SAR Compliance Test Report

Date of Report	1/06/2023	**Client's Contact person:**	Tony Vahtera
Number of pages:	84	**Responsible Test engineer:**	Kirsi Kyllönen
Testing laboratory:	**Verkotan Oy** Elektroniikkatie 17 90590 Oulu Finland	**Client:**	**AINA Wireless Finland Oy** Joensuunkatu 7G 24100 Salo Finland
Tested device	**AINA Kepler**		
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** 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:

For the contents:

01.06.2023

Miia Nurkkala

Digitaalinen allekirjoittaja: Miia Nurkkala
Päiväys: 2023.06.01 13:39:40 +03'00'

Laboratory Manager

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Device under Test (DUT):

Product:	AINA Kepler
Manufacturer:	AINA Wireless Finland Oy
IMEI Number:	864839042530820, 864839042530810
FCC ID Number:	2AH78-AKEPLER
IC ID Number:	21419-AKEPLER
Model:	AKEPLER-0002-02
DUT Number:	21617,21618
Battery Type used in testing:	Varta Li-Polymer battery, EZPak XL
State of the Sample	Production sample

Testing information:

Testing Performed:	30.03.2022 – 08.04.2022
Notes:	-
Document ID:	FCC SAR report AINA Kepler ID4974 01062023.docx
Document History	This document replaces report FCC SAR report AINA Kepler ID4974 25102022. DUT model number updated.
Temperature °C	22±2 / Controlled
Humidity RH%	20±20 / Controlled
Measurement performed by:	Kirsi Kyllönen, Jesper Varis
FCC Test Firm Designation number	FI0005
ISED Company Number	22218

1.2 Maximum Results

The maximum reported* SAR values for in Front-of-the-Face and for Body-worn 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 Health Canada's RF exposure guideline, Safety Code 6 and in FCC 47 CFR part 2 (2.1093) is SAR1g 1.6 W/kg.

System	Highest Reported* SAR_{1g}(W/kg) in Front-of-Face Condition, 25mm separation	Result
WCDMA II	0.10	PASS
WCDMA IV	0.12	PASS
WCDMA V	0.13	PASS
LTE 2	0.07	PASS
LTE 5	0.13	PASS
LTE 12	0.21	PASS
LTE 13	0.15	PASS
LTE 14	0.15	PASS
LTE 66	0.09	PASS
LTE 71	0.16	PASS
2.4 ISM	0.003	PASS
NFC	0	PASS

System	Highest Reported* SAR_{1g}(W/kg) in Body-Worn Condition, 5mm separation distance	Result
WCDMA II	0.67	PASS
WCDMA IV	0.94	PASS
WCDMA V	0.40	PASS
LTE 2	0.52	PASS
LTE 5	0.37	PASS
LTE 12	0.54	PASS
LTE 13	0.43	PASS
LTE 14	0.43	PASS
LTE 66	0.79	PASS
LTE 71	0.55	PASS
2.4 ISM	0.007	PASS
NFC	0.008	PASS

* Reported SAR Values are scaled to maximum theoretical output power.

1.2.1 Simultaneous Transmission SAR

Highest Simultaneous Transmission SAR	Highest Reported* SAR1g(W/kg) in Front-of-Face Condition, 25mm separation	Highest Reported* SAR_{1g}(W/kg) in Body-Worn Condition, 5mm separation distance	Result
Cellular Technology + ISM + NFC	**0.21**	**0.96**	**PASS**

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

1.2.2 Maximum Drift

Maximum Drift During Measurements	0.59dB*

*Drifts >5% have been considered in the scaling factor

1.2.3 Measurement Uncertainty

4MHz – 300MHz frequency range

Expanded Uncertainty (k=2) 95 %	±22.9%

300MHz – 3GHz frequency range

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

2. DESCRIPTION OF THE DEVICE UNDER TEST (DUT)

The DUT Push-to-Talk (PTT) device that is a half-duplex communication technology allowing instant voice messaging on the push of a button.

Device Category	Portable
Exposure Environment	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	699-716
	LTE 13	777-787
	LTE 14	788-798
	LTE 66	1710-1780
	LTE 71	663-698
	2.4 ISM	2413-2470
	NFC	13.56

2.2 Simultaneous Transmission

ISM, NFC and one cellular band technology can be operated simultaneously.

2.3 Test Exclusions

According to April 2015 TCB workshop, SAR test exclusion can be applied for testing overlapping LTE bands when the specified 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 4 band, 1710-1755 MHz, is excluded from the testing as it is fully covered by LTE 66 band, 1710-1780 MHz.

3. OUTPUT POWER

3.1 Maximum Output Power

From a Customer, maximum defined output power, including tune-up tolerance;

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

ISM 2.4 GHz	
	Max Output Power [dBm]
ISM 2.4 GHz	19.8

NFC	
	Max Output Power [dBm]
NFC 13.56 MHz	27.7*

*NFC theoretical maximum output power = 3.3V * 0.18A = 0.594 W = 27.7 dBm

3.2 Tested Conducted Power

Measured conducted output power:

Mode/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	22.33	22.2	22.2	22.19	22.17	22.4	22.55	22.54	22.7
HSDPA Subtest-1	21.41	21.21	21.3	21.17	21.17	21.4	21.44	21.48	21.68
HSDPA Subtest-2	21.38	21.24	21.25	21.09	21.1	21.41	21.38	21.54	21.76
HSDPA Subtest-3	20.73	20.75	20.81	20.78	20.61	20.98	20.9	21.01	21.18
HSDPA Subtest-4	20.71	20.74	20.89	20.77	20.63	20.97	20.89	21.01	21.17
HSUPA Subtest-1	21.38	21.24	21.25	21.1	21.09	21.41	21.4	21.53	21.77
HSUPA Subtest-2	20.92	20.76	20.76	20.74	20.69	20.98	20.93	21.02	21.38
HSUPA Subtest-3	21.24	21.3	21.36	20.94	21.12	21.38	21.37	21.55	21.74
HSUPA Subtest-4	21.35	21.25	21.34	21.28	21.24	21.45	21.49	21.56	21.72
HSUPA Subtest-5	21.44	21.19	21.31	21.12	21.09	21.46	21.38	21.57	21.71

