

Table 14.7: SAR Values for LTE Band 12

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	-0.040	0.158	1.11	0.176	/
Left Tilt 15°	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	0.110	0.139	1.11	0.155	/
Right Touch	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	-0.030	0.195	1.11	0.217	/
Right Tilt 15°	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	0.020	0.121	1.11	0.135	/
Left Touch	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.020	0.158	1.10	0.174	/
Left Tilt 15°	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	-0.020	0.110	1.10	0.121	/
Right Touch	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.130	0.153	1.10	0.168	/
Right Tilt 15°	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.090	0.093	1.10	0.102	/
Right Touch	Standard	QPSK	10	1	mid	23095	707.5	23.03	23.5	-0.170	0.199	1.11	0.222	19
Right Touch	Standard	QPSK	10	1	mid	23130	711	22.96	23.5	0.100	0.196	1.13	0.222	/
Body SAR (Full Power 5mm)														
Front Side	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	-0.170	0.186	1.11	0.207	/
Back Side	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	0.000	0.328	1.11	0.365	/
Left Side	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	0.020	0.194	1.11	0.216	/
Right Side	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	-0.010	0.251	1.11	0.279	/
Bottom Side	Standard	QPSK	10	1	mid	23060	704	23.04	23.5	0.120	0.116	1.11	0.129	/
Front Side	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.060	0.153	1.10	0.168	/
Back Side	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	-0.010	0.254	1.10	0.279	/
Left Side	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.050	0.147	1.10	0.162	/
Right Side	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.050	0.192	1.10	0.211	/
Bottom Side	Standard	QPSK	10	50%	high	23060	704	22.09	22.5	0.090	0.090	1.10	0.099	/
Back Side	Standard	QPSK	10	1	mid	23095	707.5	23.03	23.5	0.000	0.371	1.11	0.413	/
Back Side	Standard	QPSK	10	1	mid	23130	711	22.96	23.5	0.020	0.374	1.13	0.424	20
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Full Power Distance 0mm)														
Back Side	Standard	QPSK	10	1	mid	23130	711	22.96	23.5	-0.050	0.616	1.13	0.698	21

Table 14.8: SAR Values for LTE Band 13

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	20	1	mid	23230	782	22.54	23	-0.010	0.281	1.11	0.312	22
Left Tilt 15°	Standard	QPSK	20	1	mid	23230	782	22.54	23	-0.090	0.164	1.11	0.182	/
Right Touch	Standard	QPSK	20	1	mid	23230	782	22.54	23	0.030	0.254	1.11	0.282	/
Right Tilt 15°	Standard	QPSK	20	1	mid	23230	782	22.54	23	0.150	0.181	1.11	0.201	/
Left Touch	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	0.090	0.198	1.24	0.246	/
Left Tilt 15°	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	0.110	0.133	1.24	0.166	/
Right Touch	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	-0.150	0.211	1.24	0.263	/
Right Tilt 15°	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	0.190	0.150	1.24	0.187	/
Body SAR (Full Power 5mm)														
Front Side	Standard	QPSK	20	1	mid	23230	782	22.54	23	0.010	0.225	1.11	0.250	/
Back Side	Standard	QPSK	20	1	mid	23230	782	22.54	23	-0.030	0.513	1.11	0.570	23
Left Side	Standard	QPSK	20	1	mid	23230	782	22.54	23	0.100	0.300	1.11	0.334	/
Right Side	Standard	QPSK	20	1	mid	23230	782	22.54	23	0.010	0.378	1.11	0.420	/
Bottom Side	Standard	QPSK	20	1	mid	23230	782	22.54	23	-0.050	0.182	1.11	0.202	/
Front Side	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	-0.040	0.186	1.24	0.231	/
Back Side	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	0.190	0.363	1.24	0.452	/
Left Side	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	0.090	0.231	1.24	0.287	/
Right Side	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	-0.030	0.327	1.24	0.407	/
Bottom Side	Standard	QPSK	20	50%	mid	23230	782	21.55	22.5	0.080	0.148	1.24	0.184	/
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Full Power Distance 0mm)														
Back Side	Standard	QPSK	20	1	mid	23230	782	22.54	23	0.060	0.630	1.11	0.700	24

Table 14.9: SAR Values for LTE Band 25

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	20	1	mid	26590	1905	20.07	21	-0.050	0.208	1.24	0.258	/
Left Tilt 15°	Standard	QPSK	20	1	mid	26590	1905	20.07	21	0.020	0.107	1.24	0.133	/
Right Touch	Standard	QPSK	20	1	mid	26590	1905	20.07	21	-0.170	0.244	1.24	0.302	25
Right Tilt 15°	Standard	QPSK	20	1	mid	26590	1905	20.07	21	0.010	0.090	1.24	0.111	/
Left Touch	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.070	0.160	1.19	0.191	/
Left Tilt 15°	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.080	0.088	1.19	0.105	/
Right Touch	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.120	0.181	1.19	0.216	/
Right Tilt 15°	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.000	0.066	1.19	0.078	/
Right Touch	Standard	QPSK	20	1	mid	26140	1860	20.17	21	-0.100	0.235	1.21	0.284	/
Right Touch	Standard	QPSK	20	1	mid	26365	1882.5	19.96	21	0.120	0.237	1.27	0.301	/
Body SAR (Full Power 19mm)														
Back Side	Standard	QPSK	20	1	mid	26590	1905	20.07	21	-0.130	0.306	1.24	0.379	/
Bottom Side	Standard	QPSK	20	1	mid	26590	1905	20.07	21	-0.070	0.341	1.24	0.422	/
Back Side	Standard	QPSK	20	50%	high	26590	1905	19.23	20	-0.050	0.243	1.19	0.290	/
Bottom Side	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.050	0.264	1.19	0.315	/
Body SAR (Full Power 9mm)														
Front Side	Standard	QPSK	20	1	mid	26590	1905	20.07	21	-0.030	0.496	1.24	0.614	/
Front Side	Standard	QPSK	20	50%	high	26590	1905	19.23	20	-0.150	0.378	1.19	0.451	/
Body SAR (Full Power 5mm)														
Left Side	Standard	QPSK	20	1	mid	26590	1905	20.07	21	-0.180	0.693	1.24	0.858	/
Right Side	Standard	QPSK	20	1	mid	26590	1905	20.07	21	0.040	0.392	1.24	0.486	/
Left Side	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.150	0.554	1.19	0.661	/
Right Side	Standard	QPSK	20	50%	high	26590	1905	19.23	20	0.080	0.300	1.19	0.358	/
Left Side	Standard	QPSK	20	1	mid	26140	1860	20.17	21	0.100	0.891	1.21	1.079	26
Left Side	Standard	QPSK	20	1	mid	26365	1882.5	19.96	21	-0.150	0.811	1.27	1.030	/
Body SAR (Full Power 5mm) Repeated														
Left Side	Standard	QPSK	20	1	mid	26140	1860	20.17	21	0.070	0.862	1.21	1.044	/
Body SAR (Reduce Power 5mm)														
Front Side	Standard	QPSK	20	1	mid	26140	1860	16.95	17.5	-0.050	0.602	1.14	0.683	/
Back Side	Standard	QPSK	20	1	mid	26140	1860	16.95	17.5	-0.170	0.634	1.14	0.720	/
Bottom Side	Standard	QPSK	20	1	mid	26140	1860	16.95	17.5	0.090	0.641	1.14	0.728	/
Front Side	Standard	QPSK	20	50%	low	26140	1860	15.93	16.5	0.010	0.454	1.14	0.518	/
Back Side	Standard	QPSK	20	50%	low	26140	1860	15.93	16.5	-0.010	0.616	1.14	0.702	/
Bottom Side	Standard	QPSK	20	50%	low	26140	1860	15.93	16.5	0.060	0.555	1.14	0.633	/
Back Side	Standard	QPSK	20	1	mid	26365	1882.5	16.7	17.5	-0.010	0.719	1.20	0.864	/
Back Side	Standard	QPSK	20	1	mid	26590	1905	16.46	17.5	-0.010	0.833	1.27	1.058	/
Bottom Side	Standard	QPSK	20	1	mid	26365	1882.5	16.7	17.5	0.060	0.726	1.20	0.873	/
Bottom Side	Standard	QPSK	20	1	mid	26590	1905	16.46	17.5	0.050	0.754	1.27	0.958	/
Body SAR (Reduced Power 5mm) Repeated														
Back Side	Standard	QPSK	20	1	mid	26590	1905	16.46	17.5	0.000	0.753	1.27	0.957	/
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Full Power Distance 0mm)														
Left Side	Standard	QPSK	20	1	mid	26140	1860	20.17	21	0.130	0.922	1.21	1.116	27

Table 14.10: SAR Values for LTE Band 26

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	0.030	0.372	1.15	0.426	/
Left Tilt 15°	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	0.000	0.214	1.15	0.245	/
Right Touch	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	0.110	0.403	1.15	0.462	/
Right Tilt 15°	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	0.050	0.194	1.15	0.222	/
Left Touch	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	-0.070	0.304	1.12	0.341	/
Left Tilt 15°	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	0.100	0.179	1.12	0.201	/
Right Touch	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	-0.010	0.335	1.12	0.376	/
Right Tilt 15°	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	-0.010	0.162	1.12	0.182	/
Right Touch	Standard	QPSK	15	1	mid	26775	822.5	22.36	23	0.010	0.348	1.16	0.403	/
Right Touch	Standard	QPSK	15	1	mid	26965	841.5	22.34	23	0.020	0.442	1.16	0.515	28
Body SAR (Full Power 19mm)														
Back Side	Standard	QPSK	15	1	low	26865	831.5	22.41	23	-0.010	0.269	1.15	0.308	/
Bottom Side	Standard	QPSK	15	1	low	26865	831.5	22.41	23	0.050	0.043	1.15	0.050	/
Back Side	Standard	QPSK	15	50%	low	26865	831.5	21.5	22	0.010	0.208	1.12	0.233	/
Bottom Side	Standard	QPSK	15	50%	low	26865	831.5	21.5	22	-0.050	0.046	1.12	0.052	/
Body SAR (Full Power 9mm)														
Front Side	Standard	QPSK	15	1	low	26865	831.5	22.41	23	-0.020	0.281	1.15	0.322	/
Front Side	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	0.010	0.218	1.12	0.245	/
Body SAR (Full Power 5mm)														
Left Side	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	0.050	0.382	1.15	0.438	/
Right Side	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	0.090	0.562	1.15	0.644	29
Left Side	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	0.190	0.312	1.12	0.350	/
Right Side	Standard	QPSK	15	50%	high	26865	831.5	21.5	22	0.030	0.457	1.12	0.513	/
Right Side	Standard	QPSK	15	1	mid	26775	822.5	22.36	23	0.000	0.498	1.16	0.577	/
Right Side	Standard	QPSK	15	1	mid	26965	841.5	22.34	23	0.010	0.571	1.16	0.665	/
Body SAR (Reduce Power 5mm)														
Front Side	Standard	QPSK	15	1	low	26865	831.5	19.44	20	0.070	0.258	1.14	0.294	/
Back Side	Standard	QPSK	15	1	low	26865	831.5	19.44	20	0.000	0.404	1.14	0.460	/
Bottom Side	Standard	QPSK	15	1	low	26865	831.5	19.44	20	-0.020	0.178	1.14	0.202	/
Front Side	Standard	QPSK	15	50%	high	26865	831.5	18.59	19	0.090	0.212	1.10	0.233	/
Back Side	Standard	QPSK	15	50%	high	26865	831.5	18.59	19	-0.040	0.380	1.10	0.418	/
Bottom Side	Standard	QPSK	15	50%	high	26865	831.5	18.59	19	-0.050	0.146	1.10	0.160	/
Back Side	Standard	QPSK	15	1	low	26775	822.5	19.39	20	-0.020	0.360	1.15	0.414	/
Back Side	Standard	QPSK	15	1	low	26965	841.5	19.41	20	-0.040	0.439	1.15	0.503	/
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Full Power Distance 0mm)														
Right Side	Standard	QPSK	15	1	mid	26865	831.5	22.41	23	-0.020	0.326	1.15	0.373	30

Table 14.11: SAR Values for LTE Band 41

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	20	1	mid	41490	2680	21.57	22	-0.090	0.080	1.10	0.088	/
Left Tilt 15°	Standard	QPSK	20	1	mid	41490	2680	21.57	22	0.090	0.026	1.10	0.029	/
Right Touch	Standard	QPSK	20	1	mid	41490	2680	21.57	22	0.000	0.110	1.10	0.121	/
Right Tilt 15°	Standard	QPSK	20	1	mid	41490	2680	21.57	22	0.090	0.047	1.10	0.051	/
Left Touch	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.000	0.056	1.08	0.060	/
Left Tilt 15°	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.070	0.021	1.08	0.022	/
Right Touch	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.190	0.082	1.08	0.089	/
Right Tilt 15°	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.080	0.032	1.08	0.035	/
Right Touch	Standard	QPSK	20	1	mid	39750	2506	21.07	22	0.110	0.068	1.24	0.085	/
Right Touch	Standard	QPSK	20	1	mid	40620	2593	21.16	22	0.020	0.119	1.21	0.144	31
Body SAR (Full Power 19mm)														
Back Side	Standard	QPSK	20	1	mid	41490	2680	21.57	22	-0.060	0.235	1.10	0.259	/
Bottom Side	Standard	QPSK	20	1	mid	41490	2680	21.57	22	0.020	0.209	1.10	0.231	/
Back Side	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.100	0.174	1.08	0.188	/
Bottom Side	Standard	QPSK	20	50%	high	41490	2680	20.66	21	-0.020	0.156	1.08	0.169	/
Body SAR (Full Power 9mm)														
Front Side	Standard	QPSK	20	1	mid	41490	2680	21.57	22	-0.070	0.297	1.10	0.328	/
Front Side	Standard	QPSK	20	50%	high	41490	2680	20.66	21	-0.050	0.222	1.08	0.240	/
Front Side	Standard	QPSK	20	1	mid	39750	2506	21.07	22	-0.080	0.254	1.24	0.315	/
Front Side	Standard	QPSK	20	1	mid	40620	2593	21.16	22	-0.110	0.374	1.21	0.454	/
Body SAR (Full Power 5mm)														
Left Side	Standard	QPSK	20	1	mid	41490	2680	21.57	22	0.020	0.176	1.10	0.194	/
Right Side	Standard	QPSK	20	1	mid	41490	2680	21.57	22	0.140	0.227	1.10	0.251	/
Left Side	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.110	0.130	1.08	0.141	/
Right Side	Standard	QPSK	20	50%	high	41490	2680	20.66	21	0.020	0.168	1.08	0.182	/
Body SAR (Reduce Power 5mm)														
Front Side	Standard	QPSK	20	1	mid	39750	2506	19.16	19.5	-0.030	0.218	1.08	0.236	/
Back Side	Standard	QPSK	20	1	mid	39750	2506	19.16	19.5	-0.020	0.777	1.08	0.840	/
Bottom Side	Standard	QPSK	20	1	mid	39750	2506	19.16	19.5	0.080	0.455	1.08	0.492	/
Front Side	Standard	QPSK	20	50%	high	39750	2506	18.14	18.5	-0.030	0.181	1.09	0.197	/
Back Side	Standard	QPSK	20	50%	high	39750	2506	18.14	18.5	-0.040	0.607	1.09	0.659	/
Bottom Side	Standard	QPSK	20	50%	high	39750	2506	18.14	18.5	0.050	0.348	1.09	0.378	/
Back Side	Standard	QPSK	20	1	mid	40620	2593	18.44	19.5	-0.020	0.836	1.28	1.067	32
Back Side	Standard	QPSK	20	1	mid	41490	2680	18.54	19.5	-0.100	0.754	1.25	0.941	/
Body SAR (Reduced Power 5mm)Repeated														
Back Side	Standard	QPSK	20	1	mid	40620	2593	18.44	19.5	-0.010	0.836	1.28	1.067	/
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Reduced Power Distance 0mm)														
Back Side	Standard	QPSK	20	1	mid	40620	2593	18.44	19.5	-0.100	0.797	1.28	1.017	33

Table 14.12: SAR Values for LTE Band 66

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	-0.060	0.182	1.08	0.196	/
Left Tilt 15°	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	-0.020	0.118	1.08	0.127	/
Right Touch	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	-0.030	0.290	1.08	0.312	/
Right Tilt 15°	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	0.020	0.089	1.08	0.096	/
Left Touch	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.070	0.140	1.35	0.189	/
Left Tilt 15°	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.170	0.092	1.35	0.124	/
Right Touch	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.150	0.226	1.35	0.306	/
Right Tilt 15°	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.010	0.071	1.35	0.095	/
Right Touch	Standard	QPSK	20	1	mid	132322	1755	21.1	21.5	-0.080	0.281	1.10	0.308	/
Right Touch	Standard	QPSK	20	1	mid	132572	1770	21.07	21.5	-0.090	0.297	1.10	0.328	34
Body SAR (Full Power 19mm)														
Back Side	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	-0.090	0.177	1.08	0.191	/
Bottom Side	Standard	QPSK	20	1	mid	132072	1720	21.5	21.5	0.070	0.183	1.00	0.183	/
Back Side	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	-0.140	0.141	1.35	0.191	/
Bottom Side	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.050	0.144	1.35	0.195	/
Body SAR (Full Power 9mm)														
Front Side	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	-0.080	0.583	1.08	0.628	/
Front Side	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	-0.110	0.460	1.35	0.622	/
Front Side	Standard	QPSK	20	1	mid	132322	1755	21.1	21.5	-0.070	0.591	1.10	0.648	/
Front Side	Standard	QPSK	20	1	mid	132572	1770	21.07	21.5	-0.090	0.671	1.10	0.741	35
Body SAR (Full Power 5mm)														
Left Side	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	0.050	0.443	1.08	0.477	/
Right Side	Standard	QPSK	20	1	mid	132072	1720	21.18	21.5	0.100	0.319	1.08	0.343	/
Left Side	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.030	0.345	1.35	0.466	/
Right Side	Standard	QPSK	20	50%	low	132072	1720	20.19	21.5	0.050	0.254	1.35	0.343	/
Body SAR (Reduce Power 5mm)														
Front Side	Standard	QPSK	20	1	mid	132572	1770	18.02	18.5	-0.160	0.364	1.12	0.407	/
Back Side	Standard	QPSK	20	1	mid	132572	1770	18.02	18.5	-0.110	0.604	1.12	0.675	/
Bottom Side	Standard	QPSK	20	1	mid	132572	1770	18.02	18.5	-0.120	0.439	1.12	0.490	/
Front Side	Standard	QPSK	20	50%	low	132572	1770	17.04	18.5	-0.030	0.313	1.40	0.438	/
Back Side	Standard	QPSK	20	50%	low	132572	1770	17.04	18.5	-0.120	0.369	1.40	0.516	/
Bottom Side	Standard	QPSK	20	50%	low	132572	1770	17.04	18.5	-0.100	0.350	1.40	0.490	/
Back Side	Standard	QPSK	20	1	mid	132072	1720	17.7	18.5	-0.180	0.452	1.20	0.543	/
Back Side	Standard	QPSK	20	1	mid	132322	1755	17.91	18.5	-0.020	0.556	1.15	0.637	/
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Reduce Power Distance 0mm)														
Front Side	Standard	QPSK	20	1	mid	132572	1770	18.02	18.5	-0.160	0.543	1.12	0.606	36

Table 14.13: SAR Values for LTE Band 71

Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR														
Left Touch	Standard	QPSK	20	1	mid	133322	683	22.48	23	0.080	0.170	1.13	0.192	/
Left Tilt 15°	Standard	QPSK	20	1	mid	133322	683	22.48	23	0.160	0.144	1.13	0.162	/
Right Touch	Standard	QPSK	20	1	mid	133322	683	22.48	23	0.020	0.167	1.13	0.188	/
Right Tilt 15°	Standard	QPSK	20	1	mid	133322	683	22.48	23	-0.100	0.151	1.13	0.170	/
Left Touch	Standard	QPSK	20	50%	high	133322	683	21.28	22	-0.050	0.126	1.18	0.149	/
Left Tilt 15°	Standard	QPSK	20	50%	high	133322	683	21.28	22	0.070	0.106	1.18	0.125	/
Right Touch	Standard	QPSK	20	50%	high	133322	683	21.28	22	0.000	0.128	1.18	0.151	/
Right Tilt 15°	Standard	QPSK	20	50%	high	133322	683	21.28	22	-0.010	0.111	1.18	0.131	/
Left Touch	Standard	QPSK	20	1	mid	133222	673	22.43	23	-0.140	0.163	1.14	0.186	/
Left Touch	Standard	QPSK	20	1	mid	133372	688	22.47	23	0.150	0.172	1.13	0.194	37
Body SAR (Full Power 5mm)														
Front Side	Standard	QPSK	20	1	mid	133322	683	22.48	23	-0.060	0.150	1.13	0.169	/
Back Side	Standard	QPSK	20	1	mid	133322	683	22.48	23	-0.040	0.263	1.13	0.296	/
Left Side	Standard	QPSK	20	1	mid	133322	683	22.48	23	-0.060	0.265	1.13	0.299	/
Right Side	Standard	QPSK	20	1	mid	133322	683	22.48	23	0.110	0.252	1.13	0.284	/
Bottom Side	Standard	QPSK	20	1	mid	133322	683	22.48	23	-0.090	0.076	1.13	0.085	/
Front Side	Standard	QPSK	20	50%	high	133322	683	21.28	22	-0.050	0.112	1.18	0.132	/
Back Side	Standard	QPSK	20	50%	high	133322	683	21.28	22	0.000	0.234	1.18	0.276	/
Left Side	Standard	QPSK	20	50%	high	133322	683	21.28	22	0.110	0.185	1.18	0.218	/
Right Side	Standard	QPSK	20	50%	high	133322	683	21.28	22	0.060	0.213	1.18	0.251	/
Bottom Side	Standard	QPSK	20	50%	high	133322	683	21.28	22	-0.010	0.061	1.18	0.071	/
Back Side	Standard	QPSK	20	1	mid	133222	673	22.43	23	-0.010	0.275	1.14	0.314	/
Back Side	Standard	QPSK	20	1	mid	133372	688	22.47	23	0.010	0.280	1.13	0.316	38
Test Position	Cover Type	Mode				Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
		Modulation	BW(MHz)	RB Allocation	RB Offset						Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Full Power Distance 0mm)														
Back Side	Standard	QPSK	20	1	mid	133372	688	22.47	23	0.06	0.436	1.13	0.493	39

Table 14.14: SAR Values for BT

Test Position	Cover Type	Mode	Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
									Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR												
Left Touch	Standard	BT	1:1	39	2441	9.73	10	-0.140	0.059	1.06	0.062	40
Left Tilt 15°	Standard	BT	1:1	39	2441	9.73	10	-0.030	0.040	1.06	0.042	/
Right Touch	Standard	BT	1:1	39	2441	9.73	10	0.020	0.026	1.06	0.027	/
Right Tilt 15°	Standard	BT	1:1	39	2441	9.73	10	0.030	0.019	1.06	0.020	/
Left Touch	Standard	BT	1:1	0	2402	8.51	9	-0.050	0.050	1.12	0.056	/
Left Touch	Standard	BT	1:1	78	2480	9.35	10	-0.010	0.044	1.16	0.051	/
Body SAR (5mm)												
Left Side	Standard	BT	1:1	39	2441	9.73	10	N/A	N/A	N/A	N/A	/
Right Side	Standard	BT	1:1	39	2441	9.73	10	0.020	0.035	1.06	0.037	41
Top Side	Standard	BT	1:1	39	2441	9.73	10	0.060	0.011	1.06	0.011	/
Right Side	Standard	BT	1:1	0	2402	8.51	9	0.030	0.030	1.12	0.034	/
Right Side	Standard	BT	1:1	78	2480	9.35	10	0.050	0.028	1.16	0.032	/
Body SAR (19mm)												
Back Side	Standard	BT	1:1	39	2441	9.73	10	0.000	0.006	1.06	0.007	/
Body SAR (9mm)												
Front Side	Standard	BT	1:1	39	2441	9.73	10	-0.070	0.019	1.06	0.020	/
Test Position	Cover Type	Mode	Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
									Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Distance 0mm)												
Right Side	Standard	BT	1:1	39	2441	9.73	10	0.12	0.0389	1.06	0.041	42

Table 14.15: SAR Values for Wi-Fi2.4G

Test Position	Cover Type	Mode	BW(MHz)	Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
										Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR													
Left Touch	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.010	0.552	1.05	0.579	/
Left Tilt 15°	Standard	802.11b	20	1:1	6	2437	16.99	17.2	-0.030	0.346	1.05	0.363	/
Right Touch	Standard	802.11b	20	1:1	6	2437	16.99	17.2	-0.190	0.373	1.05	0.391	/
Right Tilt 15°	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.000	0.184	1.05	0.193	/
Left Touch	Standard	802.11b	20	1:1	1	2412	16.76	17.2	0.110	0.626	1.11	0.693	43
Left Touch	Standard	802.11b	20	1:1	13	2472	16.97	17.2	0.000	0.651	1.05	0.686	/
Body SAR (5mm)													
Front Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.100	0.321	1.05	0.337	/
Back Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	-0.100	0.327	1.05	0.343	/
Left Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.050	0.030	1.05	0.031	/
Right Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.070	0.631	1.05	0.662	44
Top Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.100	0.169	1.05	0.177	/
Right Side	Standard	802.11b	20	1:1	1	2412	16.76	17.2	-0.030	0.419	1.11	0.464	/
Right Side	Standard	802.11b	20	1:1	13	2472	16.97	17.2	0.110	0.403	1.05	0.425	/
Body SAR (19mm)													
Back Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	-0.150	0.074	1.05	0.078	/
Body SAR (9mm)													
Front Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.010	0.172	1.05	0.181	/
Test Position	Cover Type	Mode	BW(MHz)	Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
										Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Distance 0mm)													
Right Side	Standard	802.11b	20	1:1	6	2437	16.99	17.2	0.08	0.486	1.05	0.510	45

Table 14.16: SAR Values for Wi-Fi5G UNII-1

Test Position	Cover Type	Mode	BW(MHz)	Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
										Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR													
Left Touch	Standard	802.11a	20	1:1	36	5180	15.53	15.7	0.090	0.770	1.04	0.801	/
Left Tilt 15°	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.050	0.930	1.04	0.967	/
Right Touch	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.050	0.856	1.04	0.890	/
Right Tilt 15°	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.090	0.901	1.04	0.937	/
Left Touch	Standard	802.11a	20	1:1	40	5200	15.27	15.5	-0.100	0.836	1.05	0.881	/
Left Touch	Standard	802.11a	20	1:1	48	5240	15.03	15.5	-0.070	0.811	1.11	0.904	/
Left Tilt 15°	Standard	802.11a	20	1:1	40	5200	15.27	15.5	-0.190	0.985	1.05	1.039	/
Left Tilt 15°	Standard	802.11a	20	1:1	48	5240	15.03	15.5	-0.090	0.929	1.11	1.035	/
Right Touch	Standard	802.11a	20	1:1	40	5200	15.27	15.5	0.040	0.754	1.05	0.795	/
Right Touch	Standard	802.11a	20	1:1	48	5240	15.03	15.5	-0.140	0.841	1.11	0.937	/
Right Tilt 15°	Standard	802.11a	20	1:1	40	5200	15.27	15.5	-0.030	0.963	1.05	1.015	/
Right Tilt 15°	Standard	802.11a	20	1:1	48	5240	15.03	15.5	-0.040	0.944	1.11	1.052	46
Body SAR (5mm)													
Front Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.050	0.492	1.04	0.512	/
Back Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.150	0.352	1.04	0.366	/
Left Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	0.000	0.040	1.04	0.041	/
Right Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	0.050	0.384	1.04	0.399	/
Top Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.090	1.040	1.04	1.082	47
Top Side	Standard	802.11a	20	1:1	40	5200	15.27	15.5	-0.110	0.950	1.05	1.002	/
Top Side	Standard	802.11a	20	1:1	48	5240	15.03	15.5	-0.140	0.855	1.11	0.953	/
Body SAR (5mm)Repeated													
Top Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	0.100	0.948	1.04	0.986	/
Body SAR (19mm)													
Back Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	0.070	0.212	1.04	0.220	/
Body SAR (9mm)													
Front Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	0.020	0.290	1.04	0.302	/
Test Position	Cover Type	Mode		Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
										Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Distance 0mm)													
Top Side	Standard	802.11a	20	1:1	36	5180	15.53	15.7	-0.10	0.627	1.04	0.652	48

Table 14.17: SAR Values for Wi-Fi5G UNII-3

Test Position	Cover Type	Mode	BW(MHz)	Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 1gSAR 1.6 W/kg (mW/g)			Figure No.
										Measured SAR1g	Scaling Factor	Report SAR1g	
Head SAR													
Left Touch	Standard	802.11ac	40	1:1	151	5755	9.99	10.5	0.100	0.042	1.12	0.047	/
Left Tilt 15°	Standard	802.11ac	40	1:1	151	5755	9.99	10.5	0.090	0.045	1.12	0.050	49
Right Touch	Standard	802.11ac	40	1:1	151	5755	9.99	10.5	-0.060	0.033	1.12	0.038	/
Right Tilt 15°	Standard	802.11ac	40	1:1	151	5755	9.99	10.5	0.080	0.035	1.12	0.039	/
Left Tilt 15°	Standard	802.11ac	40	1:1	159	5795	9.01	9.5	-0.080	0.035	1.12	0.040	/
Body SAR (5mm)													
Front Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	N/A	N/A	N/A	N/A	/
Back Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	0.000	0.077	1.12	0.086	/
Left Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	N/A	N/A	N/A	N/A	/
Right Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	-0.100	0.063	1.12	0.071	/
Top Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	0.070	0.058	1.12	0.065	/
Back Side	Standard	802.11ac	40	1:1	159	5795	9.01	9.5	0.000	0.083	1.12	0.093	50
Body SAR (19mm)													
Back Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	0.000	0.023	1.12	0.026	/
Body SAR (9mm)													
Front Side	Standard	802.11ac	40	1:1	155	5755	9.99	10.5	N/A	N/A	N/A	N/A	/
Test Position	Cover Type	Mode		Duty Cycle	Channel	Frequency (MHz)	Measured power (dBm)	Tune-up (dBm)	Power Drift (dB)	Limit of 10gSAR 4.0 W/kg (mW/g)			Figure No.
										Measured SAR10g	Scaling Factor	Report SAR10g	
Limb SAR (Distance 0mm)													
Back Side	Standard	802.11ac	40	1:1	159	5795	9.01	9.5	0.000	0.026	1.12	0.030	51

14.2. Simultaneous SAR Evaluation

Table 14.18 Simultaneous transmission SAR

FCC SAR Test		Cellular													Max. of Cellular	Non-Cellular				Simultaneous Transmission		
		G850	G1900	W B2	W B4	W B5	L B66	L B71	L B7	L B12	L B13	L B25	L B26	L B41		BT	WiFi 2.4G	WiFi 5G B1	WiFi 5G B3	Max(Cel.)+ BT	Max(Cel.)+ WiFi2.4G	Max(Cel.)+ WiFi5G
Head	Left Touch	0.296	0.116	0.311	0.166	0.414	0.196	0.194	0.229	0.176	0.312	0.258	0.426	0.088	0.426	0.062	0.693	0.904	0.047	0.488	1.119	1.330
	Left Tilt 15°	0.174	0.077	0.216	0.141	0.235	0.127	0.162	0.056	0.155	0.182	0.133	0.245	0.029	0.245	0.042	0.363	1.039	0.050	0.288	0.608	1.284
	Right Touch	0.342	0.191	0.427	0.303	0.483	0.328	0.188	0.306	0.222	0.282	0.302	0.515	0.144	0.515	0.027	0.391	0.937	0.038	0.542	0.906	1.452
	Right Tilt 15°	0.176	0.051	0.127	0.098	0.244	0.096	0.170	0.114	0.135	0.201	0.111	0.222	0.051	0.244	0.020	0.193	1.052	0.039	0.264	0.437	1.296
Body (Full Power)	Top	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.011	0.177	1.082	0.065	0.011	0.177	1.082
	Left	0.379	0.855	1.311	0.622	0.450	0.477	0.299	0.715	0.216	0.334	1.079	0.438	0.194	1.311	N/A	0.031	0.041	N/A	1.311	1.342	1.352
	Right	0.707	0.373	0.748	0.379	0.707	0.343	0.284	0.805	0.279	0.420	0.486	0.665	0.251	0.805	0.037	0.662	0.399	0.071	0.843	1.468	1.205
	Front	0.352	0.418	0.779	0.377	0.414	0.741	0.169	0.963	0.207	0.250	0.614	0.322	0.454	0.963	N/A	0.337	0.512	N/A	0.963	1.299	1.474
	Back	0.352	0.234	0.440	0.186	0.410	0.191	0.316	0.495	0.424	0.570	0.379	0.308	0.259	0.570	N/A	0.343	0.366	0.093	0.570	0.914	0.936
	Bottom	0.067	0.313	0.521	0.206	0.054	0.195	0.085	0.497	0.129	0.202	0.422	0.052	0.231	0.521	N/A	N/A	N/A	N/A	0.521	0.521	0.521
Body (Reduce Power)	Front	0.396	0.469	0.756	0.305	0.275	0.438	N/A	0.292	N/A	N/A	0.683	0.294	0.236	0.756	0.020	0.181	0.302	N/A	0.776	0.936	1.057
	Back	0.761	0.649	1.080	0.413	0.549	0.675	N/A	0.946	N/A	N/A	1.058	0.503	1.067	1.080	0.007	0.078	0.220	0.026	1.087	1.158	1.300
	Bottom	0.343	0.601	0.989	0.340	0.229	0.490	N/A	0.516	N/A	N/A	0.958	0.202	0.492	0.989	N/A	N/A	N/A	N/A	0.989	0.989	0.989
Limb (0mm)	Top	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.652	N/A	N/A	N/A	0.652
	Left	N/A	0.945	1.487	0.721	N/A	N/A	N/A	N/A	N/A	N/A	1.116	N/A	N/A	1.487	N/A	N/A	N/A	N/A	1.487	1.487	1.487
	Right	N/A	N/A	N/A	N/A	0.388	N/A	N/A	N/A	N/A	N/A	N/A	0.373	N/A	0.388	0.041	0.510	N/A	N/A	0.430	0.899	0.388
	Front	N/A	N/A	N/A	N/A	N/A	0.606	N/A	0.314	N/A	N/A	N/A	N/A	N/A	0.606	N/A	N/A	N/A	N/A	0.606	0.606	0.606
	Back	0.854	N/A	N/A	N/A	N/A	N/A	0.493	0.984	0.698	0.700	N/A	N/A	1.017	1.017	N/A	N/A	N/A	0.030	1.017	1.017	1.047

According to the conducted power measurement result, we can draw the conclusion that: stand-alone SAR for Wi-Fi should be performed. Then, simultaneous transmission SAR for Wi-Fi/BT is considered with measurement results of GSM/WCDMA/LTE and Wi-Fi/BT.

