 11 Data Rate 6, Front 10mm 2/Zoom Scan (8x8x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 2.640 V/m; Power Drift = NA
Peak SAR (extrapolated) = 0.0280 W/kg
SAR(1 g) = 0.00439 W/kg; SAR(10 g) = 0.00125 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 51.4% Maximum value of SAR (measured) = 0.0137 W/kg



Plot 54

Date/Time: 2.2.24 10:27:24

Test Laboratory: Verkotan Oy

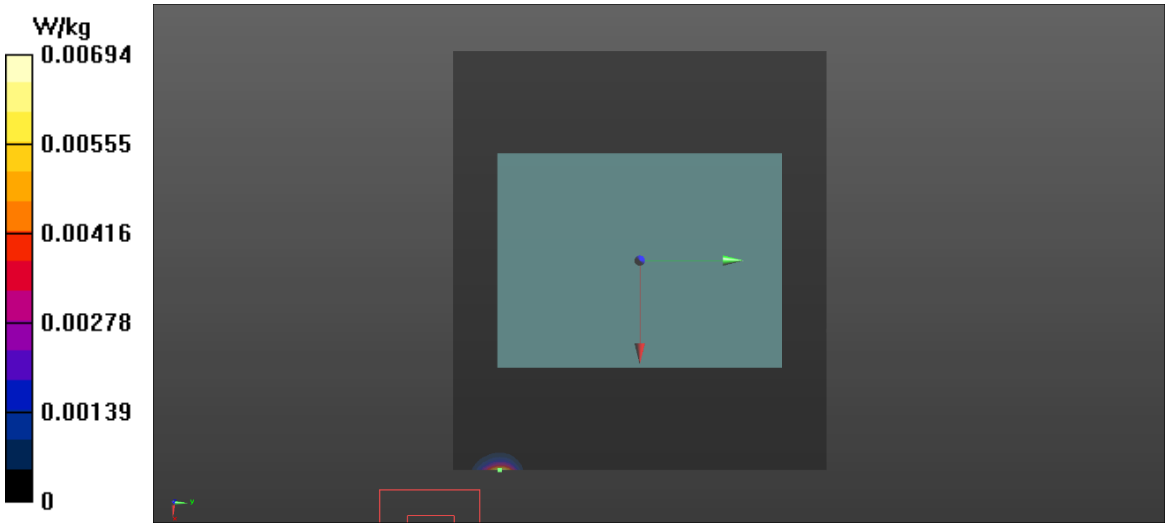
DUT: Twigcom Neo

Communication System: UID 0, Bluetooth (0); Communication System Band: BLE; Frequency: 2440 MHz;
Communication System PAR: 4.771 dB;
Medium parameters used: f = 2440 MHz; σ = 1.718 S/m; ε_r = 38.137; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.7, 7.5, 7.63) @ 2440 MHz; Calibrated: 17.2.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), z = 31.0, -4.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/TLP54US DUT21122, BLE 2440 MHz , Front 10mm/Zoom Scan (10x10x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 1.689 V/m; Power Drift NA
Peak SAR (extrapolated) = 0.0110 W/kg
SAR(1 g) = 0.000117 W/kg; SAR(10 g) = 1.16e-005 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 48.1% Maximum value of SAR (measured) = 0.00694 W/kg
Configuration/TLP54US DUT21122, BLE 2440 MHz , Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm Maximum value of SAR (interpolated) = 0.000247 W/kg