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 18607 1850.7 MHz	CH 18900 1880.0 MHz	CH 19193 1909.3 MHz	3GPP MPR [dB]	CH 18607 1850.7 MHz	CH 18900 1880.0 MHz	CH 19193 1909.3 MHz	3GPP MPR [dB]
2 / 1.4M	1	0	22.85	22.79	22.97	0	20.93	21.72	21.79	1
	1	2	22.88	22.91	23.07	0	21.52	21.89	22.05	1
	1	5	22.59	22.84	22.84	0	21.28	21.75	21.79	1
	3	0	22.82	22.87	22.94	0	22.18	22.08	22.22	1
	3	1	22.86	22.9	23.01	0	22.15	22.01	22.37	1
	3	3	22.81	22.81	22.87	0	21.97	22.05	22.3	1
	6	0	21.7	21.78	21.95	1	20.73	21.37	21.62	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 18615 1851.5 MHz	CH 18900 1880.0 MHz	CH 19185 1918.5 MHz	3GPP MPR [dB]	CH 18615 1851.5 MHz	CH 18900 1880.0 MHz	CH 19185 1918.5 MHz	3GPP MPR [dB]
2 / 3M	1	0	22.73	22.8	23.05	0	21.61	21.42	21.82	1
	1	7	23.0	22.75	23.0	0	21.67	21.65	21.82	1
	1	14	23.0	22.89	23.01	0	21.61	21.7	21.86	1
	8	0	21.85	21.93	22.16	1	20.99	21.01	21.13	2
	8	3	21.78	21.93	22.06	1	21.0	21.11	21.16	2
	8	7	21.74	21.89	21.96	1	20.98	21.17	21.18	2
	15	0	21.82	21.81	21.97	1	21.02	20.94	21.23	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 18625 1852.5 MHz	CH 18900 1880.0 MHz	CH 19175 1907.5 MHz	3GPP MPR [dB]	CH 18625 1852.5 MHz	CH 18900 1880.0 MHz	CH 19175 1907.5 MHz	3GPP MPR [dB]
2 / 5M	1	0	22.89	22.92	22.96	0	21.57	21.61	21.8	1
	1	12	22.76	22.73	22.95	0	21.71	21.69	21.93	1
	1	24	22.78	22.76	22.79	0	21.08	21.61	21.8	1
	12	0	21.9	21.84	22.1	1	20.7	20.68	20.82	2
	12	6	21.89	21.87	22.08	1	20.82	20.72	20.95	2
	12	13	21.89	21.86	22.0	1	20.8	20.79	20.93	2
	25	0	21.88	21.79	22.04	1	20.91	20.94	21.05	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 18650 1855 MHz	CH 18900 1880.0	CH 19150 1905 MHz	3GPP MPR [dB]	CH 18650 1855 MHz	CH 18900 1880.0 MHz	CH 19150 1905 MHz	3GPP MPR [dB]
2 / 10M	1	0	22.99	23.05	22.99	0	21.22	21.72	22.06	1
	1	24	23.1	23.16	23.17	0	21.28	21.64	21.86	1
	1	49	23.02	22.99	23.06	0	21.53	21.48	21.82	1
	25	0	22.06	21.97	21.97	1	21.04	20.96	20.93	2
	25	12	22.03	21.98	22.03	1	21.01	20.99	21.22	2
	25	25	21.95	21.99	22.02	1	20.99	21.02	21.43	2
	50	0	21.88	21.98	21.89	1	20.93	20.96	21.08	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 18675 1857.5 MHz	CH 18900 1880.0	CH 19125 1902.5 MHz	3GPP MPR [dB]	CH 18675 1857.5 MHz	CH 18900 1880.0 MHz	CH 19125 1902.5 MHz	3GPP MPR [dB]
2 / 15M	1	0	22.88	22.81	22.76	0	21.63	21.72	21.3	1
	1	37	23.1	23.26	22.88	0	21.82	22.14	22.04	1
	1	74	23.05	22.96	22.79	0	21.39	21.47	21.84	1
	36	0	22.07	22.09	21.95	1	20.96	21.02	20.93	2
	36	19	22.05	22.02	22.06	1	20.95	21.07	21.04	2
	36	39	22.0	21.93	21.98	1	20.96	21.11	21.09	2
	75	0	22.0	21.97	21.92	1	21.05	21.01	21.02	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 18700 1860.0 MHz	CH 18900 1880.0	CH 19100 1900.0 MHz	3GPP MPR [dB]	CH 18700 1860.0 MHz	CH 18900 1880.0	CH 19100 1900.0 MHz	3GPP MPR [dB]
2 / 20M	1	0	22.89	23.26	22.55	0	21.72	21.81	21.63	1
	1	50	23.23	23.15	23.04	0	21.81	21.82	21.98	1
	1	99	23.24	22.8	22.83	0	21.65	21.42	21.86	1
	50	0	22.03	22.08	21.77	1	20.97	21.03	20.88	2
	50	25	22.11	22.14	21.9	1	21.0	20.94	21.04	2
	50	50	22.03	21.9	21.85	1	20.9	20.91	21.08	2
	100	0	22.09	21.93	21.89	1	20.99	20.84	21.02	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 20407 824.7 MHz	CH 20525 836.5 MHz	CH 20643 848.3 MHz	3GPP MPR [dB]	CH 20407 824.7 MHz	CH 20525 836.5 MHz	CH 20643 848.3 MHz	3GPP MPR [dB]
5 / 1.4M	1	0	22.7	22.99	22.82	0	21.17	21.36	21.68	1
	1	2	22.72	23.13	22.9	0	21.18	21.34	21.85	1
	1	5	22.87	23.08	22.92	0	21.46	21.29	21.65	1
	3	0	22.85	23.2	23.0	0	21.76	21.58	22.06	1
	3	1	22.87	23.19	22.97	0	21.98	22.17	22.13	1
	3	3	22.98	22.96	22.88	0	21.96	22.21	22.1	1
	6	0	21.94	22.03	21.94	1	21.15	20.83	20.82	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 20415 825.5 MHz	CH 20525 836.5 MHz	CH 20635 847.5 MHz	3GPP MPR [dB]	CH 20415 825.5 MHz	CH 20525 836.5 MHz	CH 20635 847.5 MHz	3GPP MPR [dB]
5 / 3M	1	0	22.83	22.97	22.9	0	21.46	21.7	21.33	1
	1	7	22.95	23.24	23.15	0	21.8	21.87	21.62	1
	1	14	22.97	23.14	22.95	0	21.54	21.92	21.38	1
	8	0	22.01	22.03	22.01	1	20.91	20.71	20.94	2
	8	3	21.97	22.05	21.95	1	20.98	20.7	20.99	2
	8	7	22.0	22.09	21.95	1	21.05	20.74	20.95	2
	15	0	22.03	22.03	22.01	1	21.11	20.92	21.0	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 20425 826.5 MHz	CH 20525 836.5 MHz	CH 20625 846.5 MHz	3GPP MPR [dB]	CH 20425 826.5 MHz	CH 20525 836.5 MHz	CH 20625 846.5 MHz	3GPP MPR [dB]
5 / 5M	1	0	22.74	23.04	22.92	0	21.43	21.35	21.84	1
	1	12	23.18	23.02	23.11	0	21.93	21.8	22.26	1
	1	24	23.06	23.02	22.9	0	21.67	21.8	21.25	1
	12	0	21.99	22.0	22.1	1	20.97	20.7	20.9	2
	12	6	22.08	22.06	22.01	1	20.82	20.88	21.04	2
	12	13	22.0	22.07	22.01	1	20.85	20.87	21.04	2
	25	0	22.12	21.99	22.01	1	21.1	20.89	20.96	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 20450 829.0 MHz	CH 20525 836.5 MHz	CH 20600 844 MHz	3GPP MPR [dB]	CH 20450 829.0 MHz	CH 20525 836.5 MHz	CH 20600 844 MHz	3GPP MPR [dB]
5 / 10M	1	0	23.03	22.97	23.2	0	21.65	21.36	21.35	1
	1	24	23.33	23.37	23.3	0	21.66	21.5	21.7	1
	1	49	23.24	23.24	23.25	0	21.89	21.66	21.68	1
	25	0	22.34	22.19	22.29	1	21.2	21.13	21.29	2
	25	12	22.32	22.26	22.27	1	21.1	21.19	21.27	2
	25	25	22.26	22.28	22.26	1	21.07	21.23	21.23	2
	50	0	22.27	22.2	22.24	1	21.28	21.21	21.18	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 23017 699.7 MHz	CH 23095 707.5 MHz	CH 23173 715.3 MHz	3GPP MPR [dB]	CH 23017 699.7 MHz	CH 23095 707.5 MHz	CH 23173 715.3 MHz	3GPP MPR [dB]
12 / 1.4M	1	0	22.83	22.68	22.79	0	21.56	21.3	21.51	1
	1	2	23.18	22.9	23.05	0	21.98	21.48	21.37	1
	1	5	23.17	23.0	23.04	0	21.92	21.73	21.56	1
	3	0	23.08	22.87	23.04	0	22.15	22.02	22.06	1
	3	1	23.35	23.03	23.18	0	22.16	22.18	22.26	1
	3	3	23.18	23.0	23.13	0	22.8	22.09	22.33	1
	6	0	22.07	21.94	22.18	1	21.34	20.89	21.23	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 23025 700.5 MHz	CH 23095 707.5 MHz	CH 23165 714.5 MHz	3GPP MPR [dB]	CH 23025 700.5 MHz	CH 23095 707.5 MHz	CH 23165 714.5 MHz	3GPP MPR [dB]
12 / 3M	1	0	23.14	22.84	22.94	0	21.45	21.27	21.98	1
	1	7	23.23	22.83	22.93	0	22.28	21.77	21.86	1
	1	14	23.12	22.68	23.15	0	21.68	21.48	21.81	1
	8	0	22.15	22.07	22.02	1	21.17	21.04	21.1	2
	8	3	22.19	22.05	22.07	1	21.55	21.04	20.88	2
	8	7	22.25	22.01	22.1	1	21.57	20.96	21.16	2
	15	0	22.13	21.97	22.17	1	21.25	21.0	21.23	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 23035 701.5 MHz	CH 23095 707.5 MHz	CH 23155 713.5 MHz	3GPP MPR [dB]	CH 23035 701.5 MHz	CH 23095 707.5 MHz	CH 23155 713.5 MHz	3GPP MPR [dB]
12 / 5M	1	0	22.92	22.81	22.93	0	21.5	21.23	21.38	1
	1	12	23.36	22.89	22.77	0	21.93	21.7	21.82	1
	1	24	22.88	22.85	22.82	0	21.41	21.5	21.7	1
	12	0	22.2	21.93	21.99	1	21.14	20.86	21.09	2
	12	6	22.08	22.01	21.88	1	21.11	20.84	21.0	2
	12	13	21.88	22.02	22.04	1	21.05	20.98	20.86	2
	25	0	22.03	21.93	21.92	1	21.11	21.0	21.07	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 23060 704.0 MHz	CH 23095 707.5 MHz	CH 23130 711.0 MHz	3GPP MPR [dB]	CH 23060 704.0 MHz	CH 23095 707.5 MHz	CH 23130 711.0 MHz	3GPP MPR [dB]
12 / 10M	1	0	23.11	23.14	23.15	0	21.91	21.88	21.45	1
