Appendix (Additional assessments outside the scope of SCS 0108)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	47.5 Ω - 6.3 jΩ
Return Loss	- 23.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	43.8 Ω - 4.7 jΩ
Return Loss	- 21.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.153 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG

DASY5 Validation Report for Head TSL

Date: 16.07.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1012

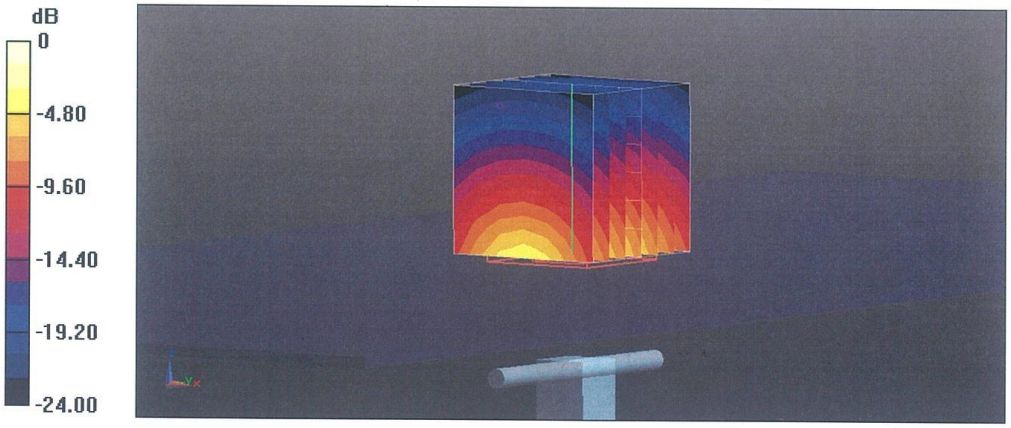
Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.02 S/m; ε_r = 37.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.69, 7.69, 7.69) @ 2600 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (front); Type: QD 000 P50 AA; Serial: 1001
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

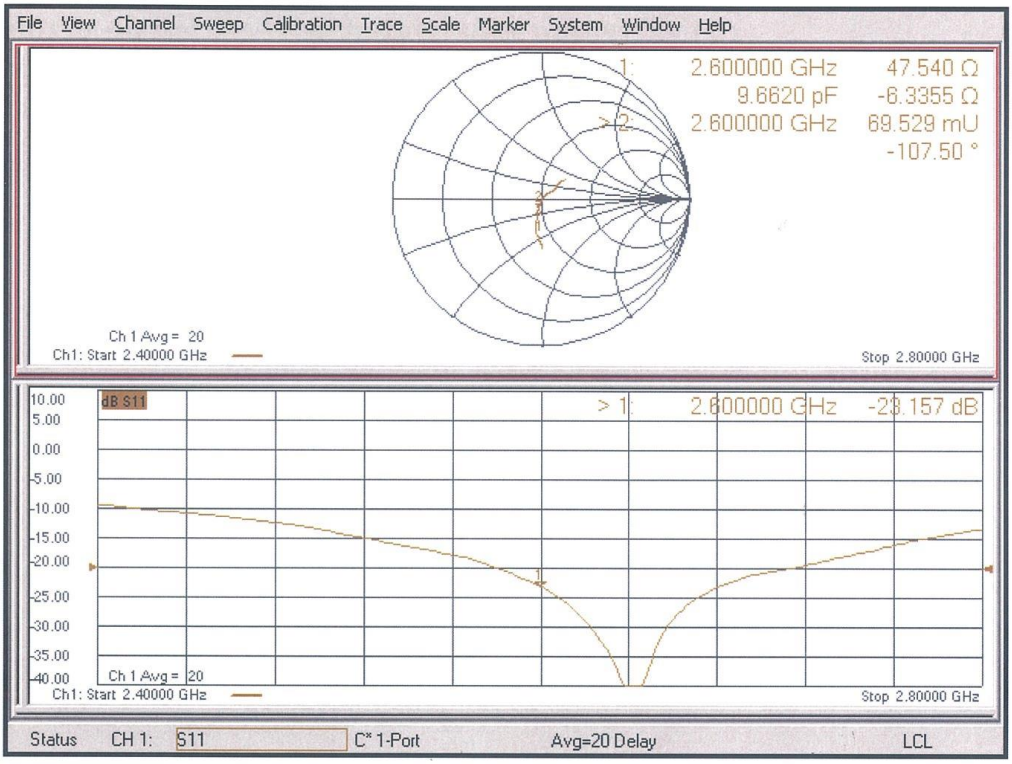
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 118.6 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 28.8 W/kg
SAR(1 g) = 14.3 W/kg; SAR(10 g) = 6.38 W/kg
Maximum value of SAR (measured) = 24.0 W/kg



0 dB = 24.0 W/kg = 13.80 dBW/kg

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 17.07.2019

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2600 MHz; Type: D2600V2; Serial: D2600V2 - SN:1012

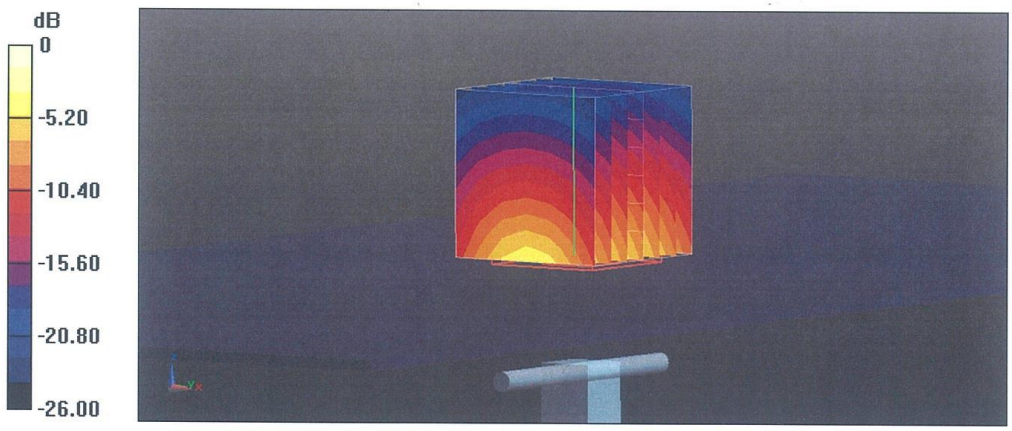
Communication System: UID 0 - CW; Frequency: 2600 MHz
Medium parameters used: f = 2600 MHz; σ = 2.2 S/m; ε_r = 50.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2011)

DASY52 Configuration:

- Probe: EX3DV4 - SN7349; ConvF(7.8, 7.8, 7.8) @ 2600 MHz; Calibrated: 29.05.2019
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 30.04.2019
- Phantom: Flat Phantom 5.0 (back); Type: QD 000 P50 AA; Serial: 1002
- DASY52 52.10.2(1504); SEMCAD X 14.6.12(7470)

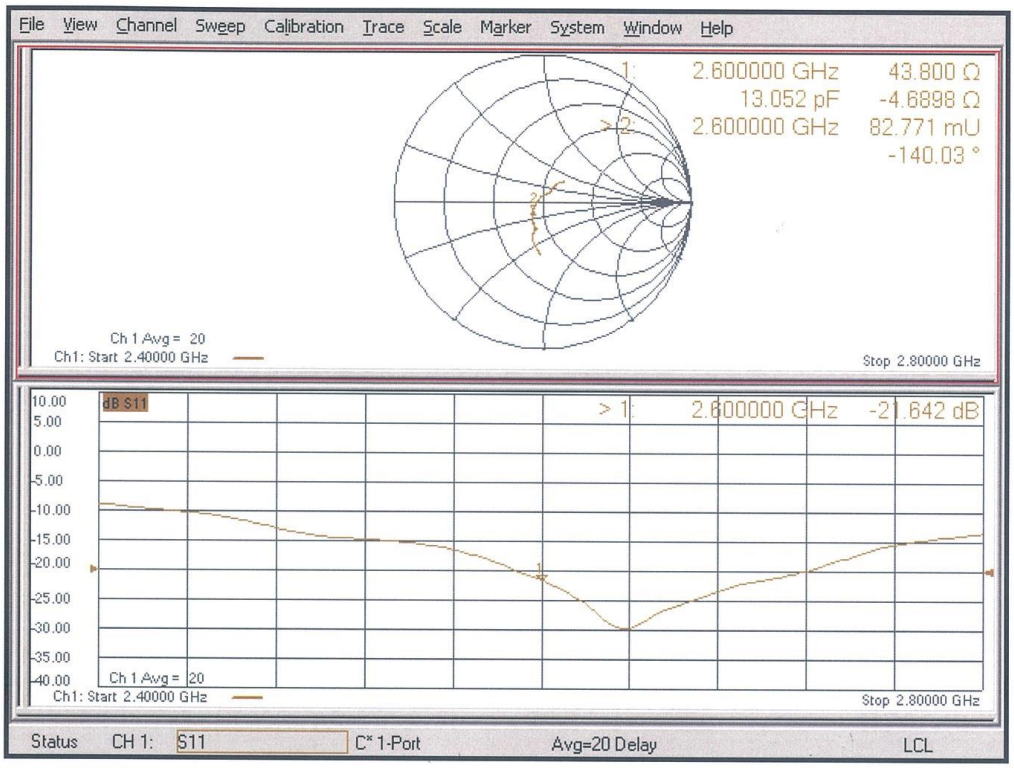
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 110.1 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 28.3 W/kg
SAR(1 g) = 14 W/kg; SAR(10 g) = 6.26 W/kg
Maximum value of SAR (measured) = 23.3 W/kg