According to the above table, the sum of reported SAR values for partial-body GSM/WCDMA/LTE and Wi-Fi < 1.6W/kg; the sum of reported SAR values for Limb GSM/WCDMA/LTE and Wi-Fi < 4.0W/kg. So the simultaneous transmission SAR is not required for Wi-Fi/BT transmitter.

14.3. SAR Measurement Variability

SAR measurement variability must be assessed for each frequency band, which is determined by the SAR probe calibration point and tissue-equivalent medium used for the device measurements. When both head and body tissue-equivalent media are required for SAR measurements in a frequency band, the variability measurement procedures should be applied to the tissue medium with the highest measured SAR, using the highest measured SAR configuration for that tissue-equivalent medium.

The following procedures are applied to determine if repeated measurements are required.

- 1) Repeated measurement is not required when the original highest measured SAR is < 0.80 W/kg; steps 2) through 4) do not apply.
- 2) When the original highest measured SAR is ≥ 0.80 W/kg, repeat that measurement once.
- 3) Perform a second repeated measurement only if the ratio of largest to smallest SAR for the original and first repeated measurements is > 1.20 or when the original or repeated measurement is ≥ 1.45 W/kg ($\sim 10\%$ from the 1-g SAR limit).
- 4) Perform a third repeated measurement only if the original, first or second repeated measurement is ≥ 1.5 W/kg and the ratio of largest to smallest SAR for the original, first and second repeated measurements is > 1.20 .

Table 14.5: SAR Measurement Variability (1g)

Frequency		Configuration	Test Position	Original SAR (W/kg)	First Repeated SAR (W/kg)	The Ratio
MHz	Ch.					
1880	9400	RMC12.2k	Left Side	1.311	1.300	1.008
2560	21350	20M 1RB50offset	Front Side	0.963	0.963	1.000
2510	20850	20M 1RB50offset	Back Side	0.879	0.882	1.003
1860	26140	20M 1RB50offset	Left Side	1.079	1.044	1.034
1905	26590	20M 1RB50offset	Back Side	1.058	0.957	1.106
2593	40620	20M 1RB50offset	Back Side	1.067	1.067	1.000
5180	36	802.11a	Top Side	1.082	0.986	1.097

Note: According to the KDB 865664 D01 repeated measurement is not required when the original highest measured SAR is < 0.8 W/kg.

15. SAR Reduction Function Validation Procedure

15.1. Power Reduction for Proximity Sensor

15.1.1 Reference Document

A proximity sensor for power reduction is implemented in this device to address RF exposure compliance when the cellular antenna is positioned close to the user's body. The sensor's mechanical structure is designed to fit within the enclosure design used in this device and also extended around the edge and top of the antenna element in order to optimize sensitivity in these orientations.

15.1.2 Procedures for Determining Proximity Sensor Triggering Distances

The following procedures should be applied to determine proximity sensor triggering distances for the back surface and individual edges of a tablet. Conducted power is monitored qualitatively to identify the general triggering characteristics and recorded quantitatively, versus spacing, as required by the procedures. Unless there is built-in test software that reports the triggering conditions and enables the power levels to be confirmed separately, monitoring of conducted power during the triggering tests typically requires internal access to the antenna ports inside the tablet, which may interfere with the triggering tests.

- (1) The relevant transmitter should be set to operate at its normal maximum output power.
- (2) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction.
- (3) It should be ensured that the cables required for power measurements are not interfering with the proximity sensor. Cable losses should be properly compensated to report the measured power results.
- (4) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.
- (5) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.
- (6) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.
- (7) The process is then reversed by moving the tablet away from the phantom according to steps 4) to 7), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.
- (8) The measured output power within ± 5 mm of the triggering points, or until the tablet is touching the phantom, for movements to and from the phantom should be tabulated in the SAR report.
- (9) If the sensor design and implementation allow additional variations for triggering distance tolerances, multiple samples should be tested to determine the most conservative distance required for SAR evaluation.
- (10) To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for movements to and from the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.

15.1.3 Procedures for Determining Antenna and Proximity Sensor Coverage

The sensing regions are usually limited to areas near the sensor element. If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. The following are used to determine if additional SAR measurements may be necessary due to sensor and antenna offset. 25 These procedures do not apply and are not required for configurations where the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

- (1) The back surface or edge of the tablet is positioned at a test separation distance less than or equal to the distance required for back surface or edge triggering, with both the antenna and sensor pad located at least 20 mm laterally outside the edge (boundary) of the phantom, along the direction of maximum antenna and sensor offset. For the back surface, if the direction of maximum offset is not aligned with the tablet coordinates (physical edges) the tablet test position would not be aligned with the phantom coordinates (orientations). Each applicable tablet edge should be positioned perpendicularly to the phantom to determine sensor coverage. For antennas and/or sensors located near the corner of a tablet, both adjacent edges must be considered.
- (2) The similar sequence of steps applied to determine sensor triggering distance are used to verify back surface and edge sensor coverage by moving the tablet (sensor and antenna) horizontally toward the phantom while maintaining the same vertical separation between the back surface or edge and the phantom.
- (3) After the exact location where triggering of power reduction is determined, with respect to the sensor and antenna, the tablet movement should be continued, in 3 mm increments, until both the sensor and antenna(s) are fully under the phantom and at least 20 mm inside the phantom edge.
- (4) The process is then repeated from the opposite direction, starting at the other end of the maximum antenna and sensor offset, by rotating the tablet 180° along the vertical axis.
- (5) The triggering points should be documented graphically, with the antenna and sensor clearly identified, along with all relevant dimensions.
- (6) If the subsequently measured peak SAR location for the antenna is not between the triggering points, established by the sensor coverage tests from opposite ends of the antenna and sensor, additional SAR tests may be required for conditions where only part of the back surface or edge of a tablet corresponding to the antenna is in proximity to the user and the sensor may not be triggering as desired. A KDB inquiry must be submitted by the test lab to determine if additional tests are required and the proper test configurations to use for testing. This may include situations where the sensor coverage region is too small for the antenna, the sensor is located too far away from the antenna, the sensor location is insufficient to cover multiple antennas or the antenna is at the corner of a tablet etc.

15.1.4 Proximity Sensor Status Table of Trigger Distance

The proximity sensor trigger position and trigger distance are shown in the following table:

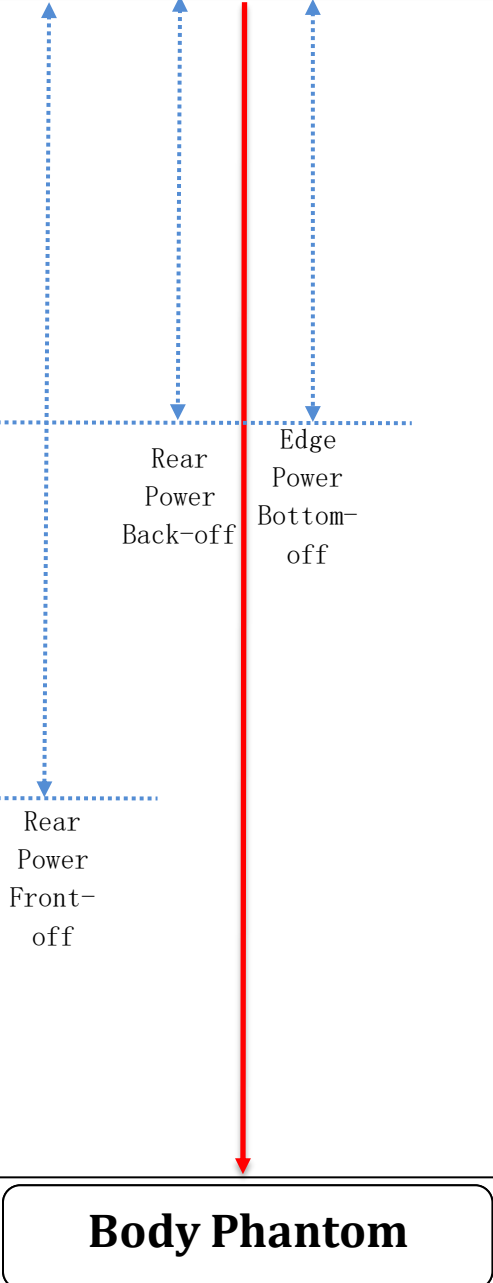
Table 15.1: Antenna/Sensor-to- DUT sides separation distances

Antenna Mode	Antenna/Sensor-to- DUT sides separation distances					
	Front	Back	Left	Right	Top	Bottom
Main Antenna	10mm	20mm	5mm	2mm	N/A	20mm
GPS/BT/Wi-Fi Antenna	N/A	N/A	N/A	N/A	N/A	N/A
DIV Antenna	Only receive signal					

Note: As the trigger distances on the left and right sides are less than the test distances, the sensor-on mode on these two sides are not tested.

Proximity Sensor Status Table when DUT is moving towards the phantom

Distance to the DUT (mm)	Proximity Sensor Status-Front Surface	Proximity Sensor Status-Back Surface	Proximity Sensor Status-Bottom Edge
30	OFF	OFF	OFF
29	OFF	OFF	OFF
28	OFF	OFF	OFF
27	OFF	OFF	OFF
26	OFF	OFF	OFF
25	OFF	OFF	OFF
24	OFF	OFF	OFF
23	OFF	OFF	OFF
22	OFF	OFF	OFF
21	OFF	OFF	OFF
20	OFF	OFF	OFF
19	OFF	ON	ON
18	OFF	ON	ON
17	OFF	ON	ON
16	OFF	ON	ON
15	OFF	ON	ON
14	OFF	ON	ON
13	OFF	ON	ON
12	OFF	ON	ON
11	OFF	ON	ON
10	OFF	ON	ON
9	ON	ON	ON
8	ON	ON	ON
7	ON	ON	ON
6	ON	ON	ON
5	ON	ON	ON
4	ON	ON	ON
3	ON	ON	ON
2	ON	ON	ON
1	ON	ON	ON
0	ON	ON	ON



Rear Power Back-off

Edge Power Bottom-off

Rear Power Front-off

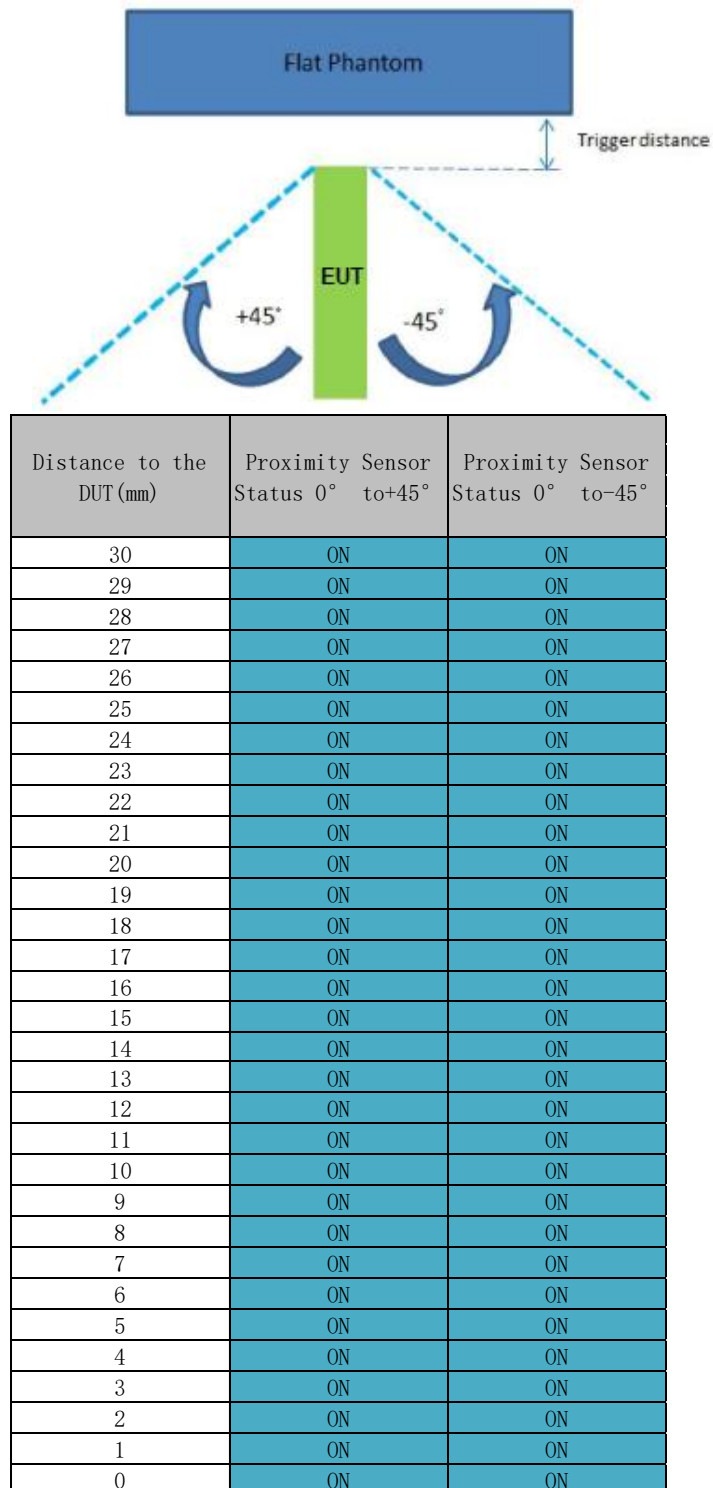
Body Phantom

Proximity Sensor Status Table when DUT is moving away the phantom

Distance to the DUT (mm)	Proximity Sensor Status-Front Surface	Proximity Sensor Status-Back Surface	Proximity Sensor Status-Bottom Edge	Body Phantom
0	ON	ON	ON	
1	ON	ON	ON	Rear Power Front-off
2	ON	ON	ON	
3	ON	ON	ON	
4	ON	ON	ON	
5	ON	ON	ON	
6	ON	ON	ON	
7	ON	ON	ON	
8	ON	ON	ON	
9	ON	ON	ON	
10	OFF	ON	ON	
11	OFF	ON	ON	Rear Power Back-off
12	OFF	ON	ON	
13	OFF	ON	ON	
14	OFF	ON	ON	
15	OFF	ON	ON	
16	OFF	ON	ON	
17	OFF	ON	ON	
18	OFF	ON	ON	
19	OFF	ON	ON	
20	OFF	OFF	OFF	
21	OFF	OFF	OFF	Edge Power Bottom-off
22	OFF	OFF	OFF	
23	OFF	OFF	OFF	
24	OFF	OFF	OFF	
25	OFF	OFF	OFF	
26	OFF	OFF	OFF	
27	OFF	OFF	OFF	
28	OFF	OFF	OFF	
29	OFF	OFF	OFF	
30	OFF	OFF	OFF	

15.1.5 Tilt Angle Influences to Proximity Sensor Triggering

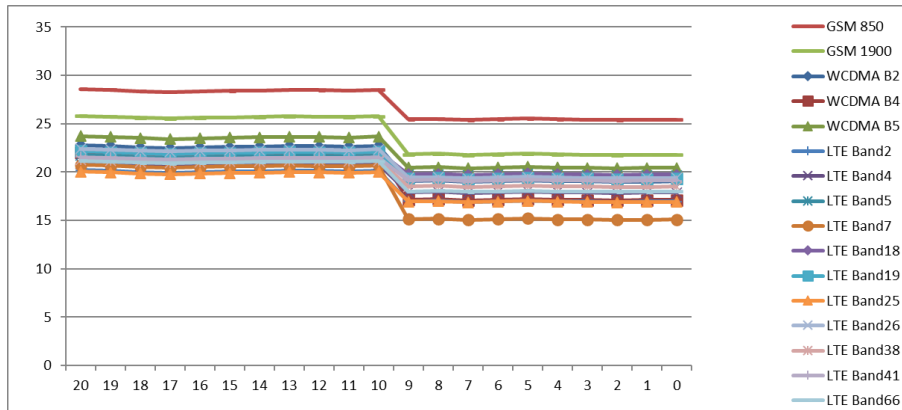
The following procedure is used to determine the tilt angle influences to proximity sensor triggering.



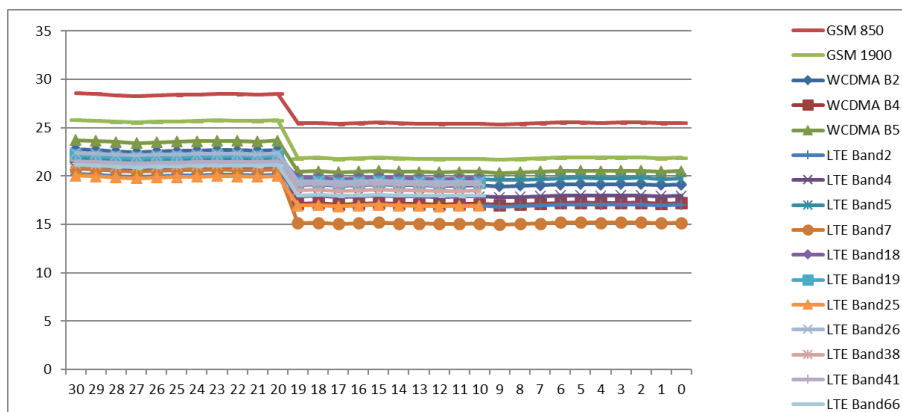
15.1.6 Power Reduction per Air-interface

The following graphs show the power level and the distance from the DUT to the flat phantom for the Bottom-Edge and Rear Surface.

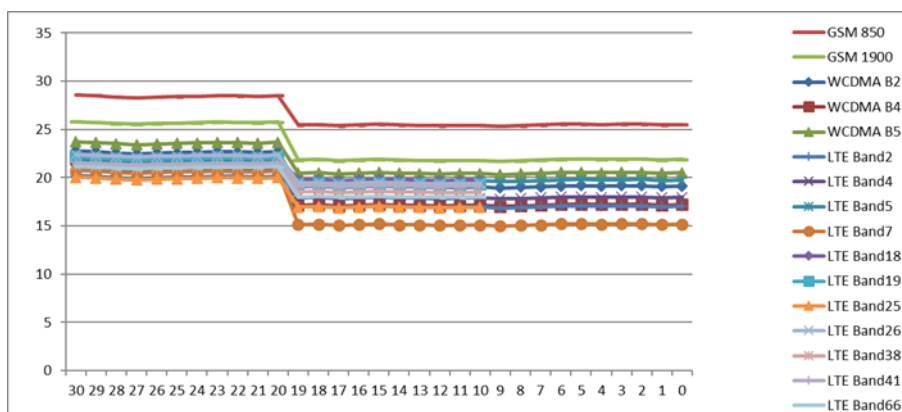
Front Surface



Back Surface



Bottom-Edge



15.1.7 Proximity Sensor Coverage Area

Proximity Sensor Coverage Area of not request when the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

16. Test Equipment List

Item	Equipment Name	Type	Serial Number	Manufacturer	Cal. Date	Cal. interval
1	Network analyzer	N5242A	MY51221755	Agilent	2020-11-08	1 year
2	Power meter	NRVD	102257	RS	2021-05-10	1 year
3	Power sensor	NRV-Z5	100241	RS	2021-05-10	1 year
4	Power sensor	NRV-Z5	100644	RS	2021-05-10	1 year
5	Signal Generator	E8247C	MY43000157	Agilent	2021-05-10	1 year
6	Amplifier	NTWPA-0086010F	12023024	rflight	N/A	N/A
7	Coupler	778D	MY4825551	Agilent	2021-05-10	1 year
8	BTS	E5515C	MY50266468	Agilent	2020-11-08	1 year
9	BTS	MT8820C	6201240338	Anritsu	2020-11-08	1 year
10	BTS	CMW500	104178	RS	2021-05-10	1 year
11	E-field Probe	EX3DV4	7633	SPEAG	2021-04-09	1 year
12	DAE	DAE4	1244	SPEAG	2021-03-23	1 year
13	Dipole Validation Kit	D750V3	1144	SPEAG	2018-10-26	3 years
14	Dipole Validation Kit	D835V2	4d112	SPEAG	2018-10-25	3 years
15	Dipole Validation Kit	D1750V2	1044	SPEAG	2018-10-31	3 years
16	Dipole Validation Kit	D1900V2	5d232	SPEAG	2020-02-12	3 years
17	Dipole Validation Kit	D2450V2	858	SPEAG	2018-10-26	3 years
18	Dipole Validation Kit	D2600V2	1031	SPEAG	2018-11-01	3 years
19	Dipole Validation Kit	D5GHzV2	1172	SPEAG	2021-03-23	3 years

Annex A: Graph Results

Fig.1 GSM 850 Right Cheek Mode Low

Date/Time: 2021/8/17

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.925$ S/m; $\epsilon_r = 41.162$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: GSM Professional; Frequency: 824.2 MHz; Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

GSM 850 Right Cheek Mode Low/Area Scan (81x41x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.414 W/kg

GSM 850 Right Cheek Mode Low/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 5.849 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.429 W/kg

SAR(1 g) = 0.313 W/kg; SAR(10 g) = 0.233 W/kg

Maximum of SAR (measured) = 0.385 W/kg

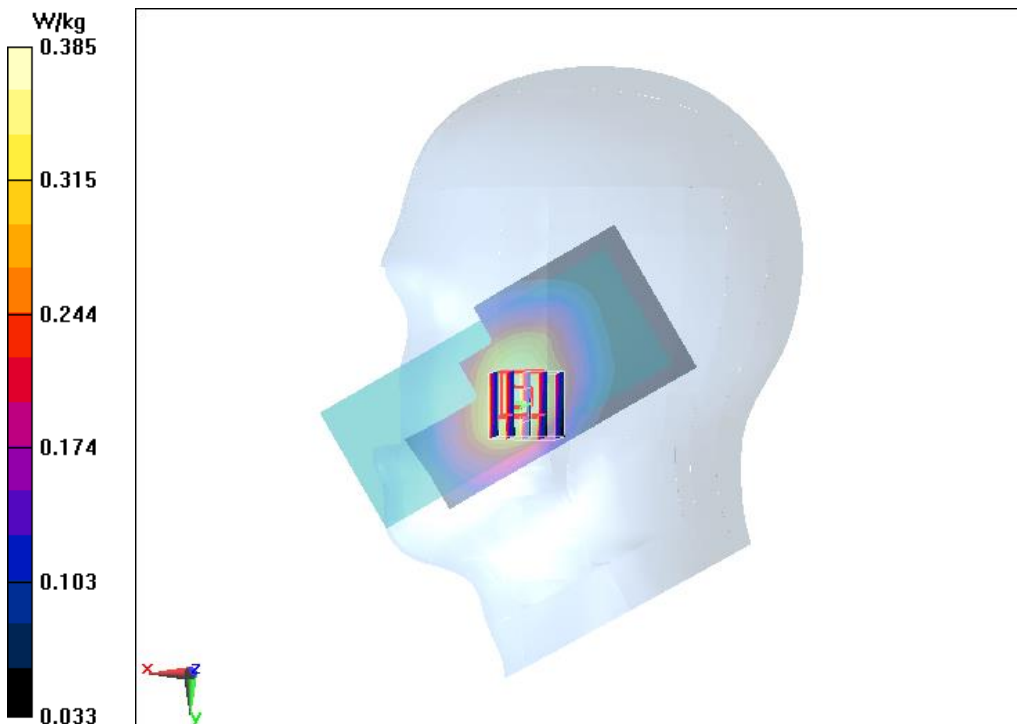


Fig.2 GSM 850 4TS Back Mode High 5mm

Date/Time: 2021/8/17

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 848.8 \text{ MHz}$; $\sigma = 0.934 \text{ S/m}$; $\epsilon_r = 41.086$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: GSM GPRS 4TS (0); Frequency: 848.8 MHz ; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

GSM 850 4TS Back Mode High 5mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 1.10 W/kg

GSM 850 4TS Back Mode High 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.57 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.61 W/kg

SAR(1 g) = 0.678 W/kg ; SAR(10 g) = 0.350 W/kg

Maximum value of SAR (measured) = 1.21 W/kg

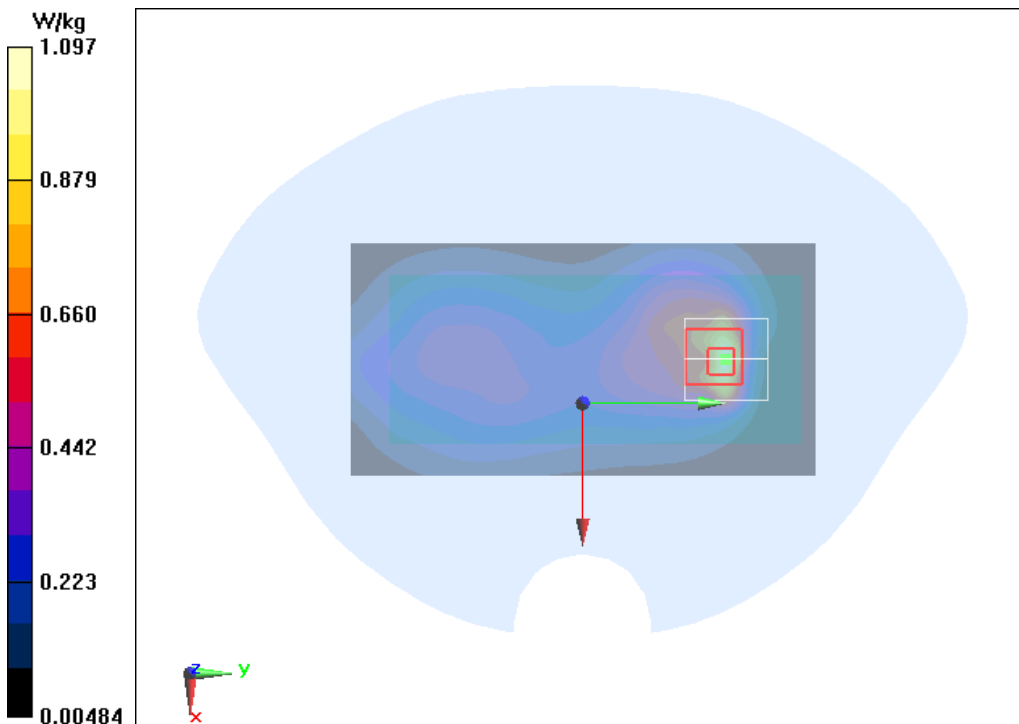


Fig.3 GSM 850 4TS Back Mode High 0mm

Date/Time: 2021/8/17

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 848.8 \text{ MHz}$; $\sigma = 0.934 \text{ S/m}$; $\epsilon_r = 41.086$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: GSM GPRS 4TS (0); Frequency: 848.8 MHz ; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51) @ 848.8 MHz

GSM 850 4TS Back Mode High 0mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 1.92 W/kg

GSM 850 4TS Back Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.78 V/m ; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 4.94 W/kg