	1	24	23.07	23.02	23.22	0	21.58	21.41	21.94	1
	1	49	23.12	23.14	23.13	0	21.47	21.63	21.8	1
	25	0	22.16	22.11	22.21	1	21.33	21.16	21.24	2
	25	12	21.95	22.07	22.22	1	21.09	21.16	21.41	2
	25	25	22.15	22.12	22.1	1	21.25	21.27	21.22	2
	50	0	22.17	22.07	22.05	1	21.28	21.3	21.3	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 23205 779.5 MHz	CH 23230 782.0 MHz	CH 23255 784.5 MHz	3GPP MPR [dB]	CH 23205 779.5 MHz	CH 23230 782.0 MHz	CH 23255 784.5 MHz	3GPP MPR [dB]
13 / 5M	1	0	22.72	22.76	22.66	0	21.16	21.51	21.43	1
	1	12	22.84	22.66	22.81	0	21.32	21.51	21.39	1
	1	24	22.89	22.76	22.88	0	21.54	21.12	21.26	1
	12	0	21.83	21.8	21.78	1	20.57	20.54	20.52	2
	12	6	21.86	21.78	21.82	1	20.63	20.68	20.67	2
	12	13	21.91	21.85	21.86	1	20.62	20.78	20.62	2
	25	0	21.83	21.76	21.84	1	20.73	20.8	20.81	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			NA	CH 23230 782.0 MHz	NA	3GPP MPR [dB]	NA	CH 23230 782.0 MHz	NA	3GPP MPR [dB]
13 / 10M	1	0	22.36	22.36	22.36	0	21.41	21.41	21.41	1
	1	24	22.64	22.64	22.64	0	21.32	21.32	21.32	1
	1	49	22.64	22.64	22.64	0	21.19	21.19	21.19	1
	25	0	21.68	21.68	21.68	1	20.66	20.66	20.66	2
	25	12	21.71	21.71	21.71	1	20.7	20.7	20.7	2
	25	25	21.7	21.7	21.7	1	20.79	20.79	20.79	2
	50	0	21.71	21.71	21.71	1	20.7	20.7	20.7	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 23305 790.5 MHz	CH 23330 793.0 MHz	CH 23355 795.5 MHz	3GPP MPR [dB]	CH 23305 790.5 MHz	CH 23330 793.0 MHz	CH 23355 795.5 MHz	3GPP MPR [dB]
14 / 5M	1	0	22.68	22.86	22.88	0	21.58	21.66	21.26	1
	1	12	22.79	22.98	22.88	0	21.77	21.74	21.74	1
	1	24	22.81	22.84	22.89	0	21.48	21.24	21.33	1
	12	0	21.98	22.1	22.05	1	20.84	20.88	20.88	2
	12	6	22.12	22.15	22.02	1	20.83	20.9	20.95	2
	12	13	22.05	22.05	22.06	1	20.9	20.95	20.99	2
	25	0	22.05	22.1	22.04	1	21.04	21.13	21.07	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			NA	CH 23330 793.0 MHz	NA	3GPP MPR [dB]	NA	CH 23330 793.0	NA	3GPP MPR [dB]
14 / 10M	1	0	22.49	22.49	22.49	0	20.79	20.79	20.79	1
	1	24	22.87	22.87	22.87	0	21.26	21.26	21.26	1
	1	49	22.79	22.79	22.79	0	21.3	21.3	21.3	1
	25	0	21.98	21.98	21.98	1	21.02	21.02	21.02	2
	25	12	21.98	21.98	21.98	1	21.01	21.01	21.01	2
	25	25	21.9	21.9	21.9	1	20.93	20.93	20.93	2
	50	0	21.99	21.99	21.99	1	20.98	20.98	20.98	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 131979 1710.7 MHz	CH 132322 1745.0 MHz	CH 132665 1779.3 MHz	3GPP MPR [dB]	CH 131979 1710.7 MHz	CH 132322 1745.0 MHz	CH 132665 1779.3 MHz	3GPP MPR [dB]
66 / 1.4M	1	0	22.27	22.28	22.4	0	21.55	21.28	21.57	1
	1	2	22.33	22.51	22.39	0	21.02	21.43	21.78	1
	1	5	22.2	22.46	22.33	0	20.98	21.27	21.64	1
	3	0	22.27	22.63	22.52	0	21.09	21.57	21.8	1
	3	1	22.32	22.67	22.49	0	21.66	21.61	21.77	1
	3	3	22.2	22.46	22.35	0	21.56	21.63	21.8	1
	6	0	21.39	21.45	21.42	1	20.72	20.8	20.88	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 131987 1711.5 MHz	CH 132322 1745.0 MHz	CH 132657 1778.5 MHz	3GPP MPR [dB]	CH 131987 1711.5 MHz	CH 132322 1745.0 MHz	CH 132657 1778.5 MHz	3GPP MPR [dB]
66 / 3M	1	0	22.37	22.59	22.43	0	21.05	21.3	21.54	1
	1	7	22.26	22.79	22.5	0	21.36	21.4	21.72	1
	1	14	22.2	22.67	22.32	0	21.25	21.0	21.4	1
	8	0	21.45	21.65	21.71	1	20.39	20.54	20.85	2
	8	3	21.49	21.59	21.62	1	20.61	20.54	20.81	2
	8	7	21.46	21.55	21.5	1	20.55	20.59	20.76	2
	15	0	21.35	21.54	21.53	1	20.57	20.64	20.81	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 131997 1712.5 MHz	CH 132322 1745.0 MHz	CH 132647 1777.5 MHz	3GPP MPR [dB]	CH 131997 1712.5 MHz	CH 132322 1745.0 MHz	CH 132647 1777.5 MHz	3GPP MPR [dB]
66 / 5M	1	0	22.2	22.34	22.38	0	21.25	21.3	21.48	1
	1	12	22.23	22.36	22.52	0	21.44	21.35	21.57	1
	1	24	22.24	22.46	22.23	0	21.14	21.08	21.48	1
	12	0	21.52	21.46	21.51	1	20.33	20.42	20.86	2
	12	6	21.4	21.58	21.5	1	20.57	20.52	20.84	2
	12	13	21.35	21.56	21.54	1	20.43	20.48	20.75	2
	25	0	21.38	21.56	21.52	1	20.54	20.51	20.77	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 132022 1715.0 MHz	CH 132322 1745.0 MHz	CH 132622 1775.0 MHz	3GPP MPR [dB]	CH 132022 1715.0 MHz	CH 132322 1745.0 MHz	CH 132622 1775.0 MHz	3GPP MPR [dB]
66 / 10M	1	0	22.51	22.66	22.31	0	21.46	20.99	20.87	1
	1	24	22.54	22.56	22.42	0	21.21	21.17	21.38	1
	1	49	22.25	22.5	22.12	0	20.58	20.89	21.43	1
	25	0	21.6	21.54	21.35	1	20.71	20.63	20.58	2
	25	12	21.49	21.58	21.39	1	20.62	20.63	20.63	2
	25	25	21.28	21.48	21.38	1	20.4	20.67	20.6	2
	50	0	21.37	21.45	21.28	1	20.53	20.56	20.6	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 132047 1717.5 MHz	CH 132322 1745.0 MHz	CH 132597 1772.5 MHz	3GPP MPR [dB]	CH 132047 1717.5 MHz	CH 132322 1745.0 MHz	CH 132597 1772.5 MHz	3GPP MPR [dB]
66 / 15M	1	0	22.44	22.64	22.41	0	21.5	21.15	20.95	1
	1	37	22.37	22.71	22.39	0	21.07	21.65	21.69	1
	1	74	22.22	22.38	22.14	0	20.43	21.06	21.29	1
	36	0	21.61	21.59	21.32	1	20.61	20.85	20.42	2
	36	19	21.39	21.56	21.26	1	20.39	20.69	20.74	2
	36	39	21.21	21.47	21.32	1	20.46	20.64	20.75	2
	75	0	21.46	21.45	21.12	1	20.63	20.54	20.48	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 132072 1720.0 MHz	CH 132322 1745.0 MHz	CH 132572 1770.0 MHz	3GPP MPR [dB]	CH 132072 1720.0 MHz	CH 132322 1745.0 MHz	CH 132572 1770.0 MHz	3GPP MPR [dB]
66 / 20M	1	0	22.47	22.38	22.47	0	21.45	21.1	21.04	1
	1	50	22.27	22.64	22.35	0	20.85	21.5	21.41	1
	1	99	22.08	22.27	22.26	0	20.34	21.23	21.46	1
	50	0	21.62	21.74	21.39	1	20.59	20.68	20.53	2
	50	25	21.28	21.59	21.37	1	20.38	20.7	20.55	2
	50	50	21.37	21.43	21.3	1	20.33	20.6	20.54	2
	100	0	21.55	21.48	21.27	1	20.48	20.6	20.46	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 133147 665.5 MHz	CH 133297 680.5 MHz	CH 133447 695.5 MHz	3GPP MPR [dB]	CH 133147 665.5 MHz	CH 133297 680.5 MHz	CH 133447 695.5 MHz	3GPP MPR [dB]
71 / 5M	1	0	22.49	22.44	22.31	0	21.78	21.22	20.83	1
	1	12	23.08	22.81	23.05	0	21.99	21.12	21.36	1
	1	24	22.55	22.69	22.52	0	21.13	21.81	20.66	1
	12	0	21.83	21.63	21.37	1	20.28	20.29	20.4	2
	12	6	21.94	21.61	21.49	1	20.75	20.48	20.51	2
	12	13	21.76	21.67	21.46	1	20.4	20.54	20.29	2
	25	0	21.84	21.57	21.41	1	20.51	20.56	20.54	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 133172 668.0 MHz	CH 133297 680.5 MHz	CH 133422 693.0 MHz	3GPP MPR [dB]	CH 133172 668.0 MHz	CH 133297 680.5 MHz	CH 133422 693.0 MHz	3GPP MPR [dB]
71 / 10M	1	0	22.83	22.48	22.63	0	21.34	21.25	21.69	1
	1	24	22.97	22.99	22.41	0	22.61	21.23	21.68	1
	1	49	22.8	22.93	22.54	0	22.44	21.36	21.78	1
	25	0	21.8	21.68	21.6	1	21.0	20.71	20.54	2
	25	12	21.94	21.74	21.54	1	20.73	20.76	20.4	2
	25	25	21.74	21.68	21.55	1	20.92	21.0	20.49	2
	50	0	21.8	21.63	21.53	1	20.85	20.7	20.61	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 133197 670.5 MHz	CH 133297 680.5 MHz	CH 133397 690.5 MHz	3GPP MPR [dB]	CH 133197 670.5 MHz	CH 133297 680.5 MHz	CH 133397 690.5 MHz	3GPP MPR [dB]
71 / 15M	1	0	22.51	22.53	22.78	0	22.42	21.61	21.89	1
	1	37	23.29	22.83	22.59	0	22.42	21.61	21.74	1
	1	74	22.86	22.59	22.38	0	22.19	21.64	21.06	1
	36	0	21.8	21.66	21.66	1	20.73	20.52	20.56	2
	36	19	21.84	21.75	21.52	1	20.72	20.51	20.42	2
	36	39	21.78	21.83	21.49	1	20.66	20.74	20.35	2
	75	0	21.82	21.66	21.6	1	20.61	20.6	20.56	2