Plot 55

Date/Time: 14.2.24 08:38:16

Test Laboratory: Verkotan Oy

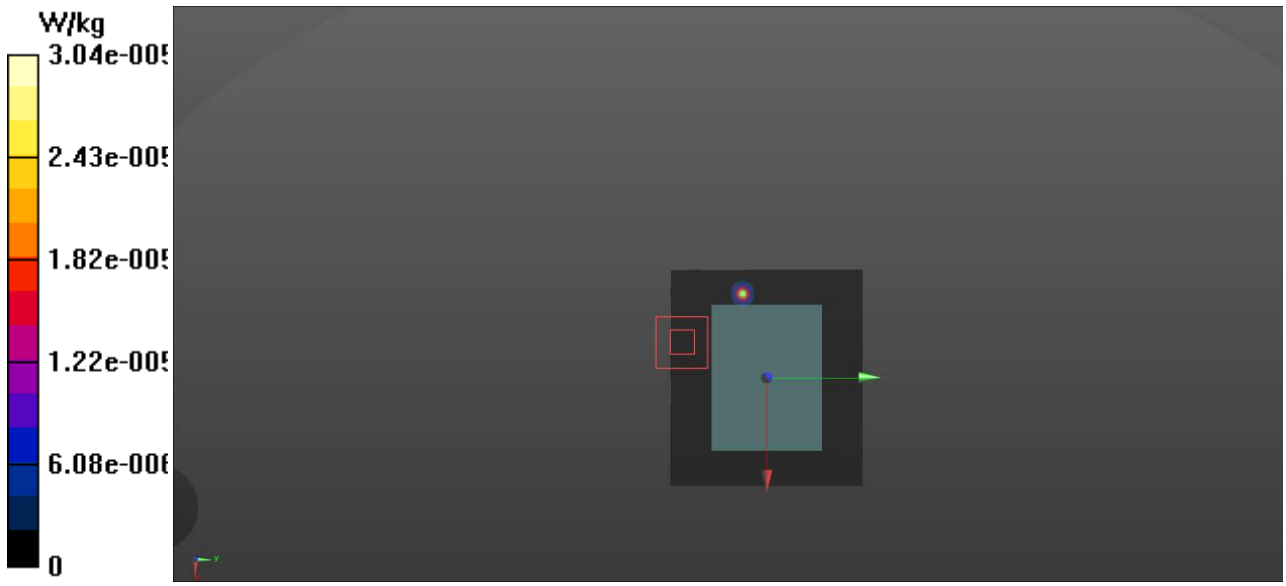
DUT: Twigcom Neo

Communication System: UID 0, SRD (0); Communication System Band: SRD; Frequency: 918.219 MHz;
Communication System PAR: 0 dB;
Medium parameters used (interpolated): f = 918.219 MHz; σ = 0.906 S/m; ε_r = 39.005; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(9.3, 9.64, 8.99) @ 918.219 MHz; Calibrated: 20.4.23
  - Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
  - Electronics: DAE4 Sn710; Calibrated: 24.10.23
  - Phantom: SAR1_Phantom1_ELI_left; Type: QD OVA 002 AA;
  - DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Front/TLP54US SRD 915MHz, Front 10mm/Area Scan (91x81x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 0.0000304 W/kg
Front/TLP54US DUT SRD 915MHz, Front 10mm/Zoom Scan (11x11x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 0.9140 V/m; Power Drift NA Peak SAR (extrapolated) = 0.00271 W/kg
SAR(1 g) = 2.37e-005 W/kg; SAR(10 g) = 2.42e-006 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below: Larger than measurement grid
Ratio of SAR at M2 to SAR at M1 = 27.4% Maximum value of SAR (measured) = 0.00271 W/kg



APPENDIX D: RELEVANT PAGES FROM PROBE CALIBRATION REPORTS

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

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

Accreditation No.: **SCS 0108**

Client: **Verkotan** Certificate No: **EX-7447_Feb23**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:7447
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	February 17, 2023

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
OCP DAK-3.5 (weighted)	SN: 1249	20-Oct-22 (OCP-DAK3.5-1249_Oct22)	Oct-23
OCP DAK-12	SN: 1016	20-Oct-22 (OCP-DAK12-1016_Oct22)	Oct-23
Reference 20 dB Attenuator	SN: CC2552 (20x)	04-Apr-22 (No. 217-03527)	Apr-23
DAE4	SN: 660	10-Oct-22 (No. DAE4-660_Oct22)	Oct-23
Reference Probe ES3DV2	SN: 3013	06-Jan-23 (No. ES3-3013_Jan23)	Jan-24

Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-22)	In house check: Jun-24
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-22)	In house check: Jun-24
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	Niels Kuster	Quality Manager	

Issued: February 21, 2023

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: EX-7447_Feb23 Page 1 of 9

Parameters of Probe: EX3DV4 - SN:7447

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ($k = 2$)
Norm ($\mu V/(V/m)^2$) [A]	0.43	0.43	0.43	±10.1%
DCP (mV) [B]	90.0	91.0	96.0	±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	130.7	±2.3%	±4.7%
		Y	0.00	0.00	1.00		130.1		
		Z	0.00	0.00	1.00		134.6		

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 Page 5).
[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:7447

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	-139.3°
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:7447