SAR(1 g) = 1.68 W/kg ; SAR(10 g) = 0.761 W/kg

Maximum of SAR (measured) = 3.54 W/kg

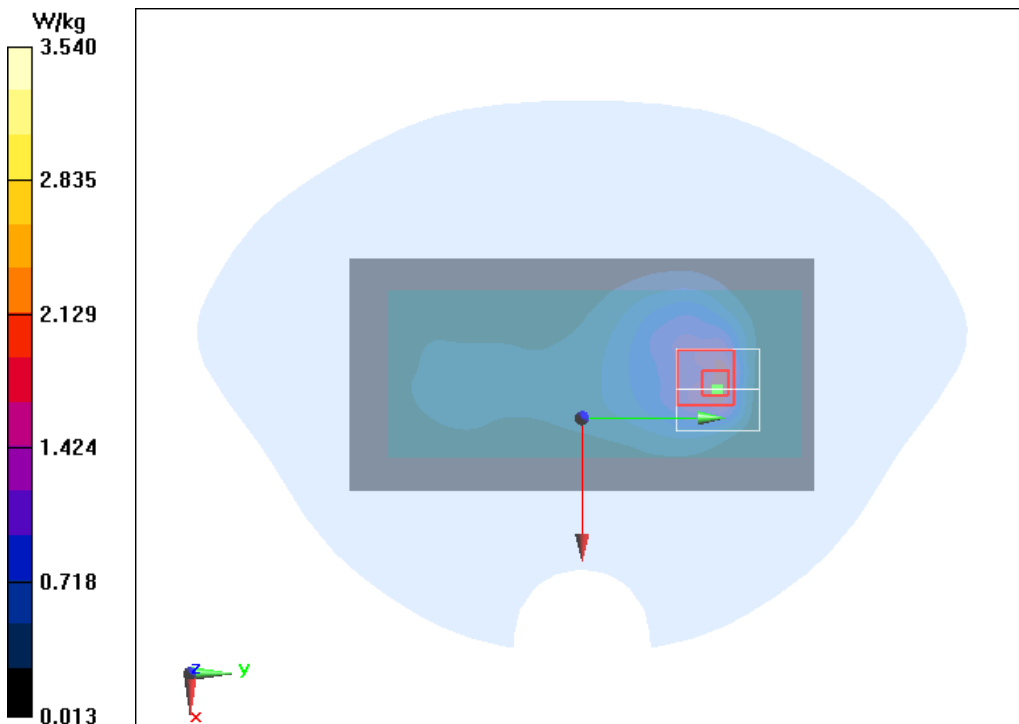


Fig.4 GSM 1900 Right Cheek Mode Low

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.448$ S/m; $\epsilon_r = 38.98$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: GSM Professional; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

GSM 1900 Right Cheek Mode Low/Area Scan (81x41x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.242 W/kg

GSM 1900 Right Cheek Mode Low/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.813 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.171 W/kg; SAR(10 g) = 0.105 W/kg

Maximum value of SAR (measured) = 0.230 W/kg

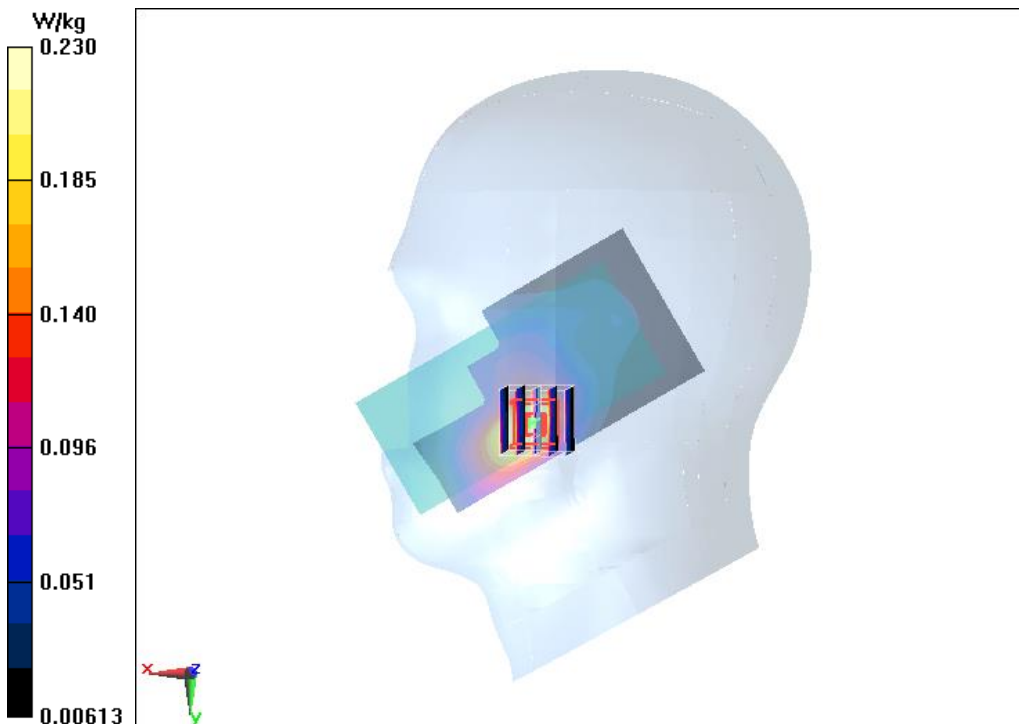


Fig.5 GSM 1900 4TS Left Mode Low 5mm

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.448$ S/m; $\epsilon_r = 38.98$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: GSM GPRS 4TS (0); Frequency: 1850.2 MHz; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

GSM 1900 4TS Left Mode Low 5mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 1.26 W/kg

GSM 1900 4TS Left Mode Low 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.69 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.52 W/kg

SAR(1 g) = 0.813 W/kg; SAR(10 g) = 0.447 W/kg

Maximum of SAR (measured) = 1.25 W/kg

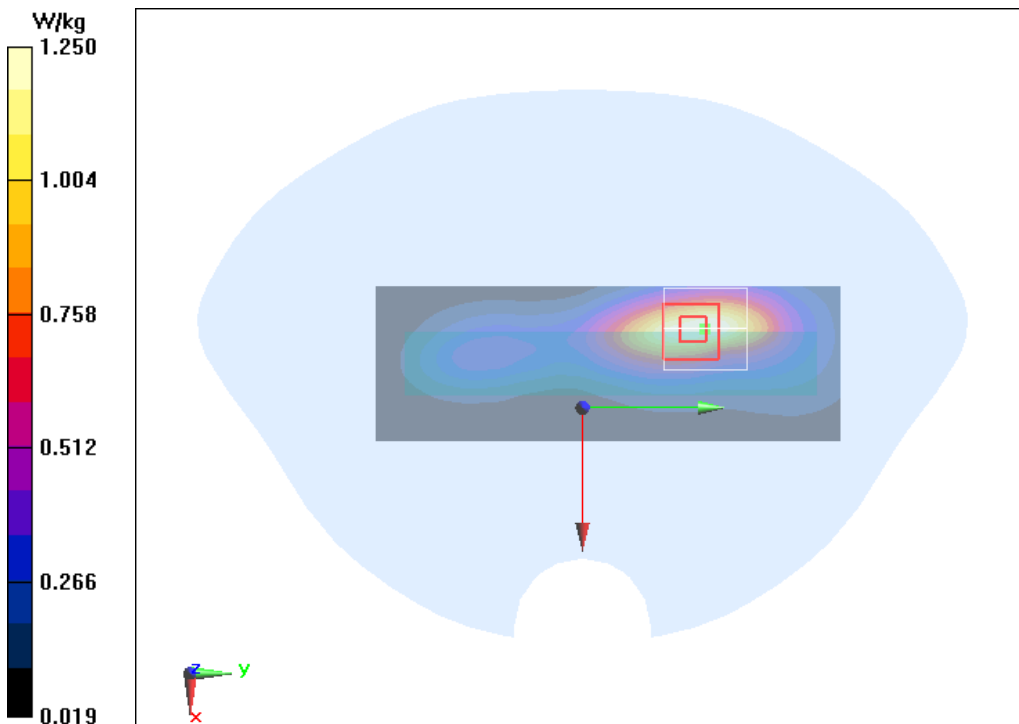


Fig.6 GSM 1900 4TS Left Mode Low 0mm

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.448 \text{ S/m}$; $\epsilon_r = 38.98$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: GSM GPRS 4TS (0); Frequency: 1850.2 MHz ; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

GSM 1900 4TS Left Mode Low 0mm/Area Scan (41x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.18 W/kg

GSM 1900 4TS Left Mode Low 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.58 V/m ; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 3.82 W/kg

SAR(1 g) = 1.83 W/kg ; SAR(10 g) = 0.898 W/kg

Maximum value of SAR (measured) = 3.07 W/kg

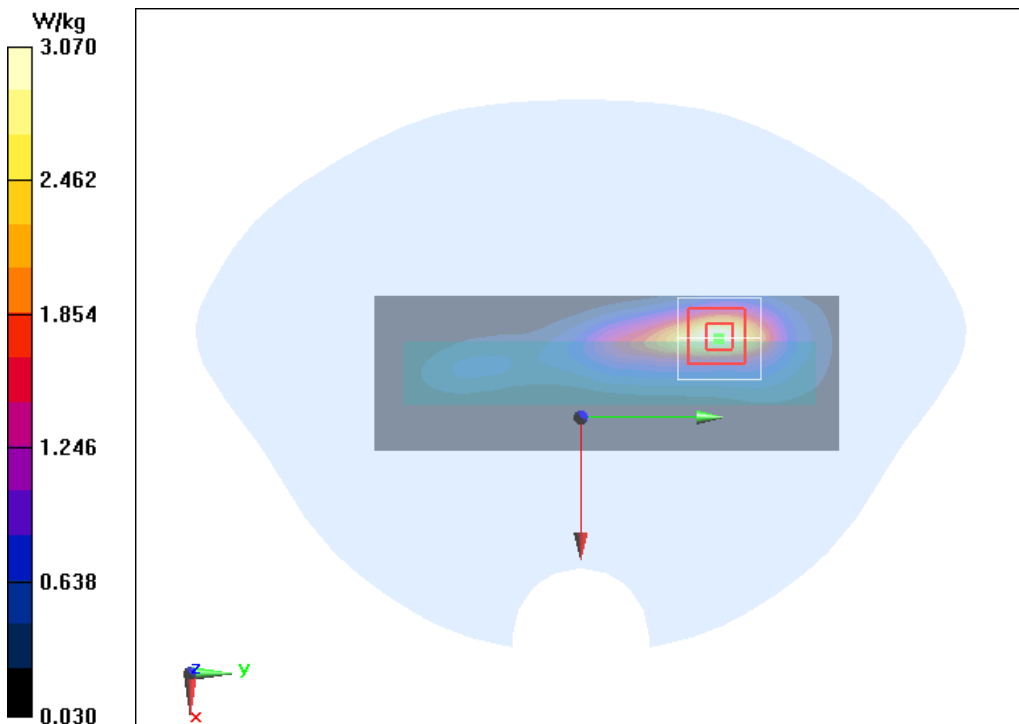


Fig.7 WCDMA B2 Right Cheek Mode Low

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.449$ S/m; $\epsilon_r = 38.976$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: WCDMA Professional Band II; Frequency: 1852.4 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

WCDMA B2 Right Cheek Mode Low/Area Scan (131x61x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.574 W/kg

WCDMA B2 Right Cheek Mode Low/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.774 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 0.619 W/kg

SAR(1 g) = 0.378 W/kg; SAR(10 g) = 0.228 W/kg

Maximum value of SAR (measured) = 0.527 W/kg

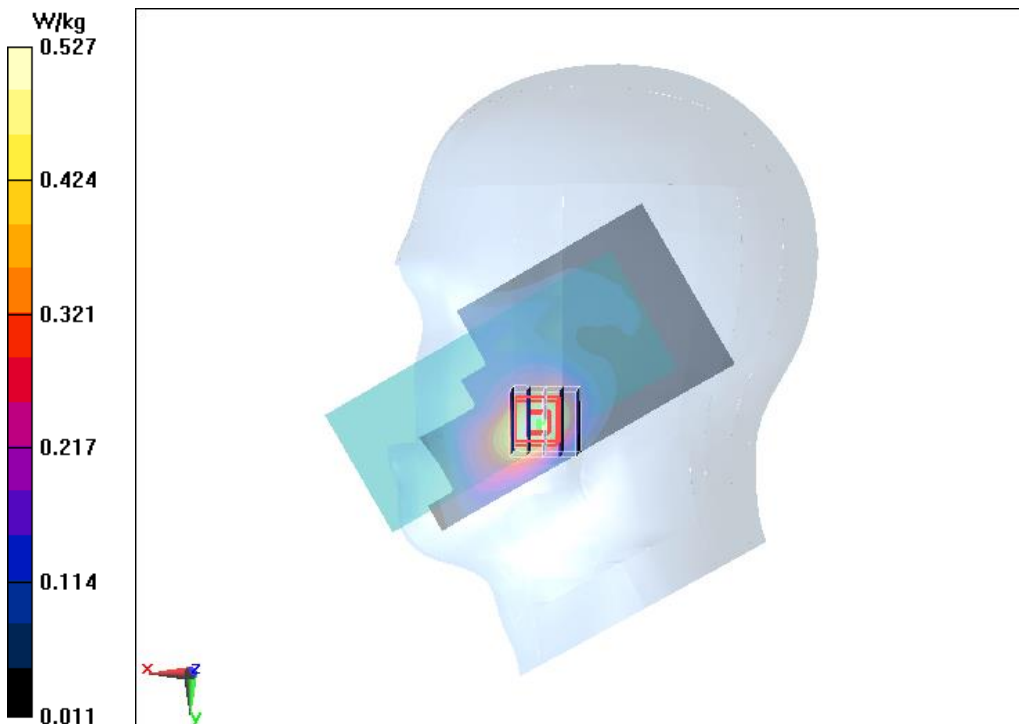


Fig.8 WCDMA B2 Left Mode Middle 5mm

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.468 \text{ S/m}$; $\epsilon_r = 38.94$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: WCDMA Professional Band II; Frequency: 1880 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

WCDMA B2 Left Mode Middle 5mm/Area Scan (31x91x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 1.64 W/kg

WCDMA B2 Left Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.15 V/m ; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 2.33 W/kg

SAR(1 g) = 1.19 W/kg ; SAR(10 g) = 0.643 W/kg

Maximum value of SAR (measured) = 1.89 W/kg

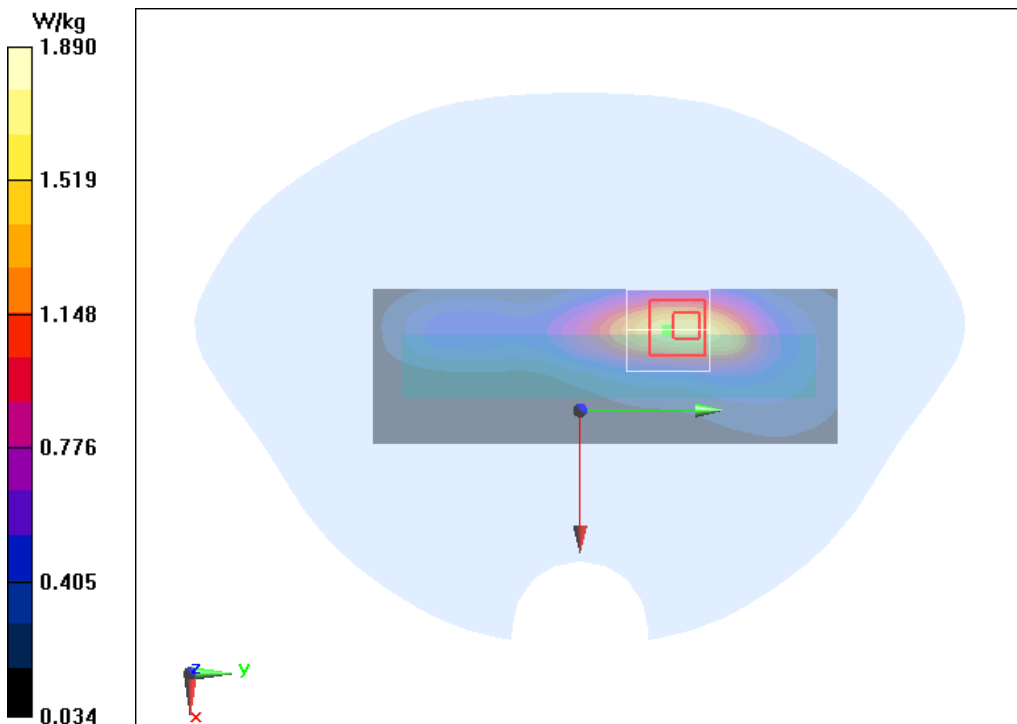


Fig.9 WCDMA B2 Left Mode Middle 0mm

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.468 \text{ S/m}$; $\epsilon_r = 38.94$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: WCDMA Professional Band II; Frequency: 1880 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

WCDMA B2 Left Mode Middle 0mm/Area Scan (31x91x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.65 W/kg

WCDMA B2 Left Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.50 V/m ; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 5.97 W/kg

SAR(1 g) = 2.79 W/kg ; SAR(10 g) = 1.35 W/kg

Maximum value of SAR (measured) = 4.13 W/kg

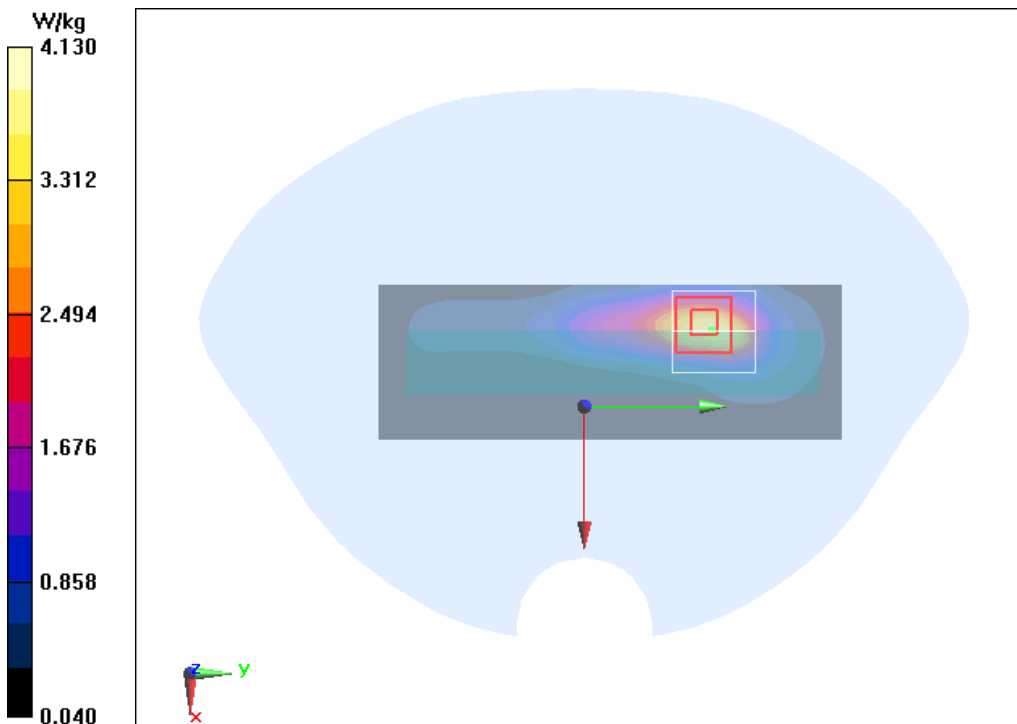


Fig.10 WCDMA B4 Right Cheek Mode High

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 39.131$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: WCDMA Professional; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

WCDMA B4 Right Cheek Mode High/Area Scan (101x51x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.368 W/kg

WCDMA B4 Right Cheek Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 5.869 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.449 W/kg

SAR(1 g) = 0.272 W/kg; SAR(10 g) = 0.167 W/kg

Maximum value of SAR (measured) = 0.365 W/kg

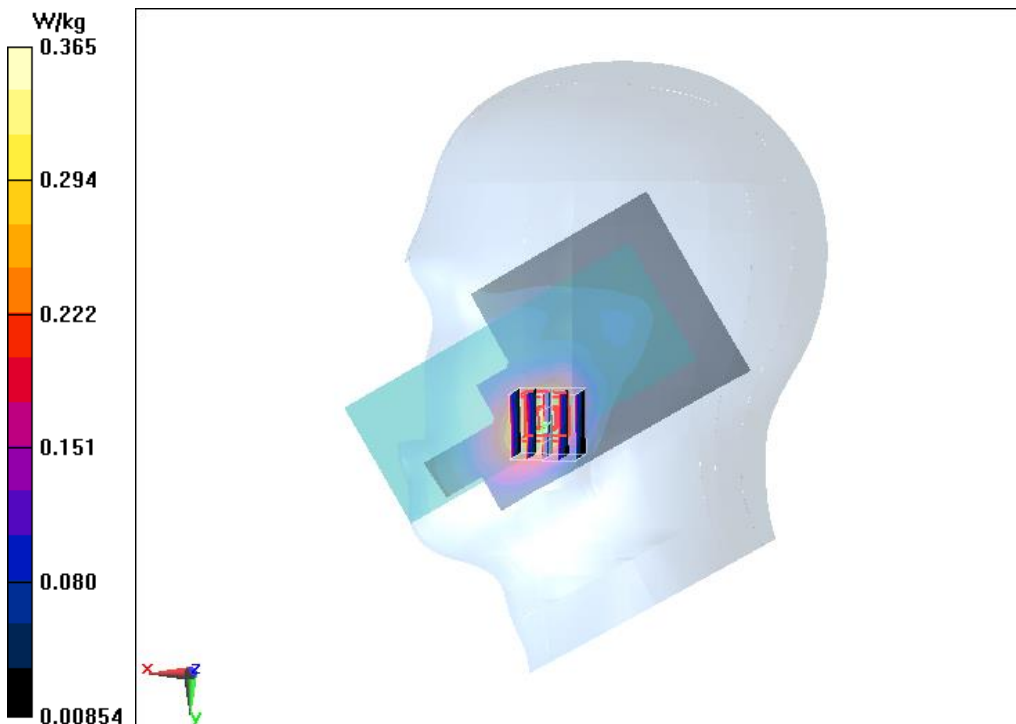


Fig.11 WCDMA B4 Left Mode High 5mm

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 39.131$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: WCDMA Professional; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

WCDMA B4 Left Mode High 5mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.855 W/kg

WCDMA B4 Left Mode High 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.78 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.558 W/kg; SAR(10 g) = 0.296 W/kg

Maximum value of SAR (measured) = 0.888 W/kg

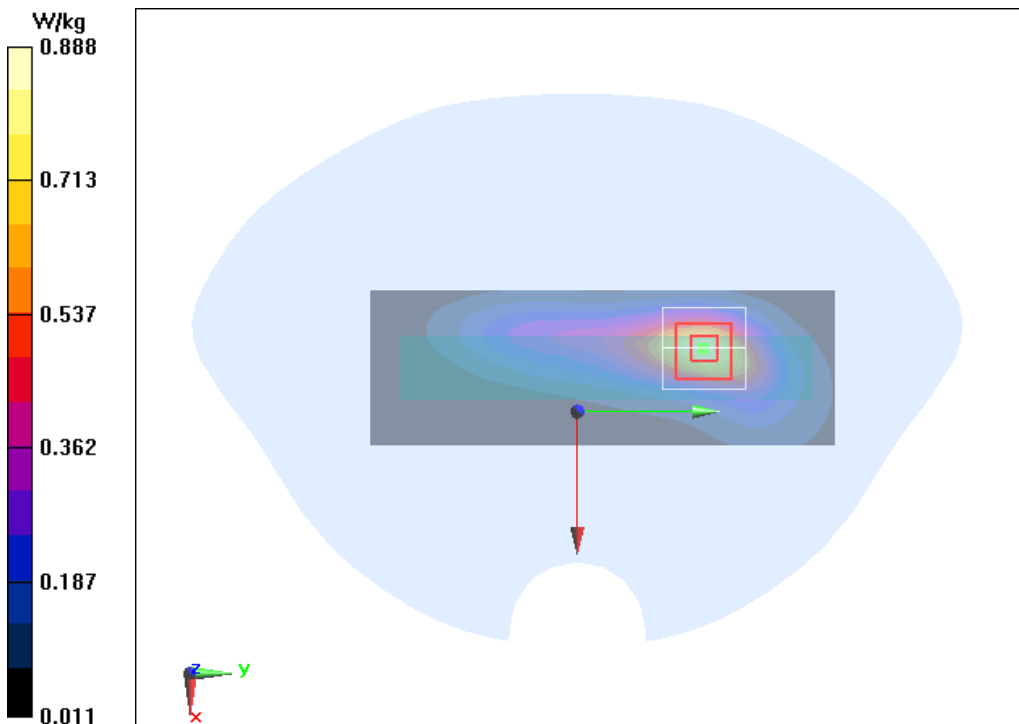


Fig.12 WCDMA B4 Left Mode High 0mm

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1752.6$ MHz; $\sigma = 1.387$ S/m; $\epsilon_r = 39.131$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: WCDMA Professional; Frequency: 1752.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

WCDMA B4 Left Mode High 0mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 1.94 W/kg

WCDMA B4 Left Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.52 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 2.80 W/kg

SAR(1 g) = 1.31 W/kg; SAR(10 g) = 0.647 W/kg

Maximum value of SAR (measured) = 2.27 W/kg

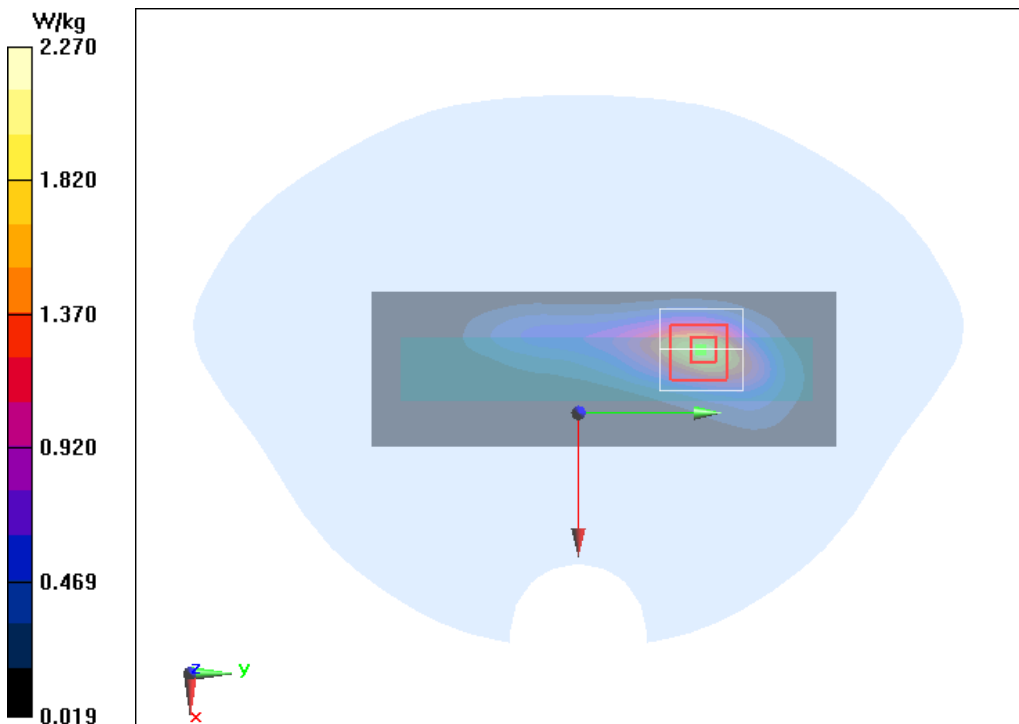


Fig.13 WCDMA B5 Right Cheek Mode Middle

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.929$ S/m; $\epsilon_r = 41.127$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: WCDMA Professional; Frequency: 836.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

WCDMA B5 Right Cheek Mode Middle/Area Scan (101x51x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.545 W/kg

WCDMA B5 Right Cheek Mode Middle/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.954 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.637 W/kg

SAR(1 g) = 0.453 W/kg; SAR(10 g) = 0.333 W/kg

Maximum value of SAR (measured) = 0.551 W/kg

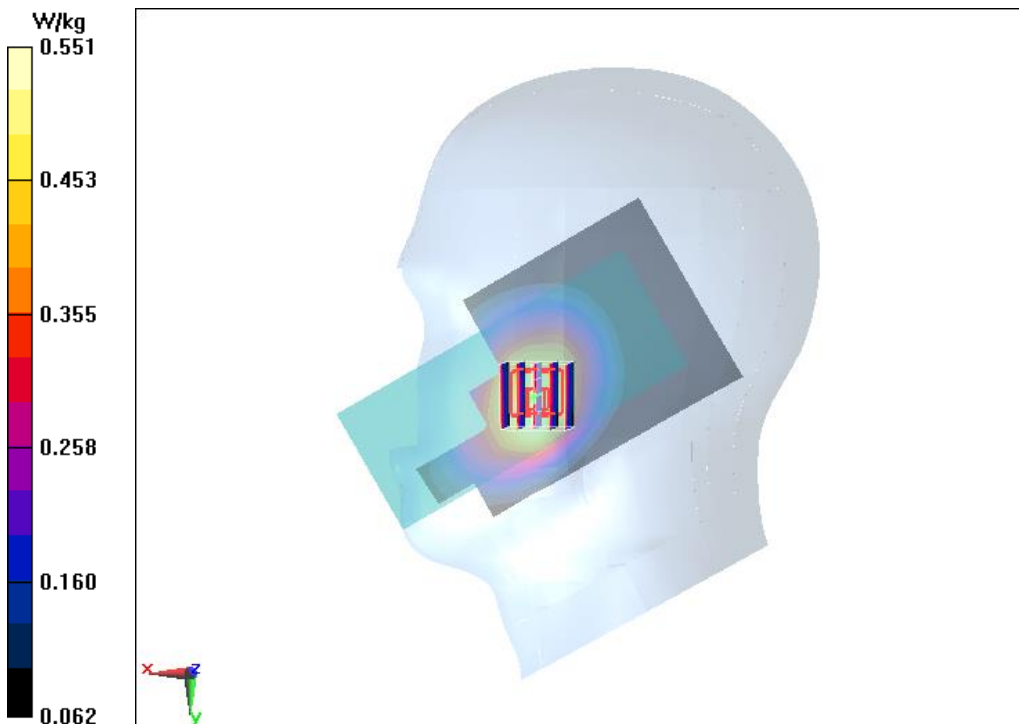


Fig.14 WCDMA B5 Right High Middle 5mm

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 846.6 \text{ MHz}$; $\sigma = 0.933 \text{ S/m}$; $\epsilon_r = 41.092$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: WCDMA Professional; Frequency: 846.6 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

