SAR Compliance Test Report

Date of Report	14/12/2022	**Client's Contact person:**	Giacomo Nucci
Number of pages:	51	**Responsible Test engineer:**	Ilari Kinnunen
Testing laboratory:	**Verkotan Oy** Elektroniikkatie 17 90590 Oulu Finland	**Client:**	**SECO Group S.p.A.** Via Achille Grandi 20 52100 Arezzo Italy
Tested device	Technogym Kiosk		
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** **RSS-102, Issue 5** 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:	14.12.2022 Miia Nurkkala Digitaalinen allekirjoittaja: Miia Nurkkala Päiväys: 2022.12.14 10:23:43 +02'00' **Laboratory Manager**		

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Equipment under Test (DUT):

Product:	Mywellness Kiosk
Manufacturer:	Technogym
Model:	E020AV20-FY
Serial Number:	210646851
FCC ID Number:	Contains FCC ID: 2ALZBLBE616
ISED ID Number:	Contains IC: 22688-LBE616
DUT Number:	21977
Power Supply:	240V / 50 Hz AC or 120 V / 60 Hz AC
State of the Sample	Production sample

Testing information:

Testing performed:	30.07.2021 – 21.09.2021
Version history/changes	This report replaces report FCC SAR report Technogym Kiosk ID4192 14122021.docx/ FCC&ISED IDs changed
Document ID:	FCC SAR report Technogym Kiosk ID4192 14122022.docx
Temperature °C	22±2 / Controlled
Humidity RH%	30±20 / Controlled
Measurement performed by:	Ilari Kinnunen, Kirsi Kyllönen
FCC Test Firm Designation Number	FI00005
ISED Company Number	22218

1.2 Maximum Results

The maximum reported* SAR values for Extremity-configuration 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 Extremity SAR_{10g} is 4.0 W/kg.

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1.2.1 Standalone SAR

System	Highest Reported* SAR_{10g}(W/kg) in Extremity Condition, 0mm	Result
WLAN 2.4GHz	**1.52**	**PASS**
WLAN 5GHz	**0.37**	**PASS**

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

Maximum Drift

Maximum Drift During Measurements	-0.37dB

*Larger than 5% drifts included to scaling factors

1.2.2 Measurement Uncertainty

SAR_{10g}: 0.3-3GHz:

Expanded Uncertainty (k=2) 95 %	±21.9 %

SAR_{10g}: 3-6GHz

Expanded Uncertainty (k=2) 95 %	±23.8 %

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2. DESCRIPTION OF THE DEVICE UNDER TEST (DUT)

The DUT is a Technogym Kiosk, and it has a 22-inch LCD touch screen. It supports WLAN 2.4GHz, WLAN 5GHz and Bluetooth. The WLAN and Bluetooth cannot transmit simultaneously. The screen part and the top of the kiosk was used during testing.

Device Category	Portable
Exposure Environment	General population uncontrolled

2.1 Supported Frequency Bands and Operational Modes

TX Frequency bands	Modes of Operation	Transmitter Frequency Range (MHz)
	Bluetooth	2402 – 2480
	2.4 GHz WLAN	2412 – 2462
	5 GHz WLAN	5180 – 5825

The device can work with a maximum frequency of 2462 MHz at WLAN 2.4 MHz thus it does not support the bands 12 and 13 at 2467-2467 MHz, manufacturer declaration, Appendix F.

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2.2 Test Exclusions

2.2.1 Bluetooth FCC SAR test exclusion

SAR test exclusions based on antenna location were made according to KDB 447498 D01. Minimum separation distance from the antenna to the touch sensor is 19mm.

According to appendix A of 447498D01 the Extremity SAR test exclusion power threshold for 2450MHz is 72.5mW at ≤15mm separation distance. The maximum output power of the Bluetooth transmitter is 11.2mW thus it is below the test exclusion threshold.

2.2.2 Bluetooth ISED SAR test exclusion

SAR test exclusions based on antenna location were made according to RSS-102, issue 5, 2015. Minimum separation distance from the antenna to the touch sensor is 19mm.

According to RSS-102, issue 5, 2015, the Extremity SAR test exclusion power threshold for 2450MHz is 37.5mW at ≤15mm separation distance. The maximum effective isotropic radiated output power of the Bluetooth transmitter is 25.1mW thus it is below the test exclusion threshold.

Transmission mode	Antenna to user separation [mm]	Output power [dBm]	Output power [mW]	Power Gain of Antenna, G [dBi]	E.I.R.P. Output power [dBm]	E.I.R.P. Output power [mW]
Bluetooth	19	10.5	11.2	3.5	14.0	25.1

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3. OUTPUT POWER

3.1 Maximum specified conducted output power

From the customer, including tolerances;

WLAN 2.4 GHz	Max Output Power [dBm]
802.11b	19.5
802.11g	18.5
802.11n	16.5

WLAN 5 GHz	Max Output Power [dBm]
802.11a	17.0
802.11n	17.0
802.11ac	14.0

Bluetooth	Max Output Power [dBm]
Bluetooth 5.0	10.5
Bluetooth LE	9.0

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3.2 Tested conducted power

2.4GHz WLAN:

Standard	Transmission mode	Data rate [Mbps]	Output power [dBm]		
			CH 1 2412 MHz	CH 6 2437 MHz	CH 11 2462 MHz
802.11b	DSSS	1	18.85	18.85	18.48

5GHz WLAN:

802.11n has reduced frequency range at 5GHz band. It supports frequencies 5190 – 5795MHz.

Standard	Channel	Frequency [MHz]	Bandwidth [MHz]	Transmission mode	Data rate	Output power [dBm]
802.11n	54	5270	40	OFDM	MCS0 / 13.5Mbps	16.73
802.11n	62	5310	40			16.15
802.11n	102	5510	40			16.27
802.11n	110	5550	40			16.9
802.11n	118	5590	40			17.14
802.11n	126	5630	40			16.68
802.11n	134	5670	40			16.25
802.11n	142	5710	40			15.56
802.11n	151	5755	40			15.06
802.11n	159	5795	40			14.98

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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.

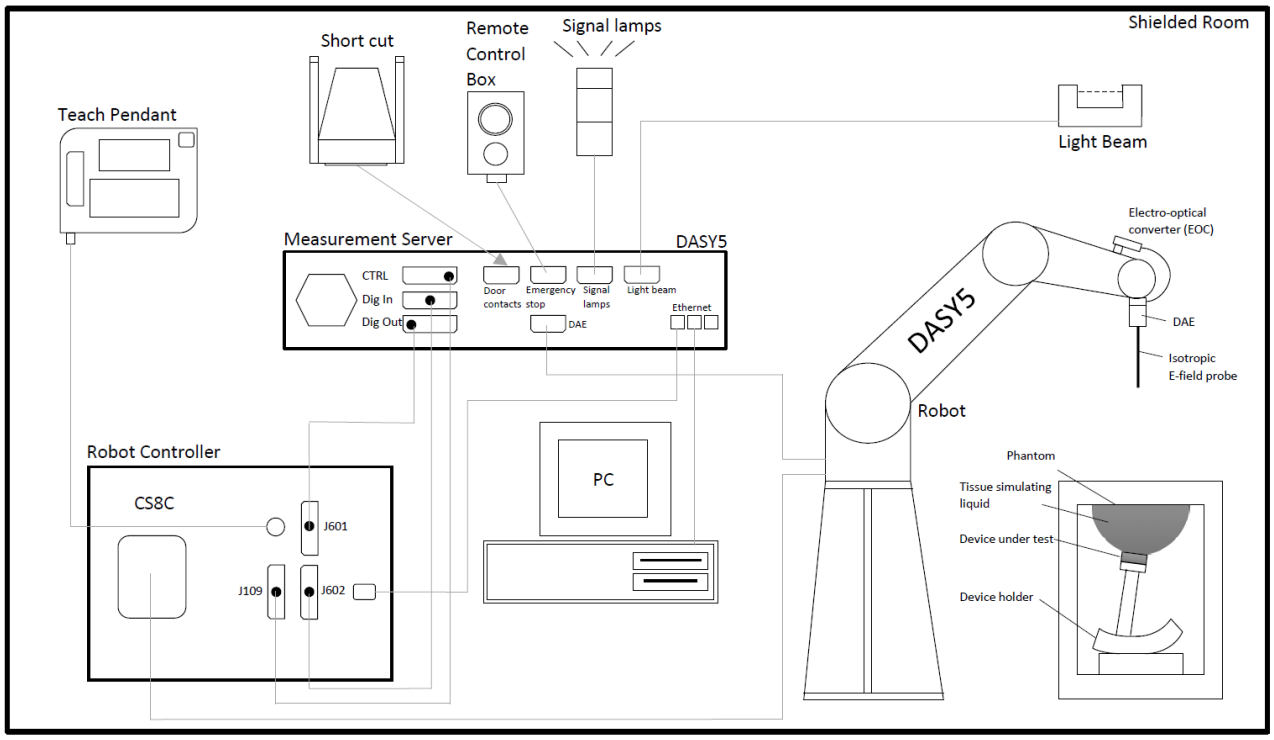

Figure 1 Schematic Laboratory Picture

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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.

Test Equipment	Model	Serial Number	Calibration Date
DAE	DAE4	705	04.2021
Probe	EX3DV4	3892	04.2021
Probe	EX3DV4	3852	10.2020
Dipole	D2450V2	758	03.2020
Dipole	D5GHZV2	1014	03.2020
DASY5 Software	52.8.8.1258	-	NA
Signal Generator	Agilent E4438C	MY42082527	NA
Amplifier	Ophir 5163F	1022	NA
Amplifier	5GHz	NA	NA
Power meter	R&S NRT	835065/049	02.2021
Directional Power Sensor	NRT-Z44	102766	02.2021
Power Sensor	NRP-Z81	100792	06.2021
Power Sensor	NRP-Z11	100265	12.2020

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

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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 IEEE 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 IEEE 1528 and FCC published RF Exposure KDB Procedures. The dielectric parameters of the used tissue simulants were within ±10% of the recommended values at 2.4GHz and ±5% at 5GHz frequency area. 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.