LTE Band / BW	RB Size RBs	RB Offset RB Start	QPSK				16QAM			
			CH 133222 673.0 MHz	CH 133297 680.5 MHz	CH 133372 688.0 MHz	3GPP MPR [dB]	CH 133222 673.0 MHz	CH 133297 680.5 MHz	CH 133372 688.0 MHz	3GPP MPR [dB]
71 / 20M	1	0	22.67	22.84	22.35	0	22.28	21.14	22.27	1
	1	50	22.94	22.91	23.08	0	22.57	21.64	22.65	1
	1	99	22.47	22.5	22.28	0	22.08	21.06	22.03	1
	50	0	21.67	21.66	21.67	1	20.73	20.61	20.68	2
	50	25	21.74	21.63	21.67	1	20.81	20.64	20.6	2
	50	50	21.63	21.83	21.48	1	20.69	20.83	20.42	2
	100	0	21.7	21.62	21.64	1	20.82	20.66	20.57	2

ISM 2.4GHz	Max Output Power [dBm]
2413 MHz	19.72
2440 MHz	18.76
2470 MHz	17.47

NFC	Max Output Power [dBm]
13.56 MHz	15.34*

*Due to NFC integrated circuit impedance matching in the output and NFC antenna not being 50Ω, the measured conducted power underestimates the actual output power of the module. Mismatch with the cable for conducted power testing cable is larger than with the antenna. The measured conducted power value is used in scaling of the NFC SAR results thus the reported SAR values are overestimated.

4. TEST EQUIPMENT

Dasy52 near field scanning systems, manufactured by SPEAG were 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.

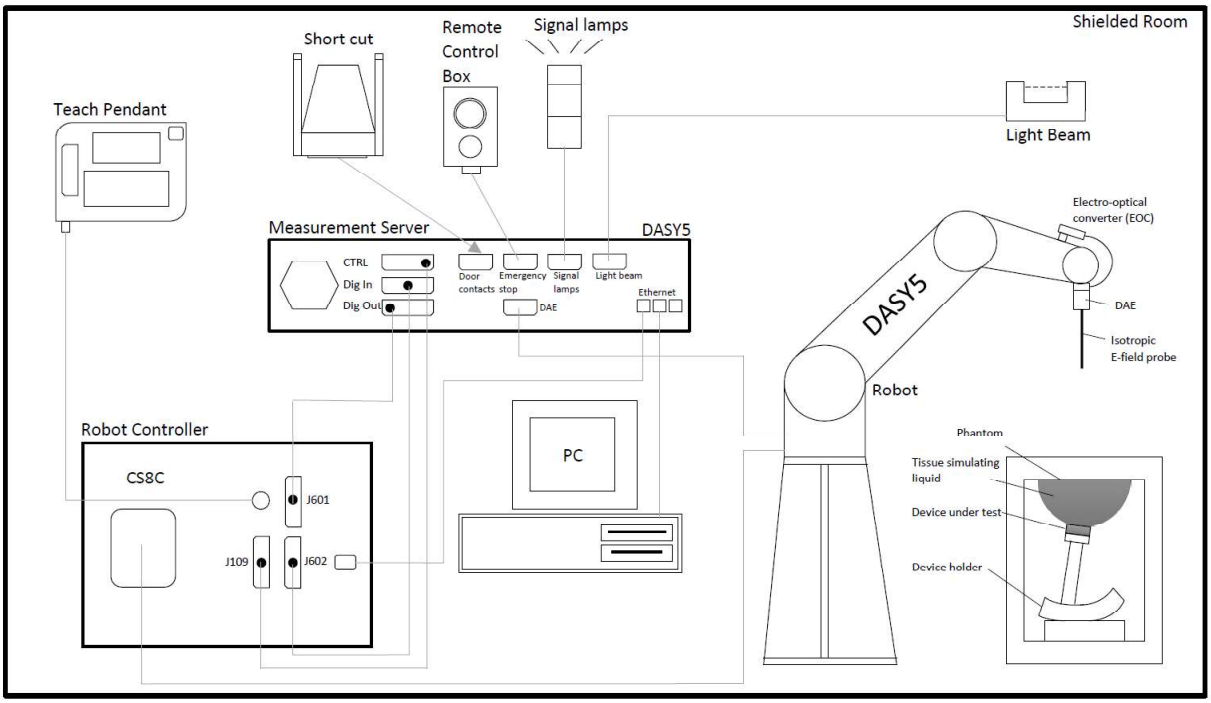


Figure 1 Schematic Laboratory Picture

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	1332	02.2022
Probe	EX3DV4	7447	02.2022
Dipole	CLA-13	1012	03.2021
Dipole	D750V3	DIP 0G750-635	12.2021
Dipole	D835V2	448	12.2020
Dipole	D1800V2	2D075	12.2020
Dipole	D1900V2	511	03.2020
Dipole	D2450V2	758	03.2020
DASY5 Software	52.8.8.1258	-	NA
Communication tester	Anritsu MT8820C	6200883099	09.2021
Signal Generator	Agilent E4438C	MY42082527	NA
Amplifier	Ophir 5163F	1022	NA
Power Sensor	NRP-Z11	100265	12.2021
Inline Peak Power Sensor	MA24105A	2102058	08.2021

Dipole calibration period supporting data:

		Measured on 09/2021			Calibrated		
Dipole and serial number	Frequency (MHz)	Return loss (dB)	Impedance (Ω)		Return loss (dB)	Impedance (Ω)	
D835V2-SN:448	835	-25.2	49.2	-5.4	-29.93	52.2	-2.3
D1800V2-SN:2D075	1800	-28.8	52.2	3	-35.87	48.8	-1.1
D1900V2-SN:511	1900	-25.4	49.4	5.3	-21.37	52.9	8
D2450V2 - SN: 758	2450	-28.7	46.7	-1.3	-35*	49.9	-0.5

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 Tip diameter: 2.5 mm Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 6 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

4.2.1 The Triple Modular Phantom

The Triple Modular Phantom consists of three identical modules that can be installed and removed separately without emptying the liquid. It is used for compliance testing of small wireless devices in body-worn configurations. The phantom conforms to the requirements of IEEE 1528 and FCC published RF Exposure KDB Procedures.

4.2.2 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. ELI is fully compatible with the 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 in all frequencies used. 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 600-3000 MHz tissue simulant liquid Ingredients	Head 10-400 MHz tissue simulant liquid ingredients
Deionized Water, tween, salt	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] Head tissue simulant	Conductivity σ [S/m] Head tissue simulant	Validation Done
13	CLA 13 - SN: 1012	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	52.95	0.71	04.2022*
750	49/21 DIPG750 - SN: 653	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	41.9	0.89	03.2022
835	51/18 DIP 0G835-473	EX3DV4 - SN: 7447	CW	DAE 4 / 710	39.62	0.89	03.2022
1800	D1800V2-SN:2D075	EX3DV4 - SN: 7447	CW	DAE 4 / 710	38.81	1.36	03.2022
1900	D1900V2-SN:5D004	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	38.86	1.42	03.2022
2450	D2450V2 - SN: 758	EX3DV4 - SN: 7447	CW	DAE 4 / 1332	37.82	1.79	03.2022

*Probe isotropy at 13 MHz was tested to be ±0.55dB. The probes consist of a sensor, the diode and two highly resistive lines. According to the probe manufacturer the performance of these lines is reduced at lower frequencies.