0 dB = 23.3 W/kg = 13.67 dBW/kg

Impedance Measurement Plot for Body TSL



ANNEX I Spot check and newly add bands

I.1 Dielectric Performance and System Validation

Table I.1-1: Dielectric Performance of Tissue Simulating Liquid

Measurement Date (yyyy-mm-dd)	Type	Frequency	Permittivity ε	Drift (%)	Conductivity σ (S/m)	Drift (%)
2022-5-9	Head	750MHz	43.8	4.43%	0.931	4.61%
2022-5-10	Head	835MHz	43.57	4.99%	0.955	6.11%
2022-5-11	Head	1900MHz	41.42	3.55%	1.507	7.64%

Table I.1-2: System Validation of Head

Measurement Date (yyyy-mm-dd)	Frequency	Target value (W/kg)		Measured value(W/kg)		Deviation	
		10 g Average	1 g Average	10 g Average	1 g Average	10 g Average	1 g Average
2022-5-9	750MHz	5.65	8.68	5.40	8.32	-4.42%	-4.15%
2022-5-10	835MHz	6.24	9.63	6.20	9.52	-0.64%	-1.14%
2022-5-11	1900MHz	20.9	40.1	21.24	40.88	1.63%	1.95%

I.2 Measurement result-Spot check

Band	Frequency		Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g)(W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
	Ch.	MHz									
WB2	9400	1880	Front 10mm	Fig.I-1	20.63	21.5	0.409	**0.50**	0.778	**0.95**	0.07
WB2	9400	1880	Front 10mm	TMB	20.63	21.5	0.387	**0.47**	0.754	**0.92**	-0.11

TMB: The results are for the battery of TLi021FA manufactured by TMB.

I.3 Reported SAR Comparison-Spot check

Table I.3: Highest Reported SAR (1g)

Exposure Configuration	Technology Band	Reported SAR 1g (W/Kg): original	Reported SAR 1g (W/Kg): spot check
Body	WCDMA1900	**1.26**	**0.95**

Note: All the spot check results are less than the original result. So it shares all the original results.

I.4 Conducted Output Power-Newly add bands

Table I.4-1: The conducted power measurement results –GSM850

GSM 850 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	33.07	32.94	32.81	34.00	-9.03	24.04	23.91	23.78
2 Txslots	29.95	30.02	30.23	30.50	-6.02	23.93	24.00	24.21
3 Txslots	28.50	28.44	28.49	28.50	-4.26	24.24	24.18	24.23
4 Txslots	26.84	26.93	26.93	27.50	-3.01	23.83	23.92	23.92
GSM 850 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	32.97	32.84	33.10	34.00	-9.03	23.94	23.81	24.07
2 Txslots	29.91	29.90	30.14	30.50	-6.02	23.89	23.88	24.12
3 Txslots	28.38	28.34	28.40	28.50	-4.26	24.12	24.08	24.14
4 Txslots	26.74	26.84	26.89	27.50	-3.01	23.73	23.83	23.88
GSM 850 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	251	190	128			251	190	128
1 Txslot	26.42	26.68	26.57	28.00	-9.03	17.39	17.65	17.54
2 Txslots	23.46	23.58	23.53	25.00	-6.02	17.44	17.56	17.51
3Txslots	22.20	22.18	22.50	23.50	-4.26	17.94	17.92	18.24
4 Txslots	20.69	20.56	20.67	22.50	-3.01	17.68	17.55	17.66

NOTES:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 3Txslots for GSM850.

Table I.4-2: The conducted power measurement results-GSM1900

PCS1900 GPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	28.84	28.73	29.04	30.50	-9.03	19.81	19.70	20.01
2 Txslots	26.19	26.04	25.94	27.50	-6.02	20.17	20.02	19.92
3 Txslots	24.65	24.59	24.41	25.50	-4.26	20.39	20.33	20.15
4 Txslots	23.22	23.14	22.98	24.50	-3.01	20.21	20.13	19.97
PCS1900 EGPRS (GMSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	28.80	28.77	29.07	30.50	-9.03	19.77	19.74	20.04
2 Txslots	26.24	26.09	25.97	27.50	-6.02	20.22	20.07	19.95
3 Txslots	24.70	24.56	24.45	25.50	-4.26	20.44	20.30	20.19
4 Txslots	23.18	23.11	22.93	24.50	-3.01	20.17	20.10	19.92
PCS1900 EGPRS (8PSK)	Measured timeslot-averaged output power (dBm)				calculation	Source-based time-averaged output power (dBm)		
	810	661	512			810	661	512
1 Txslot	25.10	25.13	25.06	27.00	-9.03	16.07	16.10	16.03
2 Txslots	22.52	22.51	22.43	24.00	-6.02	16.50	16.49	16.41
3Txslots	21.18	20.95	20.87	22.50	-4.26	16.92	16.69	16.61
4 Txslots	19.56	19.73	19.40	21.00	-3.01	16.55	16.72	16.39

NOTES:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 3Txslots for GSM1900.

LTE Band2				
BANDWIDTH	**Number of RBs**	**Frequency**	**QPSK**	**16QAM**
1.4MHz	1RB-High (5)	1909.3 (19193)	21.39	20.63
		1880 (18900)	21.83	20.81
		1850.7 (18607)	21.92	20.71
	1RB-Middle (3)	1909.3 (19193)	21.55	20.77
		1880 (18900)	22.04	20.91
		1850.7 (18607)	21.93	20.93
	1RB-Low (0)	1909.3 (19193)	21.61	20.69
		1880 (18900)	21.89	20.74
		1850.7 (18607)	21.86	20.72
	3RB-High (3)	1909.3 (19193)	21.66	20.62
		1880 (18900)	22.01	20.91
		1850.7 (18607)	22.01	20.77
	3RB-Middle (1)	1909.3 (19193)	21.79	21.03
		1880 (18900)	22.20	20.92
		1850.7 (18607)	22.02	21.05
	3RB-Low (0)	1909.3 (19193)	21.70	20.92
		1880 (18900)	22.12	20.97
		1850.7 (18607)	21.98	21.14
	6RB (0)	1909.3 (19193)	20.68	19.76
		1880 (18900)	20.85	19.59
		1850.7 (18607)	20.94	19.91
3MHz	1RB-High (14)	1908.5 (19185)	21.52	20.63
		1880 (18900)	21.83	20.62
		1851.5 (18615)	21.91	20.77
	1RB-Middle (7)	1908.5 (19185)	21.69	20.56
		1880 (18900)	22.04	20.72
		1851.5 (18615)	22.13	20.73
	1RB-Low (0)	1908.5 (19185)	21.84	20.55
		1880 (18900)	21.99	20.79
		1851.5 (18615)	22.10	20.80
	8RB-High (7)	1908.5 (19185)	20.71	19.73
		1880 (18900)	20.98	20.04
		1851.5 (18615)	20.94	20.08
	8RB-Middle (4)	1908.5 (19185)	20.73	19.75
		1880 (18900)	20.94	20.12
		1851.5 (18615)	20.91	19.99
	8RB-Low (0)	1908.5 (19185)	20.81	19.67
		1880 (18900)	20.87	20.09
		1851.5 (18615)	20.89	20.09
	15RB (0)	1908.5 (19185)	20.67	19.69
		1880 (18900)	20.89	20.01
		1851.5 (18615)	20.84	19.88

5MHz	1RB-High (24)	1907.5 (19175)	21.48	20.43
		1880 (18900)	21.61	20.51
		1852.5 (18625)	21.56	20.73
	1RB-Middle (12)	1907.5 (19175)	21.70	20.48
		1880 (18900)	21.61	20.56
		1852.5 (18625)	21.67	20.35
	1RB-Low (0)	1907.5 (19175)	21.63	20.47
		1880 (18900)	21.53	20.60
		1852.5 (18625)	21.90	20.68
	12RB-High (13)	1907.5 (19175)	20.52	19.64
		1880 (18900)	20.76	19.71
		1852.5 (18625)	20.84	19.72
	12RB-Middle (6)	1907.5 (19175)	20.73	19.66
		1880 (18900)	20.81	19.77
		1852.5 (18625)	20.86	19.73
	12RB-Low (0)	1907.5 (19175)	20.64	19.70
		1880 (18900)	20.82	19.67
		1852.5 (18625)	20.88	19.67
	25RB (0)	1907.5 (19175)	20.53	19.70
		1880 (18900)	20.78	19.74
		1852.5 (18625)	20.87	19.76
10MHz	1RB-High (49)	1905 (19150)	20.73	20.45
		1880 (18900)	21.74	20.57
		1855 (18650)	21.69	20.52
	1RB-Middle (24)	1905 (19150)	20.75	20.83
		1880 (18900)	21.93	20.69
		1855 (18650)	22.02	20.78
	1RB-Low (0)	1905 (19150)	20.78	20.55
		1880 (18900)	21.90	20.80
		1855 (18650)	21.71	20.69
	25RB-High (25)	1905 (19150)	20.81	19.80
		1880 (18900)	20.74	19.68
		1855 (18650)	20.69	19.77
	25RB-Middle (12)	1905 (19150)	20.77	19.67
		1880 (18900)	20.85	19.81
		1855 (18650)	20.92	20.01
	25RB-Low (0)	1905 (19150)	20.79	19.74
		1880 (18900)	20.86	19.82
		1855 (18650)	20.93	20.01
	50RB (0)	1905 (19150)	20.93	19.82
		1880 (18900)	20.78	19.75
		1855 (18650)	20.69	19.79