WCDMA B5 Right High Middle 5mm/Area Scan (41x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.943 W/kg

WCDMA B5 Right High Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 31.92 V/m ; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.11 W/kg

SAR(1 g) = 0.675 W/kg ; SAR(10 g) = 0.436 W/kg

Maximum value of SAR (measured) = 0.946 W/kg

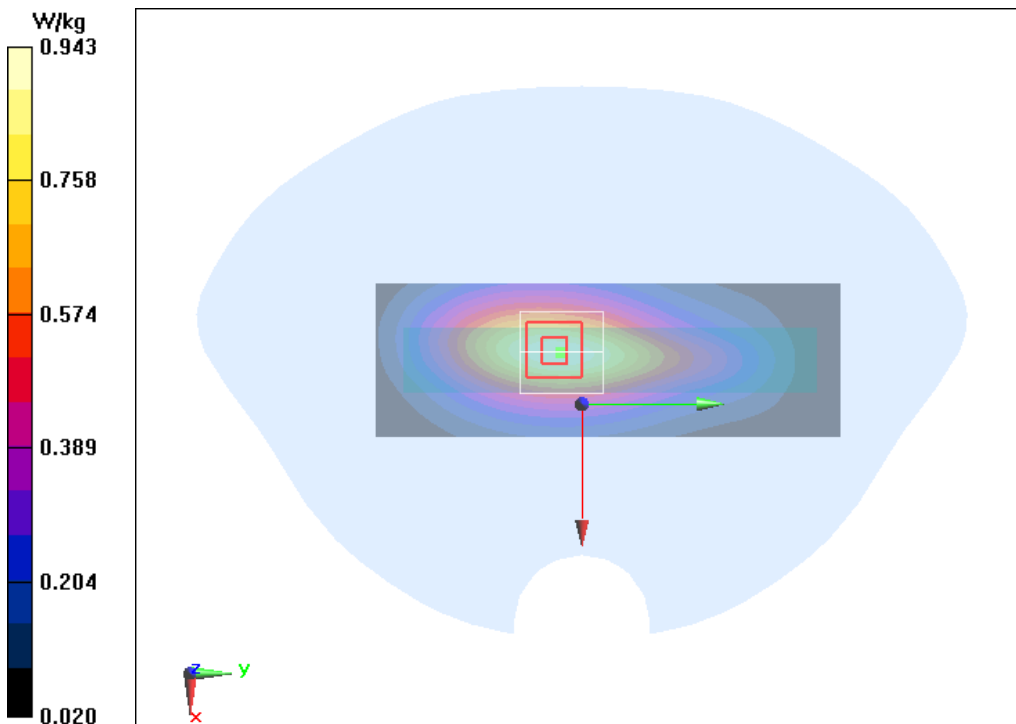


Fig.15 WCDMA B5 Right High Middle 0mm

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 846.6$ MHz; $\sigma = 0.933$ S/m; $\epsilon_r = 41.092$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: WCDMA Professional; Frequency: 846.6 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

WCDMA B5 Right High Middle 0mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 1.14 W/kg

WCDMA B5 Right High Middle 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 33.05 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.42 W/kg

SAR(1 g) = 0.639 W/kg; SAR(10 g) = 0.371 W/kg

Maximum of SAR (measured) = 1.13 W/kg

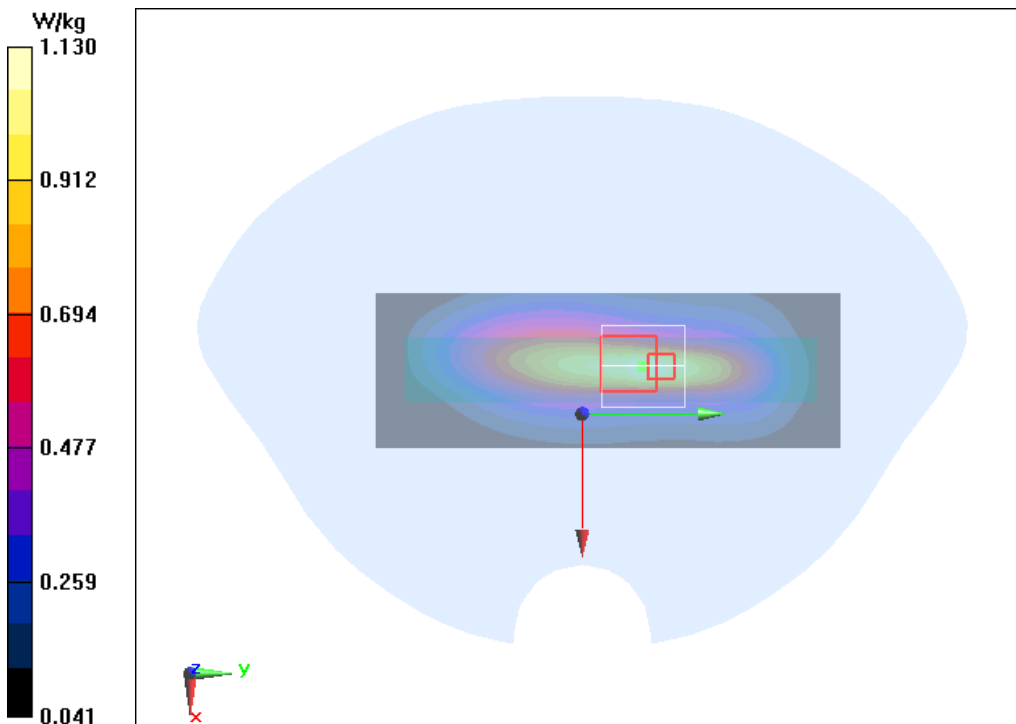


Fig.16 LTE B7 20M 1RB 50offset Right Cheek Mode High

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used: $f = 2560 \text{ MHz}$; $\sigma = 1.979 \text{ S/m}$; $\epsilon_r = 37.845$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.2°C Liquid Temperature: 21.2°C

Communication System: LTE Band 7 Professional; Frequency: 2560 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

LTE B7 20M 1RB 50offset Right Cheek Mode High/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.458 W/kg

LTE B7 20M 1RB 50offset Right Cheek Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.429 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.476 W/kg

SAR(1 g) = 0.257 W/kg ; SAR(10 g) = 0.136 W/kg

Maximum of SAR (measured) = 0.385 W/kg

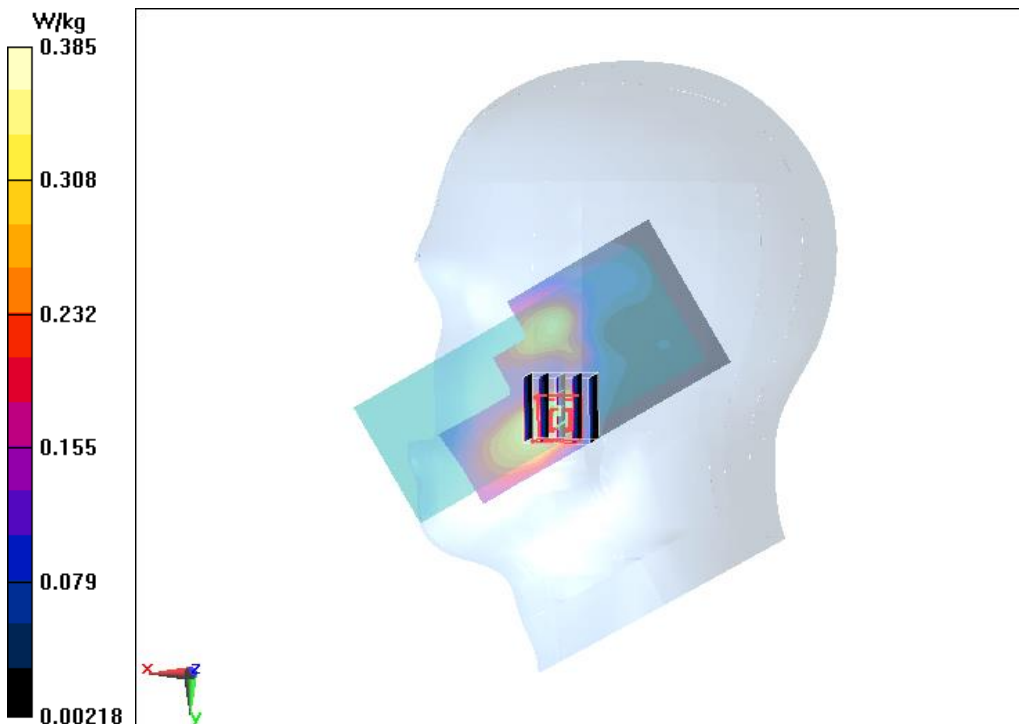


Fig.17 LTE B7 20M 1RB 50offset Front Mode High 9mm Repeated

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used: $f = 2560$ MHz; $\sigma = 1.979$ S/m; $\epsilon_r = 37.845$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.2°C Liquid Temperature: 21.2°C

Communication System: LTE Band 7 Professional; Frequency: 2560 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

LTE B7 20M 1RB 50offset Front Mode High 9mm Repeated/Area Scan (51x91x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 1.24 W/kg

LTE B7 20M 1RB 50offset Front Mode High 9mm Repeated/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.211 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.808 W/kg; SAR(10 g) = 0.425 W/kg

Maximum value of SAR (measured) = 1.26 W/kg

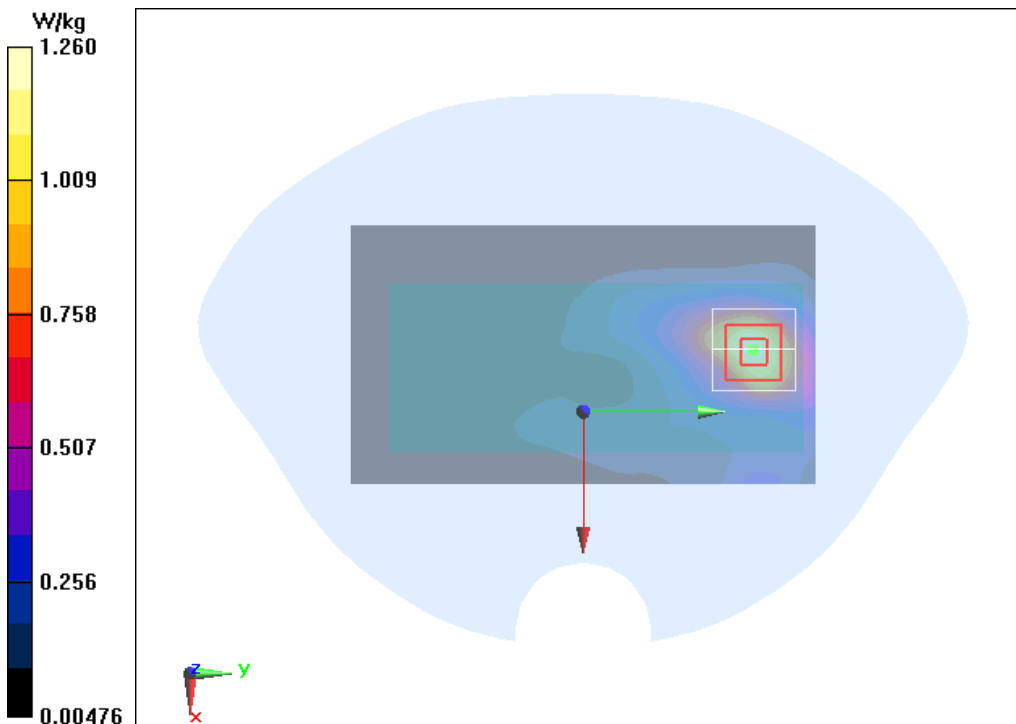


Fig.18 LTE B7 20M 1RB 50offset Back Mode High 0mm

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used: $f = 2560 \text{ MHz}$; $\sigma = 1.979 \text{ S/m}$; $\epsilon_r = 37.845$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.2°C Liquid Temperature: 21.2°C

Communication System: LTE Band 7 Professional; Frequency: 2560 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

LTE B7 20M 1RB 50offset Back Mode High 0mm/Area Scan (51x91x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 2.00 W/kg

LTE B7 20M 1RB 50offset Back Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.673 V/m ; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 4.41 W/kg

SAR(1 g) = 1.99 W/kg ; SAR(10 g) = 0.826 W/kg

Maximum of SAR (measured) = 3.46 W/kg

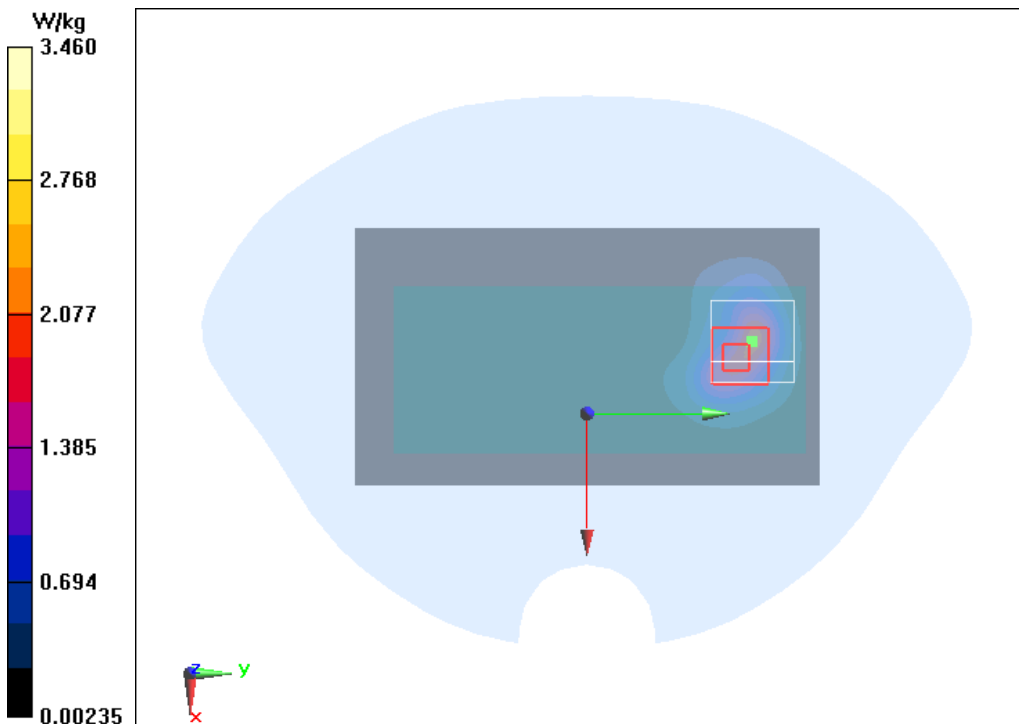


Fig.19 LTE B12 10M 1RB25offset Right Cheek Mode Middle

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 707.5 \text{ MHz}$; $\sigma = 0.881 \text{ S/m}$; $\epsilon_r = 41.538$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 12 Professional; Frequency: 707.5 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B12 10M 1RB25offset Right Cheek Mode Middle/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.256 W/kg

LTE B12 10M 1RB25offset Right Cheek Mode Middle/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.162 V/m ; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.257 W/kg

SAR(1 g) = 0.199 W/kg ; SAR(10 g) = 0.152 W/kg

Maximum of SAR (measured) = 0.235 W/kg

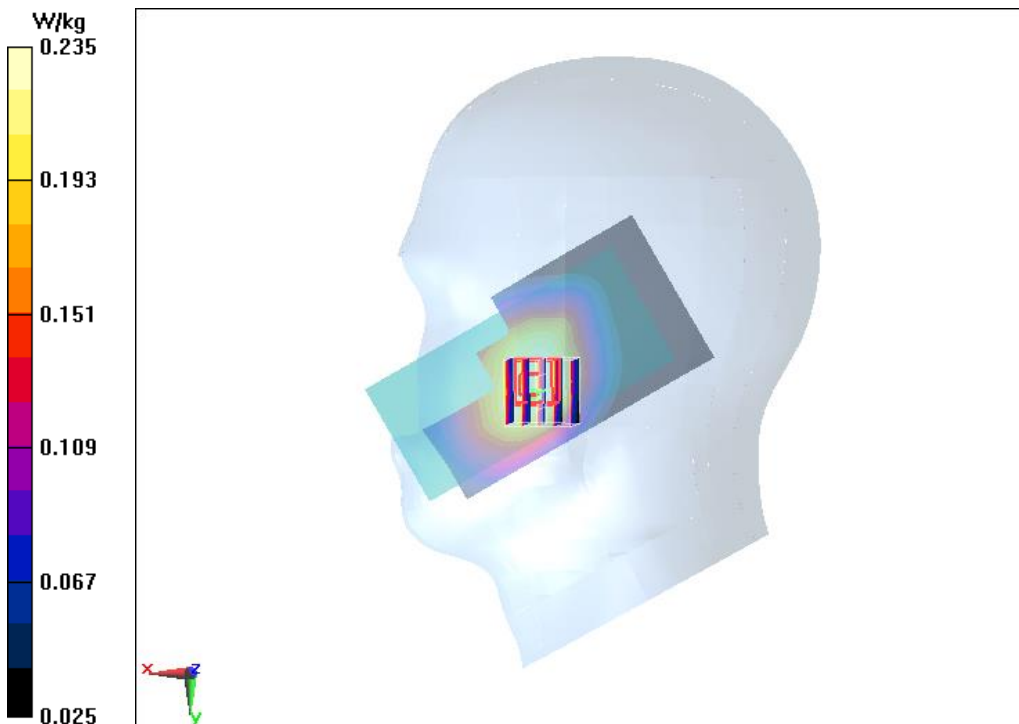


Fig.20 LTE B12 10M 1RB25offset Back Mode High 5mm

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 711 \text{ MHz}$; $\sigma = 0.882 \text{ S/m}$; $\epsilon_r = 41.526$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 12 Professional; Frequency: 711 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B12 10M 1RB25offset Back Mode High 5mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.734 W/kg

LTE B12 10M 1RB25offset Back Mode High 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 23.26 V/m ; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.796 W/kg

SAR(1 g) = 0.374 W/kg ; SAR(10 g) = 0.212 W/kg

Maximum of SAR (measured) = 0.623 W/kg

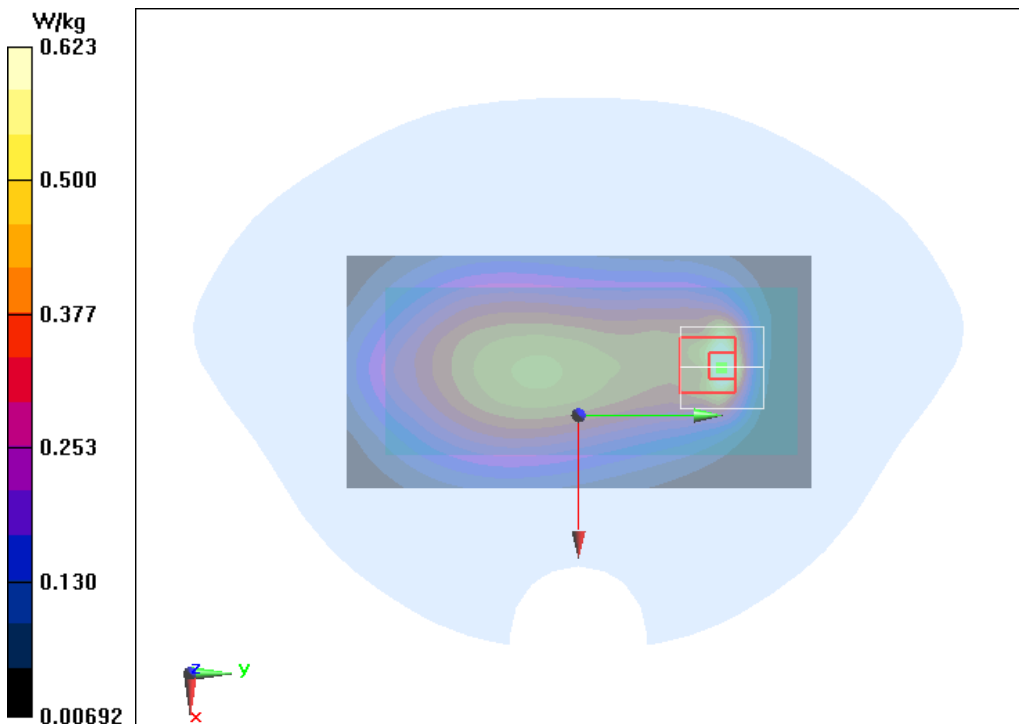


Fig.21 LTE B12 10M 1RB25offset Back Mode High 0mm

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 711 \text{ MHz}$; $\sigma = 0.882 \text{ S/m}$; $\epsilon_r = 41.526$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 12 Professional; Frequency: 711 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B12 10M 1RB25offset Back Mode High 0mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.19 W/kg

LTE B12 10M 1RB25offset Back Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.62 V/m ; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.86 W/kg

SAR(1 g) = 1.33 W/kg ; SAR(10 g) = 0.616 W/kg

Maximum of SAR (measured) = 2.78 W/kg

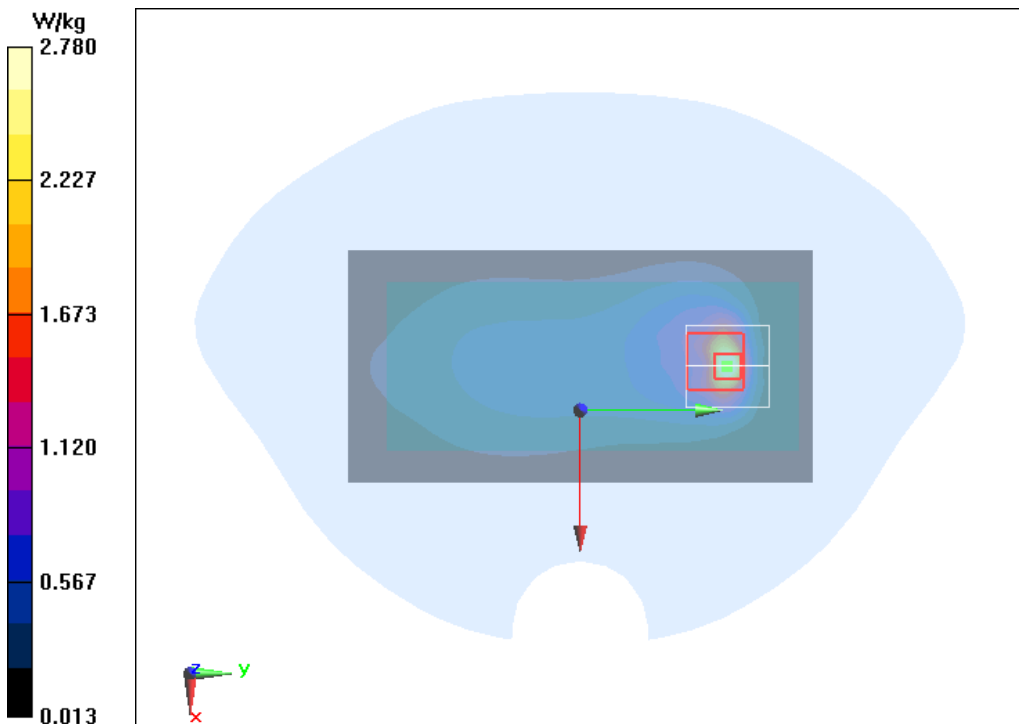


Fig.22 LTE B13 10M 1RB 25offset Left Cheek Mode Middle

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 0.909 \text{ S/m}$; $\epsilon_r = 41.278$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 13 Professional; Frequency: 782 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B13 10M 1RB 25offset Left Cheek Mode Middle/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.361 W/kg

LTE B13 10M 1RB 25offset Left Cheek Mode Middle/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.939 V/m ; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.361 W/kg

SAR(1 g) = 0.281 W/kg ; SAR(10 g) = 0.212 W/kg

Maximum value of SAR (measured) = 0.334 W/kg

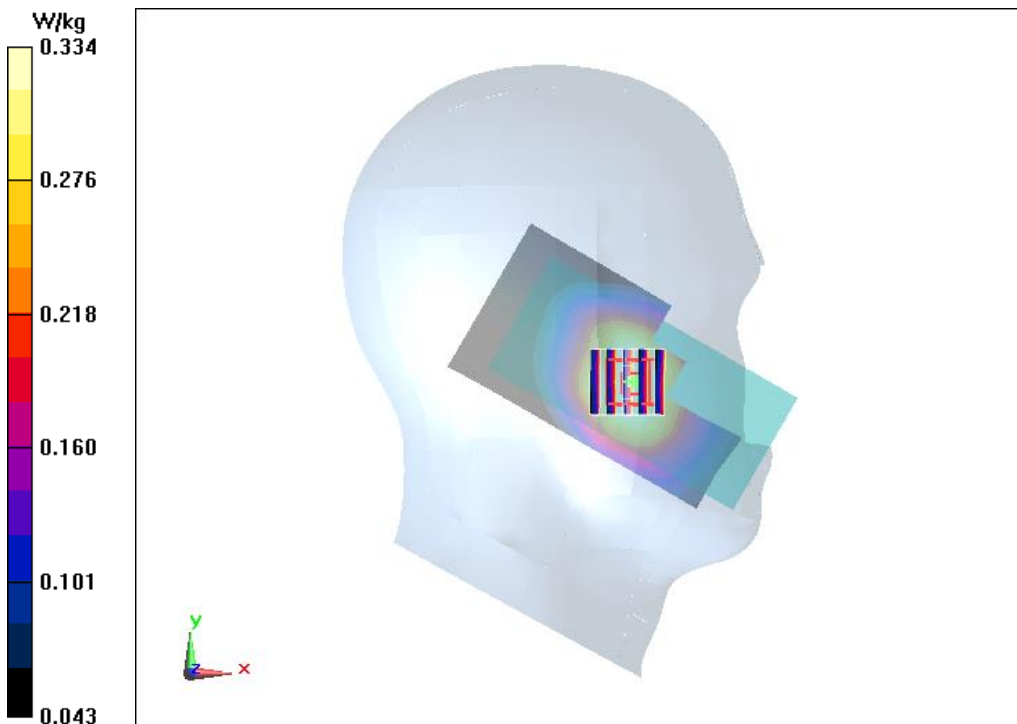


Fig.23 LTE B13 10M 1RB 25offset Back Mode Middle 5mm

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 0.909 \text{ S/m}$; $\epsilon_r = 41.278$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 13 Professional; Frequency: 782 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B13 10M 1RB 25offset Back Mode Middle 5mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.676 W/kg

LTE B13 10M 1RB 25offset Back Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.33 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.513 W/kg ; SAR(10 g) = 0.266 W/kg

Maximum value of SAR (measured) = 0.891 W/kg

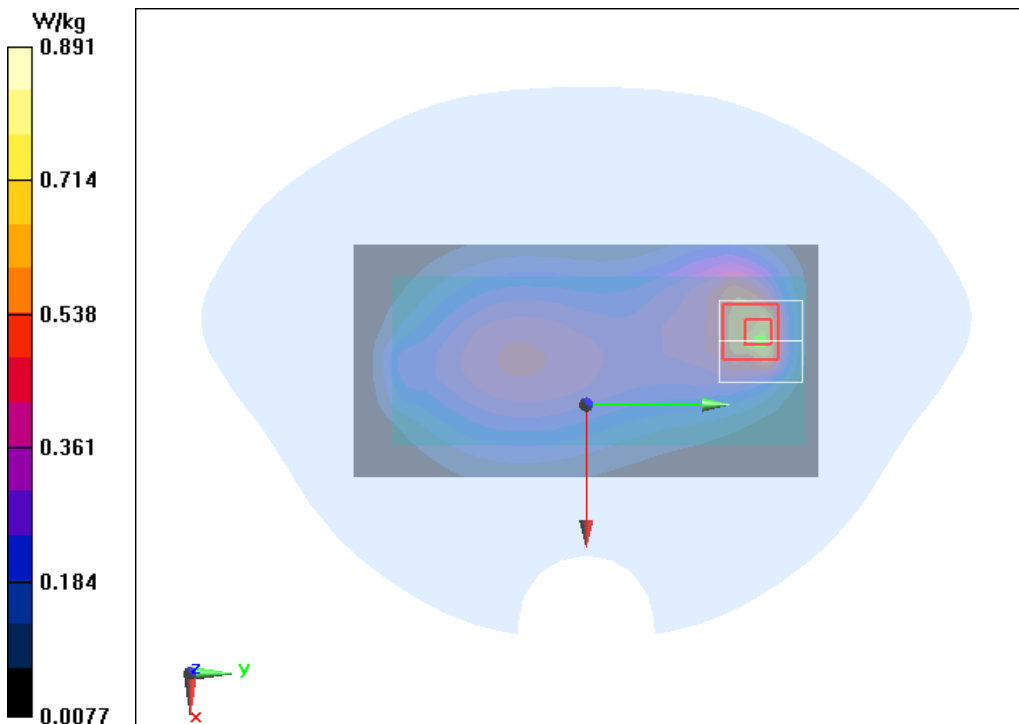


Fig.24 LTE B13 10M 1RB 25offset Back Mode Middle 0mm

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 0.909 \text{ S/m}$; $\epsilon_r = 41.278$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 13 Professional; Frequency: 782 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B13 10M 1RB 25offset Back Mode Middle 0mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.46 W/kg

LTE B13 10M 1RB 25offset Back Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.20 V/m ; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 3.54 W/kg

SAR(1 g) = 1.36 W/kg ; SAR(10 g) = 0.630 W/kg

Maximum of SAR (measured) = 2.47 W/kg

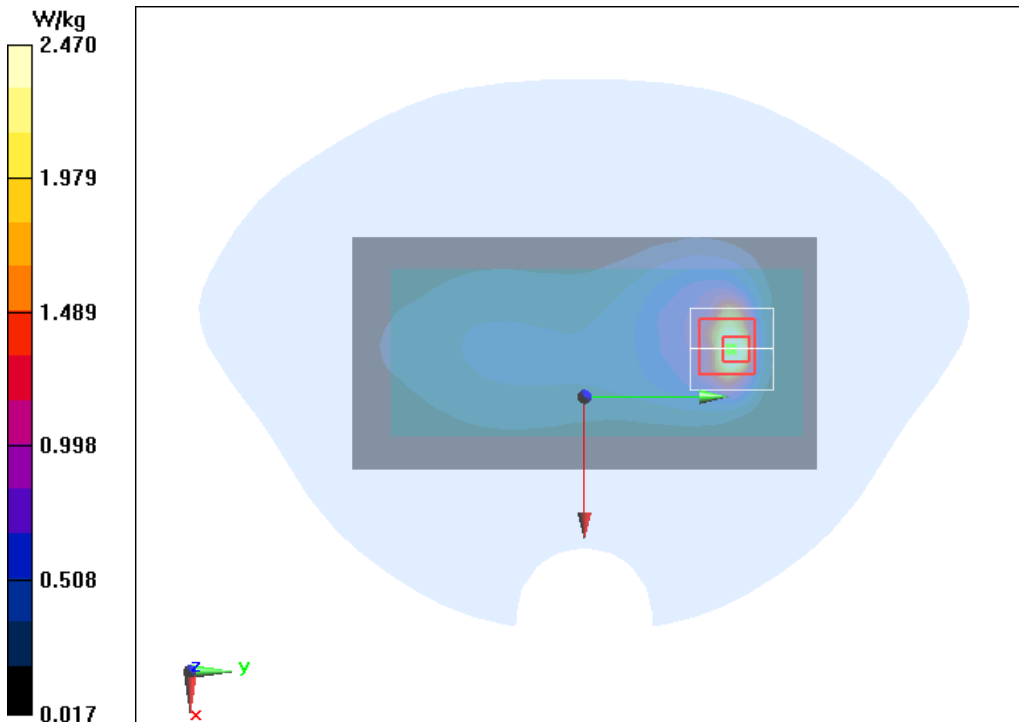


Fig.25 LTE Band 25 20M 1RB 50 offset Right Cheek Mode High

Date/Time: 2021/9/22

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 1905 \text{ MHz}$; $\sigma = 1.484 \text{ S/m}$; $\epsilon_r = 38.891$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE B25; Frequency: 1905 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