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 (k = 2)
13	55.0	0.75	17.42	17.42	17.42	0.00	1.25	±13.3%
750	41.9	0.89	9.91	8.74	9.52	0.31	1.27	±12.0%
900	41.5	0.97	9.37	8.45	8.89	0.32	1.27	±12.0%
1750	40.1	1.37	8.45	7.97	8.40	0.25	1.27	±12.0%
1950	40.0	1.40	8.05	7.59	7.97	0.29	1.27	±12.0%
2150	39.7	1.53	8.01	7.58	7.90	0.28	1.27	±12.0%
2300	39.5	1.67	7.85	7.46	7.80	0.28	1.27	±12.0%
2450	39.2	1.80	7.70	7.50	7.63	0.28	1.27	±12.0%
2600	39.0	1.96	7.55	7.37	7.73	0.28	1.27	±12.0%
3300	38.2	2.71	7.02	6.71	7.02	0.34	1.27	±14.0%
5250	35.9	4.71	5.18	4.99	5.17	0.39	1.53	±14.0%
5600	35.5	5.07	4.40	4.29	4.43	0.38	1.77	±14.0%
5750	35.4	5.22	4.47	4.33	4.53	0.38	1.85	±14.0%

[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 TSL with deviations from the target of less than ±5% are used, the calibration uncertainties are 11.1% for 0.7 - 3 GHz and 13.1% for 3 - 6 GHz.

[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.

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Accreditation No.: SCS 0108

Client	Verkotan	Certificate No	EX-3852_Oct22

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3852
Calibration procedure(s)	QA CAL-01.v9, QA CAL-12.v9, QA CAL-14.v6, QA CAL-23.v5, QA CAL-25.v7 Calibration procedure for dosimetric E-field probes
Calibration date	October 27, 2022

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
OCP DAK-3.5 (weighted)	SN: 1249	20-Oct-22 (OCP-DAK3.5-1249_Oct22)	Oct-23
OCP DAK-12	SN: 1016	20-Oct-22 (OCP-DAK12-1016_Oct22)	Oct-23
Reference 20 dB Attenuator	SN: CC2552 (20x)	04-Apr-22 (No. 217-03527)	Apr-23
DAE4	SN: 660	10-Oct-22 (No. DAE4-660_Oct22)	Oct-23
Reference Probe ES3DV2	SN: 3013	27-Dec-21 (No. ES3-3013_Dec21)	Dec-22

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

	Name	Function	Signature
Calibrated by	Michael Weber	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	

Issued: October 27, 2022

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Certificate No: EX-3852_Oct22 Page 1 of 9

Parameters of Probe: EX3DV4 - SN:3852

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ($k = 2$)
Norm ($\mu V/(V/m)^2$) [A]	0.41	0.39	0.46	±10.1%
DCP (mV) [B]	99.8	98.2	99.9	±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	147.5	±2.5%	±4.7%
		Y	0.00	0.00	1.00		138.0		
		Z	0.00	0.00	1.00		137.1		

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 Page 5).
[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:3852

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	126.7°
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:3852

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 ($k = 2$)
6	55.0	0.75	15.18	15.18	15.18	0.00	1.00	±13.3%
30	55.0	0.75	13.34	13.34	13.34	0.00	1.00	±13.3%
64	54.2	0.75	11.88	11.88	11.88	0.00	1.00	±13.3%
128	52.8	0.76	11.57	11.57	11.57	0.00	1.00	±13.3%
220	49.0	0.81	10.92	10.92	10.92	0.00	1.00	±13.3%
450	43.5	0.87	10.20	10.20	10.20	0.16	1.30	±13.3%
900	41.5	0.97	8.82	8.82	8.82	0.44	0.94	±12.0%
1300	40.8	1.14	8.54	8.54	8.54	0.27	1.22	±12.0%
1450	40.5	1.20	8.63	8.63	8.63	0.39	0.80	±12.0%
1640	40.2	1.31	8.33	8.33	8.33	0.34	0.90	±12.0%
1810	40.0	1.40	7.90	7.90	7.90	0.38	0.90	±12.0%
1900	40.0	1.40	7.72	7.72	7.72	0.36	0.90	±12.0%
2450	39.2	1.80	7.48	7.48	7.48	0.41	0.90	±12.0%
3300	38.2	2.71	6.85	6.85	6.85	0.30	1.30	±13.1%
3500	37.9	2.91	6.83	6.83	6.83	0.30	1.35	±13.1%
3700	37.7	3.12	6.65	6.65	6.65	0.30	1.35	±13.1%
3900	37.5	3.32	6.38	6.38	6.38	0.40	1.60	±13.1%
4100	37.2	3.53	6.19	6.19	6.19	0.40	1.60	±13.1%
5250	35.9	4.71	4.90	4.90	4.90	0.40	1.80	±13.1%
5600	35.5	5.07	4.61	4.61	4.61	0.40	1.80	±13.1%
5750	35.4	5.22	4.65	4.65	4.65	0.40	1.80	±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] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ±10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ±5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

[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.