Head 600 – 6000 MHz tissue simulant liquid Ingredients
Deionized Water, oil, salt, emulsifiers

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]	Validation Done Head tissue simulant
2450	D2450V2 / 729	EX3DV4 / 3892	CW/DSSS	DAE 4 / 705	35.94	1.78	05.2021
5250	D5GHzV2 / 1045	EX3DV4 / 3852	CW	DAE 4 / 1332	36.14	4.71	01.2021
5600	D5GHzV2 / 1045	EX3DV4 / 3852	CW	DAE 4 / 1332	35.49	5.11	01.2021
5750	D5GHzV2 / 1045	EX3DV4 / 3852	CW	DAE 4 / 1332	35.21	5.29	01.2021

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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 #
2.8.2021	HSL 600MHz-6GHz	22	2450	250	13.4	55.34	53.6	-3.1	1
3.8.2021	HSL 600MHz-6GHz	22	5250	100	8.34	77.65	83.4	7.4	2
3.8.2021	HSL 600MHz-6GHz	22	5600	100	8.81	83.31	88.1	5.8	3
3.8.2021	HSL 600MHz-6GHz	22	5750	100	7.97	75.18	79.7	6.0	4
30.8.2021	HSL 600MHz-6GHz	22	5750	100	7.24	75.18	72.4	-3.7	5
20.9.2021	HSL 600MHz-6GHz	22	2450	250	14	55.34	56	1.2	6
20.9.2021	HSL 600MHz-6GHz	22	5250	100	7.81	77.65	78.1	0.6	7
20.9.2021	HSL 600MHz-6GHz	22	5600	100	8.43	83.31	84.3	1.2	8
20.9.2021	HSL 600MHz-6GHz	22	5750	100	7.89	75.18	78.9	5.0	9

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 (%)
02.08.2021	HSL 600MHz-6GHz	22	2450	39.2	1.8	40.3	1.83	2.8	1.9
02.08.2021	HSL 600MHz-6GHz	22	2412	39.3	1.77	40.4	1.81	2.8	2.3
02.08.2021	HSL 600MHz-6GHz	22	2437	39.2	1.79	40.3	1.83	2.8	2.1
02.08.2021	HSL 600MHz-6GHz	22	2462	39.2	1.81	40.3	1.84	2.8	1.7
02.08.2021	HSL 600MHz-6GHz	22	5250	36.0	4.71	35.5	4.65	-1.2	-1.2
02.08.2021	HSL 600MHz-6GHz	22	5270	35.9	4.73	35.5	4.68	-1.2	-1.1
02.08.2021	HSL 600MHz-6GHz	22	5310	35.9	4.77	35.4	4.72	-1.3	-0.9
02.08.2021	HSL 600MHz-6GHz	22	5500	35.7	4.97	35.1	4.93	-1.6	-0.7
02.08.2021	HSL 600MHz-6GHz	22	5510	35.6	4.98	35.1	4.94	-1.6	-0.6
02.08.2021	HSL 600MHz-6GHz	22	5550	35.6	5.02	35.0	4.99	-1.7	-0.6
02.08.2021	HSL 600MHz-6GHz	22	5590	35.5	5.06	34.9	5.03	-1.7	-0.5
02.08.2021	HSL 600MHz-6GHz	22	5630	35.5	5.10	34.8	5.08	-1.8	-0.4
02.08.2021	HSL 600MHz-6GHz	22	5670	35.4	5.14	34.8	5.13	-1.9	-0.3
02.08.2021	HSL 600MHz-6GHz	22	5710	35.4	5.18	34.7	5.18	-2.0	0.0
02.08.2021	HSL 600MHz-6GHz	22	5750	35.4	5.22	34.6	5.22	-2.1	0.1
30.08.2021	HSL 600MHz-6GHz	22	5750	35.4	5.22	33.7	5.0	-4.7	-4.1
30.08.2021	HSL 600MHz-6GHz	22	5755	35.3	5.23	33.7	5.01	-4.8	-4.1
30.08.2021	HSL 600MHz-6GHz	22	5795	35.3	5.27	33.6	5.05	-4.8	-4.0
20.09.2021	HSL 600MHz-6GHz	22	2450	39.2	1.8	39.9	1.86	1.8	3.1
20.09.2021	HSL 600MHz-6GHz	22	2412	39.3	1.77	39.9	1.83	1.7	3.5
20.09.2021	HSL 600MHz-6GHz	22	2437	39.2	1.79	39.9	1.85	1.7	3.3
20.09.2021	HSL 600MHz-6GHz	22	2462	39.2	1.81	39.9	1.87	1.7	2.8

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20.09.2021	HSL 600MHz-6GHz	22	5250	36.0	4.71	35.0	4.56	-2.7	-3.2
20.09.2021	HSL 600MHz-6GHz	22	5270	35.9	4.73	34.9	4.58	-2.8	-3.3
20.09.2021	HSL 600MHz-6GHz	22	5310	35.9	4.77	34.9	4.63	-2.9	-3.0
20.09.2021	HSL 600MHz-6GHz	22	5590	35.5	5.06	34.3	4.92	-3.3	-2.7
20.09.2021	HSL 600MHz-6GHz	22	5600	35.5	5.07	34.3	4.93	-3.3	-2.7
20.09.2021	HSL 600MHz-6GHz	22	5670	35.4	5.14	34.2	5.0	-3.4	-2.6
20.09.2021	HSL 600MHz-6GHz	22	5750	35.4	5.22	34.1	5.1	-3.6	-2.3

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5. TEST PROCEDURE

Testing was carried out in accordance with FCC KDB Publications 447498 D01, 248227 D01 802.11 Wi-Fi SAR and RSS-102. Since the device has a touch screen, the front and the top sides of the DUT was tested for Extremity SAR.

Low, mid and high frequency channels were tested as per ISED notice 2016-DRS001.

A control software was used to set the DUT to transmit at maximum power.

The WLAN transmission modes for testing were selected according to power, largest channel bandwidth configuration, lowest order modulation and lowest data rate. 2.4GHz WLAN was tested with 802.11b standard with data rate of 1Mbit/s and 5GHz WLAN was tested with 802.11n standard, 40MHz bandwidth and with data rate of MCS0.

WLAN antenna is located in the upper right corner of the DUT. Since the DUT has a large 22-inch screen, test exclusion threshold were used to define the SAR test area.

For the DUT, SAR test exclusion for FCC and ISED can be applied at 50mm separation distance thus the measurement grid covered the antenna and 50mm from all edges of the antenna. Measurements were done at 0mm separation distance from the front side and from top side of the DUT.

FCC SAR Test Exclusion:

Transmission mode	Frequency [MHz]	Separation distance [mm]	DUT Output power [mW]	SAR Test Exclusion Threshold [mW]
WLAN 2.4GHz	2450	50	89	96
WLAN 5GHz	5800	50	50	62

ISED SAR Test Exclusion:

Transmission mode	Frequency [MHz]	Separation distance [mm]	DUT Output power [mW]	SAR Test Exclusion Threshold [mW]
WLAN 2.4GHz	2450	50	89	309
WLAN 5GHz	5800	50	50	106

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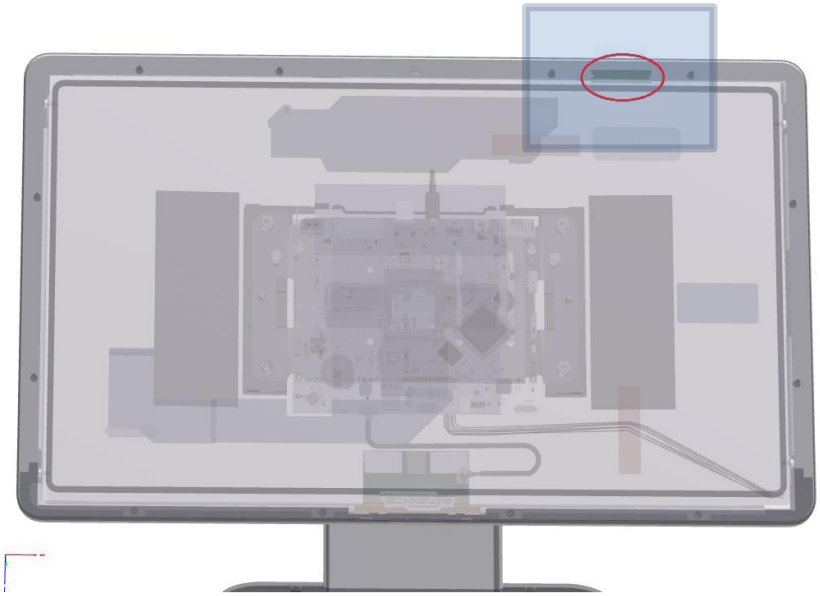

Figure 2 Antenna location and measurement grid for front side measurement.

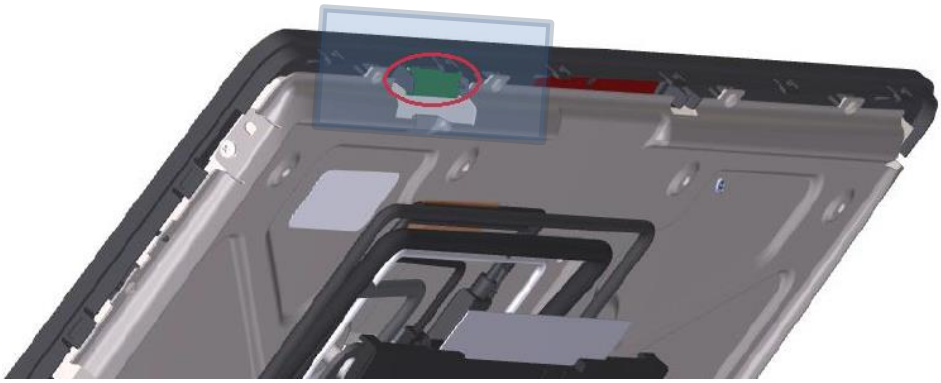

Figure 3 Antenna location and measurement grid for top side measurement.