LTE Band 25 20M 1RB 50 offset Right Cheek Mode High/Area Scan (101x51x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.313 W/kg

LTE Band 25 20M 1RB 50 offset Right Cheek Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.434 V/m ; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 0.421 W/kg

SAR(1 g) = 0.244 W/kg ; SAR(10 g) = 0.144 W/kg

Maximum value of SAR (measured) = 0.336 W/kg

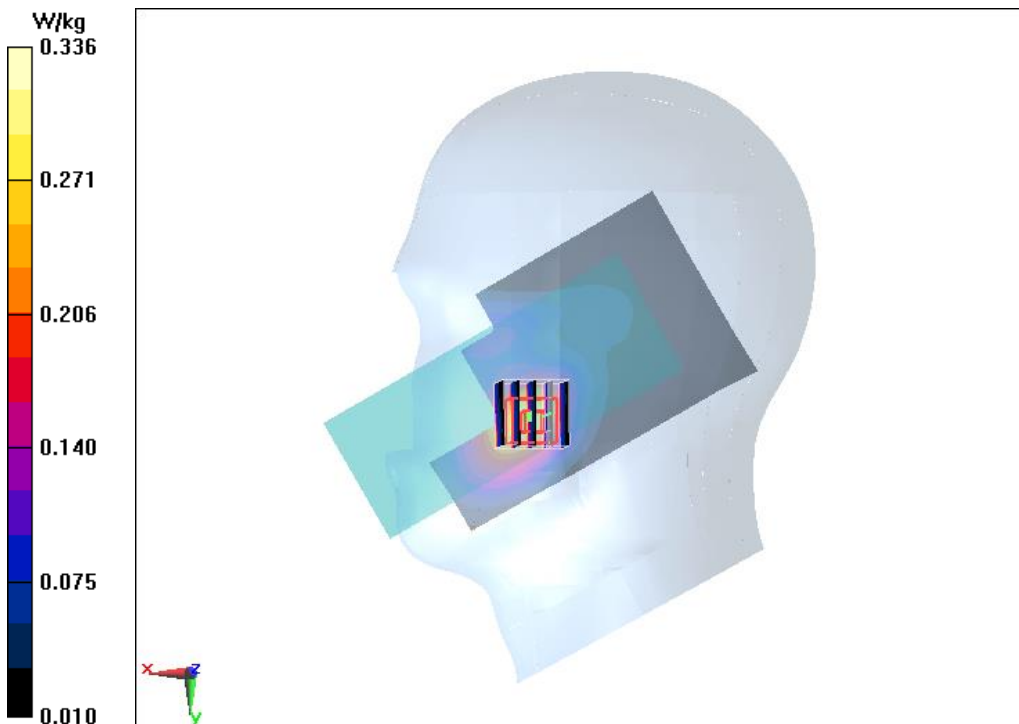


Fig.26 LTE Band 25 20M 1RB 50 offset Left Mode Low 5mm

Date/Time: 2021/9/22

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.454$ S/m; $\epsilon_r = 38.969$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 25 Professional; Frequency: 1860 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

LTE Band 25 20M 1RB 50 offset Left Mode Low 5mm/Area Scan (41x131x1):

Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (Measurement) = 1.38 W/kg

LTE Band 25 20M 1RB 50 offset Left Mode Low 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.72 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 0.891 W/kg; SAR(10 g) = 0.487 W/kg

Maximum value of SAR (measured) = 1.38 W/kg

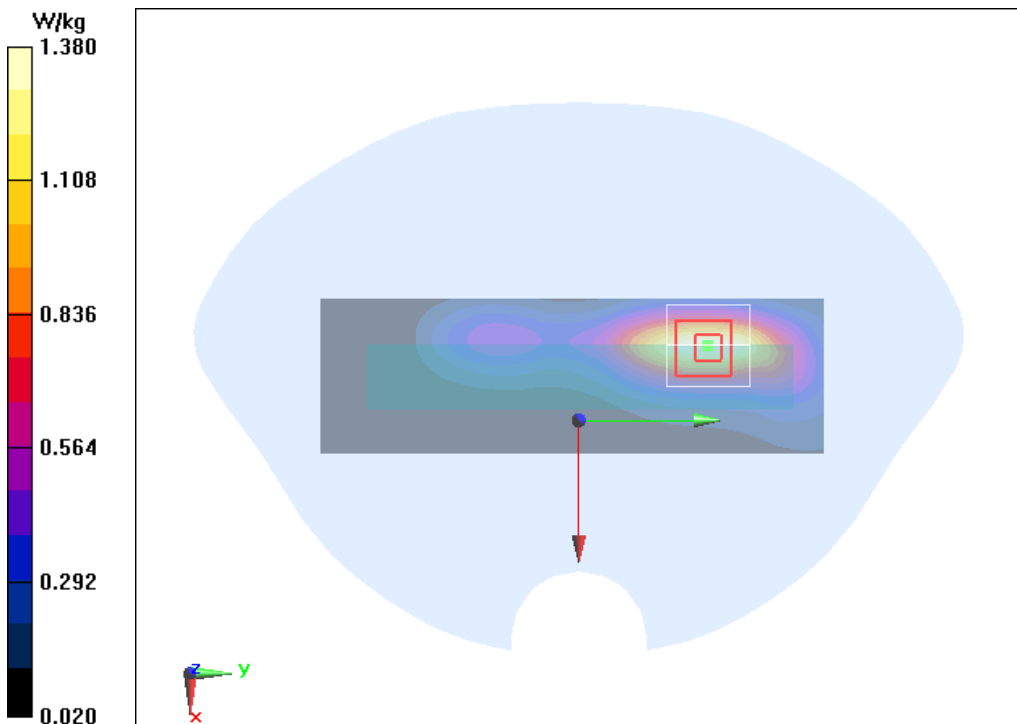


Fig.27 LTE Band 25 20M 1RB 50 offset Left Mode Low 0mm

Date/Time: 2021/9/22

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1860$ MHz; $\sigma = 1.454$ S/m; $\epsilon_r = 38.969$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: LTE Band 25 Professional; Frequency: 1860 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

LTE Band 25 20M 1RB 50 offset Left Mode Low 0mm/Area Scan (31x101x1):

Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (Measurement) = 3.08 W/kg

LTE Band 25 20M 1RB 50 offset Left Mode Low 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.97 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 4.00 W/kg

SAR(1 g) = 1.9 W/kg; SAR(10 g) = 0.922 W/kg

Maximum value of SAR (measured) = 3.19 W/kg

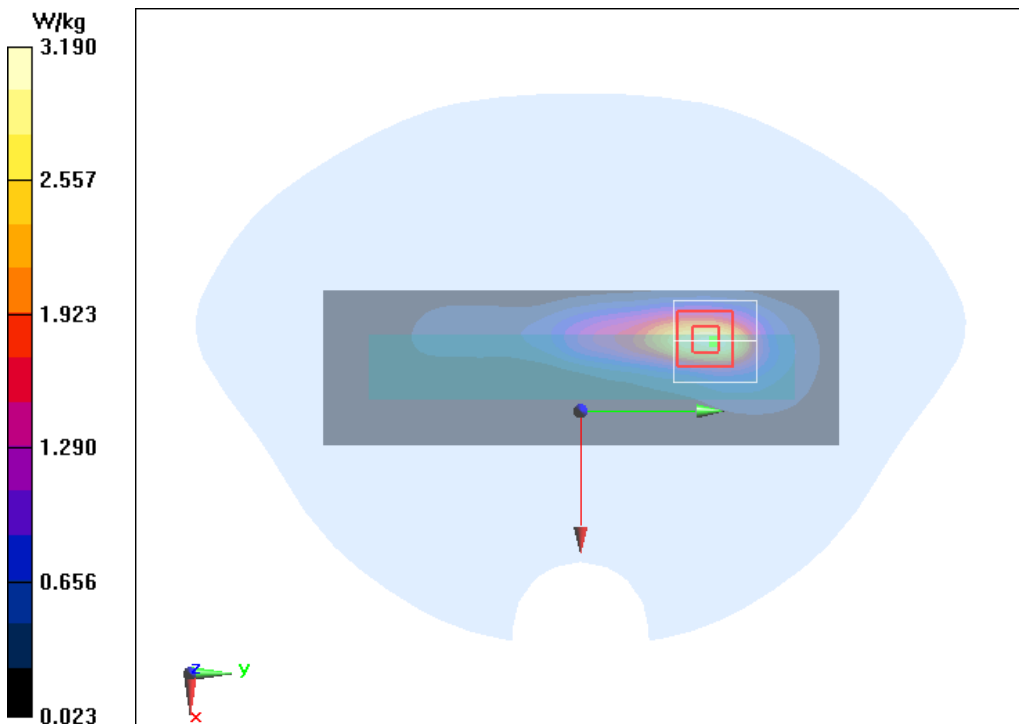


Fig.28 LTE B26 15M 1RB 38offset Right Cheek Mode High

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 841.5 \text{ MHz}$; $\sigma = 0.931 \text{ S/m}$; $\epsilon_r = 41.111$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: LTE Band 26 Professional; Frequency: 841.5 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

LTE B26 15M 1RB 38offset Right Cheek Mode High/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.568 W/kg

LTE B26 15M 1RB 38offset Right Cheek Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.667 V/m ; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.601 W/kg

SAR(1 g) = 0.442 W/kg ; SAR(10 g) = 0.328 W/kg

Maximum of SAR (measured) = 0.540 W/kg

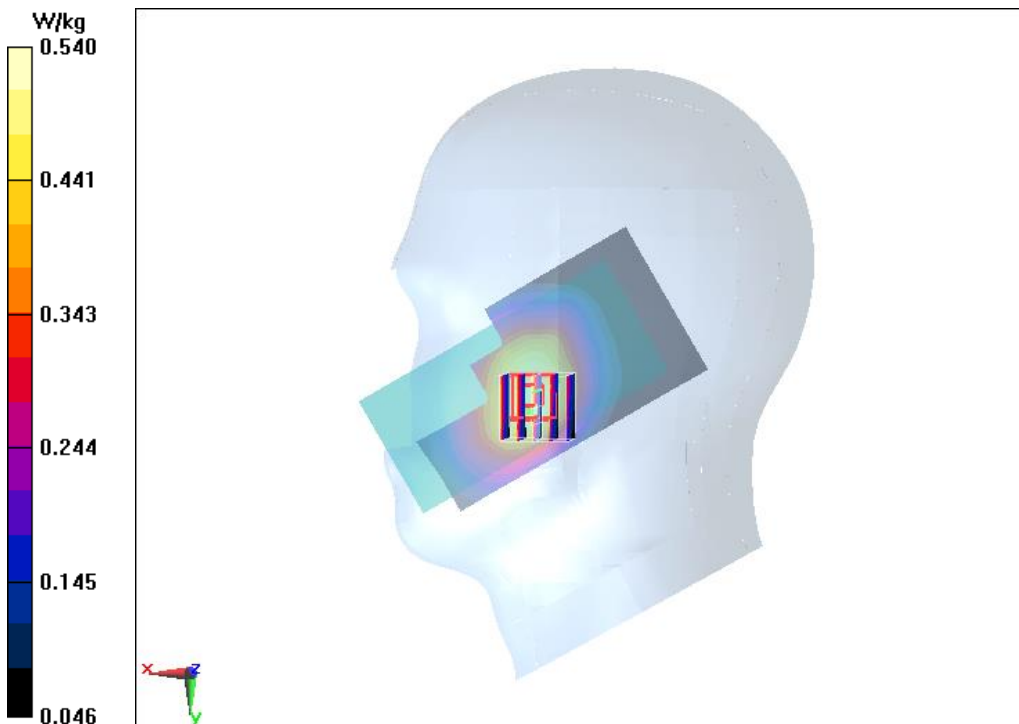


Fig.29 LTE B26 15M 1RB 38offset Right Mode Middle 5mm

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 831.5$ MHz; $\sigma = 0.927$ S/m; $\epsilon_r = 41.141$; $\rho = 1000$ kg/m³

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: LTE Band 26 Professional; Frequency: 831.5 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

LTE B26 15M 1RB 38offset Right Mode Middle 5mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.780 W/kg

LTE B26 15M 1RB 38offset Right Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 29.21 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.918 W/kg

SAR(1 g) = 0.562 W/kg; SAR(10 g) = 0.366 W/kg

Maximum value of SAR (measured) = 0.782 W/kg

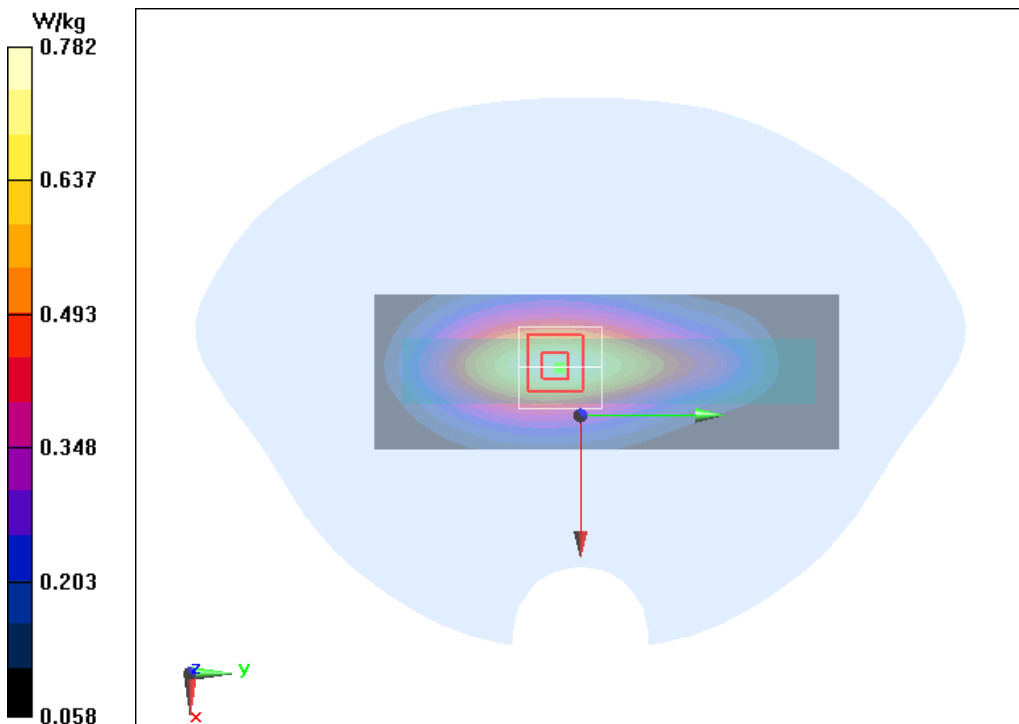


Fig.30 LTE B26 15M 1RB 38offset Right Mode High 0mm

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 841.5 \text{ MHz}$; $\sigma = 0.931 \text{ S/m}$; $\epsilon_r = 41.111$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: LTE Band 26 Professional; Frequency: 841.5 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

LTE B26 15M 1RB 38offset Right Mode High 0mm/Area Scan (41x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 1.04 W/kg

LTE B26 15M 1RB 38offset Right Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.41 V/m ; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.24 W/kg

SAR(1 g) = 0.563 W/kg ; SAR(10 g) = 0.326 W/kg

Maximum of SAR (measured) = 0.974 W/kg

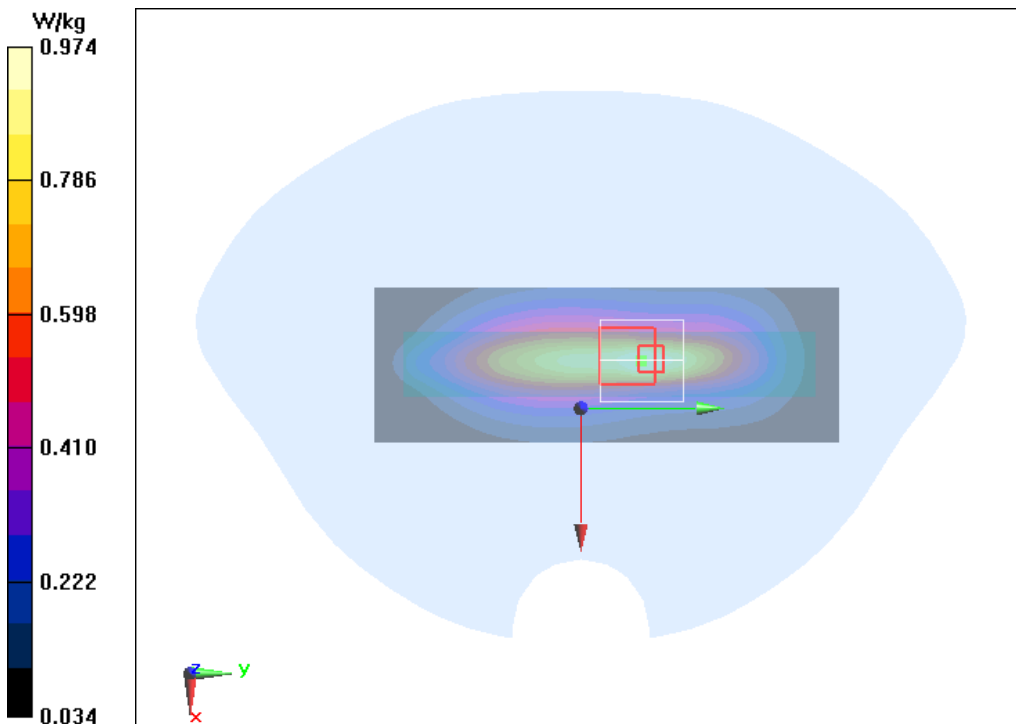


Fig.31 LTE B41 20M 1RB 50offset Right Cheek Mode Middle

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2593$ MHz; $\sigma = 2.007$ S/m; $\epsilon_r = 37.781$; $\rho = 1000$ kg/m³

Ambient Temperature: 20.8°C Liquid Temperature: 20.8°C

Communication System: LTE Band 41 Professional; Frequency: 2593 MHz; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

LTE B41 20M 1RB 50offset Right Cheek Mode Middle/Area Scan (81x41x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.184 W/kg

LTE B41 20M 1RB 50offset Right Cheek Mode Middle/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 2.478 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.238 W/kg

SAR(1 g) = 0.119 W/kg; SAR(10 g) = 0.060 W/kg

Maximum of SAR (measured) = 0.184 W/kg

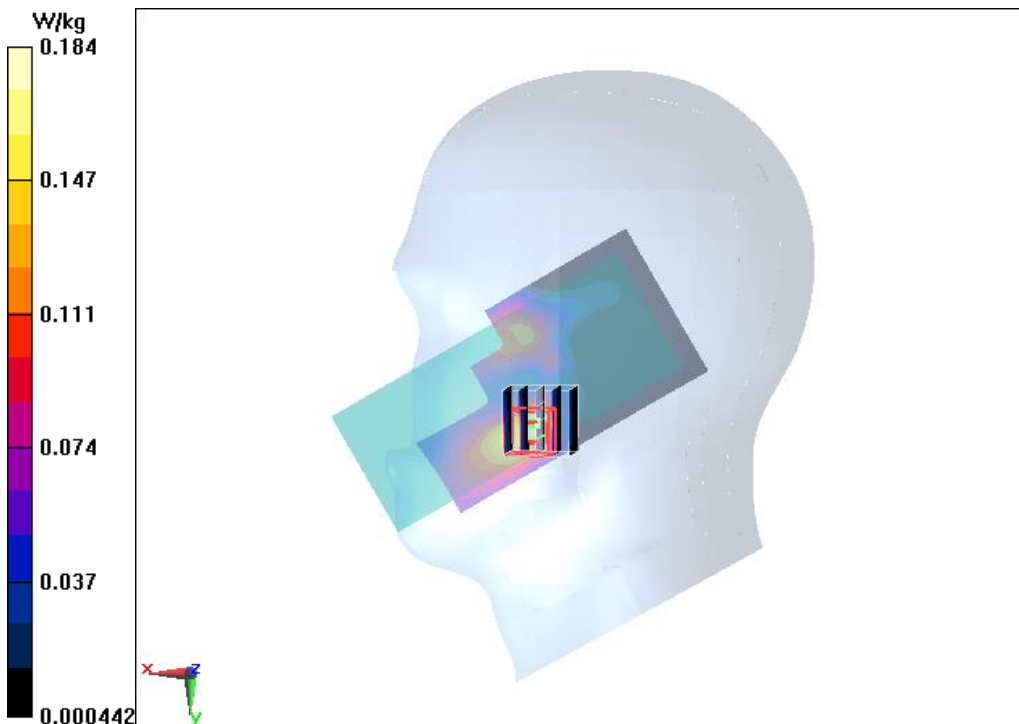


Fig.32 LTE B41 20M 1RB 50offset Back Mode Middle 5mm

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2593$ MHz; $\sigma = 2.007$ S/m; $\epsilon_r = 37.781$; $\rho = 1000$ kg/m³

Ambient Temperature: 20.8°C Liquid Temperature: 20.8°C

Communication System: LTE Band 41 Professional; Frequency: 2593 MHz; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

LTE B41 20M 1RB 50offset Back Mode Middle 5mm/Area Scan (61x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 1.29 W/kg

LTE B41 20M 1RB 50offset Back Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 6.617 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.65 W/kg

SAR(1 g) = 0.836 W/kg; SAR(10 g) = 0.397 W/kg

Maximum value of SAR (measured) = 1.35 W/kg

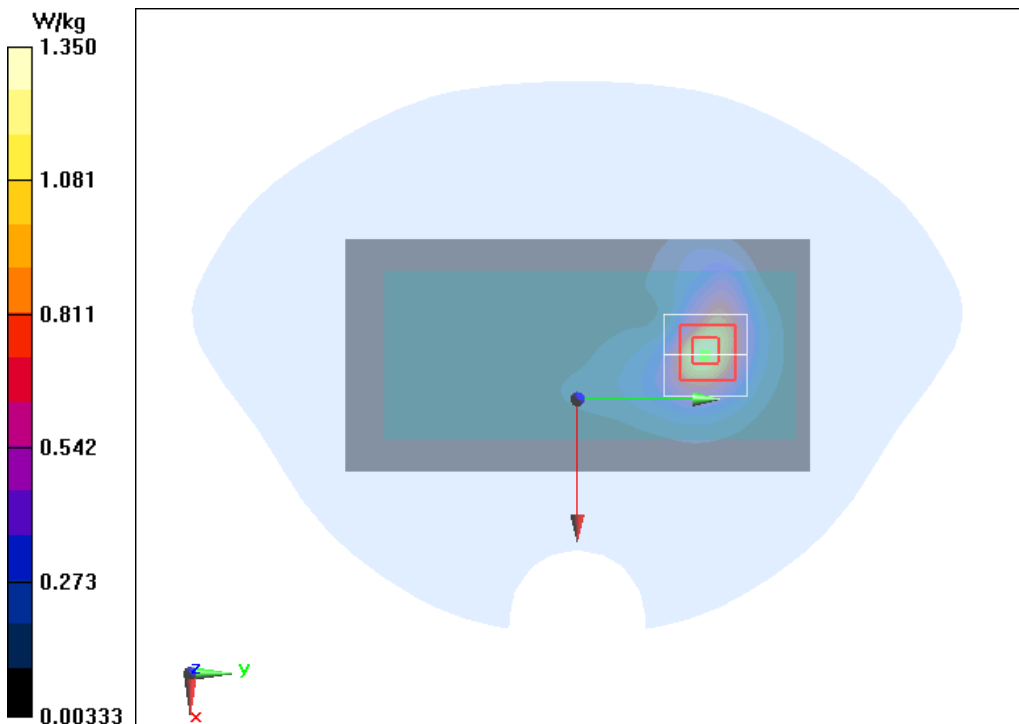


Fig.33 LTE B41 20M 1RB 50offset Back Mode Middle 0mm

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2593$ MHz; $\sigma = 2.007$ S/m; $\epsilon_r = 37.781$; $\rho = 1000$ kg/m³

Ambient Temperature: 20.8°C Liquid Temperature: 20.8°C

Communication System: LTE Band 41 Professional; Frequency: 2593 MHz; Duty Cycle: 1:2

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

LTE B41 20M 1RB 50offset Back Mode Middle 0mm/Area Scan (61x121x1):

Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (Measurement) = 3.29 W/kg

LTE B41 20M 1RB 50offset Back Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.621 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 4.07 W/kg

SAR(1 g) = 1.91 W/kg; SAR(10 g) = 0.797 W/kg

Maximum of SAR (measured) = 3.37 W/kg

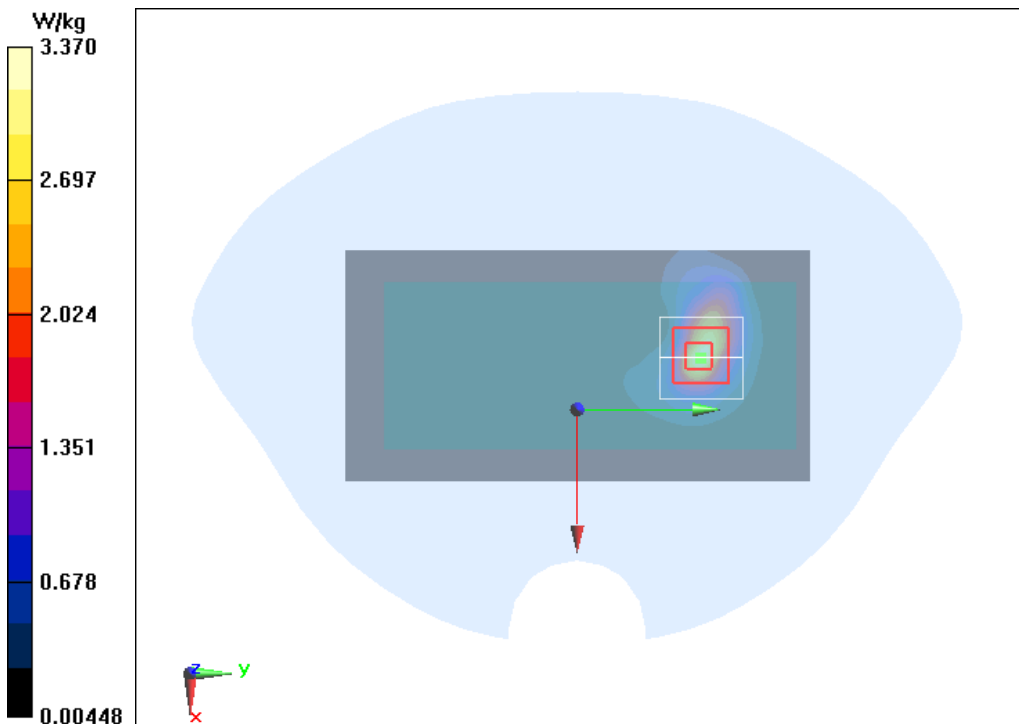


Fig.34 LTE B66 20M 1RB 50offset Right Cheek Mode High

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1770 \text{ MHz}$; $\sigma = 1.398 \text{ S/m}$; $\epsilon_r = 39.103$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: LTE Band 66 Professional; Frequency: 1770 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

LTE B66 20M 1RB 50offset Right Cheek Mode High/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.442 W/kg

LTE B66 20M 1RB 50offset Right Cheek Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 6.290 V/m ; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.476 W/kg

SAR(1 g) = 0.297 W/kg ; SAR(10 g) = 0.184 W/kg

Maximum value of SAR (measured) = 0.396 W/kg

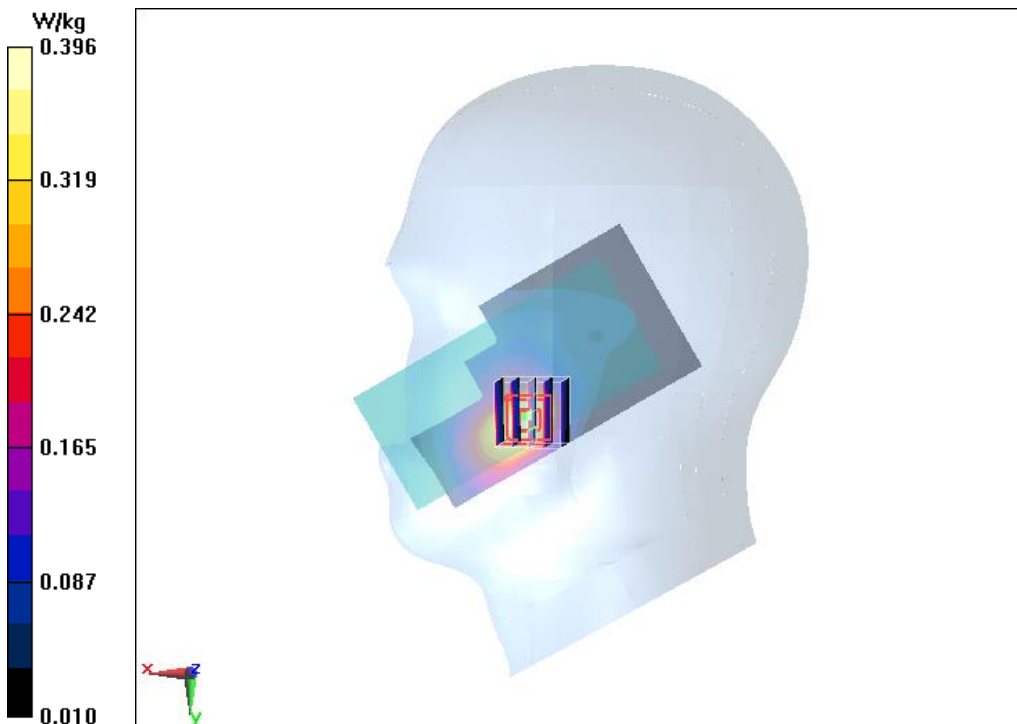


Fig.35 LTE B66 20M 1RB 50offset Front Mode High 9mm

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1770 \text{ MHz}$; $\sigma = 1.398 \text{ S/m}$; $\epsilon_r = 39.103$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: LTE Band 66 Professional; Frequency: 1770 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