15MHz	1RB-High (74)	1902.5 (19125)	21.57	20.43
		1880 (18900)	21.70	20.45
		1857.5 (18675)	21.71	20.57
	1RB-Middle (37)	1902.5 (19125)	21.79	20.59
		1880 (18900)	21.81	20.62
		1857.5 (18675)	21.89	20.59
	1RB-Low (0)	1902.5 (19125)	21.75	20.54
		1880 (18900)	21.83	20.69
		1857.5 (18675)	22.00	20.80
	36RB-High (38)	1902.5 (19125)	20.73	19.76
		1880 (18900)	20.70	19.60
		1857.5 (18675)	20.81	19.69
	36RB-Middle (19)	1902.5 (19125)	20.82	19.75
		1880 (18900)	20.80	19.68
		1857.5 (18675)	20.90	19.80
	36RB-Low (0)	1902.5 (19125)	20.71	19.65
		1880 (18900)	20.82	19.68
		1857.5 (18675)	20.87	19.77
	75RB (0)	1902.5 (19125)	20.79	19.84
		1880 (18900)	20.84	19.77
		1857.5 (18675)	20.78	19.68
20MHz	1RB-High (99)	1900 (19100)	21.35	20.32
		1880 (18900)	21.51	20.43
		1860 (18700)	21.70	20.62
	1RB-Middle (50)	1900 (19100)	21.72	20.68
		1880 (18900)	21.93	20.73
		1860 (18700)	21.81	20.71
	1RB-Low (0)	1900 (19100)	21.58	20.52
		1880 (18900)	21.82	20.59
		1860 (18700)	21.65	20.72
	50RB-High (50)	1900 (19100)	20.73	19.55
		1880 (18900)	20.73	19.69
		1860 (18700)	20.75	19.79
	50RB-Middle (25)	1900 (19100)	20.69	19.79
		1880 (18900)	20.73	19.60
		1860 (18700)	20.74	19.71
	50RB-Low (0)	1900 (19100)	20.68	19.60
		1880 (18900)	20.80	19.59
		1860 (18700)	20.69	19.66
	100RB (0)	1900 (19100)	20.65	19.56
		1880 (18900)	20.72	19.58
		1860 (18700)	20.66	19.61

LTE Band12				
BANDWIDTH	**Number of RBs**	**Frequency**	**QPSK**	**16QAM**
1.4MHz	1RB-High (5)	715.3	22.14	21.32
		707.5	22.37	21.29
		699.7	22.25	21.03
	1RB-Middle (3)	715.3	22.12	21.40
		707.5	22.46	21.33
		699.7	22.26	21.30
	1RB-Low (0)	715.3	22.22	21.10
		707.5	22.34	21.33
		699.7	22.23	21.23
	3RB-High (3)	715.3	22.30	21.26
		707.5	22.49	21.67
		699.7	22.39	21.12
	3RB-Middle (1)	715.3	22.22	21.41
		707.5	22.41	21.53
		699.7	22.62	21.58
	3RB-Low (0)	715.3	22.19	21.26
		707.5	22.51	21.31
		699.7	22.46	21.46
	6RB (0)	715.3	21.22	20.32
		707.5	21.39	20.54
		699.7	21.26	20.35
3MHz	1RB-High (14)	714.5	22.19	21.18
		707.5	22.27	21.19
		700.5	22.13	21.19
	1RB-Middle (7)	714.5	22.43	21.17
		707.5	22.75	21.29
		700.5	22.07	21.15
	1RB-Low (0)	714.5	22.53	21.40
		707.5	22.49	21.37
		700.5	22.38	21.31
	8RB-High (7)	714.5	21.30	20.46
		707.5	21.43	20.62
		700.5	21.32	20.31
	8RB-Middle (4)	714.5	21.42	20.42
		707.5	21.43	20.62
		700.5	21.36	20.43
	8RB-Low (0)	714.5	21.45	20.49
		707.5	21.36	20.57
		700.5	21.37	20.43
	15RB (0)	714.5	21.27	20.54
		707.5	21.41	20.38
		700.5	21.21	20.43

5MHz	1RB-High (24)	713.5	22.00	20.98
		707.5	22.15	20.95
		701.5	22.19	21.01
	1RB-Middle (12)	713.5	22.28	21.03
		707.5	22.37	21.21
		701.5	22.30	21.15
	1RB-Low (0)	713.5	22.24	20.97
		707.5	22.18	21.07
		701.5	22.33	21.11
	12RB-High (13)	713.5	21.20	20.17
		707.5	21.30	20.26
		701.5	21.08	19.97
	12RB-Middle (6)	713.5	21.28	20.29
		707.5	21.40	20.31
		701.5	21.21	20.11
	12RB-Low (0)	713.5	21.24	20.28
		707.5	21.35	20.26
		701.5	21.31	20.17
	25RB (0)	713.5	21.19	20.34
		707.5	21.32	20.39
		701.5	21.18	20.14
10MHz	1RB-High (49)	711	22.17	20.96
		707.5	22.21	21.07
		704	22.29	21.11
	1RB-Middle (24)	711	22.27	21.23
		707.5	22.45	21.20
		704	22.31	21.13
	1RB-Low (0)	711	22.28	21.19
		707.5	22.07	21.00
		704	22.24	20.92
	25RB-High (25)	711	21.28	20.42
		707.5	21.38	20.38
		704	21.32	20.41
	25RB-Middle (12)	711	21.30	20.36
		707.5	21.29	20.42
		704	21.18	20.37
	25RB-Low (0)	711	21.36	20.35
		707.5	21.35	20.30
		704	21.30	20.22
	50RB (0)	711	21.33	20.31
		707.5	21.32	20.34
		704	21.23	20.35

I.5 SAR results - Newly add bands

Table I.5-1: SAR Values (GSM 850 MHz Band - Body)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
190	836.6	GPRS (3)	Front	/	28.44	28.5	0.441	**0.45**	0.622	**0.63**	0.06
251	848.8	GPRS (3)	Rear	/	28.5	28.5	0.458	**0.46**	0.628	**0.63**	-0.01
190	836.6	GPRS (3)	Rear	Fig.1	28.44	28.5	0.496	**0.50**	0.684	**0.69**	-0.04
128	824.2	GPRS (3)	Rear	/	28.49	28.5	0.429	**0.43**	0.594	**0.60**	-0.17
190	836.6	GPRS (3)	Left	/	28.44	28.5	0.055	**0.06**	0.096	**0.10**	0.04
190	836.6	GPRS (3)	Right	/	28.44	28.5	0.043	**0.04**	0.065	**0.07**	-0.08
190	836.6	GPRS (3)	Bottom	/	28.44	28.5	0.213	**0.22**	0.298	**0.30**	0.11
190	836.6	EGPRS (3)	Rear	/	28.44	28.5	0.181	**0.18**	0.264	**0.27**	0.18
190	836.6	GPRS (3)	Rear	TMB	28.44	28.5	0.476	**0.48**	0.662	**0.67**	0.05

Note: The distance between the EUT and the phantom bottom is 10mm.

Table I.5-2: SAR Values (GSM 1900 MHz Band - Body)

Ambient Temperature: 22.9 ºC Liquid Temperature: 22.5ºC											
Frequency		Mode (number of timeslots)	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
885	1909.8	GPRS (3)	Front	/	24.65	25.5	0.302	**0.37**	0.526	**0.64**	0.06
661	1880	GPRS (3)	Rear	/	24.59	25.5	0.351	**0.43**	0.561	**0.69**	0.13
512	1850.2	GPRS (3)	Rear	Fig.2	24.41	25.5	0.387	**0.50**	0.604	**0.78**	0.05
661	1880	GPRS (3)	Rear	/	24.59	25.5	0.297	**0.37**	0.46	**0.57**	0.08
661	1880	GPRS (3)	Left	/	24.59	25.5	0.177	**0.22**	0.319	**0.39**	-0.15
661	1880	GPRS (3)	Right	/	24.59	25.5	<0.01	**<0.01**	<0.01	**<0.01**	/
661	1880	GPRS (3)	Bottom	/	24.59	25.5	0.189	**0.23**	0.322	**0.40**	0.15
661	1880	EGPRS (3)	Rear	/	24.59	25.5	0.15	**0.18**	0.235	**0.29**	-0.15
512	1850.2	GPRS (3)	Rear	TMB	24.41	25.5	0.377	**0.48**	0.582	**0.75**	-0.05

Note: The distance between the EUT and the phantom bottom is 10mm.

Table I.5-3: SAR Values (LTE Band2 - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
19100	1900	1RB-Mid	Front	/	21.72	22.5	0.377	**0.45**	0.604	**0.72**	0.09
18900	1880	1RB-High	Front	/	21.93	22.5	0.45	**0.51**	0.766	**0.87**	-0.08
18700	1860	1RB-Mid	Front	Fig.3	21.81	22.5	0.472	**0.55**	0.818	**0.96**	0.08
18700	1860	100RB	Front	/	20.66	21.5	0.384	**0.47**	0.651	**0.79**	-0.02
18900	1880	1RB-Mid	Rear	/	21.93	22.5	0.39	**0.44**	0.656	**0.75**	0.19
18900	1880	1RB-Mid	Left	/	21.93	22.5	0.2	**0.23**	0.377	**0.43**	-0.11
18900	1880	1RB-Mid	Right	/	21.93	22.5	0.126	**0.14**	0.226	**0.26**	0.13
18900	1880	1RB-Mid	Bottom	/	21.93	22.5	0.091	**0.10**	0.153	**0.17**	0.03
18900	1880	1RB-Mid	Top	/	21.93	22.5	0.315	**0.36**	0.542	**0.62**	-0.05
18900	1880	50RB-Low	Front	/	20.8	21.5	0.378	**0.44**	0.646	**0.76**	-0.18
18900	1880	50RB-Low	Rear	/	20.8	21.5	0.307	**0.36**	0.533	**0.63**	0.07
18900	1880	50RB-Low	Left	/	20.8	21.5	0.163	**0.19**	0.306	**0.36**	0.12
18900	1880	50RB-Low	Right	/	20.8	21.5	0.085	**0.10**	0.135	**0.16**	0.09
18900	1880	50RB-Low	Bottom	/	20.8	21.5	0.071	**0.08**	0.121	**0.14**	-0.07
18900	1880	50RB-Low	Top	/	20.8	21.5	0.235	**0.28**	0.406	**0.48**	0.06
18700	1860	1RB-Mid	Front	TMB	21.81	22.5	0.463	**0.54**	0.811	**0.95**	-0.04

Note1: The LTE mode is QPSK_20MHz.