5.1 Test Positions

5.1.1 Extremity Configuration, 0mm separation distance

Extremity SAR was tested from the front and top sides of the device. The device was placed on the top of a Rohacell and lifted towards the phantom until the distance between the phantom and the device was 0mm.

Photos of the test positions are presented in appendix A.

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5.2 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.

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5.3 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.

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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%
CFdrift	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%
Δsys	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_σ)	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%
Dxyz	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%
RFdrift	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%

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DASY5 Uncertainty Budget According to IEC/IEEE 62209-1528 (Frequency band: 3GHz - 6GHz 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	±14.0%	N	√2	1	1	±7.0%	±7.0%
CF*drift*	Probe Calibration Drift	±1.7%	N	√3	1	1	±1.0%	±1.0%
LIN	Probe Linearity	±4.7%	R	√3	1	1	±2.7%	±2.7%
BBS	Broadband Signal	±2.6%	R	√3	1	1	±1.5%	±1.5%
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*sys*	Probe Positioning	±3.9%	N	1	0.33	0.33	±1.3%	±1.3%
ö	Data Processing	±2.3%	N	1	1	1	±2.3%	±2.3%
Phantom and Device Errors								
LIQ(σ)	Conductivity (meas.)^{DAK}	±2.5%	N	√1	0.78	0.71	±2.0%	±1.8%
LIQ(T_σ)	Conductivity (temp.)^{BB}	±3.4%	R	√3	0.78	0.71	±1.5%	±1.4%
EPS	Phantom Permittivity	±14.0%	R	3	0.25	0.25	±2.0%	±2.0%
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						±12.0%	±11.9%
U	**Expanded Uncertainty**						±24.0%	±23.8%

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7. TEST RESULTS

7.1 SAR Results for Extremity Exposure Condition with 0mm separation

2.4 GHz WLAN:

Mode	Channel	Frequency [MHz]	Data Rate [Mbps]	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR10g [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR10g [W/kg]	Plot #
802.11b	6	2437	1	Front	19.5	18.85	0.437	0.09	1.16	1:1	0.51	

Mode	Channel	Frequency [MHz]	Data Rate [Mbps]	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR10g [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR10g [W/kg]	Plot #
802.11b	1	2412	1	Top	19.5	18.85	0.81	-0.07	1.16	1:1	0.94	
802.11b	6	2437	1	Top	19.5	18.85	1.31	0.13	1.16	1:1	1.52	10
802.11b	11	2462	1	Top	19.5	18.48	1.06	-0.05	1.26	1:1	1.34	

5 GHz WLAN:

Mode	Channel	Frequency [MHz]	Bandwidth [MHz]	Data Rate [Mbps]	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR10g [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR10g [W/kg]	Plot #
802.11n	54	5270	40	13.5	Front	17	16.73	0.24	0.11	1.06	1:1	0.26	
802.11n	102	5510	40	13.5	Front	17	16.27	0.250	-0.13	1.18	1:1	0.30	
802.11n	118	5590	40	13.5	Front	17	17.14	0.205	0.2	1.00	1:1	0.21	
802.11n	126	5630	40	13.5	Front	17	16.68	0.227	-0.09	1.08	1:1	0.24	
802.11n	134	5670	40	13.5	Front	17	16.25	0.271	-0.15	1.19	1:1	0.32	
802.11n	142	5710	40	13.5	Front	17	15.56	0.266	-0.01	1.39	1:1	0.37	11
802.11n	151	5755	40	13.5	Front	17	15.06	0.222	-0.06	1.56	1:1	0.35	
802.11n	159	5795	40	13.5	Front	17	14.98	0.201	-0.16	1.59	1:1	0.32	

Mode	Channel	Frequency [MHz]	Bandwidth [MHz]	Data Rate [Mbps]	Test position	Maximum Power [dBm]	Conducted Power [dBm]	Measured SAR10g [W/kg]	Power Drift [dB]	Scaling Factor	Duty Cycle	Reported SAR10g [W/kg]	Plot #
802.11n	54	5270	40	13.5	Top	17	16.73	0.302	-0.37	1.16	1:1	0.35	
802.11n	62	5310	40	13.5	Top	17	16.15	0.239	0.11	1.22	1:1	0.29	
802.11n	118	5590	40	13.5	Top	17	17.14	0.139	-0.1	1.0	1:1	0.14	
802.11n	134	5670	40	13.5	Top	17	16.25	0.157	0.04	1.19	1:1	0.19	

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7.2 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.

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APPENDIX A: PHOTOS OF THE DUT

Size of the DUT is: 530 x 322 x 35 mm

A1. Photo of the device

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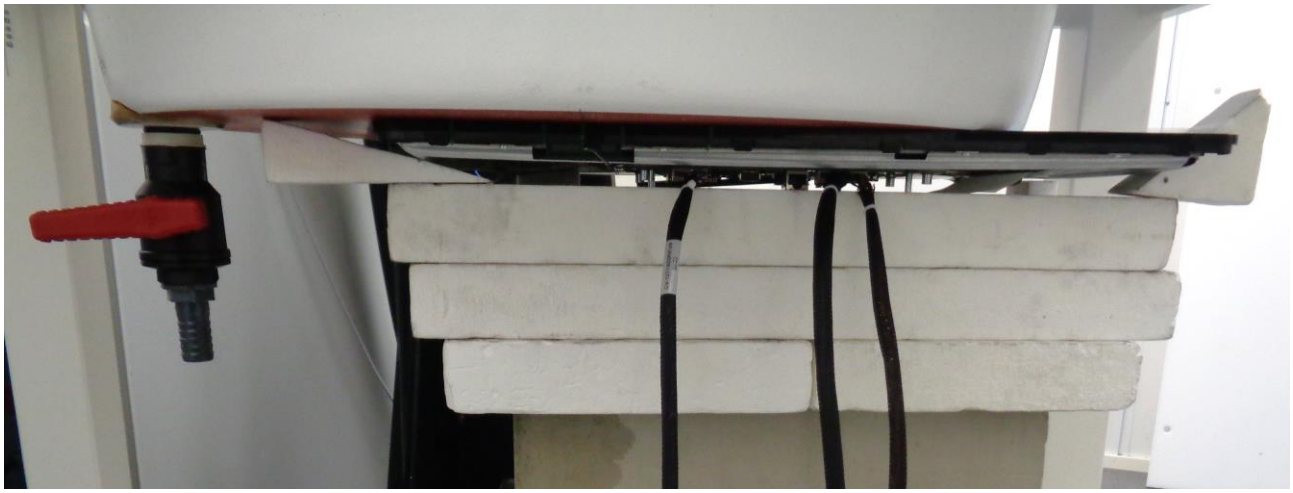
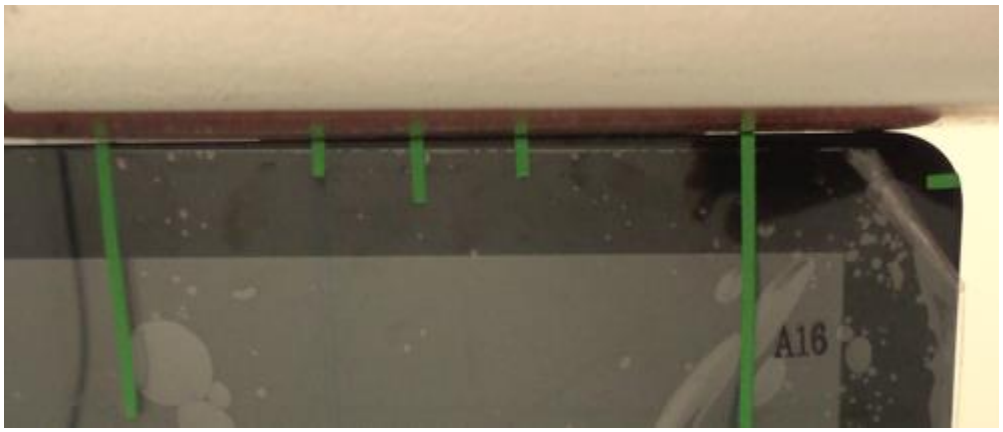


A2. Front side of the DUT against the phantom, 0mm separation distance



A3. Top side of the DUT's antenna area against the phantom, 0mm separation distance

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APPENDIX B: SYSTEM CHECK SCAN

Plot 1

Date/Time: 2.8.2021 10:45:18

Test Laboratory: Verkotan Oy

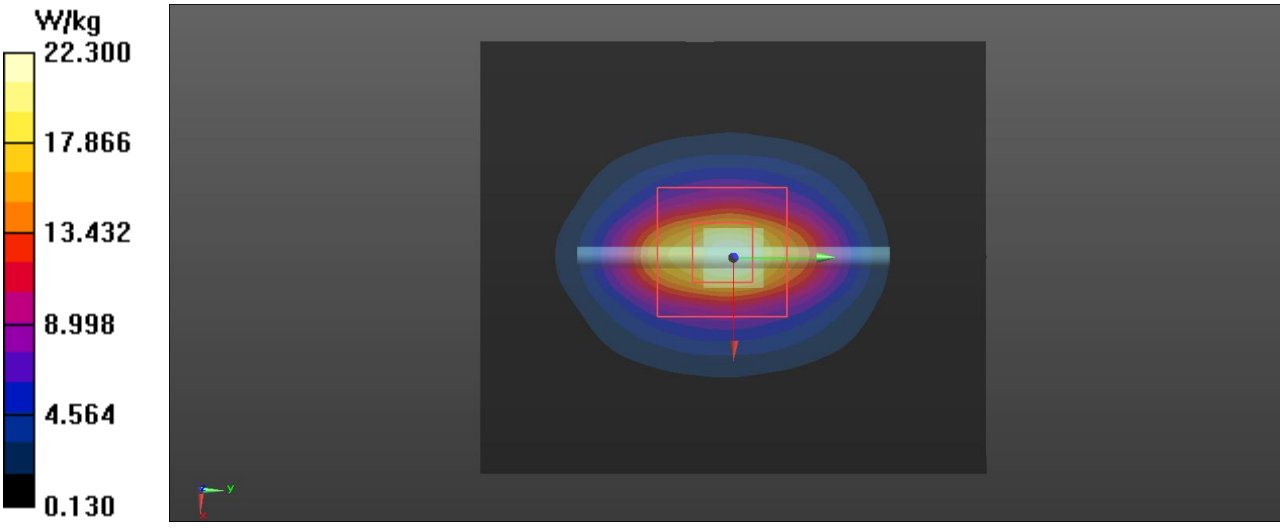
DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:758

Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.835 S/m; ε_r = 40.307; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.67, 7.67, 7.67) @ 2450 MHz; Calibrated: 28.4.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

System check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 114.4 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.4 W/kg; SAR(10 g) = 6.25 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 = 48.6%
Maximum value of SAR (measured) = 22.3 W/kg
System check/Area Scan (61x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 24.3 W/kg



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Plot 2

Date/Time: 2.8.2021 15:53:28

Test Laboratory: Verkotan Oy

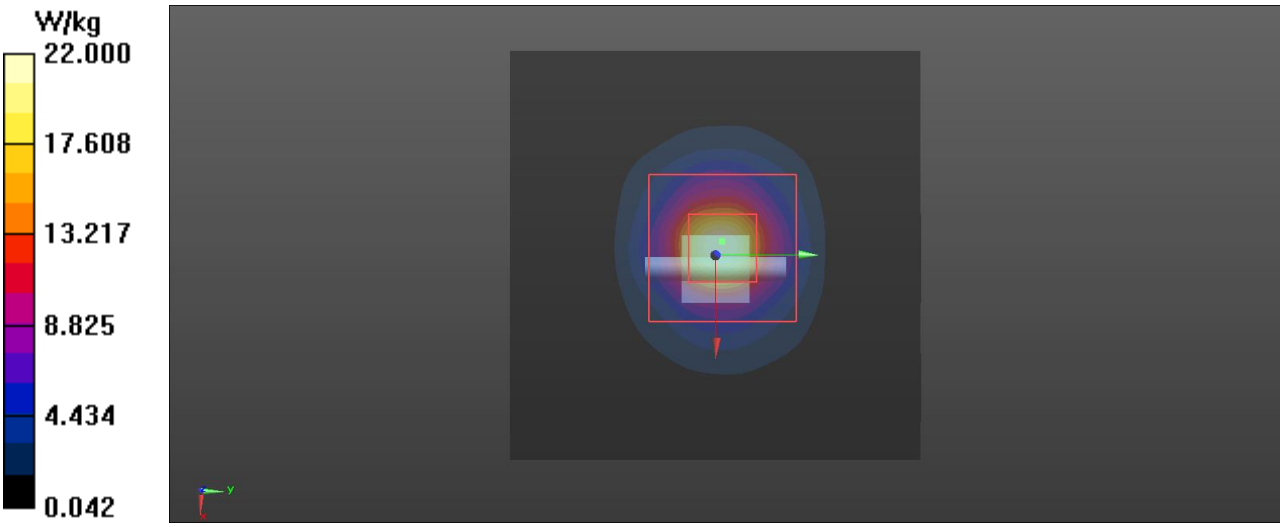
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 5250 MHz; σ = 4.655 S/m; ε_r = 35.532; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.92, 4.92, 4.92) @ 5250 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

System check/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 22.0 W/kg
System check/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 74.40 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 32.8 W/kg
SAR(1 g) = 8.34 W/kg; SAR(10 g) = 2.4 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 54.9%
Maximum value of SAR (measured) = 20.7 W/kg



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Plot 3

Date/Time: 3.8.2021 10:33:49

Test Laboratory: Verkotan Oy

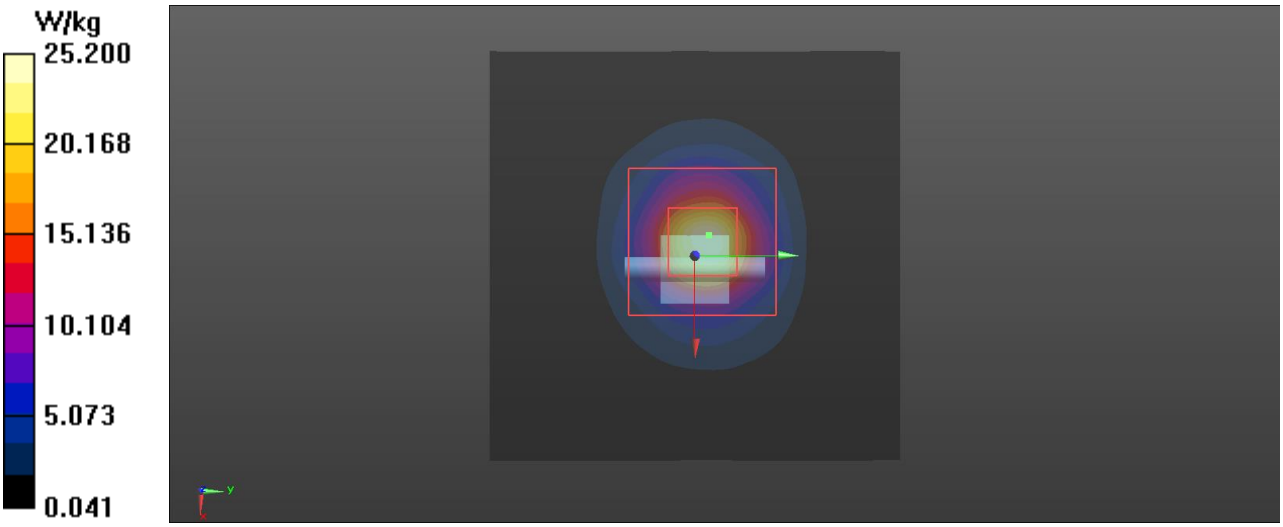
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5600 MHz; σ = 5.047 S/m; ε_r = 34.887; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.62, 4.62, 4.62) @ 5600 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

System check/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 25.2 W/kg
System check/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 75.85 V/m; Power Drift = -0.44 dB
Peak SAR (extrapolated) = 40.1 W/kg
SAR(1 g) = 8.81 W/kg; SAR(10 g) = 2.49 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 50.3%
Maximum value of SAR (measured) = 22.7 W/kg



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Plot 4

Date/Time: 3.8.2021 11:13:14

Test Laboratory: Verkotan Oy

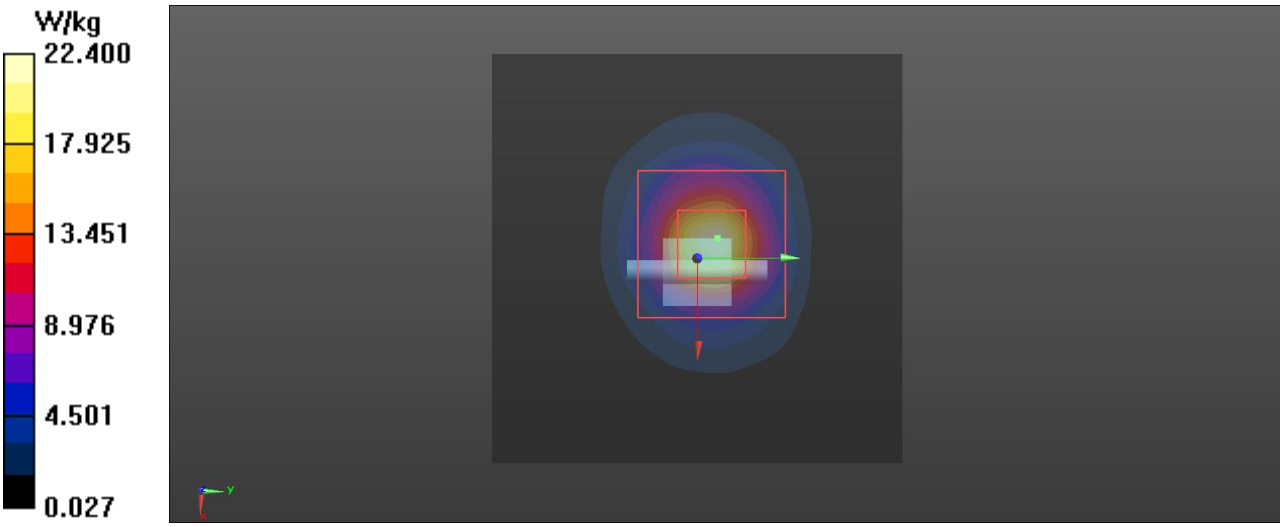
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5750 MHz; σ = 5.223 S/m; ε_r = 34.622; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.72, 4.72, 4.72) @ 5750 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

System check/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 22.4 W/kg
System check/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 70.68 V/m; Power Drift = -0.55 dB
Peak SAR (extrapolated) = 37.5 W/kg
SAR(1 g) = 7.97 W/kg; SAR(10 g) = 2.25 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.1 mm
Ratio of SAR at M2 to SAR at M1 = 49.2%
Maximum value of SAR (measured) = 21.1 W/kg