4.5 System Check

Date	Tissue Type	Tissue Temp. [°C]	Frequency [MHz]	Input Power [mW]	Measured SAR1g [W/kg]	1 W Target SAR1g [W/kg]	1 W Normalized SAR1g [W/kg]	Deviation 1g [%]	Plot #
30.03.2022	WB HEAD	22±2	1900	250mW	9.64	37.1	38.56	3.94	1
31.03.2022	WB HEAD	22±2	835	250mW	2.35	9.38	9.4	0.21	2
01.04.2022	WB HEAD	22±2	1800	250mW	9.2	39.44	36.8	-6.69	3
04.04.2022	WB HEAD	22±2	1800	250mW	8.96	39.44	35.84	-9.13	4
04.04.2022	WB HEAD	22±2	750	250mW	2.06	8.9	8.24	-7.42	5
05.04.2022	WB HEAD	22±2	2450	250mW	12.6	55.34	50.4	-8.93	6
11.04.2022	LB HEAD	22±2	13	250mW	0.14	0.56	0.58	3.78	7

4.5.1 Tissue Simulant Verification

				Target		Measured		Deviation	
Date	Tissue Type	Tissue Temp [°C]	Frequency [MHz]	Dielectric Constant [ε]	Conductivity. σ [S/m]	Dielectric Constant [ε]	Conductivity σ [S/m]	ε (%)	σ (%)
30.03.2022	WB Head	22	779.5	41.76	0.89	43.24	0.89	3.5	-0.1
30.03.2022	WB Head	22	782	41.75	0.89	43.23	0.89	3.5	-0.0
30.03.2022	WB Head	22	784.5	41.74	0.89	43.22	0.89	3.5	0.1
30.03.2022	WB Head	22	790.5	41.71	0.89	43.19	0.9	3.5	0.2
30.03.2022	WB Head	22	793	41.7	0.9	43.17	0.9	3.5	0.3
30.03.2022	WB Head	22	795.5	41.69	0.9	43.16	0.9	3.5	0.4
30.03.2022	WB Head	22	826.4	41.54	0.9	43.02	0.91	3.6	1.4
30.03.2022	WB Head	22	829	41.53	0.9	43.0	0.91	3.6	1.5
30.03.2022	WB Head	22	835	41.5	0.9	42.98	0.91	3.6	1.6
30.03.2022	WB Head	22	836.5	41.5	0.9	42.98	0.91	3.6	1.5
30.03.2022	WB Head	22	836.6	41.5	0.9	42.98	0.91	3.6	1.4
30.03.2022	WB Head	22	844	41.5	0.91	42.95	0.92	3.5	0.9
30.03.2022	WB Head	22	846.6	41.5	0.91	42.93	0.92	3.5	0.7
30.03.2022	WB Head	22	1852.4	40	1.4	40.24	1.4	0.6	0.3
30.03.2022	WB Head	22	1852.5	40	1.4	40.24	1.4	0.6	0.3
30.03.2022	WB Head	22	1860	40	1.4	40.23	1.41	0.6	0.6
30.03.2022	WB Head	22	1880	40	1.4	40.19	1.42	0.5	1.4
30.03.2022	WB Head	22	1900	40	1.4	40.15	1.43	0.4	2.3
30.03.2022	WB Head	22	1907.6	40	1.4	40.14	1.44	0.4	2.5
01.04.2022	WB Head	22	1712.4	40.13	1.35	38.44	1.26	-4.2	-6.6
01.04.2022	WB Head	22	1732.6	40.1	1.36	38.41	1.27	-4.2	-6.5
01.04.2022	WB Head	22	1752.6	40.07	1.37	38.36	1.28	-4.3	-6.6
01.04.2022	WB Head	22	1800	40	1.4	38.24	1.31	-4.4	-6.6
04.04.2022	WB Head	22	673	42.31	0.88	43.56	0.81	3.0	-8.8
04.04.2022	WB Head	22	680.5	42.27	0.89	43.53	0.81	3.0	-8.4
04.04.2022	WB Head	22	688	42.23	0.89	43.47	0.81	2.9	-8.2
04.04.2022	WB Head	22	704	42.15	0.89	43.39	0.82	3.0	-7.8
04.04.2022	WB Head	22	707.5	42.13	0.89	43.35	0.82	2.9	-7.7

04.04.2022	WB Head	22	711	42.11	0.89	43.33	0.82	2.9	-7.5
04.04.2022	WB Head	22	750	41.9	0.89	43.15	0.83	3.0	-6.2
04.04.2022	WB Head	22	1720	40.11	1.35	40.44	1.26	0.8	-7.0
04.04.2022	WB Head	22	1745	40.08	1.37	40.39	1.27	0.8	-7.0
04.04.2022	WB Head	22	1770	40.04	1.38	40.35	1.29	0.8	-6.9
04.04.2022	WB Head	22	1800	40	1.4	40.29	1.3	0.7	-6.9
04.04.2022	WB Head	22	2413	39.26	1.77	39.31	1.67	0.1	-5.3
04.04.2022	WB Head	22	2440	39.22	1.79	39.25	1.69	0.1	-5.6
04.04.2022	WB Head	22	2450	39.2	1.8	39.23	1.7	0.1	-5.6
04.04.2022	WB Head	22	2470	39.17	1.82	39.2	1.71	0.1	-6.0
08.04.2022	LB Head	22	13	55	0.75	52.95	0.71	-3.7	-4.8
08.04.2022	LB Head	22	13.56	55	0.75	52.89	0.71	-3.8	-4.8

5. TEST PROCEDURE

Testing was carried out in accordance with FCC KDB Publication 447498 D01 and RSS-102. KDB 941225 D05 was used to select LTE test modes for testing. 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. ISM 2.4GHz and NFC transmission was set to transmit on maximum output power with a software.

Front side of the device was tested with 25mm separation distance. Back side of the device was tested with 5mm separation distance.

NFC' theoretical maximum output power has been calculated based on the module's current limit threshold and supply voltage. Supply voltage has been set to 3.3V and current limiter threshold's value is 180 mA.

NFC theoretical maximum output power = 3.3V * 0.18A = 0.594 W = 27.7 dBm.

Due to NFC integrated circuit impedance matching in the output and NFC antenna not being 50Ω, the measured conducted power underestimates the actual output power of the module. Mismatch with the cable for conducted power testing cable is larger than with the antenna. The measured conducted power value is used in scaling of the NFC SAR results thus the reported SAR values are overestimated.

5.1 Test Positions

Photos of the test positions are presented in appendix A

5.1.1 Front-of-Face Configuration

Measurements were made with 25mm separation between the flat phantom and the device, device front side facing the phantom.

5.1.2 Body-worn, 5mm separation distance

The device was placed in the SPEAG holder and placed below the flat phantom, back side of the device were made with 5mm separation between the flat phantom and the clip in contact with flat phantom.

5.2 Scan Procedures

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

5.3 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.

6. MEASUREMENT UNCERTAINTY

DASY5 Uncertainty Budget According to IEC/IEEE 62209-1528 (Frequency band: 4MHz - 300MHz 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	±13.3%	N	√2	1	1	±6.65%	±6.65%
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	±0.8%	R	√3	1	1	±0.5%	±0.5%
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	0.14	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}	±5.4%	R	√3	0.78	0.71	±2.4%	±2.2%
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						±11.4%	±11.3%
U	**Expanded Uncertainty**						±22.9%	±22.6%

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_{sys}	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%
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 Front-of -Face Exposure, 25 mm separation distance and Body-worn Condition, 5 mm separation distance

Tested device is push-to talk, PTT, device hence the duty factor of 0.5 is applied.