LTE B66 20M 1RB 50offset Front Mode High 9mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.953 W/kg

LTE B66 20M 1RB 50offset Front Mode High 9mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.31 V/m ; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.671 W/kg ; SAR(10 g) = 0.386 W/kg

Maximum value of SAR (measured) = 0.977 W/kg

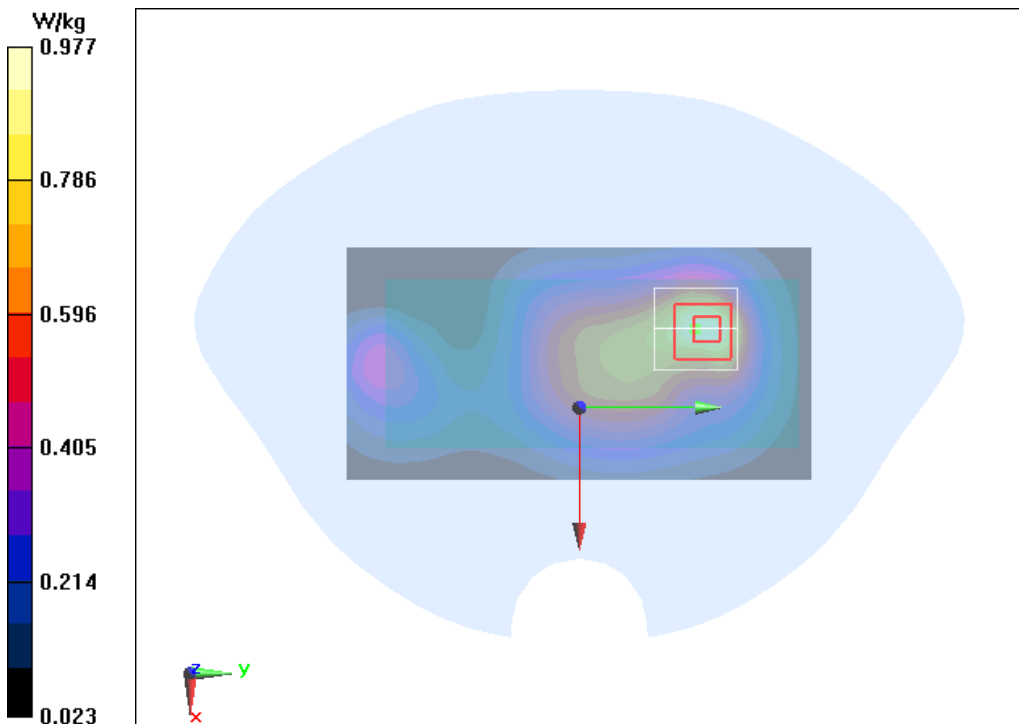


Fig.36 LTE B66 20M 1RB 50offset Front Mode High 0mm

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1770 \text{ MHz}$; $\sigma = 1.398 \text{ S/m}$; $\epsilon_r = 39.103$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: LTE Band 66 Professional; Frequency: 1770 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

LTE B66 20M 1RB 50offset Front Mode High 0mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 1.80 W/kg

LTE B66 20M 1RB 50offset Front Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.385 V/m ; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 2.67 W/kg

SAR(1 g) = 1.14 W/kg ; SAR(10 g) = 0.543 W/kg

Maximum value of SAR (measured) = 2.09 W/kg

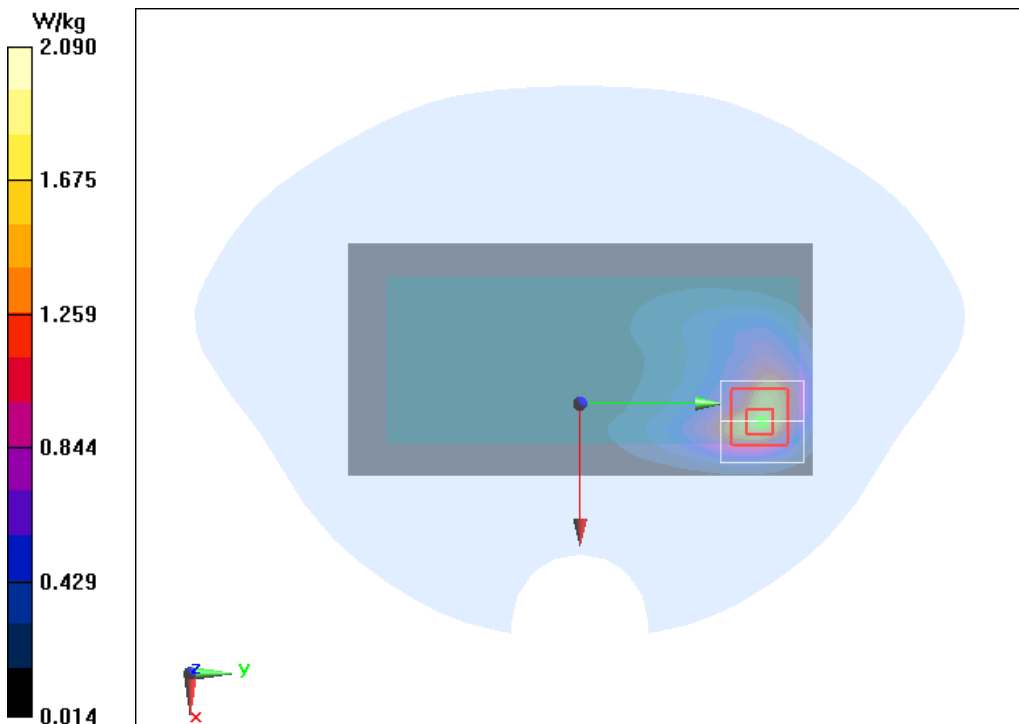


Fig.37 LTE B71 20M 1RB 50offset Left Cheek Mode High

Date/Time: 2021/8/27

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 688 \text{ MHz}$; $\sigma = 0.875 \text{ S/m}$; $\epsilon_r = 41.602$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.5°C Liquid Temperature: 21.5°C

Communication System: LTE Band 71 Professional; Frequency: 688 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B71 20M 1RB 50offset Left Cheek Mode High/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.209 W/kg

LTE B71 20M 1RB 50offset Left Cheek Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.687 V/m ; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.227 W/kg

SAR(1 g) = 0.172 W/kg ; SAR(10 g) = 0.128 W/kg

Maximum value of SAR (measured) = 0.209 W/kg

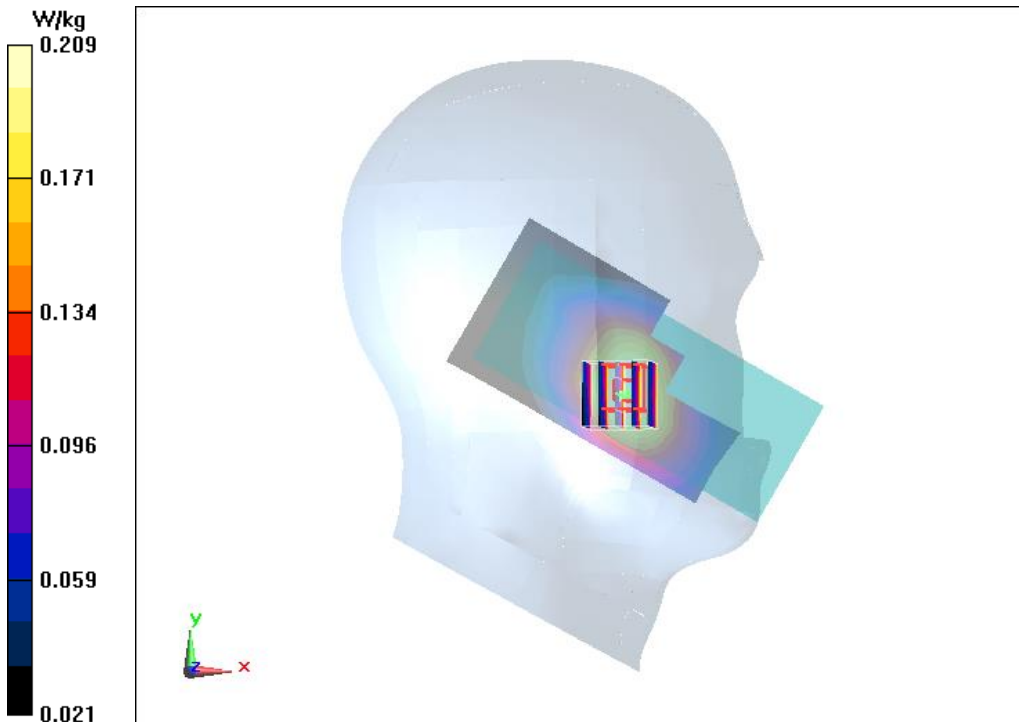


Fig.38 LTE B71 20M 1RB 50offset Back Mode High 5mm

Date/Time: 2021/8/27

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 688 \text{ MHz}$; $\sigma = 0.875 \text{ S/m}$; $\epsilon_r = 41.602$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.5°C Liquid Temperature: 21.5°C

Communication System: LTE Band 71 Professional; Frequency: 688 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B71 20M 1RB 50offset Back Mode High 5mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.422 W/kg

LTE B71 20M 1RB 50offset Back Mode High 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.30 V/m ; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.663 W/kg

SAR(1 g) = 0.280 W/kg ; SAR(10 g) = 0.159 W/kg

Maximum of SAR (measured) = 0.484 W/kg

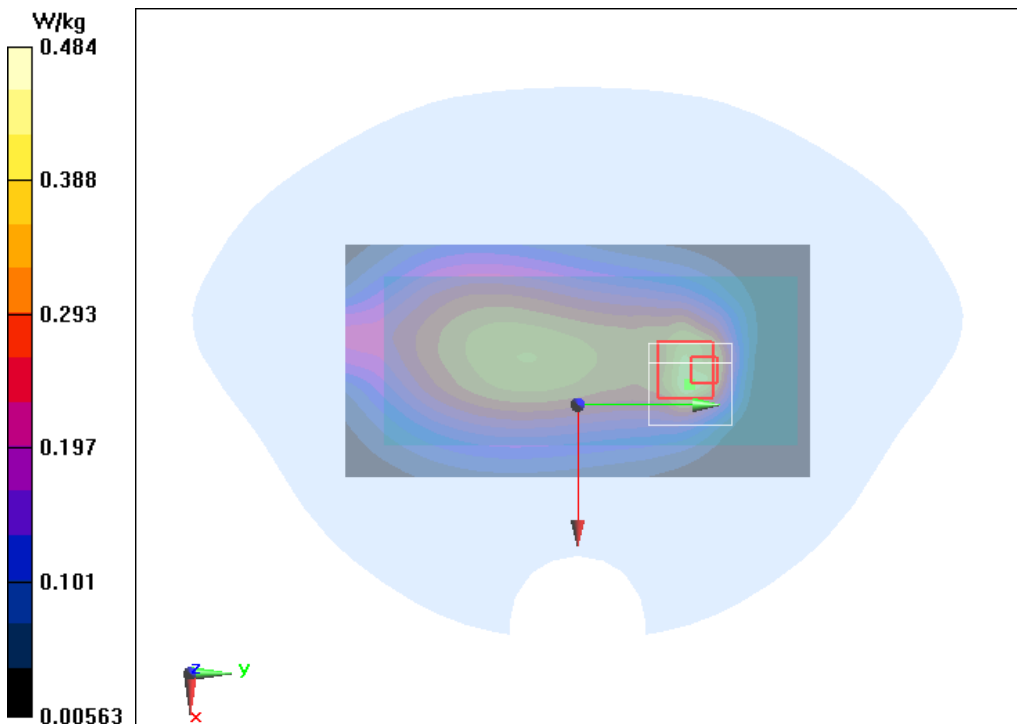


Fig.39 LTE B71 20M 1RB 50offset Back Mode High 0mm

Date/Time: 2021/8/27

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 688 \text{ MHz}$; $\sigma = 0.875 \text{ S/m}$; $\epsilon_r = 41.602$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.5°C Liquid Temperature: 21.5°C

Communication System: LTE Band 71 Professional; Frequency: 688 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

LTE B71 20M 1RB 50offset Back Mode High 0mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 1.66 W/kg

LTE B71 20M 1RB 50offset Back Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.37 V/m ; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 2.82 W/kg

SAR(1 g) = 0.931 W/kg ; SAR(10 g) = 0.436 W/kg

Maximum of SAR (measured) = 1.67 W/kg

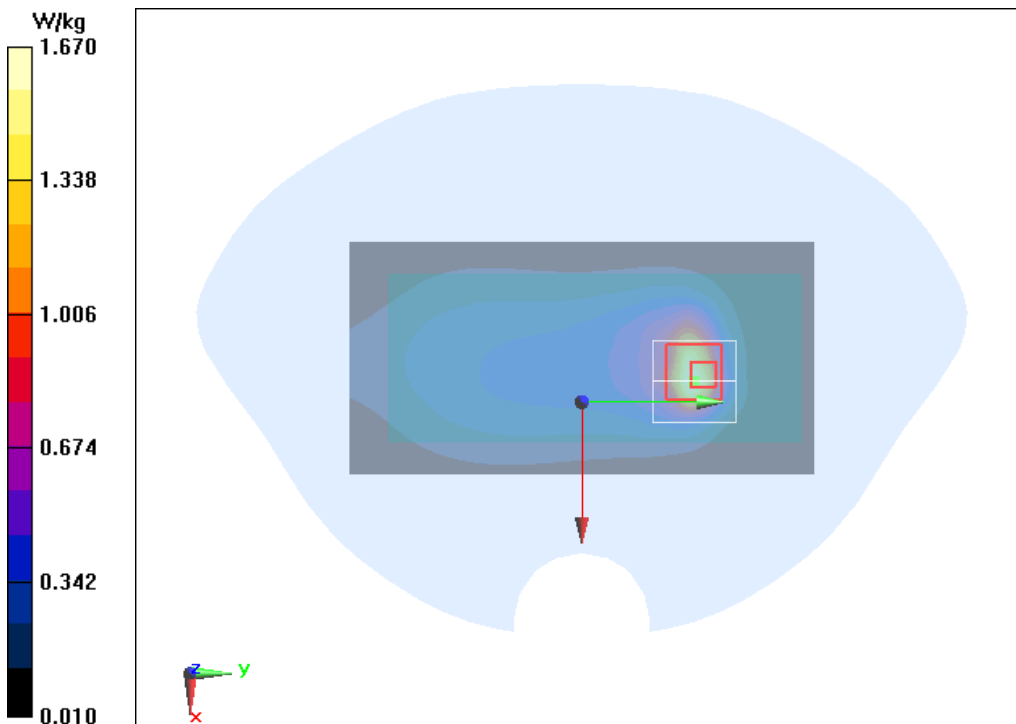


Fig.40 BT DH5 Left Cheek Mode Middle

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.877$ S/m; $\epsilon_r = 38.069$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN7633ConvF(8.02, 8.02, 8.02)

BT DH5 Left Cheek Mode Middle/Area Scan (131x61x1):

Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (Measurement) = 0.0841 W/kg

BT DH5 Left Cheek Mode Middle/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.699 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.102 W/kg

SAR(1 g) = 0.059 W/kg; SAR(10 g) = 0.029 W/kg

Maximum value of SAR (measured) = 0.0876 W/kg

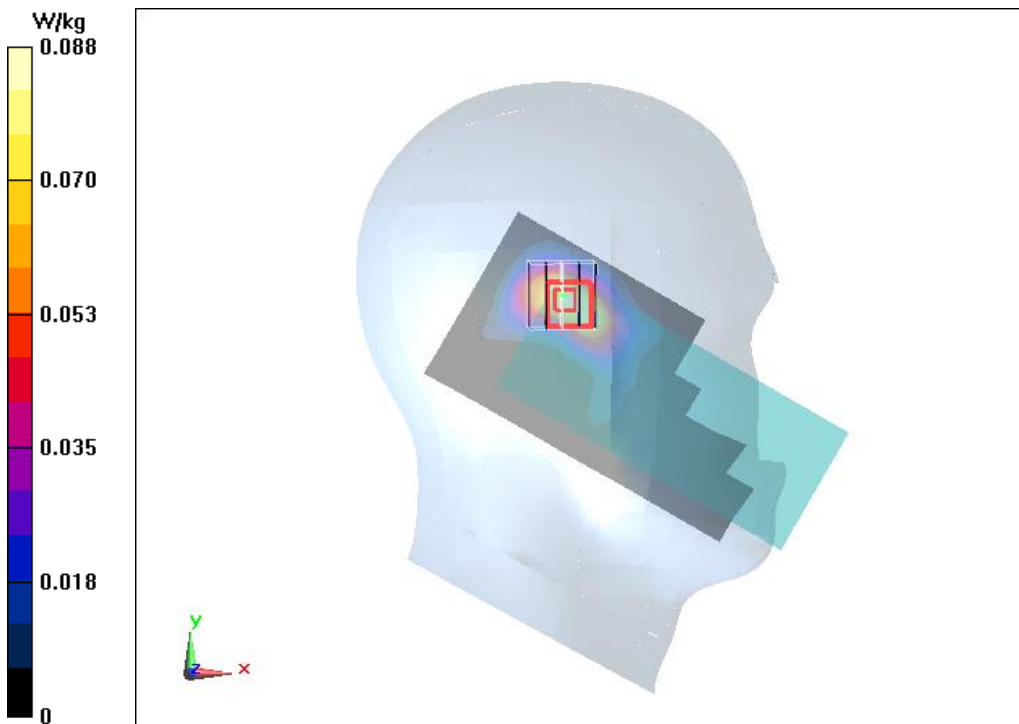


Fig.41 BT DH5 Right Mode Middle 5mm

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.877$ S/m; $\epsilon_r = 38.069$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN7633ConvF(8.02, 8.02, 8.02)

BT DH5 Right Mode Middle 5mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.0806 W/kg

BT DH5 Right Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 3.799 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.0700 W/kg

SAR(1 g) = 0.035 W/kg; SAR(10 g) = 0.017 W/kg

Maximum value of SAR (measured) = 0.0553 W/kg

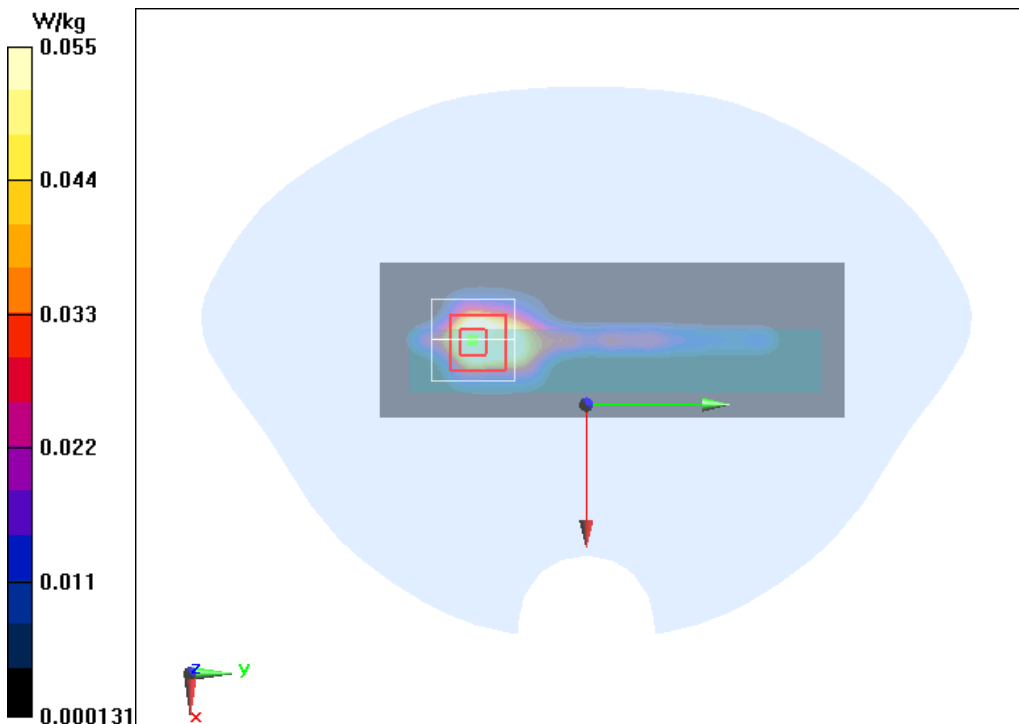


Fig.42 BT DH5 Right Mode Middle 0mm

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2441$ MHz; $\sigma = 1.877$ S/m; $\epsilon_r = 38.069$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: BT; Frequency: 2441 MHz; Duty Cycle: 1:1

Probe: EX3DV4 – SN7633ConvF(8.02, 8.02, 8.02)

BT DH5 Right Mode Middle 0mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.162 W/kg

BT DH5 Right Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 4.955 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.220 W/kg

SAR(1 g) = 0.090 W/kg; SAR(10 g) = 0.039 W/kg

Maximum value of SAR (measured) = 0.170 W/kg

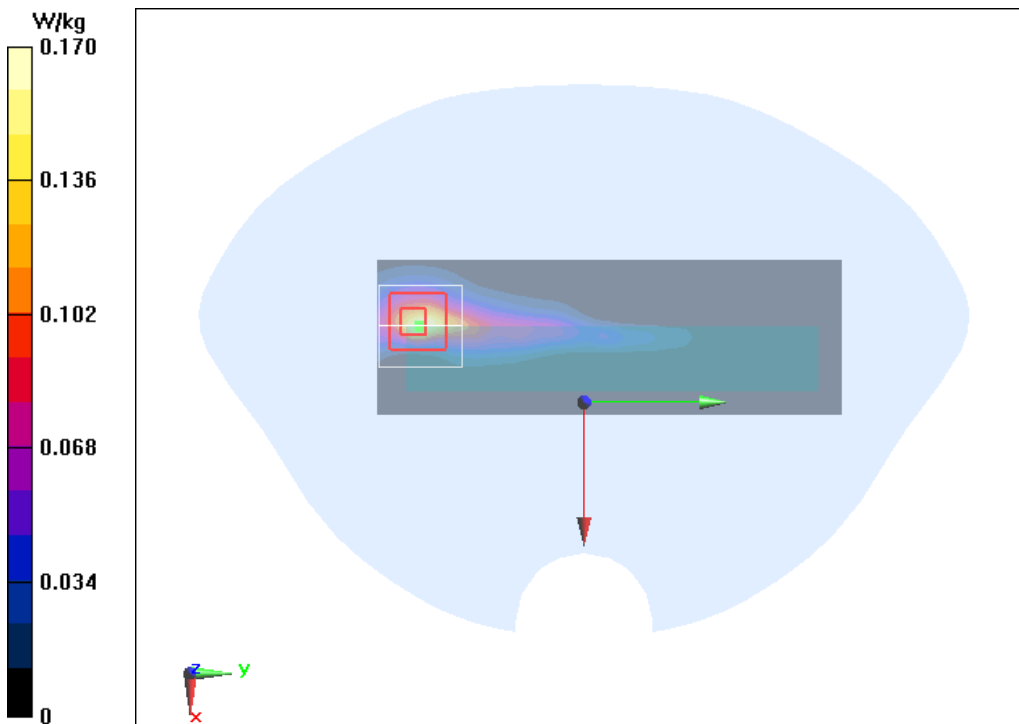


Fig.43 Wifi2.4G 11b Left Cheek Mode Low

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2412$ MHz; $\sigma = 1.854$ S/m; $\epsilon_r = 38.125$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: Wifi 2450 C21T00097-1; Frequency: 2412 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.02, 8.02, 8.02)

Wifi2.4G 11b Left Cheek Mode Low/Area Scan (81x41x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.989 W/kg

Wifi2.4G 11b Left Cheek Mode Low/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.67 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.22 W/kg

SAR(1 g) = 0.626 W/kg; SAR(10 g) = 0.331 W/kg

Maximum of SAR (measured) = 0.975 W/kg

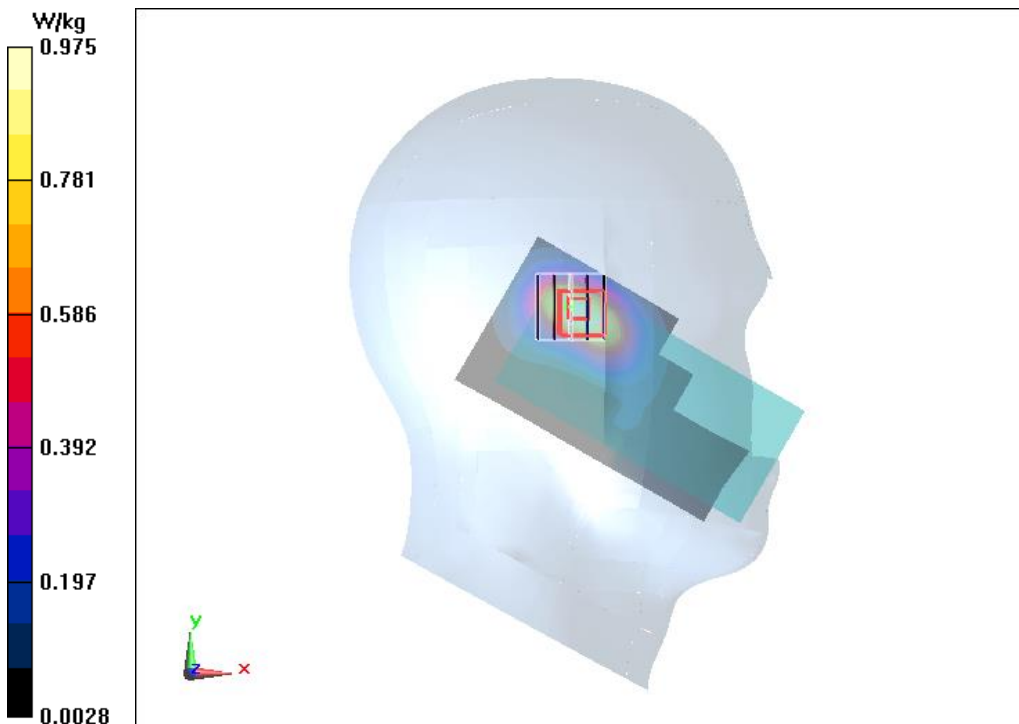


Fig.44 Wifi2.4G 11b Right Mode Middle 5mm

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.873$ S/m; $\epsilon_r = 38.077$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: Wifi 2450; Frequency: 2437 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.02, 8.02, 8.02)

Wifi2.4G 11b Right Mode Middle 5mm/Area Scan (41x121x1):

Measurement grid: dx=10 mm, dy=10 mm

Maximum value of SAR (Measurement) = 1.12 W/kg

Wifi2.4G 11b Right Mode Middle 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.11 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.631 W/kg; SAR(10 g) = 0.309 W/kg

Maximum value of SAR (measured) = 1.06 W/kg

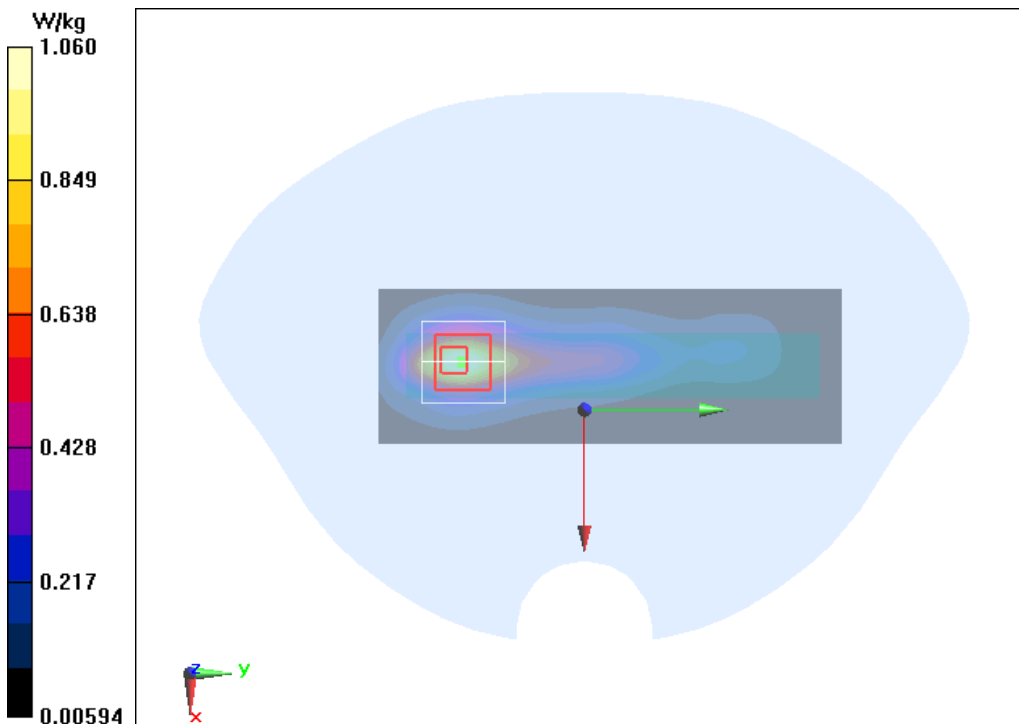


Fig.45 Wifi2.4G 11b Right Mode Middle 0mm

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 2437$ MHz; $\sigma = 1.873$ S/m; $\epsilon_r = 38.077$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: Wifi 2450; Frequency: 2437 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.02, 8.02, 8.02)

Wifi2.4G 11b Right Mode Middle 0mm/Area Scan (41x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 1.83 W/kg

Wifi2.4G 11b Right Mode Middle 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 18.51 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 2.45 W/kg