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Plot 5

Date/Time: 30.8.2021 12:13:58

Test Laboratory: Verkotan Oy

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

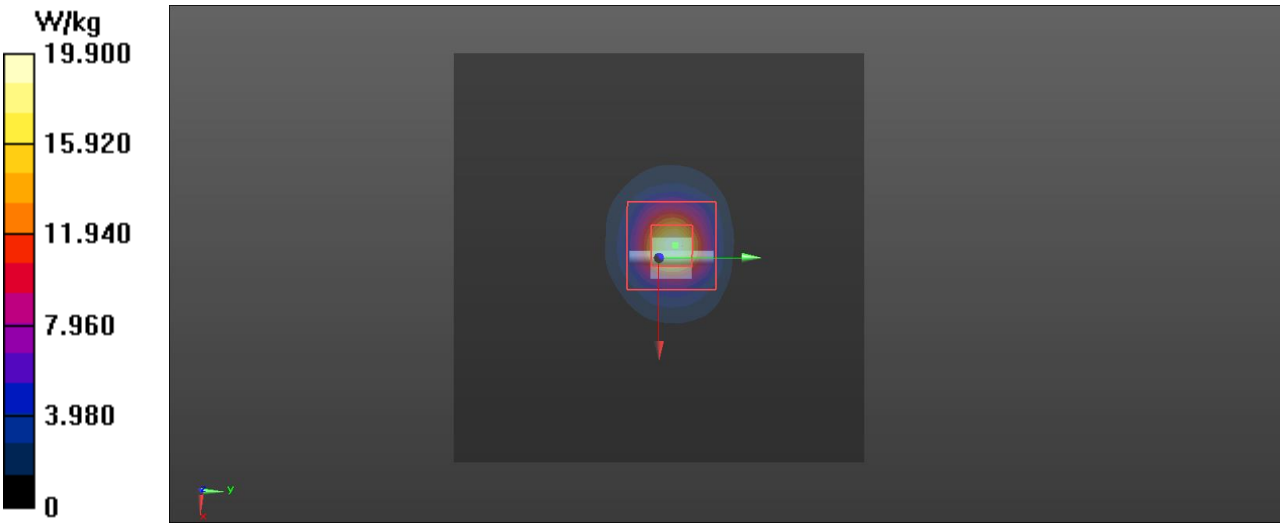
Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5750 MHz; σ = 5.005 S/m; ε_r = 33.671; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.72, 4.72, 4.72) @ 5750 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection (Locations From Previous Scan Used)), Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 23.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System Check 5750MHz 2/Area Scan (101x101x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 19.9 W/kg

Configuration/System Check 5750MHz 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 35.96 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 33.7 W/kg
SAR(1 g) = 7.24 W/kg; SAR(10 g) = 2.05 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.3 mm
Ratio of SAR at M2 to SAR at M1 = 60.2%
Maximum value of SAR (measured) = 19.1 W/kg



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Plot 6

Date/Time: 20.9.2021 9:54:38

Test Laboratory: Verkotan Oy

DUT: Dipole 2450 MHz D2450V2; Type: D2450V2; Serial: D2450V2 - SN:758

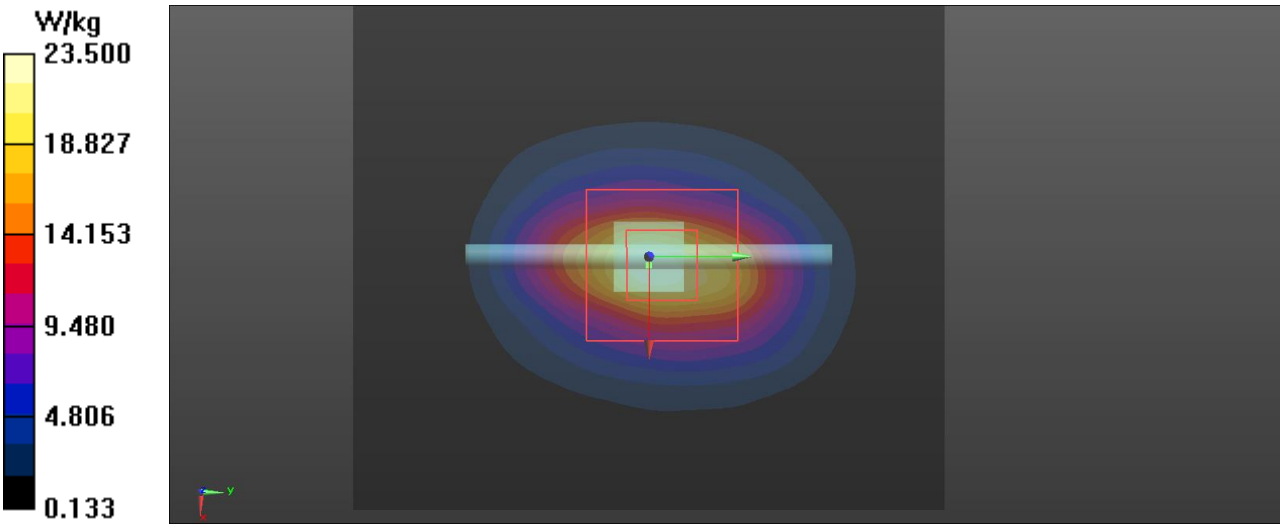
Communication System: UID 0, CW (0); Communication System Band: D2450 (2450.0 MHz); Frequency: 2450 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2450 MHz; σ = 1.856 S/m; ε_r = 39.891; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.67, 7.67, 7.67) @ 2450 MHz; Calibrated: 28.4.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 117.0 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 29.2 W/kg
SAR(1 g) = 14 W/kg; SAR(10 g) = 6.56 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 8.9 mm
Ratio of SAR at M2 to SAR at M1 = 48.8%

Maximum value of SAR (measured) = 23.5 W/kg
Configuration/system check/Area Scan (61x71x1): Interpolated grid: dx=1.200 mm, dy=1.200 mm
Maximum value of SAR (interpolated) = 24.9 W/kg



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Plot 7

Date/Time: 20.9.2021 11:14:28

Test Laboratory: Verkotan Oy

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5250 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 5250 MHz; σ = 4.557 S/m; ε_r = 34.97; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

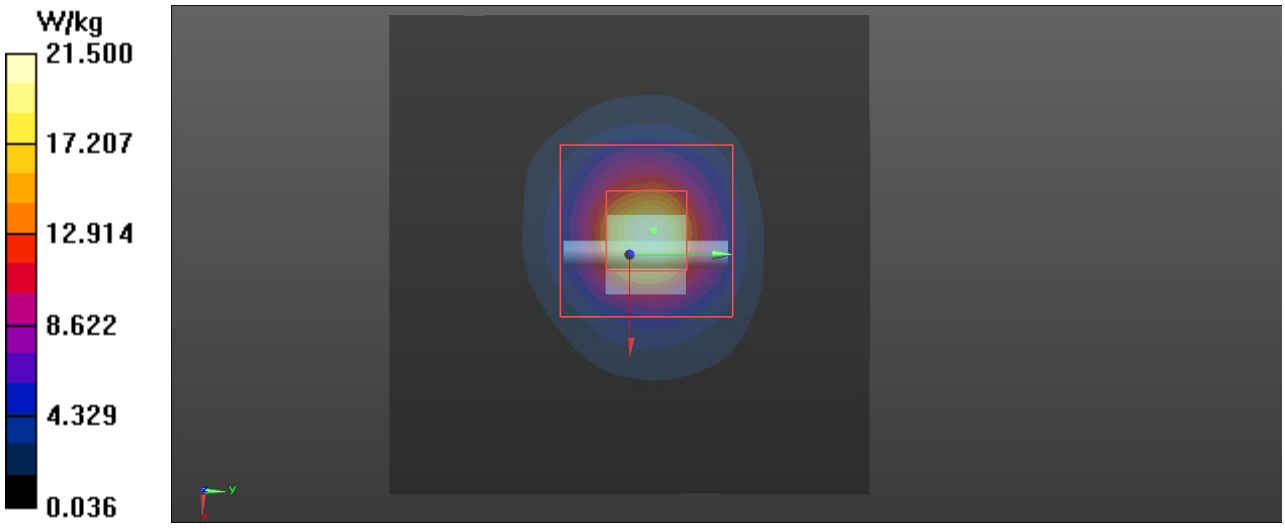
DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.92, 4.92, 4.92) @ 5250 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System check 5250/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 21.5 W/kg

Configuration/System check 5250/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 69.86 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 31.9 W/kg
SAR(1 g) = 7.81 W/kg; SAR(10 g) = 2.23 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.3 mm
Ratio of SAR at M2 to SAR at M1 = 53.8%

Maximum value of SAR (measured) = 19.6 W/kg



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Plot 8

Date/Time: 20.9.2021 12:47:42

Test Laboratory: Verkotan Oy

DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5600 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5600 MHz; σ = 4.935 S/m; ε_r = 34.327; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

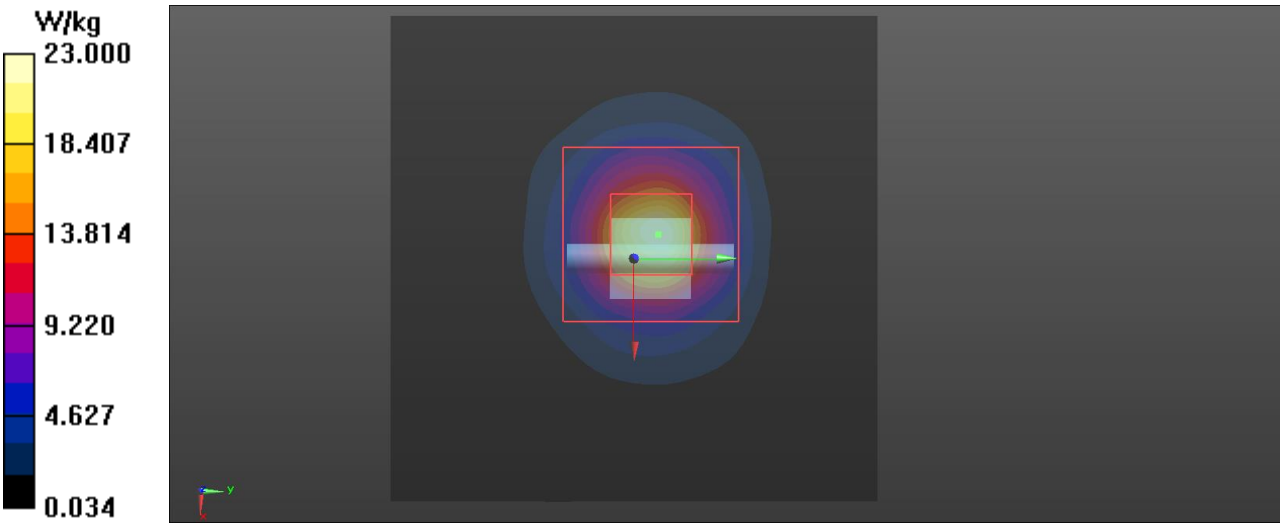
DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.62, 4.62, 4.62) @ 5600 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System check 5600/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 23.0 W/kg