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Accreditation No.: SCS 0108

Client **Verkotan**
Oulu, Finland

Certificate No. **EX-3892_Apr23**

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN:3892
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	April 20, 2023

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	30-Mar-23 (No. 217-03804/03805)	Mar-24
Power sensor NRP-Z91	SN: 103244	30-Mar-23 (No. 217-03804)	Mar-24
OCP DAK-3.5 (weighted)	SN: 1249	20-Oct-22 (OCP-DAK3.5-1249_Oct22)	Oct-23
OCP DAK-12	SN: 1016	20-Oct-22 (OCP-DAK12-1016_Oct22)	Oct-23
Reference 20 dB Attenuator	SN: CC2552 (20x)	30-Mar-23 (No. 217-03809)	Mar-24
DAE4	SN: 660	16-Mar-23 (No. DAE4-660_Mar23)	Mar-24
Reference Probe ES3DV2	SN: 3013	06-Jan-23 (No. ES3-3013_Jan23)	Jan-24

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

	Name	Function	Signature
Calibrated by	Jeffrey Katzman	Laboratory Technician	
Approved by	Sven Kühn	Technical Manager	

Issued: April 22, 2023

Parameters of Probe: EX3DV4 - SN:3892

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc ($k = 2$)
Norm (μV/(V/m)^2) [A]	0.47	0.39	0.49	±10.1%
DCP (mV) [B]	102.4	105.3	102.6	±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	120.0	±1.1%	±4.7%
		Y	0.00	0.00	1.00		141.8		
		Z	0.00	0.00	1.00		123.2		

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 Page 5).
[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:3892

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle	29.4°
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:3892

Calibration Parameter Determined in Head Tissue Simulating Media

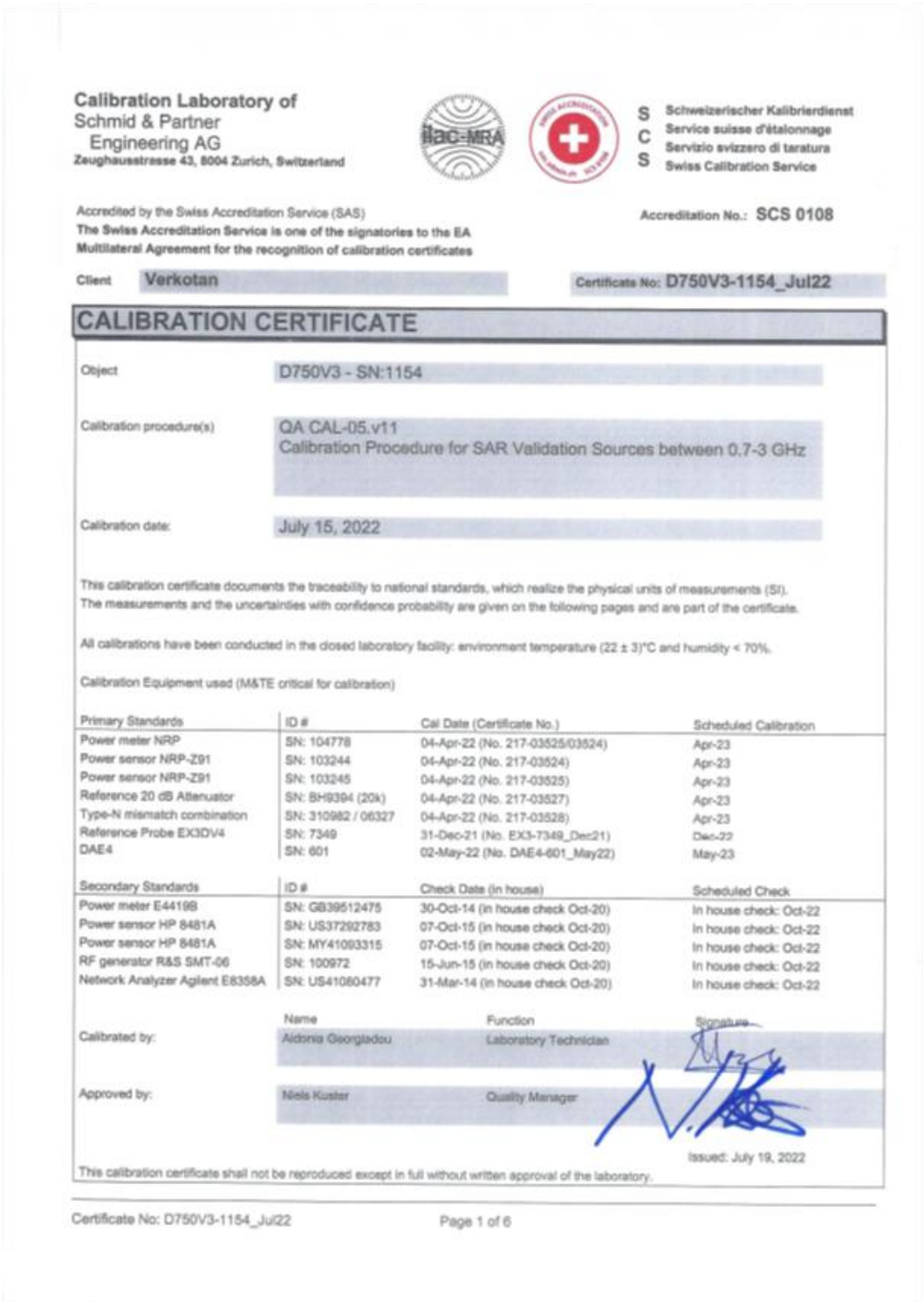
f (MHz)[C]	Relative Permittivity[F]	Conductivity[F] (S/m)	ConvF X	ConvF Y	ConvF Z	Alpha[G]	Depth[G] (mm)	Unc ($k = 2$)
450	43.5	0.87	10.79	10.79	10.79	0.16	1.30	±13.3%
600	42.7	0.88	10.21	10.21	10.21	0.10	1.25	±13.3%
750	41.9	0.89	9.64	9.72	9.33	0.37	1.27	±12.0%
900	41.5	0.97	9.30	9.64	8.99	0.35	1.27	±12.0%
1750	40.1	1.37	8.12	8.30	8.01	0.24	1.27	±12.0%
1900	40.0	1.40	7.94	8.14	7.80	0.28	1.27	±12.0%
2450	39.2	1.80	7.09	7.31	6.98	0.26	1.27	±12.0%
2600	39.0	1.96	7.18	7.37	7.04	0.26	1.27	±12.0%
4400	36.9	3.84	6.14	6.32	6.02	0.36	1.27	±14.0%
4800	36.4	4.25	5.96	6.13	5.83	0.36	1.27	±14.0%