SAR(1 g) = 1.09 W/kg; SAR(10 g) = 0.486 W/kg

Maximum value of SAR (measured) = 1.88 W/kg

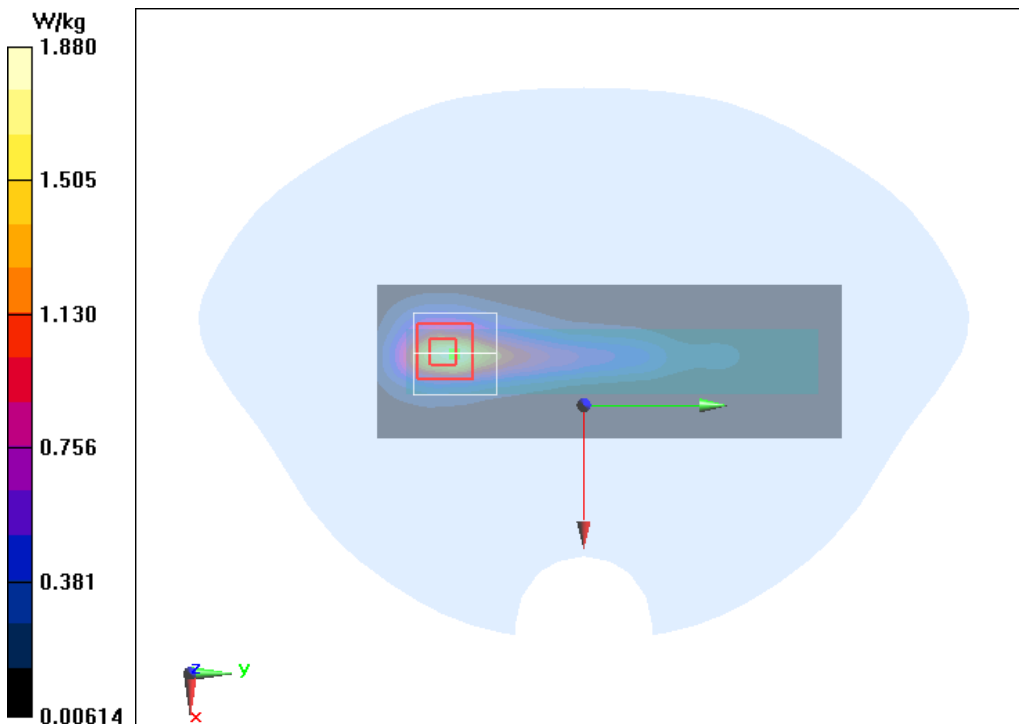


Fig.46 Wifi5G 11a Right Tilt Mode High

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5240 \text{ MHz}$; $\sigma = 4.643 \text{ S/m}$; $\epsilon_r = 37.079$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: 5GHz U-NII-1; Frequency: 5240 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.78, 5.78, 5.78)

Wifi5G 11a Right Tilt Mode High/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 2.06 W/kg

Wifi5G 11a Right Tilt Mode High/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.11 V/m ; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 3.26 W/kg

SAR(1 g) = 0.944 W/kg ; SAR(10 g) = 0.329 W/kg

Maximum of SAR (measured) = 2.04 W/kg

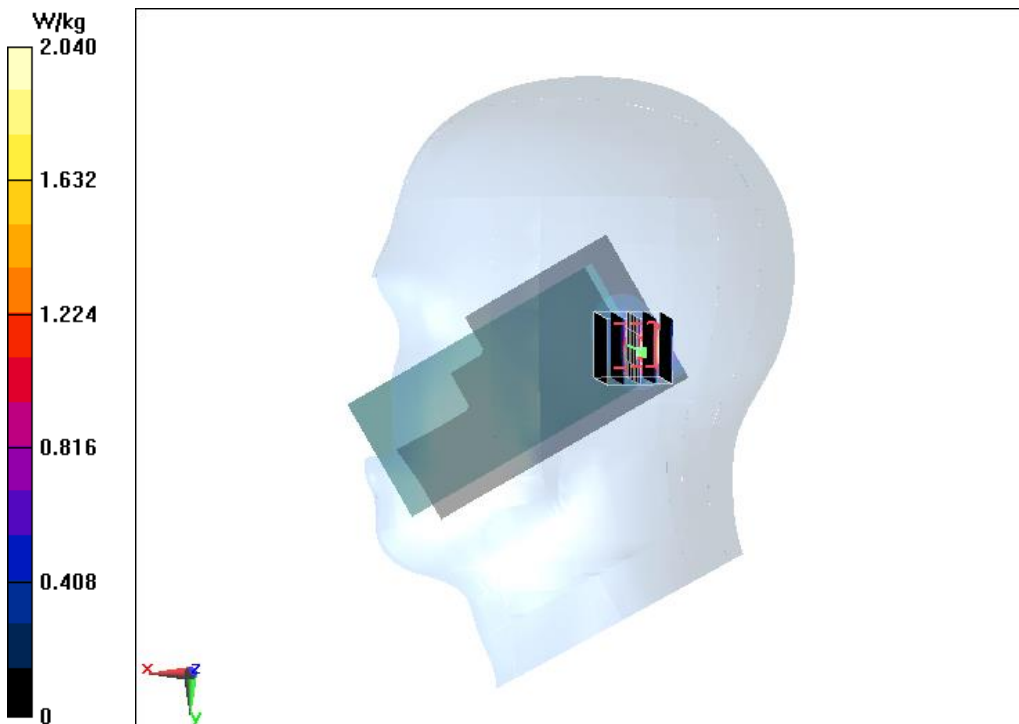


Fig.47 Wi-Fi5G U-NII-1 11a Top Mode Low 5mm

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.578 \text{ S/m}$; $\epsilon_r = 37.189$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: 5GHz U-NII-1; Frequency: 5180 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.78, 5.78, 5.78)

Wi-Fi5G U-NII-1 11a Top Mode Low 5mm/Area Scan (41x71x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 2.28 W/kg

Wi-Fi5G U-NII-1 11a Top Mode Low 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.23 V/m ; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 4.21 W/kg

SAR(1 g) = 1.04 W/kg ; SAR(10 g) = 0.337 W/kg

Maximum of SAR (measured) = 2.45 W/kg

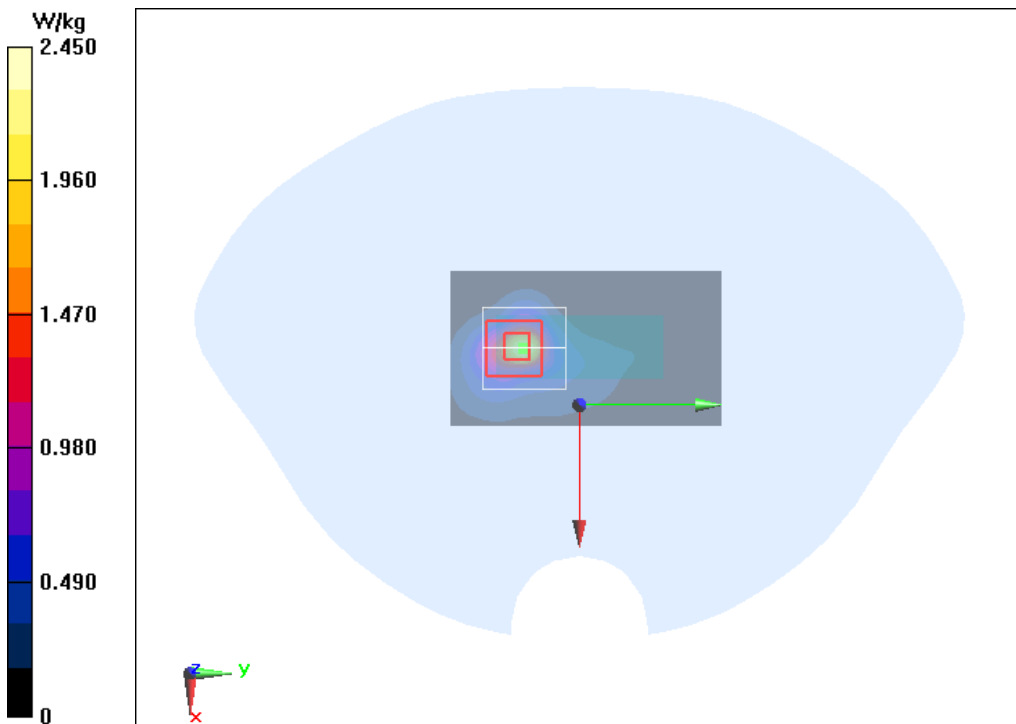


Fig.48 Wi-Fi5G U-NII-1 11a Top Mode Low 0mm

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5180 \text{ MHz}$; $\sigma = 4.578 \text{ S/m}$; $\epsilon_r = 37.189$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: 5GHz U-NII-1; Frequency: 5180 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.78, 5.78, 5.78)

Wi-Fi5G U-NII-1 11a Top Mode Low 0mm/Area Scan (41x71x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 4.49 W/kg

Wi-Fi5G U-NII-1 11a Top Mode Low 0mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.05 V/m ; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 10.2 W/kg

SAR(1 g) = 2.28 W/kg ; SAR(10 g) = 0.627 W/kg

Maximum of SAR (measured) = 4.71 W/kg

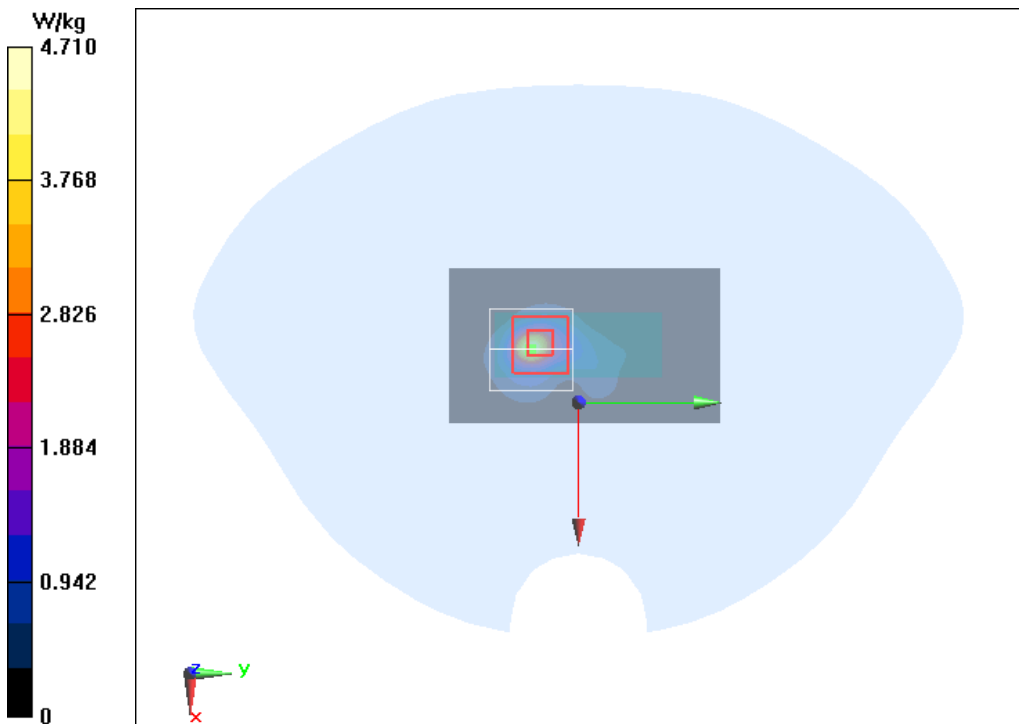


Fig.49 Wi-Fi5G U-NII-3 11a Left Tilt Mode Low

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5755 \text{ MHz}$; $\sigma = 5.207 \text{ S/m}$; $\epsilon_r = 36.105$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: 5GHz U-NII-3; Frequency: 5755 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.18, 5.18, 5.18)

Wi-Fi5G U-NII-3 11a Left Tilt Mode Low/Area Scan (81x41x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.132 W/kg

Wi-Fi5G U-NII-3 11a Left Tilt Mode Low/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.619 V/m ; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.315 W/kg

SAR(1 g) = 0.045 W/kg ; SAR(10 g) = 0.013 W/kg

Maximum of SAR (measured) = 0.181 W/kg

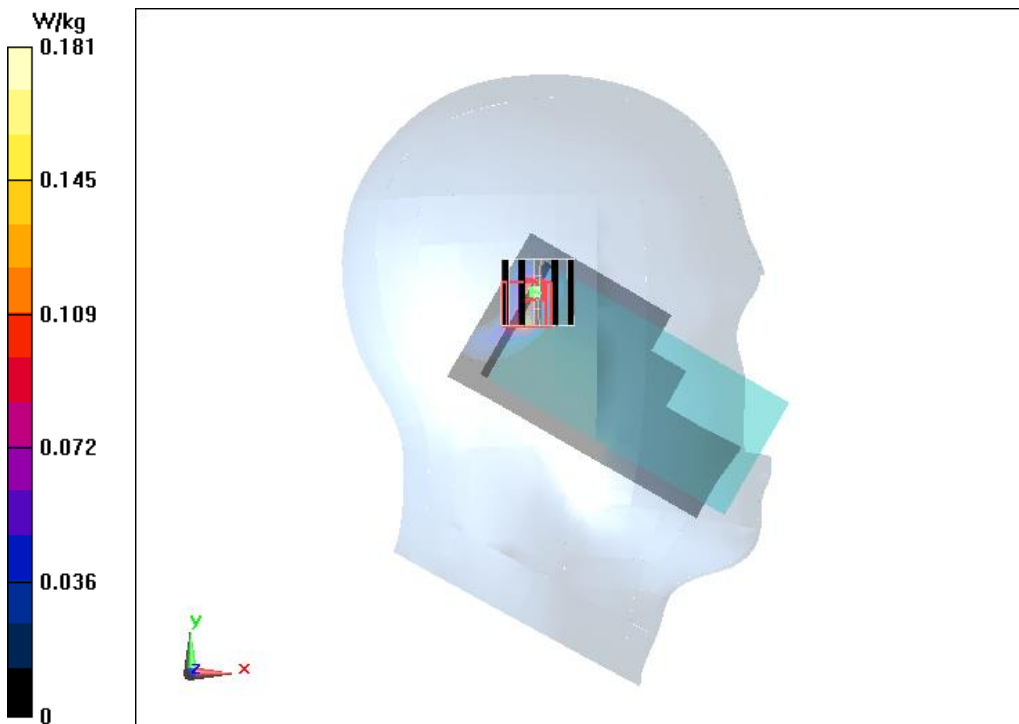


Fig.50 Wi-Fi5G U-NII-3 11a Back Mode High 5mm

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5795$ MHz; $\sigma = 5.251$ S/m; $\epsilon_r = 36.033$; $\rho = 1000$ kg/m³

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: 5GHz U-NII-3; Frequency: 5795 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.18, 5.18, 5.18)

Wi-Fi5G U-NII-3 11a Back Mode High 5mm/Area Scan (61x121x1):

Measurement grid: $dx=10$ mm, $dy=10$ mm

Maximum value of SAR (Measurement) = 0.597 W/kg

Wi-Fi5G U-NII-3 11a Back Mode High 5mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 0 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.541 W/kg

SAR(1 g) = 0.083 W/kg; SAR(10 g) = 0.026 W/kg

Maximum value of SAR (measured) = 0.284 W/kg

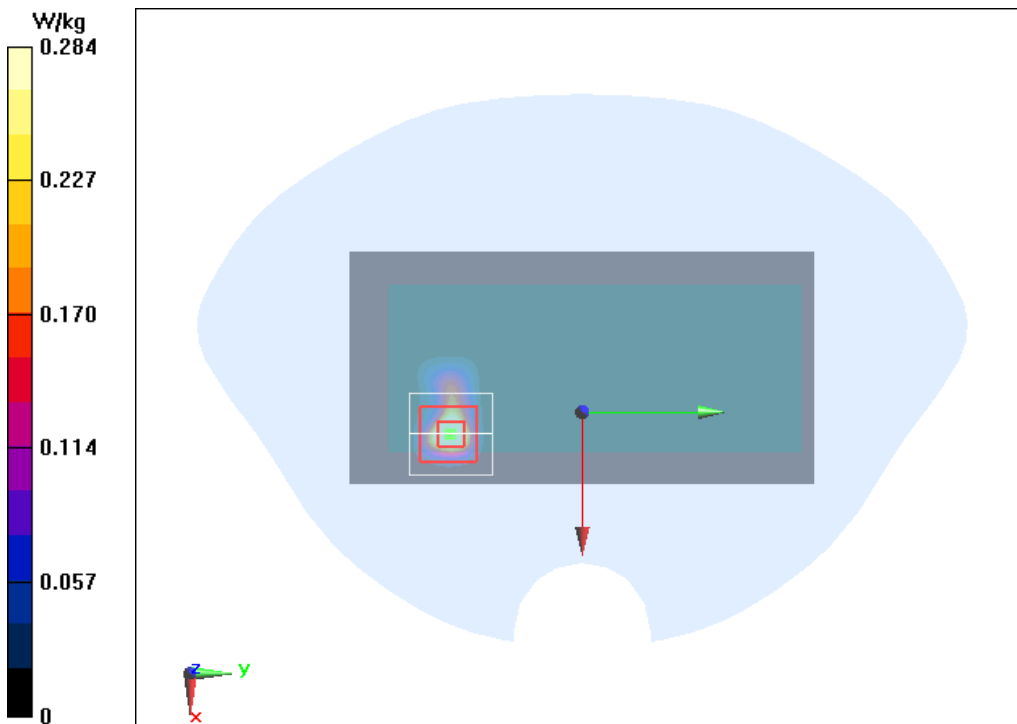


Fig.51 Wi-Fi5G U-NII-3 11a Back Mode High 0mm

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5795 \text{ MHz}$; $\sigma = 5.251 \text{ S/m}$; $\epsilon_r = 36.033$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: 5GHz U-NII-3; Frequency: 5795 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.18, 5.18, 5.18)

Wi-Fi5G U-NII-3 11a Back Mode High 0mm/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 0.198 W/kg

Wi-Fi5G U-NII-3 11a Back Mode High 0mm/Zoom Scan (7x7x7)/Cube 0:

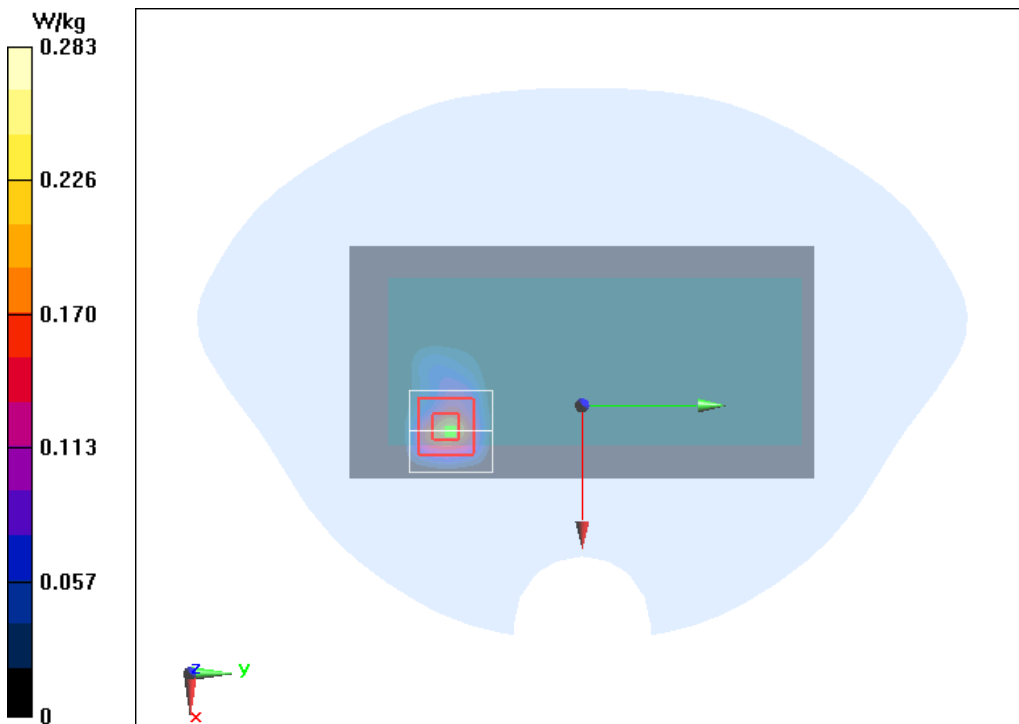
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 0 V/m ; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 0.550 W/kg

SAR(1 g) = 0.085 W/kg ; SAR(10 g) = 0.026 W/kg

Maximum value of SAR (measured) = 0.283 W/kg



Annex B: System Check Plot

Head 750MHz-1

Date/Time: 2021/8/26

Electronics: DAE4 Sn1244

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.897 \text{ S/m}$; $\epsilon_r = 41.409$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

System Check Head 750MHz/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 2.88 W/kg

System Check Head 750MHz/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

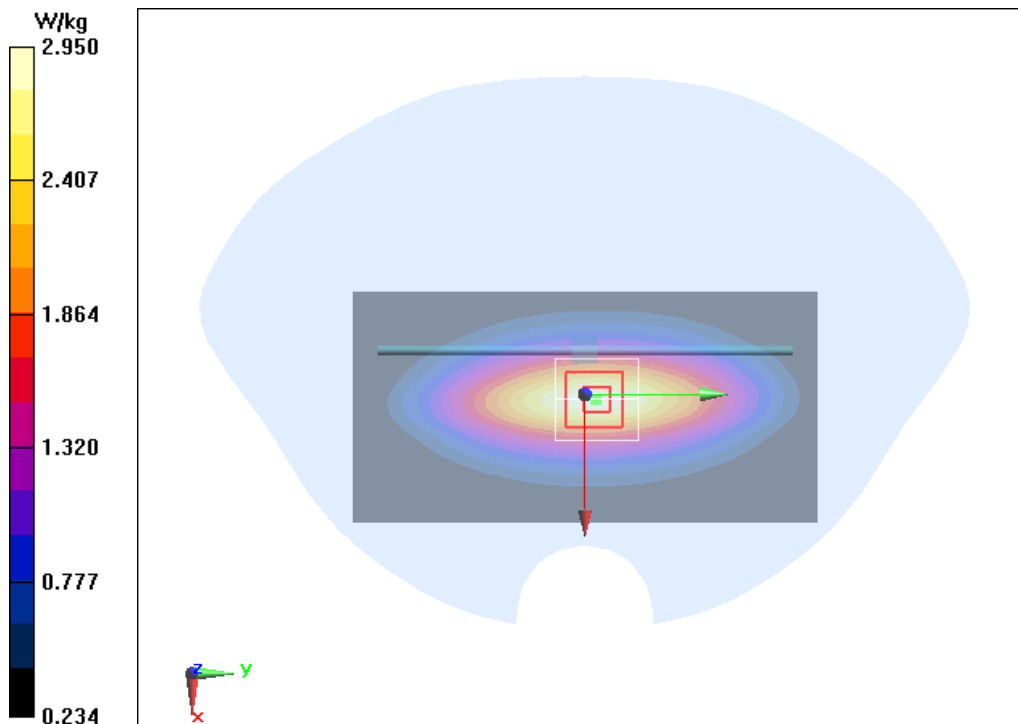
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 60.42 V/m ; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 3.37 W/kg

SAR(1 g) = 2.17 W/kg ; SAR(10 g) = 1.43 W/kg

Maximum value of SAR (measured) = 2.95 W/kg



Head 750MHz-2

Date/Time: 2021/8/27

Electronics: DAE4 Sn1244

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.897 \text{ S/m}$; $\epsilon_r = 41.418$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.5°C Liquid Temperature: 21.5°C

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.83, 10.83, 10.83)

System Check Head 750MHz/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.10 W/kg

System Check Head 750MHz/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

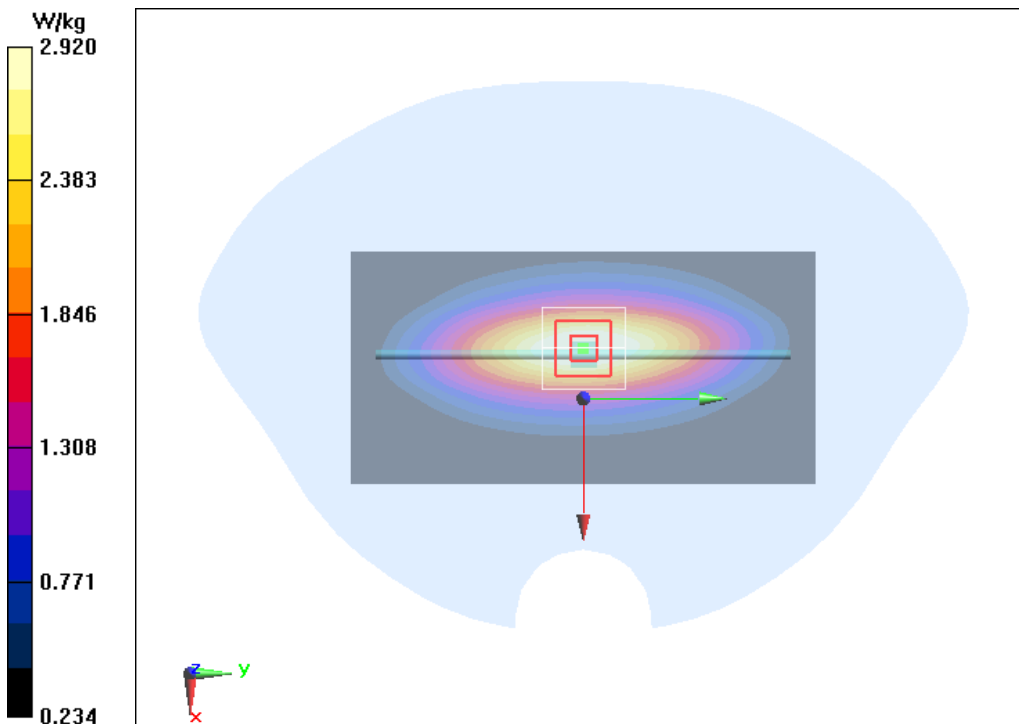
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 63.13 V/m ; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 3.37 W/kg

SAR(1 g) = 2.14 W/kg ; SAR(10 g) = 1.39 W/kg

Maximum value of SAR (measured) = 2.92 W/kg



Head 835MHz-1

Date/Time: 2021/8/16

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 835 \text{ MHz}$; $\sigma = 0.929 \text{ S/m}$; $\epsilon_r = 41.131$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.3°C Liquid Temperature: 21.3°C

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

System Check Head 835MHz/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.61 W/kg

System Check Head 835MHz/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

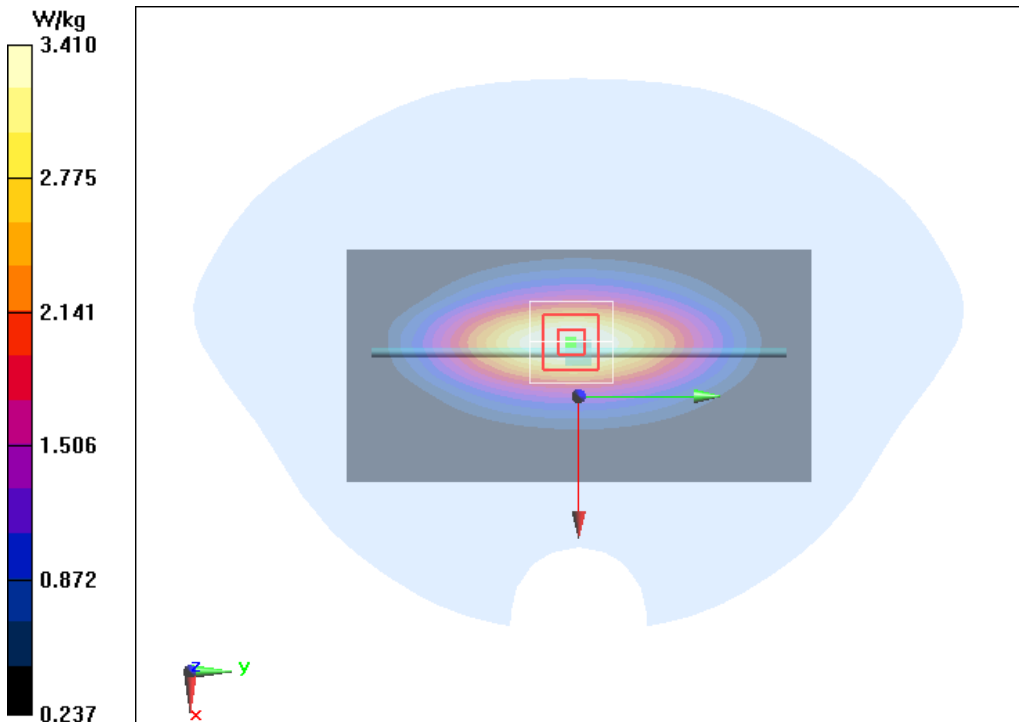
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 69.13 V/m ; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.95 W/kg

SAR(1 g) = 2.46 W/kg ; SAR(10 g) = 1.57 W/kg

Maximum value of SAR (measured) = 3.41 W/kg



Head 835MHz-2

Date/Time: 2021/8/17

Electronics: DAE4 Sn1244

Medium parameters used (interpolated): $f = 835 \text{ MHz}$; $\sigma = 0.929 \text{ S/m}$; $\epsilon_r = 41.136$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(10.51, 10.51, 10.51)

System Check Head 835MHz/Area Scan (61x121x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 3.69 W/kg

System Check Head 835MHz/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

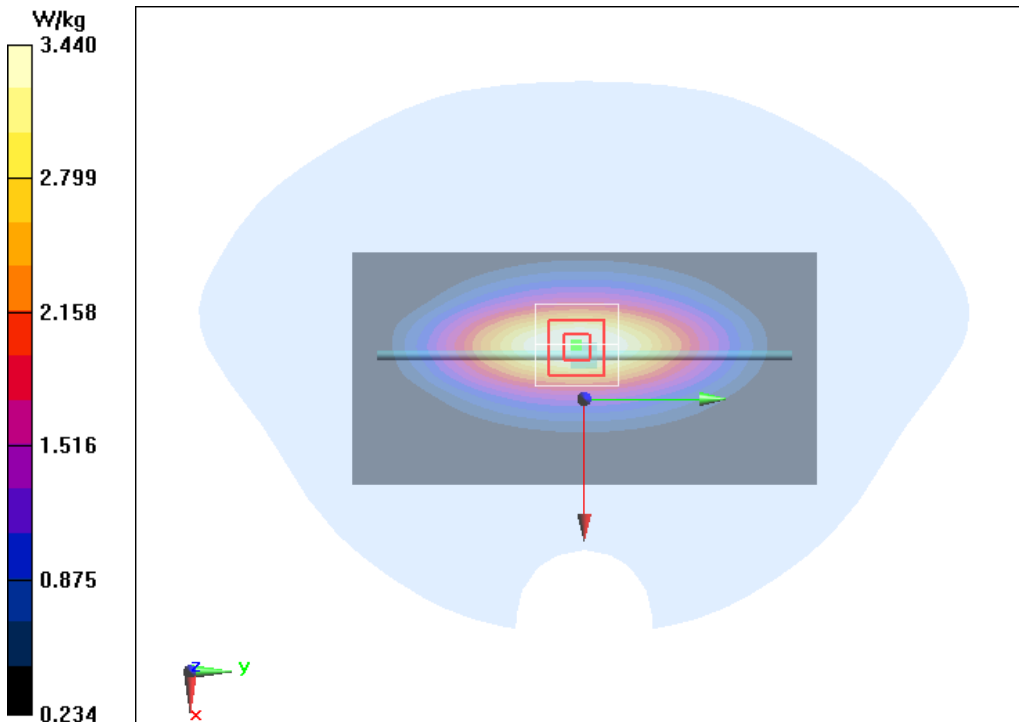
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 65.91 V/m ; Power Drift = -0.18 dB