Band	Channel	Freq [MHz]	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Duty Cycle	Measured SAR_{10g} [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR_{1g} [mW/g]	Plot #
WCDMA 2	9400	1880	25	22.2	Front	1:1	0.10	-0.05	1.91	50	0.10	
WCDMA 2	9400	1880	25	22.2	Back	1:1	0.69	0.14	1.91	50	0.66	
WCDMA 2	9262	1852.4	25	22.33	Back	1:1	0.73	0.04	1.85	50	0.67	8
WCDMA 2	9538	1907.6	25	22.2	Back	1:1	0.56	-0.22	2.00	50	0.56	

Band	Channel	Freq [MHz]	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Duty Cycle	Measured SAR_{10g} [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR_{1g} [mW/g]	Plot #
WCDMA 4	1413	1732.6	25	22.17	Front	1:1	0.13	-0.18	1.92	50	0.12	
WCDMA 4	1413	1732.6	25	22.17	Back	1:1	0.98	-0.07	1.92	50	0.94	9
WCDMA 4	1413	1732.6	25	22.17	Back repeat	1:1	0.92	-0.06	1.92	50	0.88	
WCDMA 4	1312	1712.4	25	22.19	Back	1:1	0.84	0.1	1.91	50	0.80	
WCDMA 4	1513	1752.6	25	22.4	Back	1:1	0.98	-0.08	1.82	50	0.89	

Band	Channel	Freq [MHz]	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Duty Cycle	Measured SAR_{10g} [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR_{1g} [mW/g]	Plot #
WCDMA 5	4183	836.6	25	22.54	Front	1:1	0.15	0.03	1.76	50	0.13	
WCDMA 5	4183	836.6	25	22.54	Back	1:1	0.46	-0.05	1.76	50	0.40	10
WCDMA 5	4132	826.4	25	22.55	Back	1:1	0.40	-0.11	1.76	50	0.35	
WCDMA 5	4233	846.6	25	22.7	Back	1:1	0.44	-0.09	1.70	50	0.37	

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 2	18900	1880	QPSK/20	1	0	25	23.26	Front	1:1	0.06	-0.59*	1.71	50	0.05	
LTE 2	18900	1880	QPSK/20	50	25	25	22.14	Front	1:1	0.07	-0.28*	2.06	50	0.07	
LTE 2	18900	1880	QPSK/20	1	0	25	23.26	Back	1:1	0.69	-0.02	1.49	50	0.52	11
LTE 2	18900	1880	QPSK/20	50	25	25	22.14	Back	1:1	0.51	-0.14	1.93	50	0.50	
LTE 2	18700	1860	QPSK/20	1	99	25	23.24	Back	1:1	0.67	-0.05	1.50	50	0.50	
LTE 2	19100	1900	QPSK/20	1	50	25	23.04	Back	1:1	0.62	-0.08	1.57	50	0.48	

*Larger than 5% drifts included to scaling factor

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 5	20525	836.5	QPSK/10	1	24	25	23.37	Front	1:1	0.16	0.13	1.46	50	0.12	
LTE 5	20525	836.5	QPSK/10	25	25	25	22.28	Front	1:1	0.13	-0.14	1.87	50	0.13	
LTE 5	20525	836.5	QPSK/10	1	24	25	23.37	Back	1:1	0.49	-0.09	1.46	50	0.35	
LTE 5	20525	836.5	QPSK/10	25	25	25	22.28	Back	1:1	0.39	-0.1	1.87	50	0.36	
LTE 5	20450	829	QPSK/10	1	24	25	23.33	Back	1:1	0.48	-0.07	1.47	50	0.35	
LTE 5	20600	844	QPSK/10	1	24	25	23.3	Back	1:1	0.50	-0.07	1.48	50	0.37	12

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 12	23130	711	QPSK/10	1	24	25	23.22	Front	1:1	0.28	-0.15	1.51	50	0.21	
LTE 12	23130	711	QPSK/10	25	12	25	22.22	Front	1:1	0.21	-0.09	1.90	50	0.19	
LTE 12	23130	711	QPSK/10	1	24	25	23.22	Back	1:1	0.66	-0.38*	1.64	50	0.54	13
LTE 12	23130	711	QPSK/10	25	12	25	22.22	Back	1:1	0.51	-0.03	1.90	50	0.48	
LTE 12	23060	704	QPSK/10	1	49	25	23.12	Back	1:1	0.68	-0.2	1.54	50	0.53	
LTE 12	23095	707.5	QPSK/10	1	0	25	23.14	Back	1:1	0.69	-0.21	1.53	50	0.53	

*Larger than 5% drifts included to scaling factor

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 13	23230	782	QPSK/10	1	24	25	22.64	Front	1:1	0.18	-0.07	1.72	50	0.15	
LTE 13	23230	782	QPSK/10	25	12	25	21.71	Front	1:1	0.14	0.01	2.13	50	0.15	
LTE 13	23230	782	QPSK/10	1	24	25	22.64	Back	1:1	0.49	0.04	1.72	50	0.42	
LTE 13	23230	782	QPSK/10	25	12	25	21.71	Back	1:1	0.39	-0.14	2.13	50	0.42	
LTE 13	23205	779.5	QPSK/5	1	24	25	22.89	Back	1:1	0.47	-0.03	1.63	50	0.38	
LTE 13	23255	784.5	QPSK/5	1	24	25	22.88	Back	1:1	0.48	-0.38*	1.78	50	0.43	14

*Larger than 5% drifts included to scaling factor

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 14	23330	793	QPSK/10	1	24	25	22.87	Front	1:1	0.19	-0.11	1.63	50	0.15	
LTE 14	23330	793	QPSK/10	25	0	25	21.98	Front	1:1	0.15	-0.13	2.00	50	0.15	
LTE 14	23330	793	QPSK/10	1	24	25	22.87	Back	1:1	0.53	0	1.63	50	0.43	15
LTE 14	23330	793	QPSK/10	25	0	25	21.98	Back	1:1	0.42	-0.05	2.00	50	0.42	
LTE 14	23305	790.5	QPSK/5	1	24	25	22.81	Back	1:1	0.51	0.19	1.66	50	0.42	
LTE 14	23355	795.5	QPSK/5	1	24	25	22.89	Back	1:1	0.51	-0.08	1.63	50	0.42	

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 66	13233	1745	QPSK/20	1	50	25	22.64	Front	1:1	0.11	0.01	1.72	50	0.09	
LTE 66	13233	1745	QPSK/20	50	0	25	21.74	Front	1:1	0.09	-0.12	2.12	50	0.09	
LTE 66	13233	1745	QPSK/20	1	50	25	22.64	Back	1:1	0.89	-0.13	1.72	50	0.76	
LTE 66	13233	1745	QPSK/20	50	0	25	21.74	Back	1:1	0.75	0	2.12	50	0.79	16
LTE 66	132072	1720	QPSK/20	1	0	25	22.47	Back	1:1	0.79	0.01	1.79	50	0.71	
LTE 66	132572	1770	QPSK/20	1	0	25	22.47	Back	1:1	0.82	-0.23*	1.89	50	0.77	

*Larger than 5% drifts included to scaling factor

Band	Channel	Frequency [MHz]	Modulation/ BW [MHz]	RB Size	RB Offset	Maximum Power [dBm]	Conducted Power [dBm]	Test Position	Duty Cycle	Measured SAR1g [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR 1g [mW/g]	Plot #
LTE 71	133372	688	QPSK/20	1	50	25	23.08	Front	1:1	0.19	-0.22*	1.64	50	0.16	
LTE 71	133372	688	QPSK/20	50	0	25	21.67	Front	1:1	0.13	-0.17	2.15	50	0.14	
LTE 71	133372	688	QPSK/20	1	50	25	23.08	Back	1:1	0.69	-0.07	1.56	50	0.53	
LTE 71	133372	688	QPSK/20	50	0	25	21.67	Back	1:1	0.51	-0.1	2.15	50	0.55	17
LTE 71	133222	673	QPSK/20	1	50	25	22.94	Back	1:1	0.54	0.35*	1.74	50	0.47	
LTE 71	133297	680.5	QPSK/20	1	50	25	22.91	Back	1:1	0.65	0.09	1.62	50	0.52	

*Larger than 5% drifts included to scaling factor

Band	Freq [MHz]	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Duty Cycle	Measured SAR_{10g} [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR_{1g} [mW/g]	Plot #
ISM 2.4GHz	2413	19.8	19.72	Front	1:1	0.025	0.2	1.02	10	0.003	
ISM 2.4GHz	2413	19.8	19.72	Back	1:1	0.063	-0.23*	1.07	10	0.007	18
ISM 2.4GHz	2440	19.8	18.76	Back	1:1	0.036	0.05	1.27	10	0.005	
ISM 2.4GHz	2470	19.8	17.47	Back	1:1	0.043	0.14	1.71	10	0.007	

*Larger than 5% drifts included to scaling factor

Band	Freq [MHz]	Maximum Power [dBm]	Conducted Power [dBm]	Test position	Duty Cycle	Measured SAR_{10g} [mW/g]	Power Drift [dB]	Scaling Factor	Normal Duty Cycle [%]	Reported SAR_{1g} [mW/g]	Plot #
NFC	13.56	27.7	15.34	Front	1:1	0*	NA**	17.22		0	
NFC	13.56	27.7	15.34	Back	1:1	0.0004	0	17.22		0.008	19

*SAR is below the detection limit of the test system
** Due to low e-field generated by DUT at the location of drift measurement, the measurements are not applicable

The pictures of the test positions are presented in Appendix A.

7.2 Simultaneous Transmission Analysis

Simultaneous transmission analysis for maximum cellular SAR, maximum ISM SAR and maximum NFC SAR is in a table below. Direct summation of SAR results was performed.