Table I.5-4: SAR Values (LTE Band12 - Body)

Ambient Temperature: 22.9 °C Liquid Temperature: 22.5°C											
Frequency		Mode	Test Position	Figure No.	Conducted Power (dBm)	Max. tune-up Power (dBm)	Measured SAR(10g) (W/kg)	Reported SAR(10g) (W/kg)	Measured SAR(1g) (W/kg)	Reported SAR(1g) (W/kg)	Power Drift (dB)
Ch.	MHz										
23095	707.5	1RB-Low	Front	/	22.45	23	0.418	**0.47**	0.632	**0.72**	-0.12
23095	707.5	1RB-Low	Rear	Fig.4	22.45	23	0.472	**0.54**	0.692	**0.79**	0.04
23095	707.5	1RB-Low	Left	/	22.45	23	0.044	**0.05**	0.084	**0.10**	0.05
23095	707.5	1RB-Low	Right	/	22.45	23	0.043	**0.05**	0.07	**0.08**	-0.14
23095	707.5	1RB-Low	Bottom	/	22.45	23	0.178	**0.20**	0.276	**0.31**	0.16
23095	707.5	1RB-Low	Top	/	22.45	23	0.156	**0.18**	0.241	**0.27**	0.19
23095	707.5	25RB-Low	Front	/	21.38	22	0.311	**0.36**	0.471	**0.54**	0.04
23095	707.5	25RB-Low	Rear	/	21.38	22	0.37	**0.43**	0.543	**0.63**	0.00
23095	707.5	25RB-Low	Left	/	21.38	22	0.035	**0.04**	0.065	**0.07**	0.14
23095	707.5	25RB-Low	Right	/	21.38	22	0.033	**0.04**	0.052	**0.06**	-0.03
23095	707.5	25RB-Low	Bottom	/	21.38	22	0.143	**0.16**	0.219	**0.25**	0.01
23095	707.5	25RB-Low	Top	/	21.38	22	0.114	**0.13**	0.178	**0.21**	0.19
23095	707.5	1RB-Low	Rear	TMB	22.45	23	0.462	**0.52**	0.676	**0.77**	-0.04

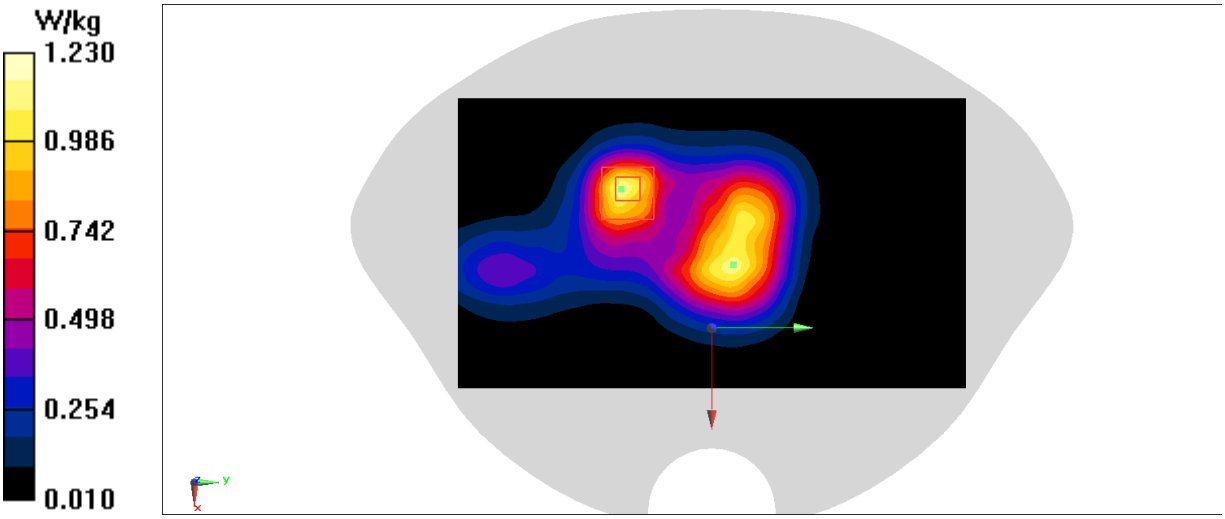
Note1: The LTE mode is QPSK_10MHz.

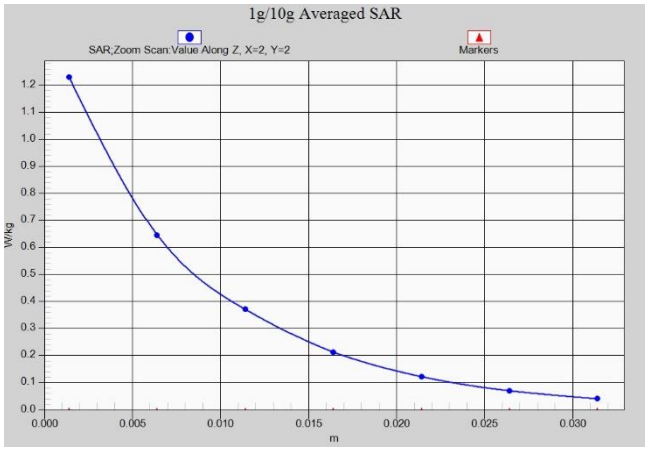
I.6 Graph Results

WCDMA1900 Head
Date: 5/11/2022
Electronics: DAE4 Sn1331
Medium: head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.515 S/m; ε_r = 41.463;ρ = 1000 kg/m^3
Ambient Temperature: 22.9ºC, Liquid Temperature: 22.5ºC
Communication System: WCDMA1900-BII 1880 MHz Duty Cycle: 1:1
Probe: EX3DV4 –SN7548 ConvF(7.88, 7.88, 7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.13 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 24.96 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.778 W/kg; SAR(10 g) = 0.409 W/kg
Maximum value of SAR (measured) = 1.23 W/kg

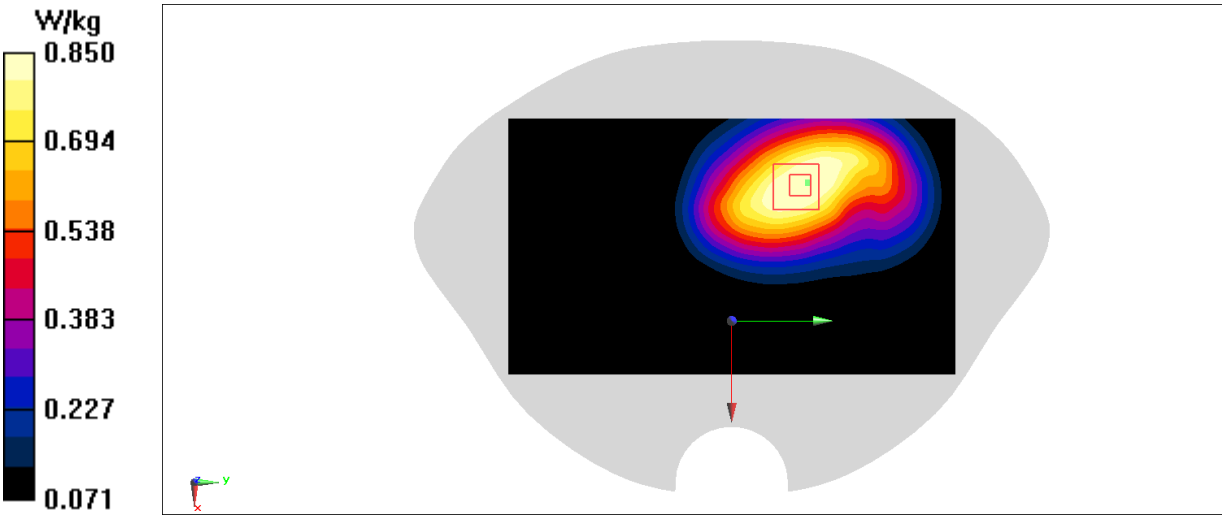


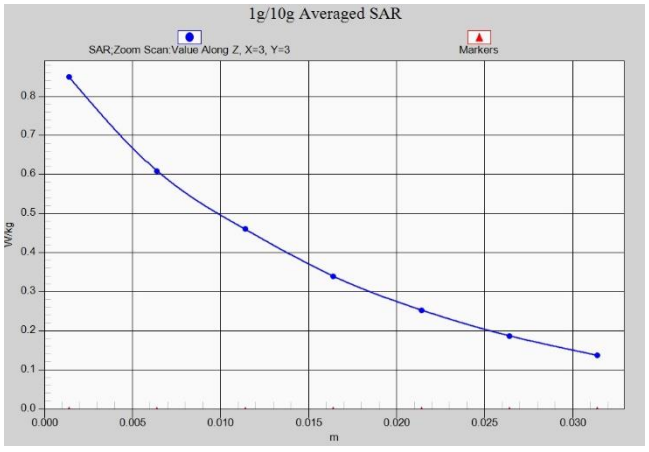


GSM850 Body
Date: 5/10/2022
Electronics: DAE4 Sn1331
Medium: head 835 MHz
Medium parameters used: f = 836.6 MHz; σ = 1.006 S/m; ε_r = 43.563; ρ = 1000 kg/m^3
Ambient Temperature:22.9ºC Liquid Temperature: 22.5ºC
Communication System: GSM850 3TX 836.6 MHz Duty Cycle: 1:2.67
Probe: EX3DV4 - SN7548 ConvF(10.36, 10.36, 10.36);