Configuration/System check 5600/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 66.01 V/m; Power Drift = 0.38 dB
Peak SAR (extrapolated) = 37.3 W/kg
SAR(1 g) = 8.43 W/kg; SAR(10 g) = 2.39 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.4 mm
Ratio of SAR at M2 to SAR at M1 = 51%

Maximum value of SAR (measured) = 22.0 W/kg



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Plot 9

Date/Time: 20.9.2021 11:46:51

Test Laboratory: Verkotan Oy

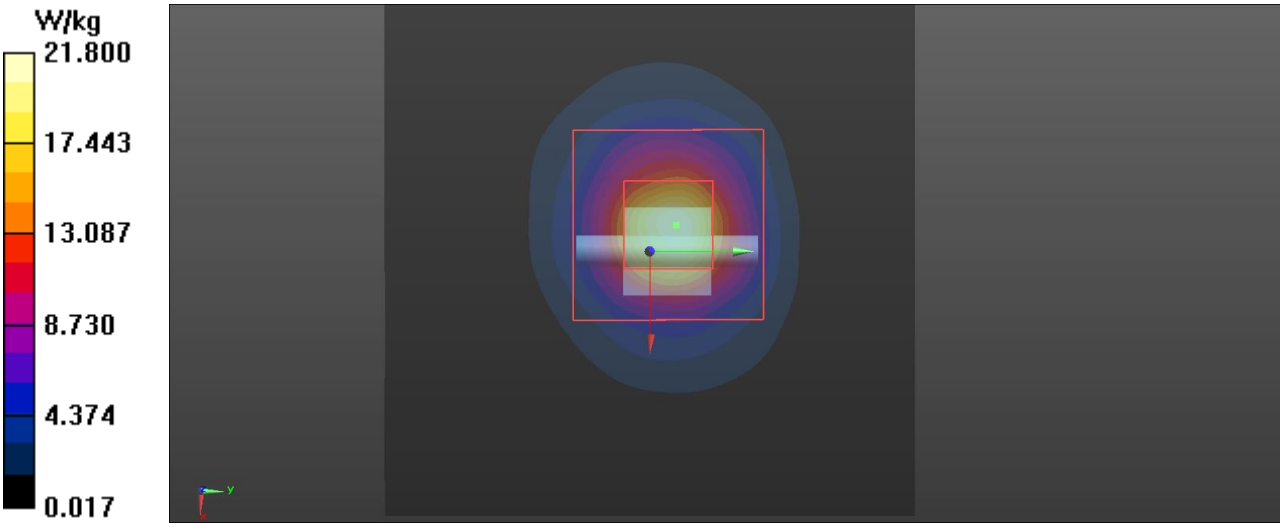
DUT: Dipole D5GHzV2; Type: D5GHzV2; Serial: D5GHzV2 - SN:1014

Communication System: UID 0, CW (0); Communication System Band: D5GHz (5000.0 - 6000.0 MHz); Frequency: 5750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 5750 MHz; σ = 5.102 S/m; ε_r = 34.073; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.72, 4.72, 4.72) @ 5750 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/System check 5750/Area Scan (61x61x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 21.8 W/kg
Configuration/System check 5750/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 65.28 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 36.9 W/kg
SAR(1 g) = 7.89 W/kg; SAR(10 g) = 2.22 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 7.2 mm
Ratio of SAR at M2 to SAR at M1 = 49.3%
Maximum value of SAR (measured) = 20.9 W/kg



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APPENDIX C: MEASUREMENT SCANS

Plot 10

Date/Time: 21.9.2021 11:13:20

Test Laboratory: Verkotan Oy

DUT: Technogym Kiosk

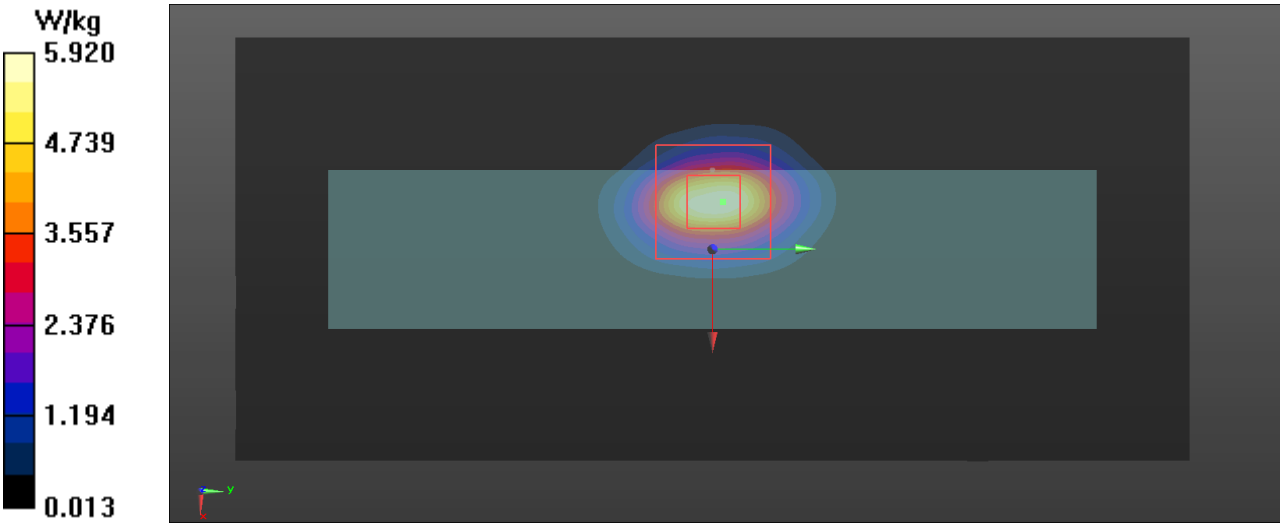
Communication System: UID 0, WLAN 2.4 (0); Communication System Band: WLAN2.4GHz; Frequency: 2437 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.848 S/m; ε_r = 39.899; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3892; ConvF(7.67, 7.67, 7.67) @ 2437 MHz; Calibrated: 28.4.2021
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA; Serial: 29-March-2017
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/Top 2.4MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 33.79 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 7.57 W/kg
SAR(1 g) = 3.27 W/kg; SAR(10 g) = 1.31 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 = 45.6%
Maximum value of SAR (measured) = 5.92 W/kg

Configuration/Top 2.4MHz/Area Scan (81x181x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 6.04 W/kg



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Plot 11

Date/Time: 4.8.2021 8:08:56

Test Laboratory: Verkotan Oy

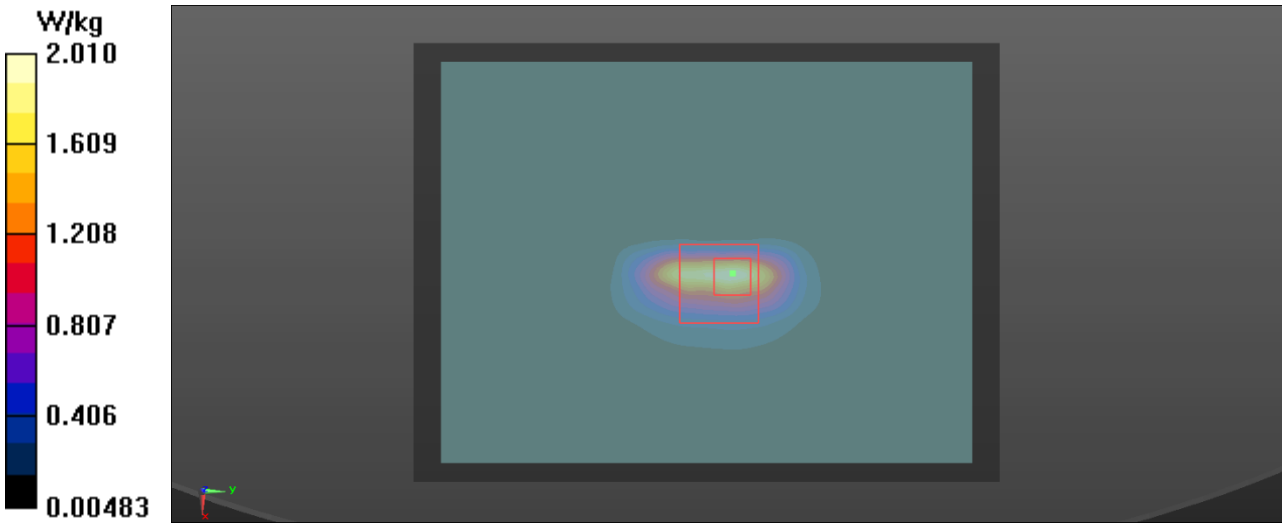
DUT: Technogym Kiosk

Communication System: UID 0, WLAN5GHz (0); Communication System Band: 5GHz; Frequency: 5710 MHz;Communication System PAR: 0 dB; PMF: 1.12202e-005
Medium parameters used: f = 5710 MHz; σ = 5.178 S/m; ε_r = 34.687; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN3852; ConvF(4.72, 4.72, 4.72) @ 5710 MHz; Calibrated: 19.10.2020
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 25.0
- Electronics: DAE4 Sn705; Calibrated: 26.4.2021
- Phantom: SAR1_Phantom1_ELI; Type: QD OVA 002 AA;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