Exposure Condition		Body SAR_{1g} [mW/g]	Front-of Face SAR_{1g} [mW/g]
		Back	Front
Cellular	WCDMA II	0.67	0.10
	WCDMA IV	0.94	0.12
	WCDMA V	0.40	0.13
	LTE 2	0.52	0.07
	LTE 5	0.37	0.13
	LTE 12	0.54	0.21
	LTE 13	0.43	0.15
	LTE 14	0.43	0.15
	LTE 66	0.79	0.09
	LTE 71	0.55	0.16
Maximum Cellular SAR		**0.94**	**0.21**
Maximum ISM SAR		**0.007**	**0.003**
Maximum NFC SAR		**0.008**	**0**
SAR Summation		**0.96**	**0.21**

APPENDIX A: PHOTOS OF THE DUT

Size of the DUT is: 77.7 x 111.8 (124.8 with clip) x 29.7 (44.6 with clip) mm

DUT front, back and side view.

Front side of the device against the phantom, 25mm separation distance

Back side of the device against the phantom, 5mm separation distance

APPENDIX B: SYSTEM CHECK SCAN

Plot 1

Date/Time: 30.3.2022 14:22:49

Test Laboratory: Verkotan Oy

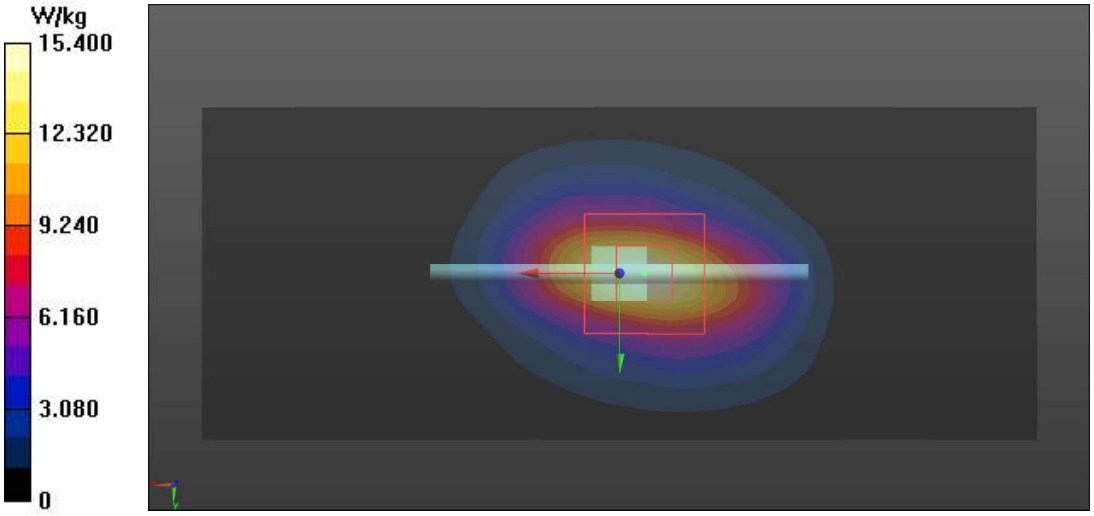
DUT: Dipole 1900 MHz D1900V2; Type: D1900V2; Serial: D1900V2 - SN:511

Communication System: UID 0, CW (0); Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1900 MHz; σ = 1.432 S/m; ε_r = 40.151; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.13, 8.13, 8.13) @ 1900 MHz; Calibrated: 28.2.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
- Electronics: DAE4 Sn1332; Calibrated: 23.2.2022
- Phantom: SAR1_Phantom 1_triple flat; Type: QD 000 P51 Cx; Serial: 28_March_2017
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/system check/Area Scan (101x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 15.4 W/kg
Configuration/system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.69 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 9.64 W/kg; SAR(10 g) = 5.07 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 9.9 mm
Ratio of SAR at M2 to SAR at M1 = 54.2%
Maximum value of SAR (measured) = 15.0 W/kg



Date/Time: 31.3.2022 10:28:12

Test Laboratory: Verkotan Oy

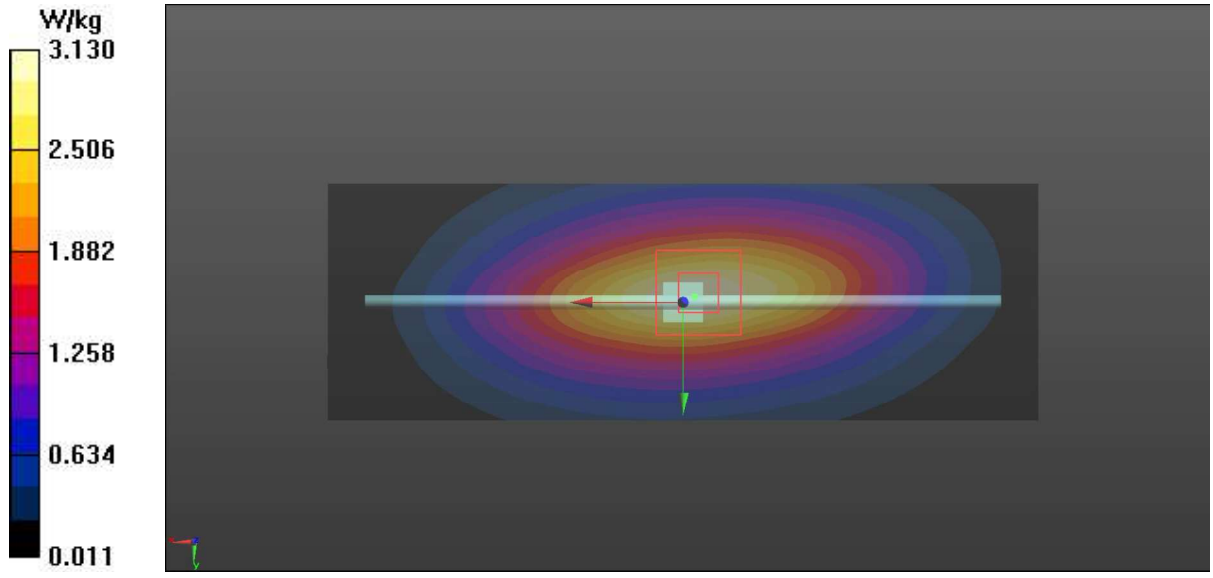
DUT: Dipole 835 MHz D835V2; Type: D835V2; Serial: D835V2 - SN:448

Communication System: UID 0, CW (0); Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 835 MHz; σ = 0.914 S/m; ε_r = 42.983; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(9.9, 9.9, 9.9) @ 835 MHz; Calibrated: 28.2.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = -4.0, 31.0
- Electronics: DAE4 Sn1332; Calibrated: 23.2.2022
- Phantom: SAR1_Phantom 1_triple flat; Type: QD 000 P51 Cx;
- DASY52 52.10.4(1527); SEMCAD X 14.6.14(7483)

Configuration/system check/Area Scan (121x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 3.13 W/kg
Configuration/system check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.23 V/m; Power Drift = -0.28 dB
Peak SAR (extrapolated) = 3.45 W/kg
SAR(1 g) = 2.35 W/kg; SAR(10 g) = 1.56 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 17.1 mm
Ratio of SAR at M2 to SAR at M1 = 67.9%
Maximum value of SAR (measured) = 3.08 W/kg



Plot 3

Date/Time: 1.4.2022 15:04:39

Test Laboratory: Verkotan Oy

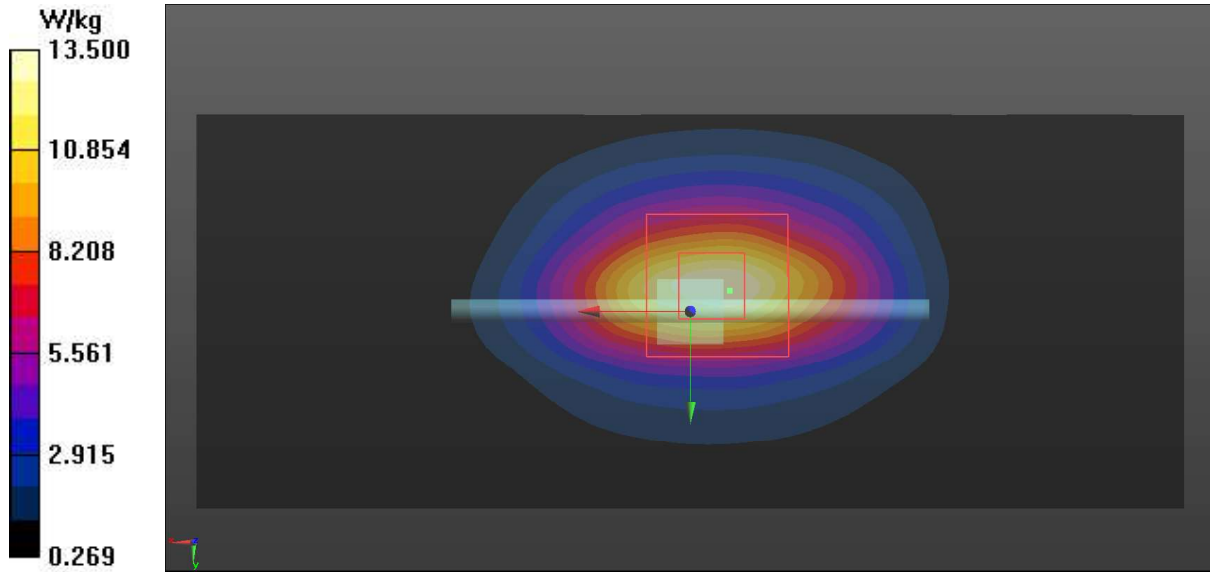
DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d075