[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 TSL with deviations from the target of less than ±5% are used, the calibration uncertainties are 11.1% for 0.7 - 3 GHz and 13.1% for 3 - 6 GHz.

[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.

APPENDIX E: RELEVANT PAGES FROM DIPOLE CALIBRATION REPORTS



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Accreditation No.: SCS 0108

Client: Verkotan

Certificate No: D750V3-1154_Jul22

CALIBRATION CERTIFICATE

Object: D750V3 - SN:1154

Calibration procedure(s): QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: July 15, 2022

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

	Name	Function	Signature
Calibrated by:	Aidonia Georgiadou	Laboratory Technician	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 19, 2022

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Certificate No: D750V3-1154_Jul22 Page 1 of 6

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.5 ± 6 %	0.90 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.17 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**8.54 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.41 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**5.57 W/kg ± 16.5 % (k=2)**

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Accreditation No.: **SCS 0108**

Client **Verkotan** Certificate No: **D835V2-455_Jul22**

CALIBRATION CERTIFICATE

Object	D835V2 - SN:455
Calibration procedure(s)	QA CAL-05.v11 Calibration Procedure for SAR Validation Sources between 0.7-3 GHz
Calibration date:	July 15, 2022

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH8394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

	Name	Function	Signature
Calibrated by:	Aldonis Georgiadou	Laboratory Technician	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 19, 2022