WLAN 5, Front, CH 142, 802.11n, BW 40MHz, MCS0/Area Scan (121x161x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Maximum value of SAR (interpolated) = 2.15 W/kg
WLAN 5, Front, CH 142, 802.11n, BW 40MHz, MCS0/Zoom Scan (9x9x6)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.706 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 3.52 W/kg
SAR(1 g) = 0.807 W/kg; SAR(10 g) = 0.266 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 5.6 mm
Ratio of SAR at M2 to SAR at M1 = 51.5%
Maximum value of SAR (measured) = 2.01 W/kg



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APPENDIX D: RELEVANT PAGES FROM PROBE CALIBRATION REPORTS

Calibration Laboratory of
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Engineering AG
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Accreditation No.: SCS 0108

Client **Verkotan** Certificate No: **EX3-3892_Apr21**

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3892

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: April 28, 2021

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	09-Apr-21 (No. 217-03291/03292)	Apr-22
Power sensor NRP-Z91	SN: 103244	09-Apr-21 (No. 217-03291)	Apr-22
Power sensor NRP-Z91	SN: 103245	09-Apr-21 (No. 217-03292)	Apr-22
Reference 20 dB Attenuator	SN: CC2552 (20x)	09-Apr-21 (No. 217-03343)	Apr-22
DAE4	SN: 660	23-Dec-20 (No. DAE4-660_Dec20)	Dec-21
Reference Probe ES3DV2	SN: 3013	30-Dec-20 (No. ES3-3013_Dec20)	Dec-21
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 28, 2021

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Certificate No: EX3-3892_Apr21 Page 1 of 9

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ilac-MRA

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Swiss Calibration Service

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Accreditation No.: SCS 0108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

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

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3892

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.48	0.38	0.47	± 10.1 %
DCP (mV)[B]	102.1	102.6	101.5	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	133.7	± 3.0 %	± 4.7 %
		Y	0.0	0.0	1.0		122.8		
		Z	0.0	0.0	1.0		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] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3892

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
600	42.7	0.88	10.46	10.46	10.46	0.10	1.26	± 13.0 %
750	41.9	0.89	10.23	10.23	10.23	0.45	0.90	± 12.0 %
900	41.5	0.97	9.93	9.93	9.93	0.42	0.80	± 12.0 %
1750	40.1	1.37	8.52	8.52	8.52	0.27	0.86	± 12.0 %
1900	40.0	1.40	8.29	8.29	8.29	0.21	0.86	± 12.0 %
2450	39.2	1.80	7.67	7.67	7.67	0.31	0.90	± 12.0 %
2600	39.0	1.96	7.48	7.48	7.48	0.34	0.90	± 12.0 %
4400	36.9	3.84	6.00	6.00	6.00	0.40	1.60	± 13.1 %
4800	36.4	4.25	5.60	5.60	5.60	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 **Certificate No: EX3-3852_Oct20**

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 19, 2020

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	01-Apr-20 (No. 217-03100/03101)	Apr-21
Power sensor NRP-Z91	SN: 103244	01-Apr-20 (No. 217-03100)	Apr-21
Power sensor NRP-Z91	SN: 103245	01-Apr-20 (No. 217-03101)	Apr-21
Reference 20 dB Attenuator	SN: CC2552 (20x)	31-Mar-20 (No. 217-03106)	Apr-21
DAE4	SN: 660	27-Dec-19 (No. DAE4-660_Dec19)	Dec-20
Reference Probe ES3DV2	SN: 3013	31-Dec-19 (No. ES3-3013_Dec19)	Dec-20
Secondary Standards	ID	Check Date (in house)	Scheduled Check
Power meter E4419B	SN: GB41293874	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: MY41498087	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
Power sensor E4412A	SN: 000110210	06-Apr-16 (in house check Jun-20)	In house check: Jun-22
RF generator HP 8648C	SN: US3642U01700	04-Aug-99 (in house check Jun-20)	In house check: Jun-22
Network Analyzer E8358A	SN: US41080477	31-Mar-14 (in house check Oct-20)	In house check: Oct-21

	Name	Function	Signature
Calibrated by:	Jeffrey Katzman	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: October 20, 2020

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Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2013, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", June 2013
b) IEC 62209-1, ", "Measurement procedure for the assessment of Specific Absorption Rate (SAR) from hand-held and body-mounted devices used next to the ear (frequency range of 300 MHz to 6 GHz)", July 2016
c) IEC 62209-2, "Procedure to determine the Specific Absorption Rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)", March 2010
d) KDB 865664, "SAR Measurement Requirements for 100 MHz to 6 GHz"

Methods Applied and Interpretation of Parameters:

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

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DASY/EASY - 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	0.40	0.47	± 10.1 %
DCP (mV)[B]	99.3	102.0	99.4	

Calibration Results for Modulation Response

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Max dev.	Unc[E] (k=2)
0	CW	X	0.0	0.0	1.0	0.00	147.6	± 3.0 %	± 4.7 %
		Y	0.0	0.0	1.0		139.2		
		Z	0.0	0.0	1.0		141.0		

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] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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DASY/EASY - Parameters of Probe: EX3DV4 - SN:3852

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha [G]	Depth [G] (mm)	Unc (k=2)
30	55.0	0.75	13.30	13.30	13.30	0.00	1.00	± 13.3 %
64	54.2	0.75	12.05	12.05	12.05	0.00	1.00	± 13.3 %
128	52.8	0.76	11.48	11.48	11.48	0.00	1.00	± 13.3 %
220	49.0	0.81	11.30	11.30	11.30	0.00	1.00	± 13.3 %
450	43.5	0.87	10.35	10.35	10.35	0.15	1.25	± 13.3 %
1300	40.8	1.14	8.66	8.66	8.66	0.25	1.14	± 12.0 %
1450	40.5	1.20	8.60	8.60	8.60	0.40	0.80	± 12.0 %
1640	40.2	1.31	8.49	8.49	8.49	0.31	0.87	± 12.0 %
3500	37.9	2.91	6.71	6.71	6.71	0.35	1.30	± 13.1 %
3700	37.7	3.12	6.48	6.48	6.48	0.35	1.30	± 13.1 %
3900	37.5	3.32	6.32	6.32	6.32	0.40	1.60	± 13.1 %
4100	37.2	3.53	6.10	6.10	6.10	0.40	1.60	± 13.1 %
5250	35.9	4.71	4.92	4.92	4.92	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.62	4.62	4.62	0.40	1.80	± 13.1 %
5750	35.4	5.22	4.72	4.72	4.72	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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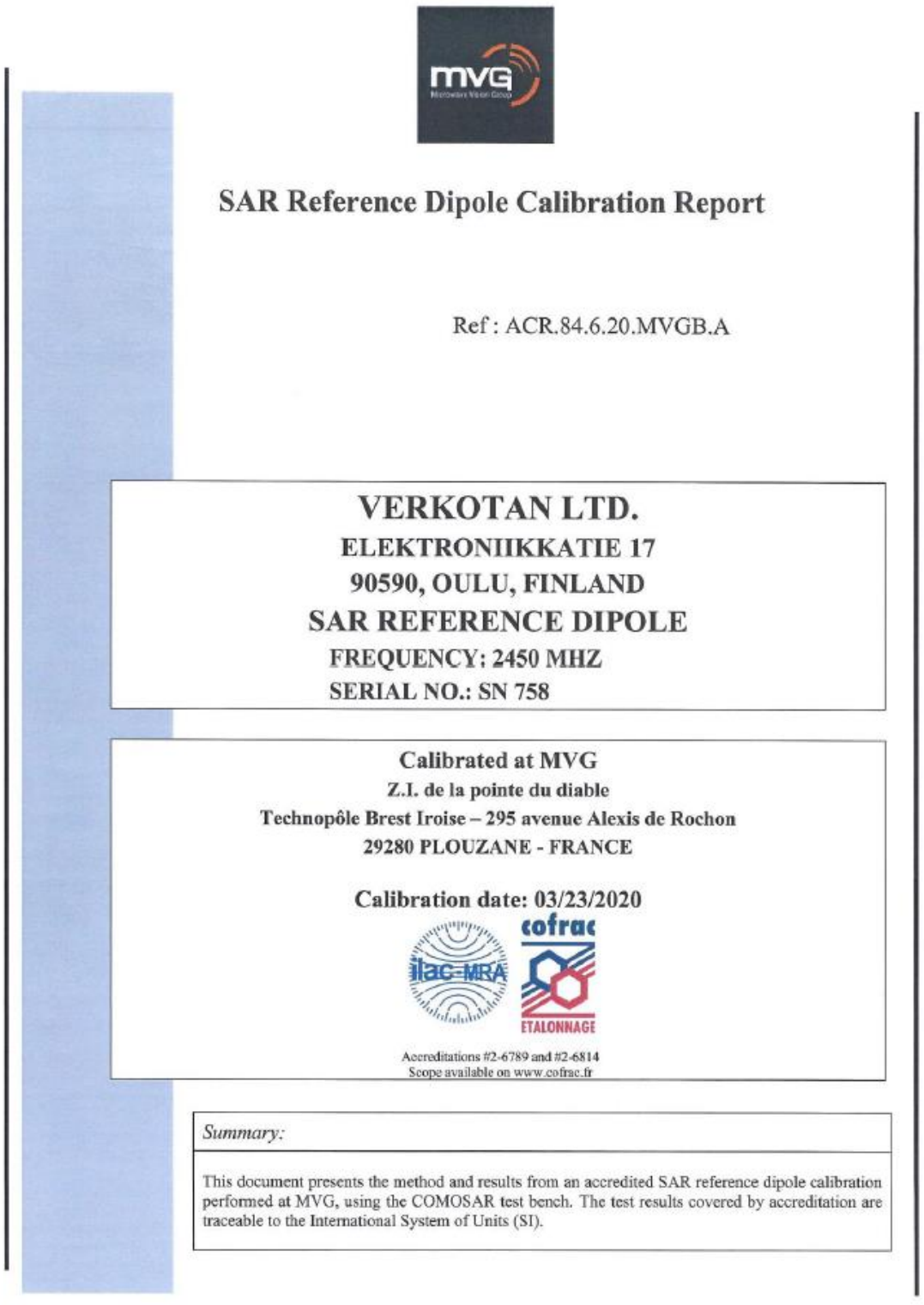
APPENDIX E: RELEVANT PAGES FROM DIPOLE CALIBRATION REPORTS