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.870 W/kg

Zoom Scan (6x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.39 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.957 W/kg
SAR(1 g) = 0.684 W/kg; SAR(10 g) = 0.496 W/kg
Maximum value of SAR (measured) = 0.850 W/kg

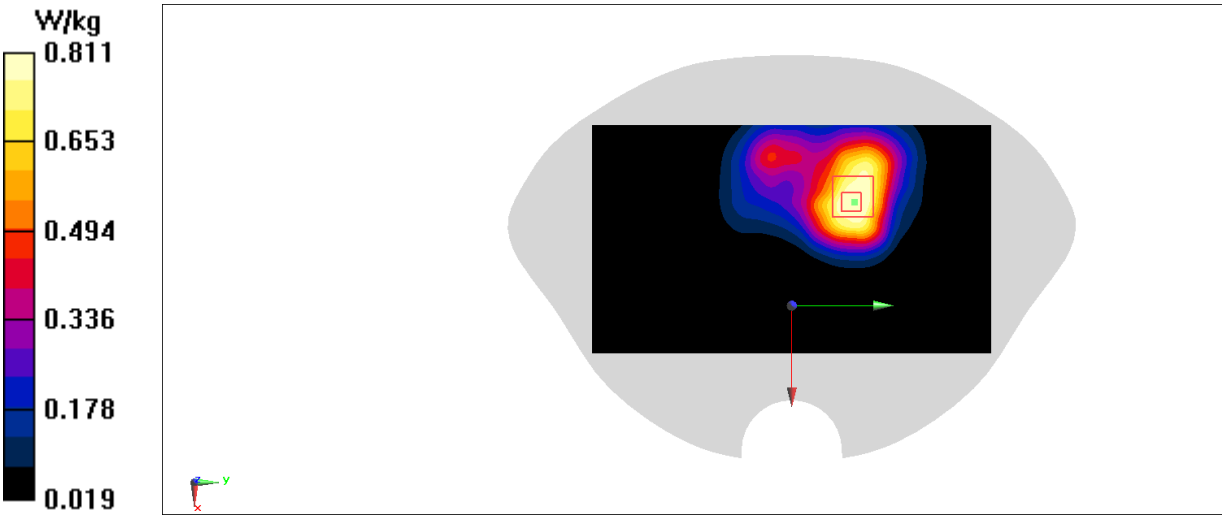


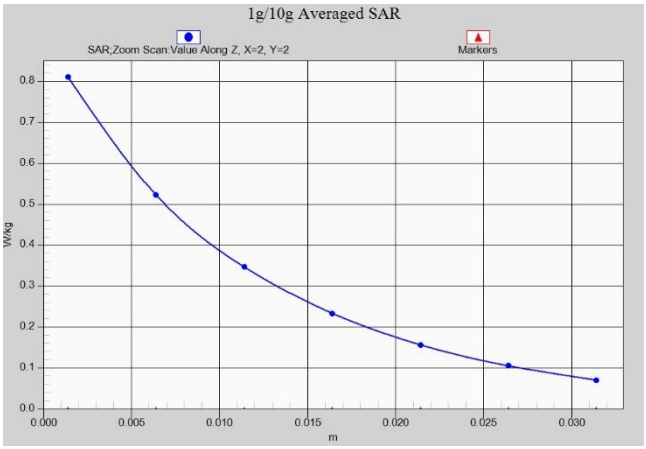


GSM1900 Body
Date: 5/11/2022
Electronics: DAE4 Sn1331
Medium: head 1900 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.497 S/m; ε_r = 41.528; ρ = 1000 kg/m^3
Ambient Temperature:22.9ºC Liquid Temperature: 22.5ºC
Communication System: GSM1900 3TX 1850.2 MHz Duty Cycle: 1:2.67
Probe: EX3DV4 - SN7548 ConvF(7.88, 7.88, 7.88)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.856 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.123 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 0.934 W/kg
SAR(1 g) = 0.604 W/kg; SAR(10 g) = 0.387 W/kg
Maximum value of SAR (measured) = 0.811 W/kg

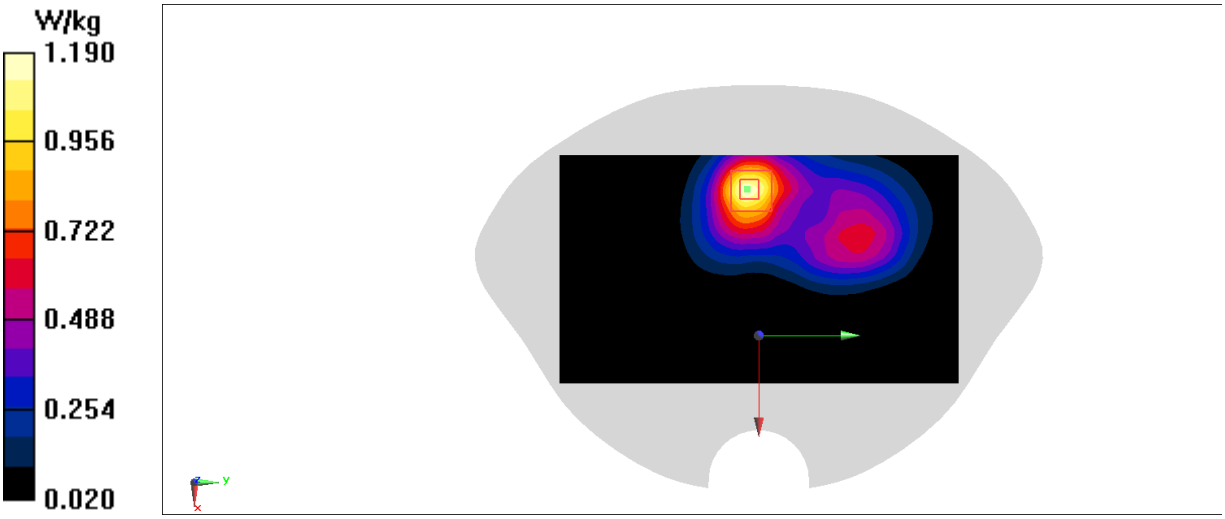


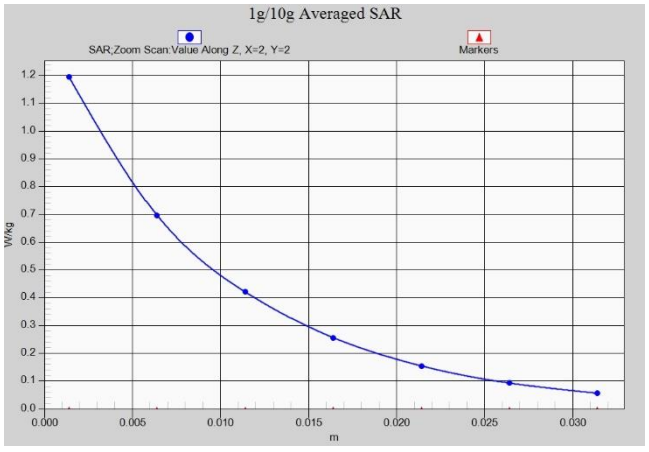


LTE Band2 Body
Date: 5/11/2022
Electronics: DAE4 Sn1331
Medium: head 1900 MHz
Medium parameters used: f = 1860 MHz; σ = 1.503 S/m; ε_r = 41.508; ρ = 1000 kg/m^3
Ambient Temperature:22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band2 1860 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7548 ConvF(7.88, 7.88, 7.88);

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 1.16 W/kg

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.780 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.818 W/kg; SAR(10 g) = 0.472 W/kg
Maximum value of SAR (measured) = 1.19 W/kg