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1800 MHz; σ = 1.307 S/m; ε_r = 38.236; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.42, 8.42, 8.42) @ 1800 MHz; Calibrated: 28.2.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn1332; Calibrated: 23.2.2022
- Phantom: SAR1_Phantom 1_triple flat; Type: QD 000 P51 Cx;
- 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 = 92.99 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 16.2 W/kg
SAR(1 g) = 9.2 W/kg; SAR(10 g) = 4.85 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 10.2 mm
Ratio of SAR at M2 to SAR at M1 = 55.8%
Maximum value of SAR (measured) = 13.5 W/kg
Configuration/system check/Area Scan (101x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.6 W/kg



Plot 4

Date/Time: 4.4.2022 9:14:40

Test Laboratory: Verkotan Oy

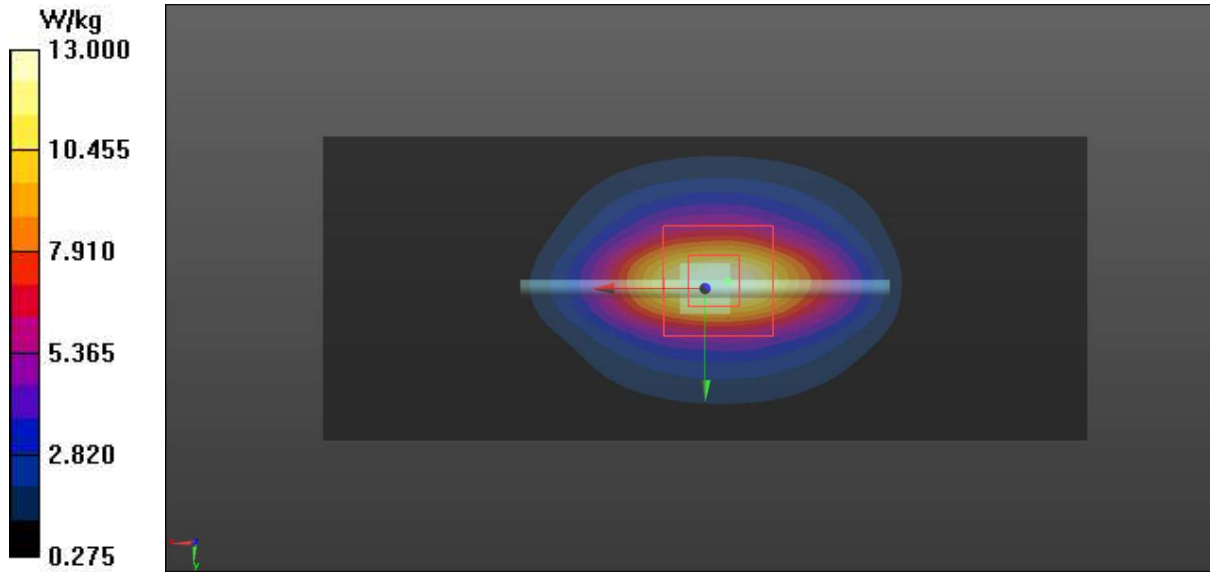
DUT: Dipole 1800 MHz D1800V2; Type: D1800V2; Serial: D1800V2 - SN:2d075

Communication System: UID 0, CW (0); Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 1800 MHz; σ = 1.303 S/m; ε_r = 40.288; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(8.42, 8.42, 8.42) @ 1800 MHz; Calibrated: 28.2.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn1332; Calibrated: 23.2.2022
- Phantom: SAR1_Phantom 1_triple flat; Type: QD 000 P51 Cx;
- 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 = 97.37 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 15.5 W/kg
SAR(1 g) = 8.96 W/kg; SAR(10 g) = 4.73 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 = 55.6%
Maximum value of SAR (measured) = 13.0 W/kg
Configuration/system check/Area Scan (101x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 13.4 W/kg



Date/Time: 4.4.2022 10:28:22

Test Laboratory: Verkotan Oy

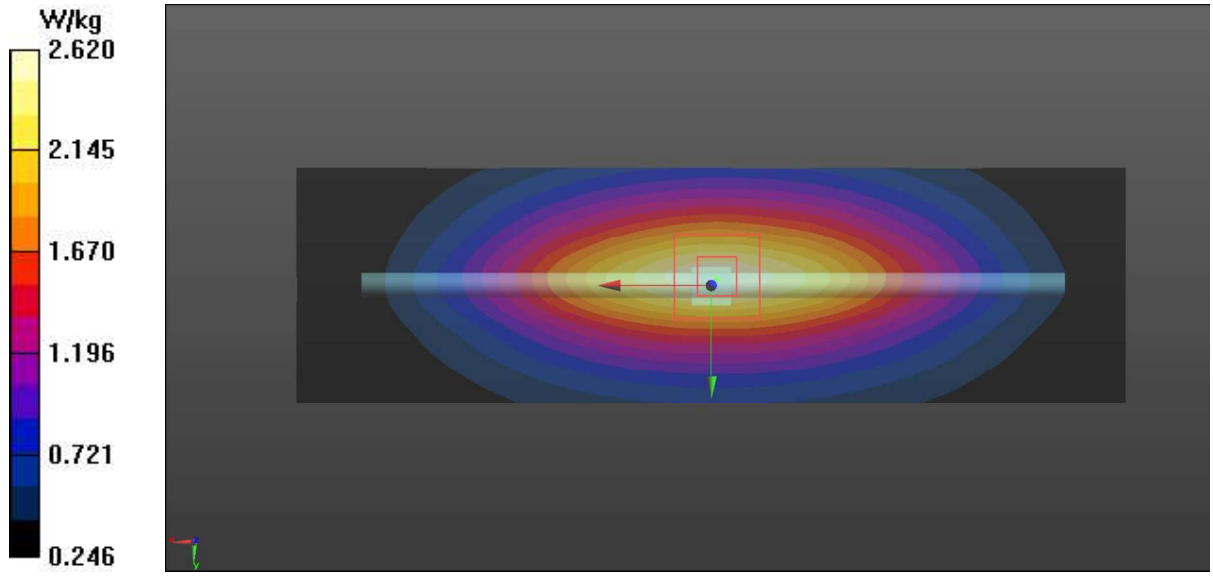
DUT: Dipole 750 MHz D750V3; Type: D750V3; Serial: D750V3 - SN:635

Communication System: UID 0, CW (0); Communication System Band: D750 (750.0 MHz); Frequency: 750 MHz;Communication System PAR: 0 dB; PMF: 1
Medium parameters used: f = 750 MHz; σ = 0.835 S/m; ε_r = 43.149; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(10.39, 10.39, 10.39) @ 750 MHz; Calibrated: 28.2.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn1332; Calibrated: 23.2.2022
- Phantom: SAR1_Phantom 1_triple flat; Type: QD 000 P51 Cx;
- 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 = 54.67 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 2.99 W/kg
SAR(1 g) = 2.06 W/kg; SAR(10 g) = 1.34 W/kg (SAR corrected for target medium)
Smallest distance from peaks to all points 3 dB below = 18.9 mm
Ratio of SAR at M2 to SAR at M1 = 65.3%
Maximum value of SAR (measured) = 2.62 W/kg
Configuration/system check/Area Scan (141x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 2.60 W/kg



Date/Time: 5.4.2022 10:28:21

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 = 1.699 S/m; ε_r = 39.234; ρ = 1000 kg/m^3
Phantom section: Center Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY Configuration:

- Probe: EX3DV4 - SN7447; ConvF(7.77, 7.77, 7.77) @ 2450 MHz; Calibrated: 28.2.2022
- Sensor-Surface: 1.4mm (Mechanical Surface Detection), z = 31.0, -4.0
- Electronics: DAE4 Sn1332; Calibrated: 23.2.2022
- Phantom: SAR1_Phantom 1_triple flat; Type: QD 000 P51 Cx;
- 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 = 102.9 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 25.4 W/kg
SAR(1 g) = 12.6 W/kg; SAR(10 g) = 5.87 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 = 49.1%
Maximum value of SAR (measured) = 20.2 W/kg
Configuration/system check/Area Scan (101x41x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 21.4 W/kg