SAR Reference Dipole Calibration Report

Ref : ACR.84.6.20.MVGB.A

VERKOTAN LTD.
ELEKTRONIIKKATIE 17
90590, OULU, FINLAND
SAR REFERENCE DIPOLE
FREQUENCY: 2450 MHZ
SERIAL NO.: SN 758

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

Calibration date: 03/23/2020

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Accreditations #2-6789 and #2-6814
Scope available on www.cofrac.fr

Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed at MVG, using the COMOSAR test bench. The test results covered by accreditation are traceable to the International System of Units (SI).

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SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.84.6.20.MVGB.A

	Name	Function	Date	Signature
Prepared by :	Jérôme LUC	Technical Manager	3/24/2020	
Checked by :	Jérôme LUC	Technical Manager	3/24/2020	
Approved by :	Yann Toutain	Laboratory Director	3/24/2020	

	Customer Name
Distribution :	Verkotan Ltd.

Issue	Name	Date	Modifications
A	Jérôme LUC	3/24/2020	Initial release

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3000	41.5 ±1 %.		25.0 ±1 %.		3.6 ±1 %.	
3500	37.0±1 %.		26.4 ±1 %.		3.6 ±1 %.	
3700	34.7±1 %.		26.4 ±1 %.		3.6 ±1 %.	

7 VALIDATION MEASUREMENT

The IEEE Std. 1528, FCC KDBs and CEI/IEC 62209 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.

7.1 MEASUREMENT CONDITION

Software	OPENSAR V5
Phantom	SN 13/09 SAM68
Probe	SN 41/18 EPGO333
Liquid	Head Liquid Values: eps' : 37.5 sigma : 1.80
Distance between dipole center and liquid	10.0 mm
Area scan resolution	dx=8mm/dy=8mm
Zoon Scan Resolution	dx=5mm/dy=5mm/dz=5mm
Frequency	2450 MHz
Input power	20 dBm
Liquid Temperature	20 +/- 1 °C
Lab Temperature	20 +/- 1 °C
Lab Humidity	30-80 %

7.2 HEAD LIQUID MEASUREMENT

Frequency MHz	Relative permittivity (ε_r')		Conductivity (σ) S/m	
	required	measured	required	measured
300	45.3 ±10 %		0.87 ±10 %	
450	43.5 ±10 %		0.87 ±10 %	
750	41.9 ±10 %		0.89 ±10 %	
835	41.5 ±10 %		0.90 ±10 %	
900	41.5 ±10 %		0.97 ±10 %	
1450	40.5 ±10 %		1.20 ±10 %	
1500	40.4 ±10 %		1.23 ±10 %	
1640	40.2 ±10 %		1.31 ±10 %	
1750	40.1 ±10 %		1.37 ±10 %	
1800	40.0 ±10 %		1.40 ±10 %	
1900	40.0 ±10 %		1.40 ±10 %	
1950	40.0 ±10 %		1.40 ±10 %	
2000	40.0 ±10 %		1.40 ±10 %	
2100	39.8 ±10 %		1.49 ±10 %	

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2300	39.5 ±10 %		1.67 ±10 %	
2450	39.2 ±10 %	37.5	1.80 ±10 %	1.80
2600	39.0 ±10 %		1.96 ±10 %	
3000	38.5 ±10 %		2.40 ±10 %	
3500	37.9 ±10 %		2.91 ±10 %	

7.3 MEASUREMENT RESULT

The IEEE Std. 1528 and CEI/IEC 62209 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.

Frequency MHz	1 g SAR (W/kg/W)		10 g SAR (W/kg/W)	
	required	measured	required	measured
300	2.85		1.94	
450	4.58		3.06	
750	8.49		5.55	
835	9.56		6.22	
900	10.9		6.99	
1450	29		16	
1500	30.5		16.8	
1640	34.2		18.4	
1750	36.4		19.3	
1800	38.4		20.1	
1900	39.7		20.5	
1950	40.5		20.9	
2000	41.1		21.1	
2100	43.6		21.9	
2300	48.7		23.3	
2450	52.4	55.34 (5.53)	24	24.43 (2.44)
2600	55.3		24.6	
3000	63.8		25.7	
3500	67.1		25	

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SAR Reference Dipole Calibration Report

Ref : ACR.84.7.20.MVGB.A

VERKOTAN LTD.
ELEKTRONIIKKATIE 17
90590, OULU, FINLAND
SAR REFERENCE DIPOLE
FREQUENCY: 5000 MHZ
SERIAL NO.: SN 1014

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

Calibration date: 03/23/2020

ilac-MRA cofrac ETALONNAGE

Accreditations #2-6789 and #2-6814
Scope available on www.cofrac.fr

0.0Summary:

This document presents the method and results from an accredited SAR reference dipole calibration performed at MVG, using the COMOSAR test bench. The test results covered by accreditation are traceable to the International System of Units (SI).

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SAR REFERENCE DIPOLE CALIBRATION REPORT

Ref: ACR.84.7.20.MVGB.A

	Name	Function	Date	Signature
Prepared by :	Jérôme LUC	Technical Manager	3/24/2020	
Checked by :	Jérôme LUC	Technical Manager	3/24/2020	
Approved by :	Yann Toutain	Laboratory Director	3/24/2020	

	Customer Name
Distribution :	Verkotan Ltd.

Issue	Name	Date	Modifications
A	Jérôme LUC	3/24/2020	Initial release

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1900	40.0 ±10 %		1.40 ±10 %	
1950	40.0 ±10 %		1.40 ±10 %	
2000	40.0 ±10 %		1.40 ±10 %	
2100	39.8 ±10 %		1.49 ±10 %	
2300	39.5 ±10 %		1.67 ±10 %	
2450	39.2 ±10 %		1.80 ±10 %	
2600	39.0 ±10 %		1.96 ±10 %	
3000	38.5 ±10 %		2.40 ±10 %	
3500	37.9 ±10 %		2.91 ±10 %	
5000	36.2 ±10 %		4.45 ±10 %	
5100	36.1 ±10 %		4.56 ±10 %	
5200	36.0 ±10 %		4.66 ±10 %	
5300	35.9 ±10 %		4.76 ±10 %	
5400	35.8 ±10 %		4.86 ±10 %	
5500	35.6 ±10 %		4.97 ±10 %	
5600	35.5 ±10 %	36.66	5.07 ±10 %	5.17
5700	35.4 ±10 %		5.17 ±10 %	
5800	35.3 ±10 %		5.27 ±10 %	
5900	35.2 ±10 %		5.38 ±10 %	
6000	35.1 ±10 %		5.48 ±10 %	

7.3 MEASUREMENT RESULT

The IEEE Std. 1528 and CEI/IEC 62209 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.

Frequency MHz	1 g SAR (W/kg/W)		10 g SAR (W/kg/W)	
	required	measured	required	measured
300	2.85		1.94	
450	4.58		3.06	
750	8.49		5.55	
835	9.56		6.22	
900	10.9		6.99	
1450	29		16	
1500	30.5		16.8	
1640	34.2		18.4	
1750	36.4		19.3	
1800	38.4		20.1	

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1900	39.7		20.5	
1950	40.5		20.9	
2000	41.1		21.1	
2100	43.6		21.9	
2300	48.7		23.3	
2450	52.4		24	
2600	55.3		24.6	
3000	63.8		25.7	
3500	67.1		25	
5200	76.5		21.6	
5250	-	77.65 (7.77)	-	22.22 (2.22)
5500	83.3		23.4	
5600	-	83.31 (8.33)	-	24.02 (2.40)
5750	-	75.18 (7.52)	-	21.96 (2.20)
5800	78.0		21.9	

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APPENDIX F: DECLARATION OF SUPPORTED WLAN 2.4GHZ CHANNELS

SECO S.p.A.
Via A. Grandi 20 52100 Arezzo – Italy
Ph: +39 0575 26979
Fax: +39 0575 350210
P.IVA – VAT IT 00325250512

Cap. Soc. € 1.048.343,74
Reg. Imprese n. 4196 Arezzo
REA n. 70645
Meccanografico AR007079
Iscr. Reg. Pile e Accumulatori n. IT20080P00006356

09/20/2021

Subject: ***North America region supported channels on 2.4GHz band***

Reference: ***KDB 248227 D01 – Par. 3.1***

SECO S.p.A. declares under own responsibility that the product as originally delivered to its customer Technogym S.p.A.

Product Name:	***Mywellness Kiosk***
Model:	***E020AV20-FY***
FCC ID:	***2ALZBLBE616***
ISED:	***22688-LBE616***

The EUT complies according to *248227 D01 802.11 Wi-Fi* SAR requirements. With respect to radio functionality as regulated in Paragraph *3.1*:

Device can work with a maximum frequency of 2462 MHz, so the restricted channels 12 & 13 of 2,4 GHz frequency band are not supported.

Yours faithfully,

Alessandro Pali / Senior Manager

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