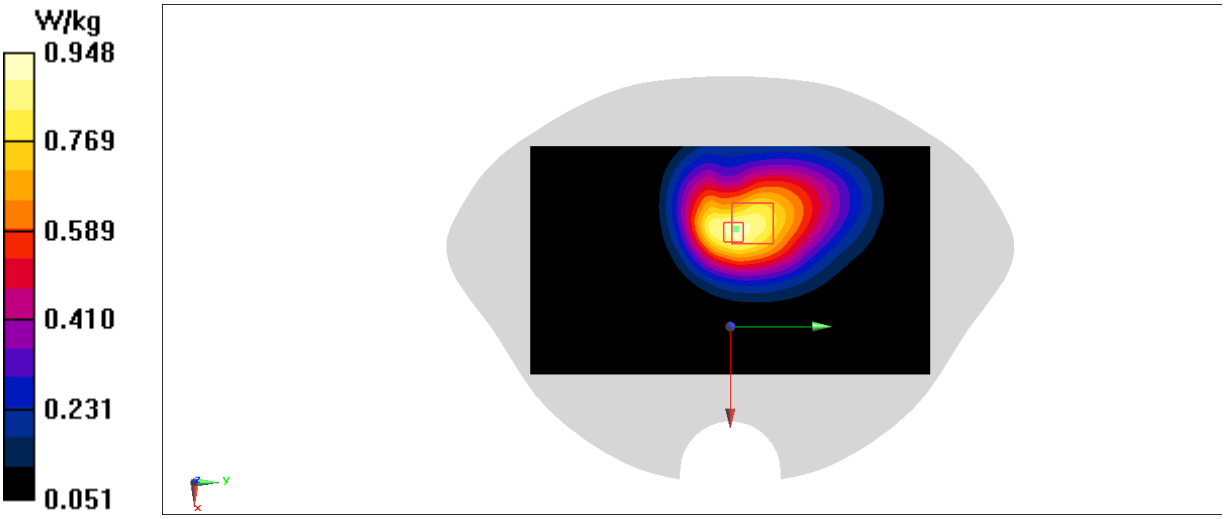


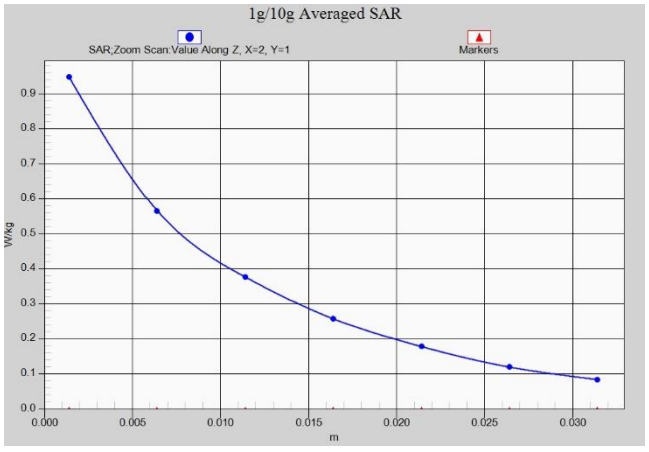


LTE Band12 Body
Date: 5/9/2022
Electronics: DAE4 Sn1331
Medium: head 750 MHz
Medium parameters used: f = 707.5 MHz; σ = 0.961 S/m; ε_r = 43.917; ρ = 1000 kg/m^3
Ambient Temperature:22.9ºC Liquid Temperature: 22.5ºC
Communication System: LTE Band12 707.5 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7548 ConvF(10.36, 10.36, 10.36)

Area Scan (81x141x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm
Maximum value of SAR (interpolated) = 0.937 W/kg

Zoom Scan (5x6x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.05 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.692 W/kg; SAR(10 g) = 0.472 W/kg
Maximum value of SAR (measured) = 0.948 W/kg



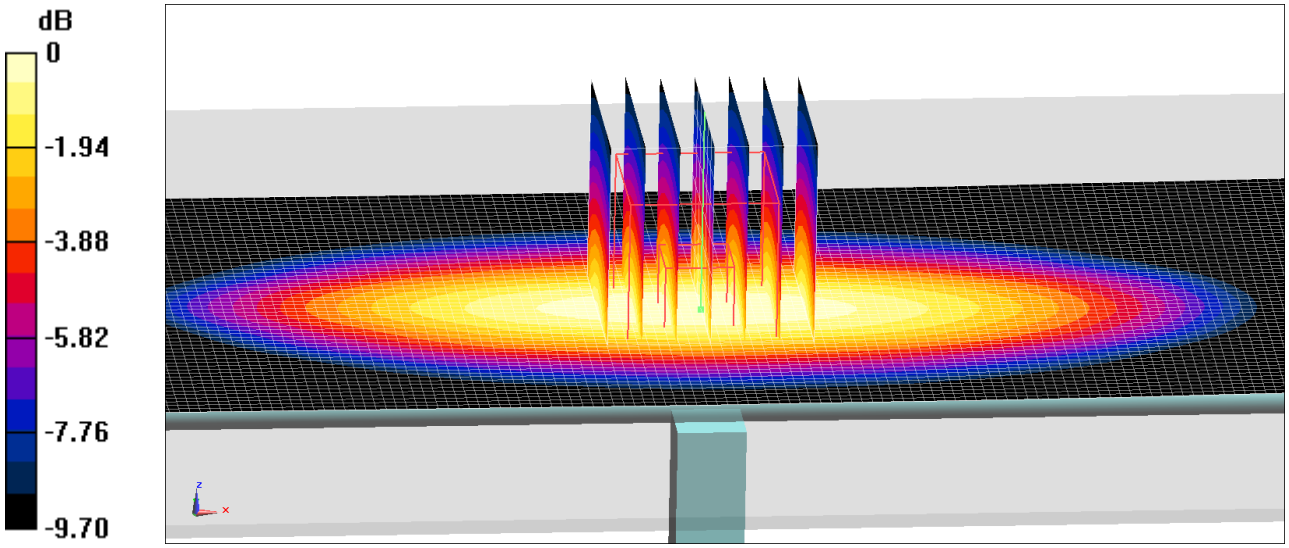


I.7 System Validation Results

750MHz
Date: 5/9/2022
Electronics: DAE4 Sn1331
Medium: H700-6000
Medium parameters used: f = 750 MHz; σ = 0.931 S/m; εr =43.8; ρ = 1000 kg/m3
Ambient Temperature: 22.9℃ Liquid Temperature: 22.5℃
Communication System: CW Frequency: 750 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7548 ConvF(10.36, 10.36, 10.36)

Area Scan (51x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 54.21 V/m; Power Drift = 0.12 dB
Fast SAR: SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.38 W/kg
Maximum value of SAR (interpolated) = 2.73 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.21 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 3.16 W/kg
SAR(1 g) = 2.08 W/kg; SAR(10 g) = 1.35 W/kg
Maximum value of SAR (measured) = 2.85 W/kg



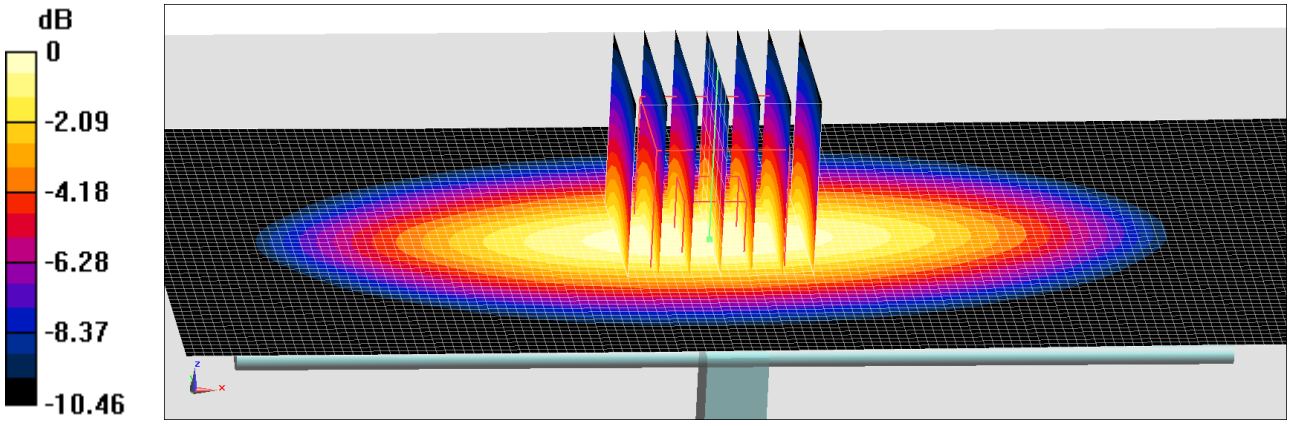
0 dB = 2.85 W/kg = 4.55 dBW/kg

Fig.I.7-1 validation 750MHz 250mW

835 MHz
Date: 5/10/2022
Electronics: DAE4 Sn1331
Medium: H700-6000
Medium parameters used: f = 835 MHz; σ = 0.955 S/m; εr = 43.57; ρ = 1000 kg/m3
Ambient Temperature: 22.9℃ Liquid Temperature: 22.5℃
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN7548 ConvF(10.36, 10.36, 10.36)

Area Scan (51x141x1): Interpolated grid: dx=1.000 mm, dy=1.000 mm
Reference Value = 58.02 V/m; Power Drift = -0.12 dB
Fast SAR: SAR(1 g) = 2.33 W/kg; SAR(10 g) = 1.52 W/kg
Maximum value of SAR (interpolated) = 3.19 W/kg

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.02 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 3.37 W/kg
SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.55 W/kg
Maximum value of SAR (measured) = 3.16 W/kg



0 dB = 3.16 W/kg = 5.00 dBW/kg

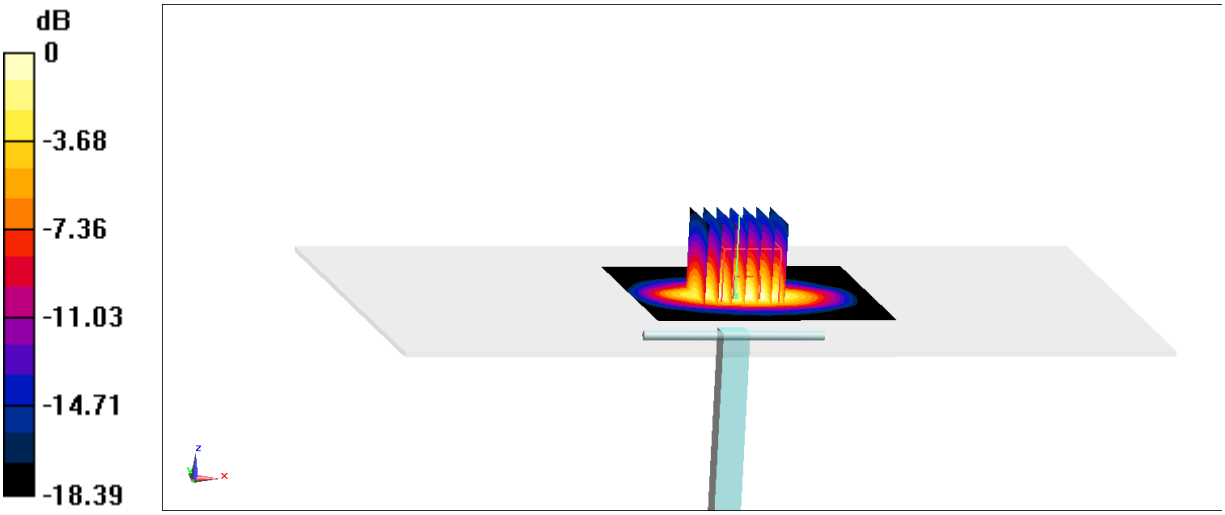
Fig.I.7-2 validation 835 MHz 250mW

1900 MHz
Date: 5/11/2022
Electronics: DAE4 Sn1331
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ =1.507 mho/m; ε_r = 41.42; ρ = 1000 kg/m^3
Ambient Temperature: 22.5ºC Liquid Temperature: 22.3ºC
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: EX3DV4 – SN7548 ConvF(7.88, 7.88, 7.88)