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

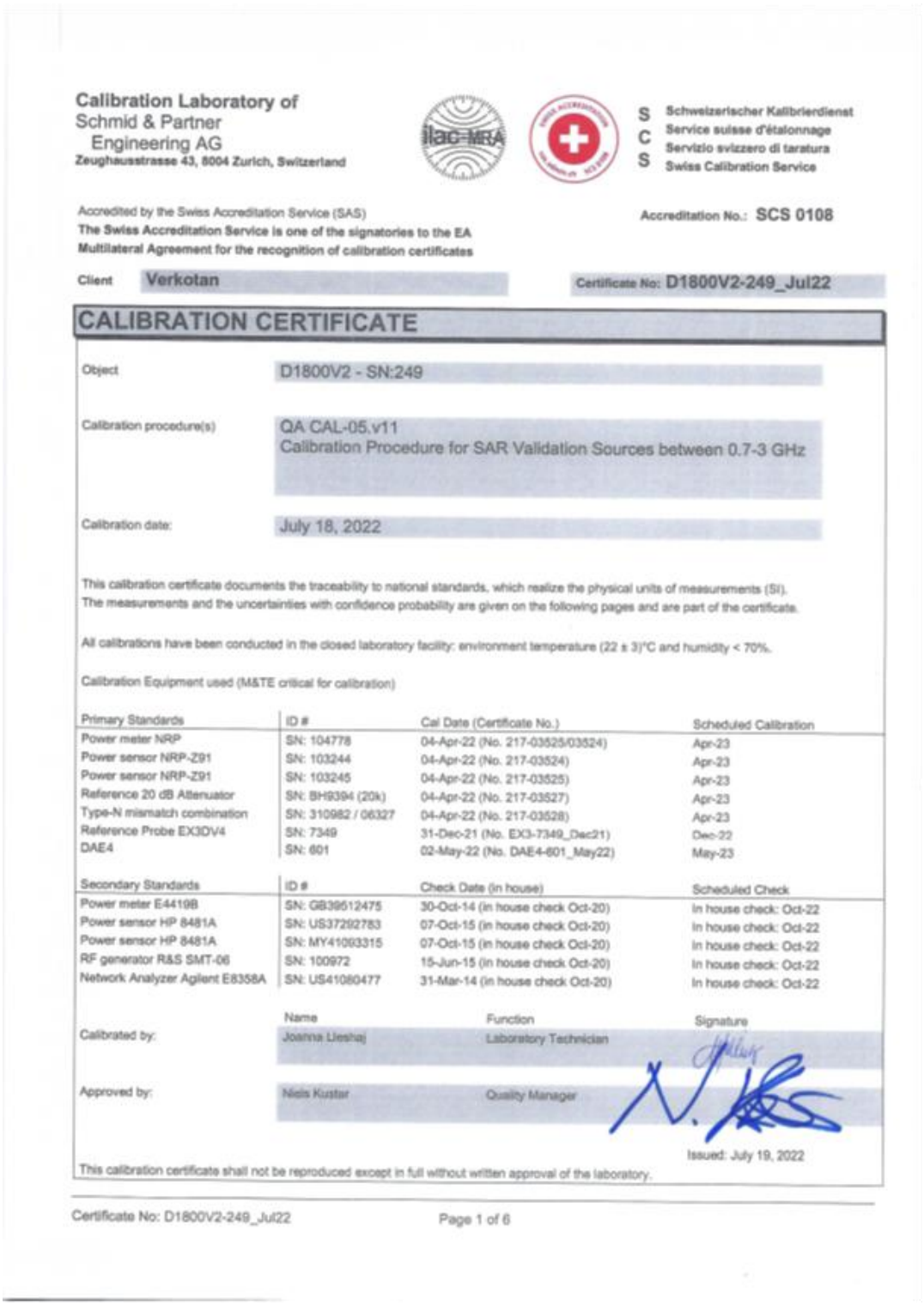
The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.3 ± 6 %	0.93 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.50 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**9.69 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.61 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**6.29 W/kg ± 16.5 % (k=2)**



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

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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

Accreditation No.: SCS 0108

Client: Verkotan

Certificate No: D1800V2-249_Jul22

CALIBRATION CERTIFICATE

Object: D1800V2 - SN:249

Calibration procedure(s): QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: July 18, 2022

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

	Name	Function	Signature
Calibrated by:	Joanna Lleshaj	Laboratory Technician	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 19, 2022

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Certificate No: D1800V2-249_Jul22 Page 1 of 6