Area Scan (61x61x1): Interpolated grid: dx=1.500 mm, dy=1.500 mm

Reference Value = 108.43 V/m; Power Drift = -0.08
Fast SAR: SAR(1 g) = 10.15 W/kg; SAR(10 g) = 5.26 W/kg
Maximum value of SAR (interpolated) = 14.98 W/kg

Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 108.43 V/m; Power Drift = -0.08
Peak SAR (extrapolated) = 18.17 W/kg
SAR(1 g) = 10.22 W/kg; SAR(10 g) = 5.31 W/kg
Maximum value of SAR (measured) = 14.56 W/kg



0 dB = 14.56 W/kg = 11.63 dBW/kg

Fig.I.7-3 validation 1900 MHz 250mW

I.8 System Validation

The SAR system must be validated against its performance specifications before it is deployed. When SAR probes, system components or software are changed, upgraded or recalibrated, these must be validated with the SAR system(s) that operates with such components.

Table I.8-1: System Validation for 7548

Probe SN.	Liquid name	Validation date	Frequency point	Status (OK or Not)
7548	Head 750MHz	July.15,2020	750 MHz	OK
7548	Head 850MHz	July.15,2020	835 MHz	OK
7548	Head 900MHz	July.15,2020	900 MHz	OK
7548	Head 1750MHz	July.15,2020	1750 MHz	OK
7548	Head 1810MHz	July.15,2020	1810 MHz	OK
7548	Head 1900MHz	July.16,2020	1900 MHz	OK
7548	Head 2000MHz	July.16,2020	2000 MHz	OK
7548	Head 2100MHz	July.16,2020	2100 MHz	OK
7548	Head 2300MHz	July.16,2020	2300 MHz	OK
7548	Head 2450MHz	July.16,2020	2450 MHz	OK
7548	Head 2600MHz	July.17,2020	2600 MHz	OK
7548	Head 3500MHz	July.17,2020	3500 MHz	OK
7548	Head 3700MHz	July.17,2020	3700 MHz	OK
7548	Head 5200MHz	July.17,2020	5250 MHz	OK
7548	Head 5500MHz	July.17,2020	5600 MHz	OK
7548	Head 5800MHz	July.17,2020	5800 MHz	OK

I.9 Probe Calibration Certificate

In Collaboration with
s p e a g
CALIBRATION LABORATORY
Add: No.52 HuaYuanBei Road, Haidian District, Beijing, 100191, China
Tel: +86-10-62304633-2512 Fax: +86-10-62304633-2504
E-mail: cttl@chinattl.com Http://www.chinattl.cn

CALIBRATION CNAS L0570

Client CTTL Certificate No: Z21-60231

CALIBRATION CERTIFICATE

Object	EX3DV4 - SN : 7548
Calibration Procedure(s)	FF-Z11-004-02 Calibration Procedures for Dosimetric E-field Probes
Calibration date:	June 25, 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)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRP2	101919	15-Jun-21(CTTL, No.J21X04466)	Jun-22
Power sensor NRP-Z91	101547	15-Jun-21(CTTL, No.J21X04466)	Jun-22
Power sensor NRP-Z91	101548	15-Jun-21(CTTL, No.J21X04466)	Jun-22
Reference 10dBAttenuator	18N50W-10dB	10-Feb-20(CTTL, No.J20X00525)	Feb-22
Reference 20dBAttenuator	18N50W-20dB	10-Feb-20(CTTL, No.J20X00526)	Feb-22
Reference Probe EX3DV4	SN 3617	27-Jan-21(SPEAG, No.EX3-3617_Jan21)	Jan-22
DAE4	SN 1556	15-Jan-21(SPEAG, No.DAE4-1556_Jan21)	Jan-22

Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
SignalGenerator MG3700A	6201052605	16-Jun-21(CTTL, No.J21X04467)	Jun-22
Network Analyzer E5071C	MY46110673	21-Jan-21(CTTL, No.J20X00515)	Jan-22

	Name	Function	Signature
Calibrated by:	Yu Zongying	SAR Test Engineer	
Reviewed by:	Lin Hao	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: June 27, 2021

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

Certificate No: Z21-60231 Page 1 of 9

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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 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≤900MHz in TEM-cell; f>1800MHz: waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect 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 (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;VRx,y,z:*A,B,C 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≤800MHz) and inside waveguide using analytical field distributions based on power measurements for f >800MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty valued 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±50MHz to±100MHz.
- *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:7548

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (*k*=2)
Norm(μV/(V/m)²)[A]	0.61	0.69	0.62	±10.0%
DCP(mV)[B]	100.7	101.3	102.5	

Modulation Calibration Parameters

UID	Communication System Name		A dB	B dB√μV	C	D dB	VR mV	Unc[E] (*k*=2)
0	CW	X	0.0	0.0	1.0	0.00	212.9	±2.0%
		Y	0.0	0.0	1.0		221.6	
		Z	0.0	0.0	1.0		208.4	

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 E²-field uncertainty inside TSL (see Page 4).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainly 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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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)	Unct. (*k*=2)
750	41.9	0.89	10.36	10.36	10.36	0.40	0.70	±12.1%
900	41.5	0.97	9.74	9.74	9.74	0.16	1.28	±12.1%
1450	40.5	1.20	8.55	8.55	8.55	0.41	0.73	±12.1%
1750	40.1	1.37	8.14	8.14	8.14	0.31	0.93	±12.1%
1900	40.0	1.40	7.88	7.88	7.88	0.29	0.99	±12.1%
2000	40.0	1.40	7.95	7.95	7.95	0.21	1.17	±12.1%
2300	39.5	1.67	7.60	7.60	7.60	0.64	0.67	±12.1%
2450	39.2	1.80	7.35	7.35	7.35	0.64	0.68	±12.1%
2600	39.0	1.96	7.11	7.11	7.11	0.49	0.81	±12.1%
3300	38.2	2.71	6.79	6.79	6.79	0.47	0.89	±13.3%
3500	37.9	2.91	6.64	6.64	6.64	0.40	1.05	±13.3%
3700	37.7	3.12	6.42	6.42	6.42	0.42	1.03	±13.3%
3900	37.5	3.32	6.27	6.27	6.27	0.35	1.40	±13.3%
4100	37.2	3.53	6.30	6.30	6.30	0.40	1.15	±13.3%
4200	37.1	3.63	6.15	6.15	6.15	0.35	1.35	±13.3%
4400	36.9	3.84	6.05	6.05	6.05	0.35	1.35	±13.3%
4600	36.7	4.04	5.98	5.98	5.98	0.40	1.30	±13.3%
4800	36.4	4.25	5.93	5.93	5.93	0.40	1.30	±13.3%
4950	36.3	4.40	5.74	5.74	5.74	0.40	1.35	±13.3%
5250	35.9	4.71	5.05	5.05	5.05	0.45	1.30	±13.3%
5600	35.5	5.07	4.68	4.68	4.68	0.45	1.40	±13.3%
5750	35.4	5.22	4.73	4.73	4.73	0.50	1.35	±13.3%

[C] Frequency validity above 300 MHz of ±100MHz only applies for DASY v4.4 and higher (Page 2), else it is restricted to ±50MHz. The uncertainty is the RSS of 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. Above 5 GHz frequency validity can be extended to ± 110 MHz.

[F] At frequency 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 the frequencies between 3-6 GHz at any distance larger than half the probe tip diameter from the boundary.

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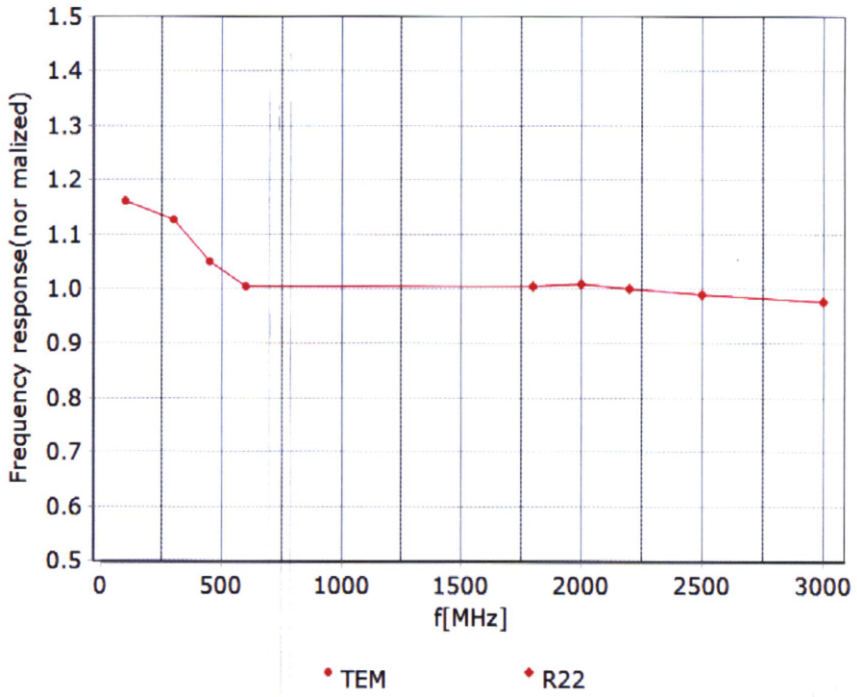
Frequency Response of E-Field
(TEM-Cell: ifi110 EXX, Waveguide: R22)



Uncertainty of Frequency Response of E-field: ±7.4% (*k*=2)

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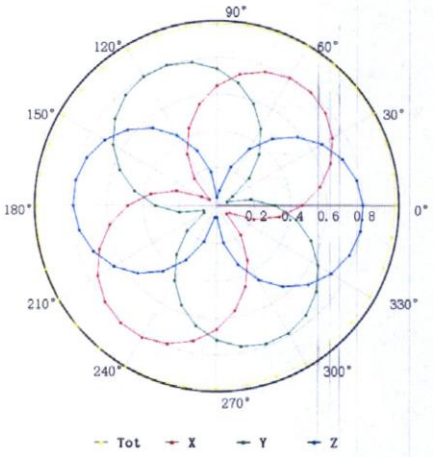
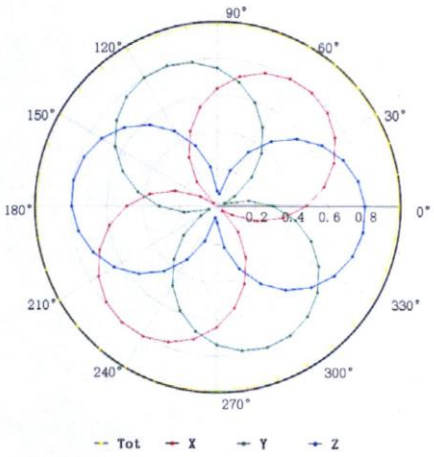
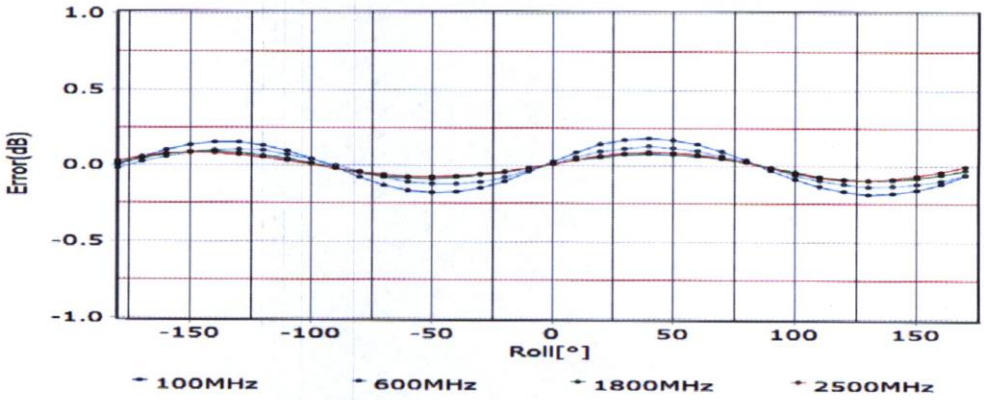
Receiving Pattern (Φ), θ=0°

f=600 MHz, TEM



f=1800 MHz, R22





Uncertainty of Axial Isotropy Assessment: ±1.2% (*k*=2)

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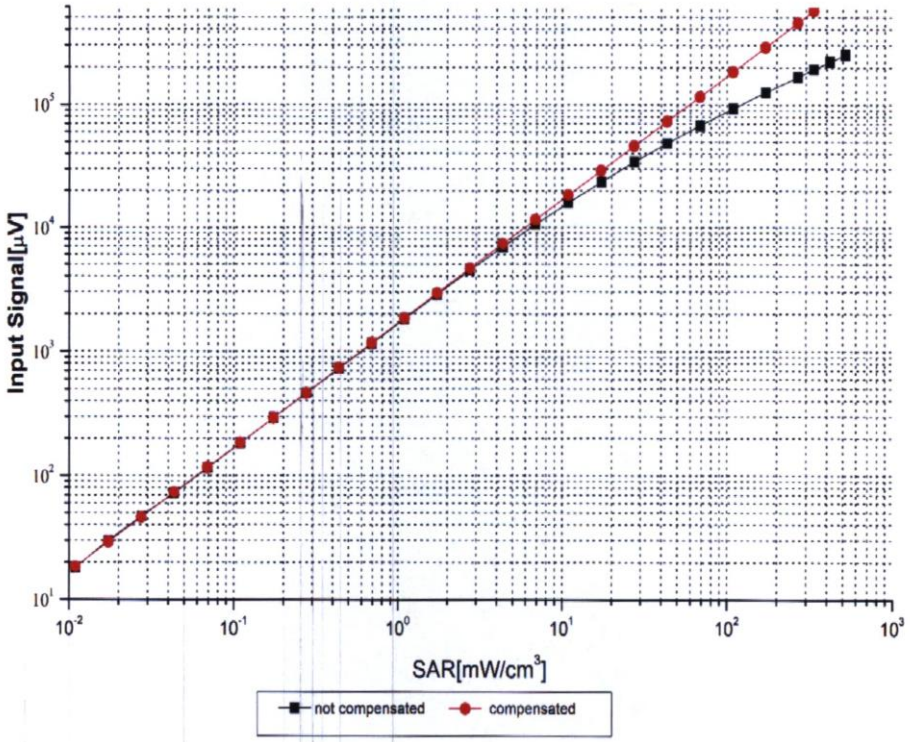
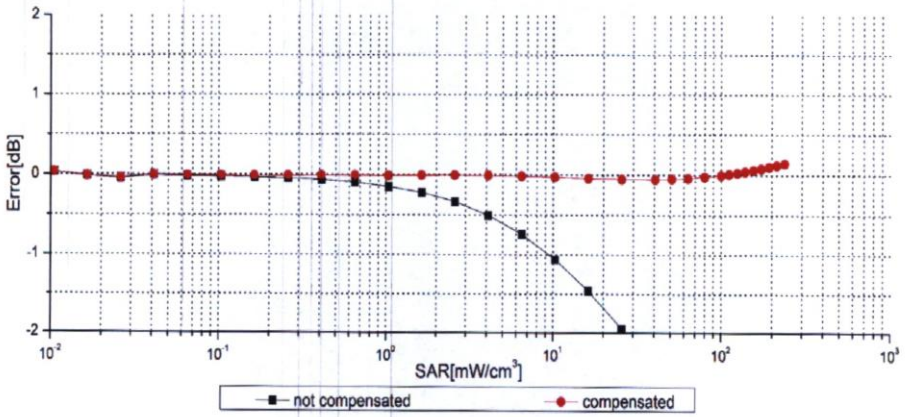
Dynamic Range f(SAR$_{head}$)
(TEM cell, f = 900 MHz)





Uncertainty of Linearity Assessment: ±0.9% (*k*=2)

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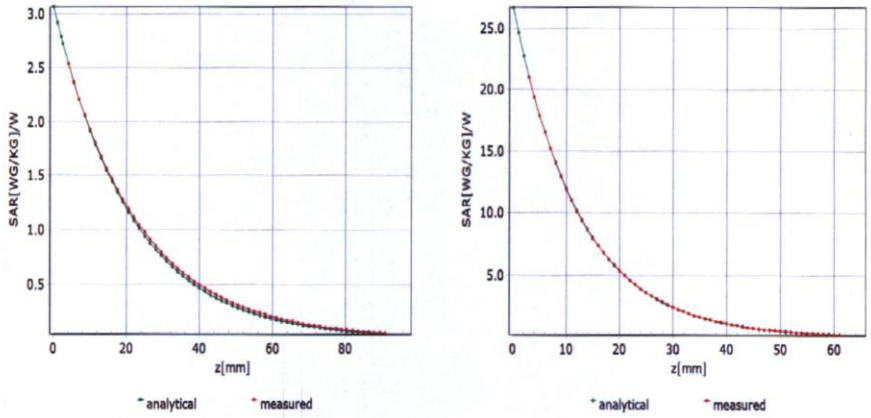
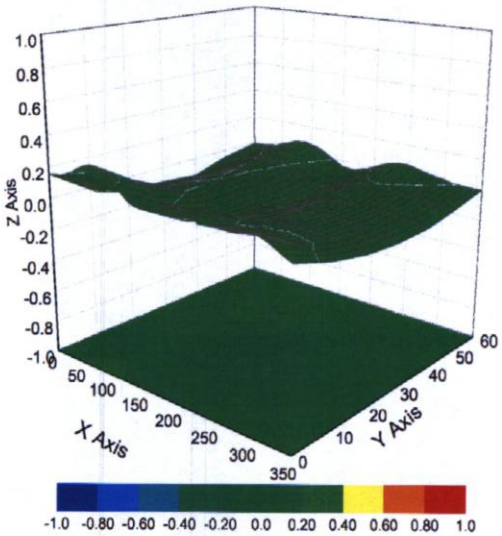
Conversion Factor Assessment

f=750 MHz,WGLS R9(H_convF) **f=1750 MHz,WGLS R22(H_convF)**



Deviation from Isotropy in Liquid



Uncertainty of Spherical Isotropy Assessment: ±3.2% (*k*=2)

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DASY/EASY – Parameters of Probe: EX3DV4 – SN:7548

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	152.2
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disable
Probe Overall Length	337mm
Probe Body Diameter	10mm
Tip Length	9mm
Tip Diameter	2.5mm
Probe Tip to Sensor X Calibration Point	1mm
Probe Tip to Sensor Y Calibration Point	1mm
Probe Tip to Sensor Z Calibration Point	1mm
Recommended Measurement Distance from Surface	1.4mm