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

Head TSL parameters

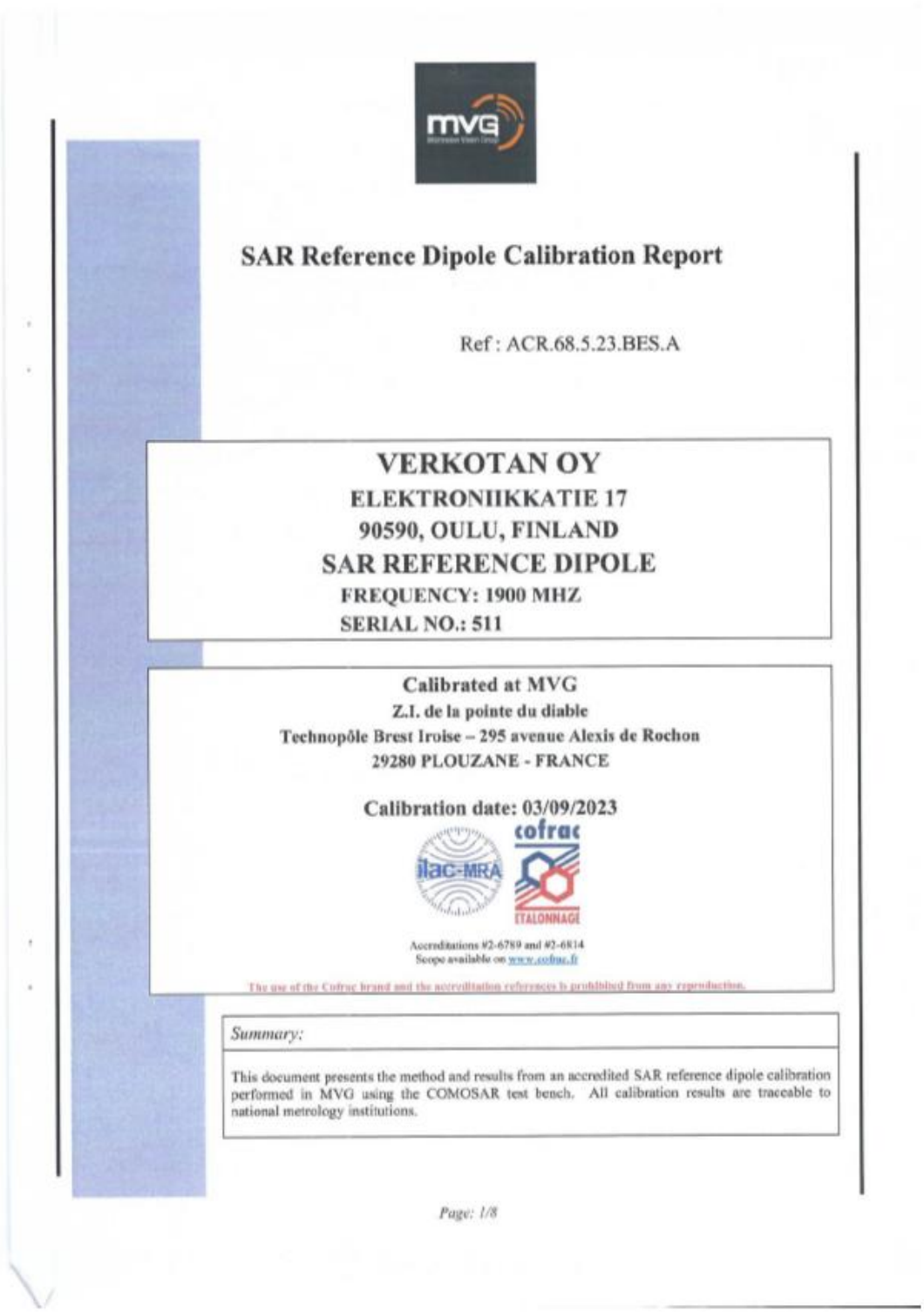
The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.74 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**38.9 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.07 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**20.3 W/kg ± 16.5 % (k=2)**



SAR Reference Dipole Calibration Report

Ref : ACR.68.5.23.BES.A

VERKOTAN OY
ELEKTRONIIKKATIE 17
90590, OULU, FINLAND
SAR REFERENCE DIPOLE
FREQUENCY: 1900 MHZ
SERIAL NO.: 511

Calibrated at MVG
Z.I. de la pointe du diable
Technopôle Brest Iroise – 295 avenue Alexis de Rochon
29280 PLOUZANE - FRANCE

Calibration date: 03/09/2023

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Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed in MVG using the COMOSAR test bench. All calibration results are traceable to national metrology institutions.

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mvg

SAR REFERENCE DIPOLE CALIBRATION REPORT Ref: ACR.68.5.23.BES.A

	Name	Function	Date	Signature
Prepared by :	Cyrille ONNEE	Measurement Responsible	3/9/2023	
Checked & approved by:	Jérôme Luc	Technical Manager	3/9/2023	
Authorized by:	Yann Toutain	Laboratory Director	3/9/2023	

Yann Toutain ID
Signature numérique de Yann Toutain ID
Date : 2023.03.09 15:01:12 +01'00'

	Customer Name
Distribution :	Verkotan Oy

Issue	Name	Date	Modifications
A	Cyrille ONNEE	3/9/2023	Initial release

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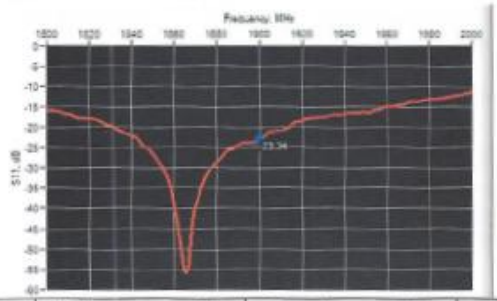
6 CALIBRATION RESULTS

6.1 MECHANICAL DIMENSIONS

L mm		h mm		d mm	
Measured	Required	Measured	Required	Measured	Required
-	68.00 +/- 2%	-	39.50 +/- 2%	-	3.60 +/- 2%

6.2 S11 PARAMETER

6.2.1 S11 parameter in Head Liquid



Frequency (MHz)	S11 parameter (dB)	Requirement (dB)	Impedance
1900	-23.34	-20	48.5Ω - 6.6jΩ

6.3 SAR

The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements must be performed using a reference dipole meeting the fore mentioned return loss and mechanical dimension requirements. The validation measurement must be performed against a liquid filled flat phantom, with the phantom constructed as outlined in the fore mentioned standards. Per the standards, the dipole shall be positioned below the bottom of the phantom, with the dipole length centered and parallel to the longest dimension of the flat phantom, with the top surface of the dipole at the described distance from the bottom surface of the phantom.

6.3.1 SAR with Head Liquid

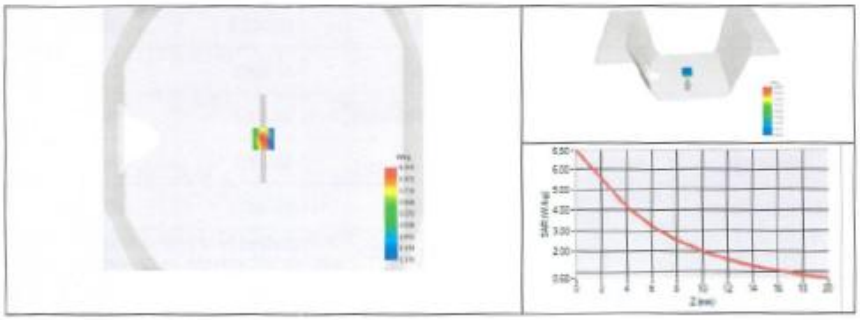
The IEC/IEEE 62209-1528 and FCC KDB865664 D01 standards state that the system validation measurements should produce the SAR values shown below (for phantom thickness of 2 mm), within the uncertainty for the system validation. All SAR values are normalized to 1 W forward power. In bracket, the measured SAR is given with the used input power.

SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.68.5.23.BHS.A

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	SN 41/18 EPGO333
Liquid	Head Liquid Values: eps' : 40.4 sigma : 1.40
Distance between dipole center and liquid	10.0 mm
Area scan resolution	dx=8mm/dy=8mm
Zoom Scan Resolution	dx=8mm/dy=8mm/dz=5mm
Frequency	1900 MHz
Input power	20 dBm
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-70 %

Frequency	1g SAR (W/kg)			10g SAR (W/kg)		
	Measured	Measured normalized to 1W	Target normalized to 1W	Measured	Measured normalized to 1W	Target normalized to 1W
1900 MHz	3.80	38.02	39.70	1.94	19.41	20.50



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Swiss Calibration Service

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

Accreditation No.: SCS 0108

Client: Verkotan

Certificate No: D2450V2-729_Jul22

CALIBRATION CERTIFICATE

Object: D2450V2 - SN:729

Calibration procedure(s): QA CAL-05.v11
Calibration Procedure for SAR Validation Sources between 0.7-3 GHz

Calibration date: July 15, 2022

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 NRP	SN: 104778	04-Apr-22 (No. 217-03525/03524)	Apr-23
Power sensor NRP-Z91	SN: 103244	04-Apr-22 (No. 217-03524)	Apr-23
Power sensor NRP-Z91	SN: 103245	04-Apr-22 (No. 217-03525)	Apr-23
Reference 20 dB Attenuator	SN: BH9394 (20k)	04-Apr-22 (No. 217-03527)	Apr-23
Type-N mismatch combination	SN: 310982 / 06327	04-Apr-22 (No. 217-03528)	Apr-23
Reference Probe EX3DV4	SN: 7349	31-Dec-21 (No. EX3-7349_Dec21)	Dec-22
DAE4	SN: 601	02-May-22 (No. DAE4-601_May22)	May-23

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB39512475	30-Oct-14 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: US37292783	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
Power sensor HP 8481A	SN: MY41093315	07-Oct-15 (in house check Oct-20)	In house check: Oct-22
RF generator R&S SMT-06	SN: 100972	15-Jun-15 (in house check Oct-20)	In house check: Oct-22
Network Analyzer Agilent E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-22

	Name	Function	Signature
Calibrated by:	Aldonia Georgiadou	Laboratory Technician	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 19, 2022

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Certificate No: D2450V2-729_Jul22 Page 1 of 6

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY52	V52.10.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	37.9 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**52.3 W/kg ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.21 W/kg
SAR for nominal Head TSL parameters	normalized to 1W	**24.5 W/kg ± 16.5 % (k=2)**