Peak SAR (extrapolated) = 4.00 W/kg

SAR(1 g) = 2.47 W/kg ; SAR(10 g) = 1.58 W/kg

Maximum value of SAR (measured) = 3.44 W/kg



Head 1750MHz

Date/Time: 2021/8/20

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1750 \text{ MHz}$; $\sigma = 1.386 \text{ S/m}$; $\epsilon_r = 39.135$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: CW; Frequency: 1750 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.93, 8.93, 8.93)

System Check Head 1750MHz/Area Scan (71x61x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 15.7 W/kg

System Check Head 1750MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

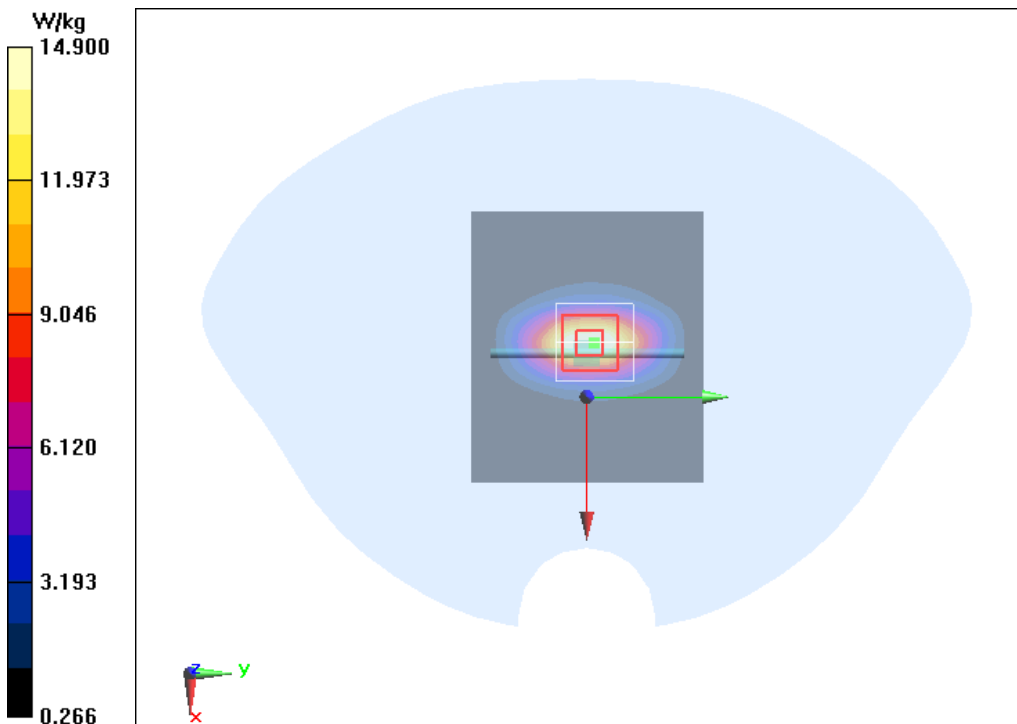
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 107.7 V/m ; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 18.2 W/kg

SAR(1 g) = 9.52 W/kg ; SAR(10 g) = 5 W/kg

Maximum value of SAR (measured) = 14.9 W/kg



Head 1900MHz-1

Date/Time: 2021/8/24

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.481 \text{ S/m}$; $\epsilon_r = 38.898$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.6°C Liquid Temperature: 21.6°C

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

System Check Head 1900MHz/Area Scan (71x61x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 16.3 W/kg

System Check Head 1900MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

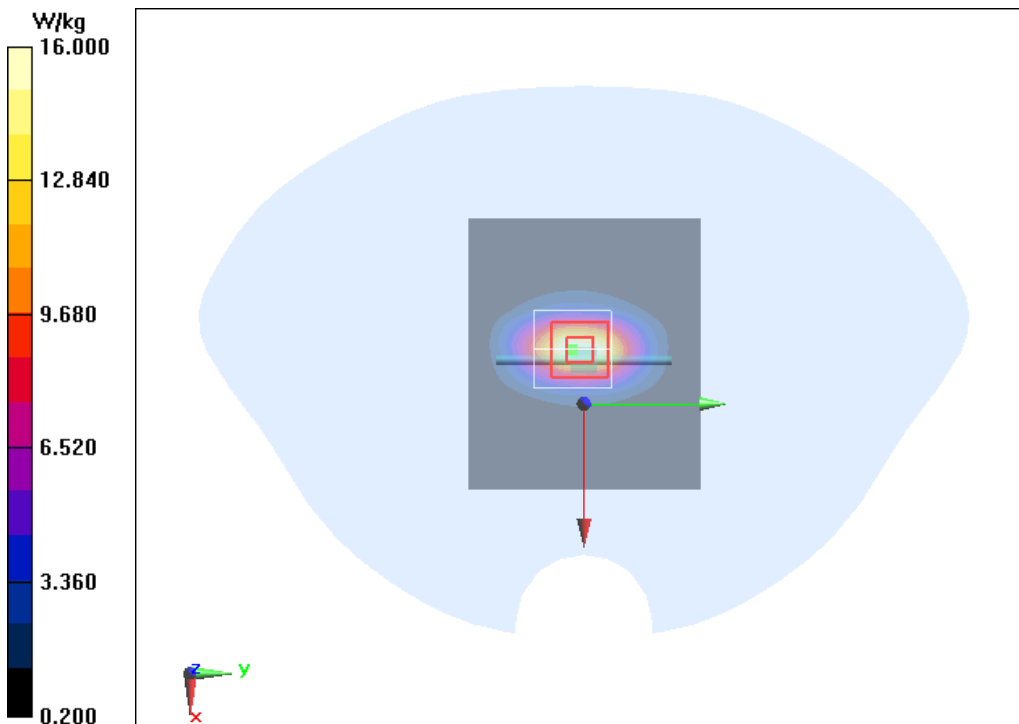
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 103.8 V/m ; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 19.6 W/kg

SAR(1 g) = 10.1 W/kg ; SAR(10 g) = 5.14 W/kg

Maximum value of SAR (measured) = 16.0 W/kg



Head 1900MHz-2

Date/Time: 2021/9/22

Electronics: DAE4 Sn1244

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.481 \text{ S/m}$; $\epsilon_r = 38.901$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.4°C Liquid Temperature: 21.4°C

Communication System: CW; Frequency: 1900 MHz ; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.64, 8.64, 8.64)

System Check Head 1900MHz/Area Scan (71x61x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 17.0 W/kg

System Check Head 1900MHz/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

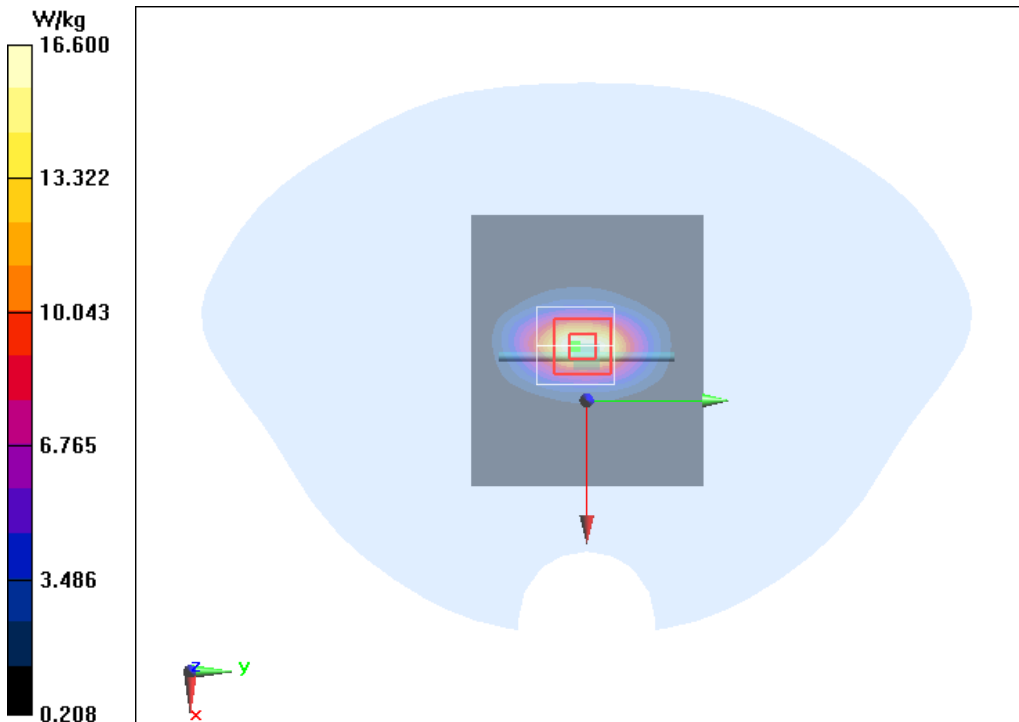
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 104.5 V/m ; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 20.3 W/kg

SAR(1 g) = 10.5 W/kg ; SAR(10 g) = 5.33 W/kg

Maximum value of SAR (measured) = 16.6 W/kg



Head 2450MHz

Date/Time: 2021/9/2

Electronics: DAE4 Sn1244

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.885 \text{ S/m}$; $\epsilon_r = 38.052$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.4°C Liquid Temperature: 22.4°C

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(8.02, 8.02, 8.02)

System Check Head 2450MHz 1/Area Scan (71x71x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 22.4 W/kg

System Check Head 2450MHz 1/Zoom Scan (7x7x7)/Cube 0:

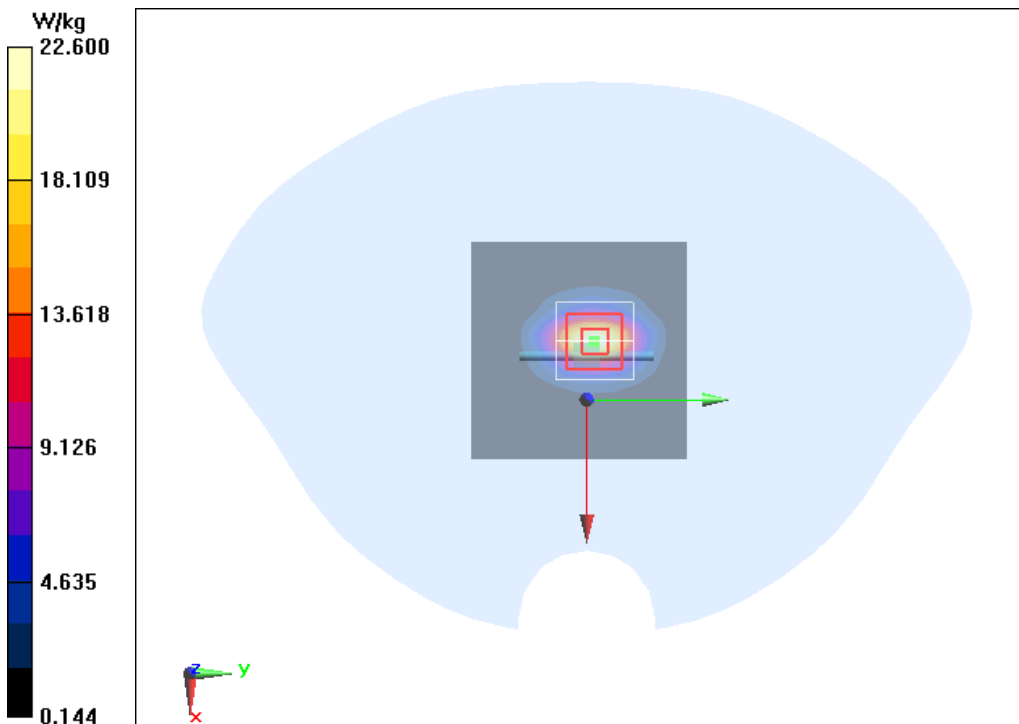
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 96.41 V/m ; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 27.8 W/kg

SAR(1 g) = 13.4 W/kg ; SAR(10 g) = 6.19 W/kg

Maximum value of SAR (measured) = 22.6 W/kg



Head 2600MHz-1

Date/Time: 2021/9/14

Electronics: DAE4 Sn1244

Medium parameters used: $f = 2600 \text{ MHz}$; $\sigma = 2.013 \text{ S/m}$; $\epsilon_r = 37.772$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 21.2°C Liquid Temperature: 21.2°C

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

System Check Head 2600MHz 2/Area Scan (71x71x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 26.8 W/kg

System Check Head 2600MHz 2/Zoom Scan (7x7x7)/Cube 0:

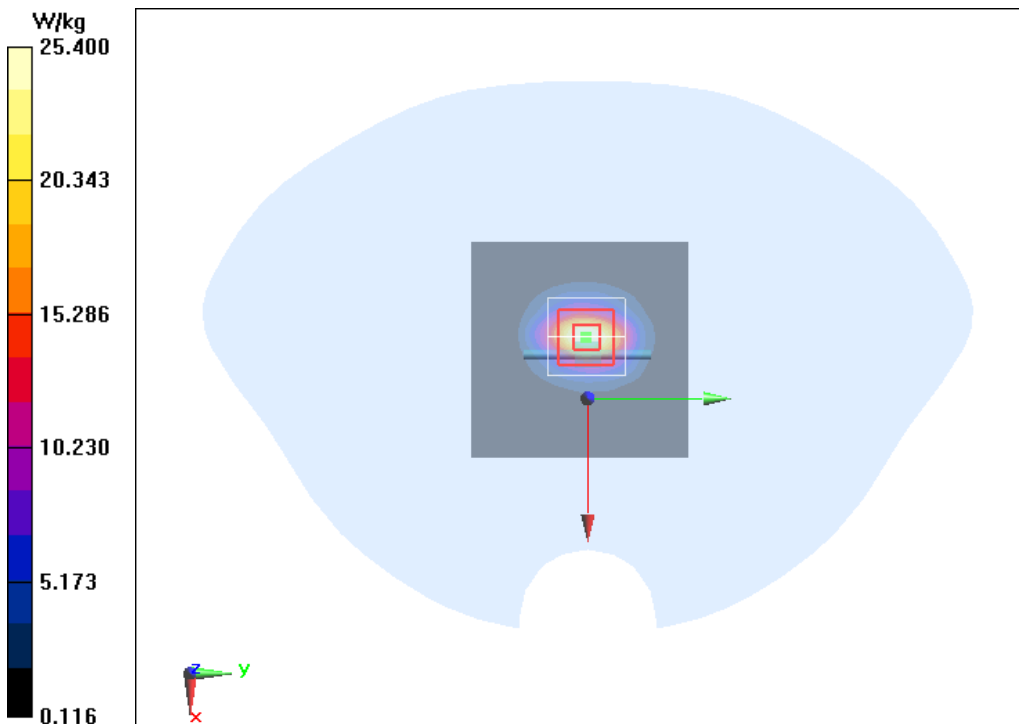
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 98.03 V/m ; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 31.6 W/kg

SAR(1 g) = 14.8 W/kg ; SAR(10 g) = 6.65 W/kg

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



Head 2600MHz-2

Date/Time: 2021/9/15

Electronics: DAE4 Sn1244

Medium parameters used: $f = 2600 \text{ MHz}$; $\sigma = 2.013 \text{ S/m}$; $\epsilon_r = 37.775$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 20.8°C Liquid Temperature: 20.8°C

Communication System: CW; Frequency: 2600 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(7.75, 7.75, 7.75)

System Check Head 2600MHz/Area Scan (71x71x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 25.5 W/kg

System Check Head 2600MHz/Zoom Scan (7x7x7)/Cube 0:

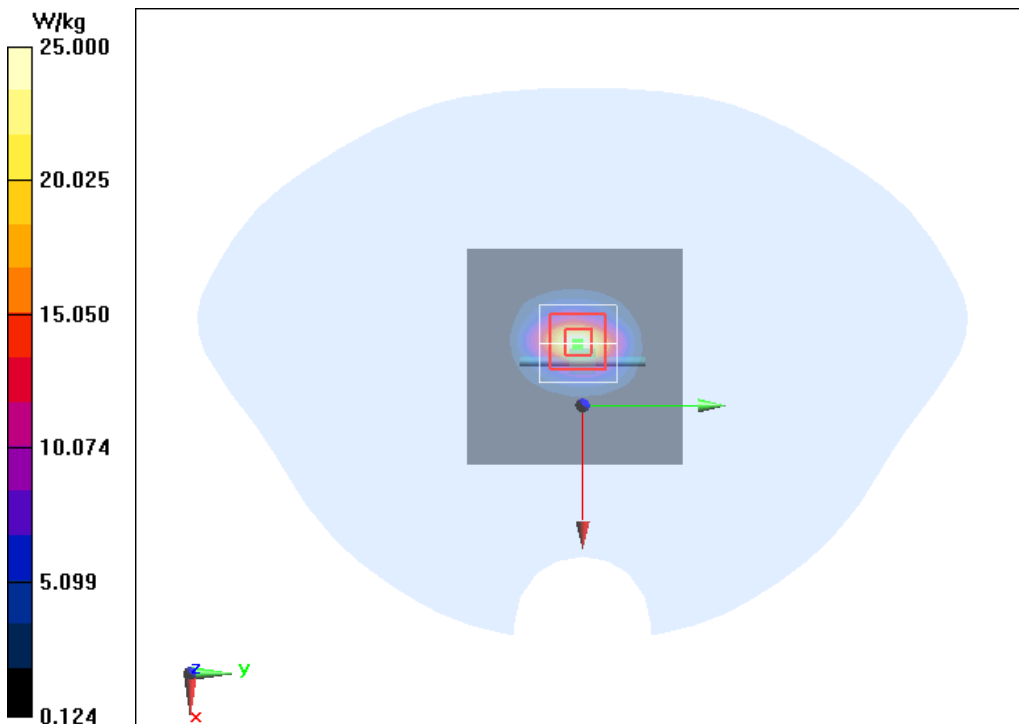
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 92.03 V/m ; Power Drift = 0.51 dB

Peak SAR (extrapolated) = 30.9 W/kg

SAR(1 g) = 14.7 W/kg ; SAR(10 g) = 6.61 W/kg

Maximum value of SAR (measured) = 25.0 W/kg



Head 5200MHz

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5200 \text{ MHz}$; $\sigma = 4.6 \text{ S/m}$; $\epsilon_r = 37.151$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: CW; Frequency: 5200 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.78, 5.78, 5.78)

System Check Head 5200MHz 2/Area Scan (71x71x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 17.7 W/kg

System Check Head 5200MHz 2/Zoom Scan (7x7x7)/Cube 0:

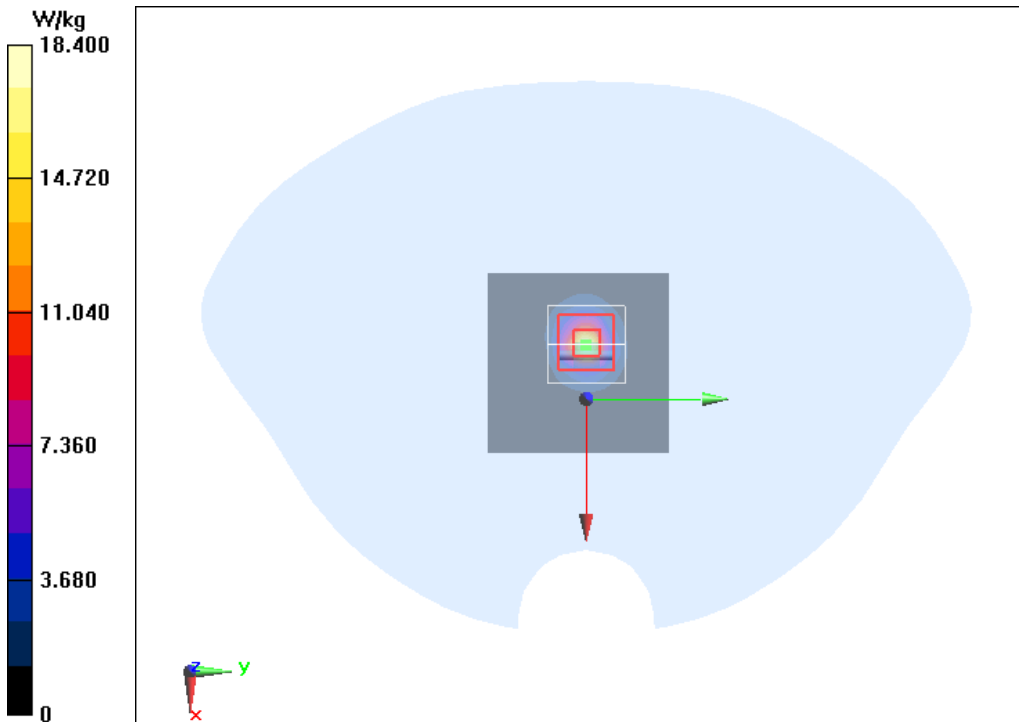
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 60.21 V/m ; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 30.4 W/kg

SAR(1 g) = 7.34 W/kg ; SAR(10 g) = 2.09 W/kg

Maximum of SAR (measured) = 18.4 W/kg



Head 5800MHz

Date/Time: 2021/9/9

Electronics: DAE4 Sn1244

Medium parameters used: $f = 5800 \text{ MHz}$; $\sigma = 5.257 \text{ S/m}$; $\epsilon_r = 36.025$; $\rho = 1000 \text{ kg/m}^3$

Ambient Temperature: 22.1°C Liquid Temperature: 22.1°C

Communication System: CW; Frequency: 5800 MHz; Duty Cycle: 1:1

Probe: EX3DV4 - SN7633ConvF(5.18, 5.18, 5.18)

System Check Head 5800MHz/Area Scan (91x91x1):

Measurement grid: $dx=10 \text{ mm}$, $dy=10 \text{ mm}$

Maximum value of SAR (Measurement) = 19.5 W/kg

System Check Head 5800MHz/Zoom Scan (4x4x1.4mm, graded), dist=1.4mm (7x7x7)/Cube 0:

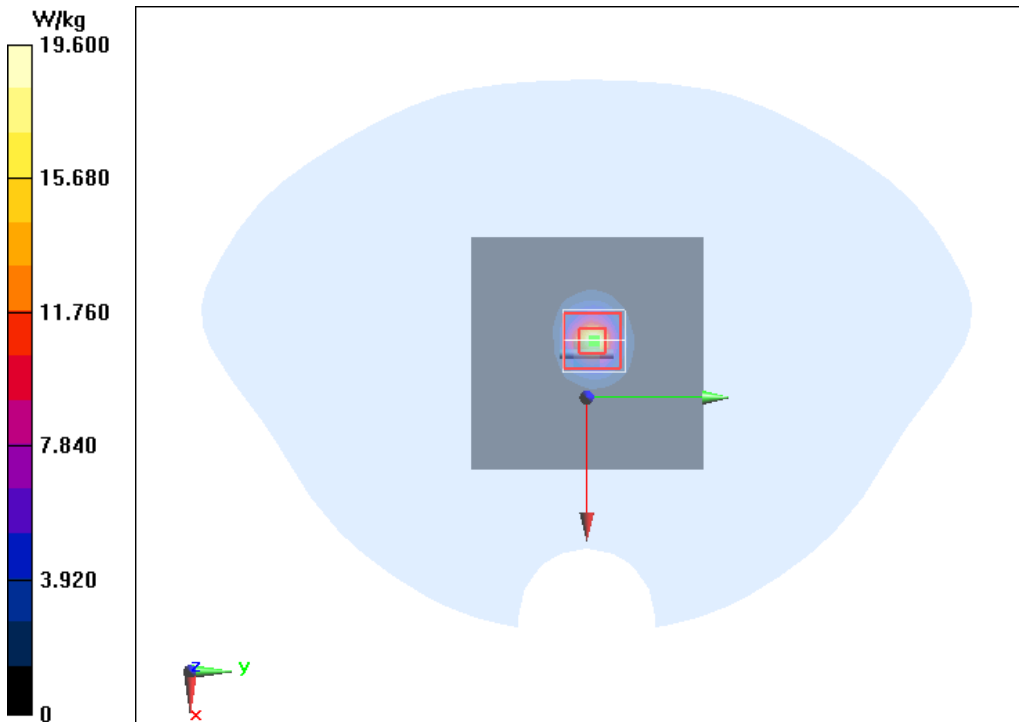
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.24 V/m ; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 32.8 W/kg

SAR(1 g) = 7.38 W/kg ; SAR(10 g) = 2.07 W/kg

Maximum of SAR (measured) = 19.6 W/kg



Annex C: Measurement Uncertainty

Table D.1 Measurement Uncertainty Evaluation for SAR Test

Error Description	Uncert. Value	Prob. Dist.	Div.	(Ci)	(Ci)	Std. Unc.[%]	Std. Unc.[%]	(vi) v _{eff}
				1g	10g	(1g)	(10g)	
Measurement System								
Probe Calibration	13.30	N	2	1	1	6.65	6.65	∞
Axial Isotropy	4.70	R	√3	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.60	R	√3	0.7	0.7	3.88	3.88	∞
Boundary effects	2.00	R	√3	1	1	1.15	1.15	∞
Linearity	4.70	R	√3	1	1	2.71	2.71	∞
System Detection Limits	1.00	R	√3	1	1	0.58	0.58	∞
Readout Electronics	0.30	N	1	1	1	0.30	0.30	∞
Response Time	0.80	R	√3	1	1	0.50	0.50	∞
Integration Time	2.60	R	√3	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	R	√3	1	1	1.70	1.70	∞
RF Ambient Reflections	3.00	R	√3	1	1	1.70	1.70	∞
Probe Positioner	1.50	R	√3	1	1	0.87	0.87	∞
Probe Positioning	0.80	R	√3	1	1	0.40	0.40	∞
Post-processing	4.00	R	√3	1	1	2.30	2.30	∞
Test Sample Related								
Device Holder	1.01	N	1	1	1	1.01	1.01	71
Test sample Positioning	2.28	N	1	1	1	2.28	2.28	4
Power Drift	5.00	R	√3	1	1	2.89	2.89	∞
Phantom and Setup								
Phantom Uncertainty	7.60	R	√3	1	1	4.40	4.40	∞
SAR correction	1.90	N	1	1	0.84	1.90	1.60	∞
Liquid Conductivity ((meas.))	2.50	N	1	0.78	0.71	2.00	1.80	∞
Liquid Permittivity ((meas.))	2.50	N	1	0.23	0.26	0.60	0.70	∞
Liquid Conductivity (Temp.)	2.45	R	√3	0.78	0.71	1.11	1.01	∞
Liquid Permittivity (Temp.)	0.72	R	√3	0.23	0.26	0.10	0.11	∞
Combined Std. Uncertainty	$u'_c = \sqrt{\sum_{i=1}^n c_i^2 u_i'^2}$					10.85	10.72	
Expanded STD Uncertainty	$u_c = k u'_c (k = 2)$					21.70	21.44	

Table D.2 Measurement Uncertainty Evaluation for System Validation

Error Description	Uncert. Value	Prob. Dist.	Div.	(Ci)	(Ci)	Std. Unc. [%]	Std. Unc. [%]	(vi) v _{eff}
				1g	10g	(1g)	(10g)	
Measurement System								
Probe Calibration	13.30	N	2	1	1	6.65	6.65	∞
Axial Isotropy	4.70	R	√3	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.60	R	√3	0.7	0.7	3.88	3.88	∞
Boundary effects	2.00	R	√3	1	1	1.15	1.15	∞
Linearity	4.70	R	√3	1	1	2.71	2.71	∞
System Detection Limits	1.00	R	√3	1	1	0.58	0.58	∞
Readout Electronics	0.30	N	1	1	1	0.30	0.30	∞
Response Time	0.80	R	√3	1	1	0.50	0.50	∞
Integration Time	2.60	R	√3	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	R	√3	1	1	1.70	1.70	∞
RF Ambient Reflections	3.00	R	√3	1	1	1.70	1.70	∞
Probe Positioner	1.50	R	√3	1	1	0.87	0.87	∞
Probe Positioning	0.80	R	√3	1	1	0.40	0.40	∞
Post-processing	4.00	R	√3	1	1	2.30	2.30	∞
Test Sample Related								
Validation Dipole Positioning	2.00	N	√3	1	1	1.15	1.15	∞
Dipole Input Power	5.00	N	√3	1	1	2.89	2.89	∞
Power Drift	5.00	R	√3	1	1	2.89	2.89	∞
Phantom and Setup								
Phantom Uncertainty	7.60	R	√3	1	1	4.40	4.40	∞
SAR correction	1.90	N	1	1	0.84	1.90	1.60	∞
Liquid Conductivity ((meas.))	2.50	N	1	0.78	0.71	2.00	1.80	∞
Liquid Permittivity ((meas.))	2.50	N	1	0.23	0.26	0.60	0.70	∞
Liquid Conductivity (Temp.)	2.45	R	√3	0.78	0.71	1.11	1.01	∞
Liquid Permittivity (Temp.)	0.72	R	√3	0.23	0.26	0.10	0.11	∞
Combined Std. Uncertainty	$u'_c = \sqrt{\sum_{i=1}^n c_i^2 u_i'^2}$					10.01	10.88	
Expanded STD Uncertainty	$u_c = ku'_c(k = 2)$					22.01	21.76	



Annex D: Calibration Certificate



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CNAS L0570

Client **ECIT**
Certificate No: **Z18-60424**

CALIBRATION CERTIFICATE

Object D750V3 - SN: 1144

Calibration Procedure(s) FF-Z11-003-01
Calibration Procedures for dipole validation kits

Calibration date: October 26, 2018

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 NRVD	102083	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Power sensor NRV-Z5	100542	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1555	20-Aug-18(SPEAG,No.DAE4-1555_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-18 (CTTL, No.J18X00560)	Jan-19
NetworkAnalyzer E5071C	MY46110673	24-Jan-18 (CTTL, No.J18X00561)	Jan-19

Calibrated by: Name Function Signature

Reviewed by: Zhao Jing SAR Test Engineer 

Approved by: Lin Hao SAR Test Engineer 

Qi Dianyuan SAR Project Leader 

Issued: October 29, 2018

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

Certificate No: Z18-60424

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
N/A	not applicable or not measured

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 assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- c) IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- d) KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- e) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	42.1 $\pm$ 6 %	0.88 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.11 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	8.50 mW / g $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.39 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	5.59 mW / g $\pm$ 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	55.6 $\pm$ 6 %	0.93 mho/m $\pm$ 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.09 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	8.55 mW / g $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.40 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	5.70 mW / g $\pm$ 18.7 % (k=2)

Certificate No: Z18-60424

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.5Ω+ 0.45jΩ
Return Loss	- 27.4dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.7Ω- 2.47jΩ
Return Loss	- 32.1dB

General Antenna Parameters and Design

Electrical Delay (one direction)	0.897 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
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DASY5 Validation Report for Head TSL

Date: 10.25.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1144

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750$ MHz; $\sigma = 0.883$ S/m; $\epsilon_r = 42.07$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(9.47, 9.47, 9.47) @ 750 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

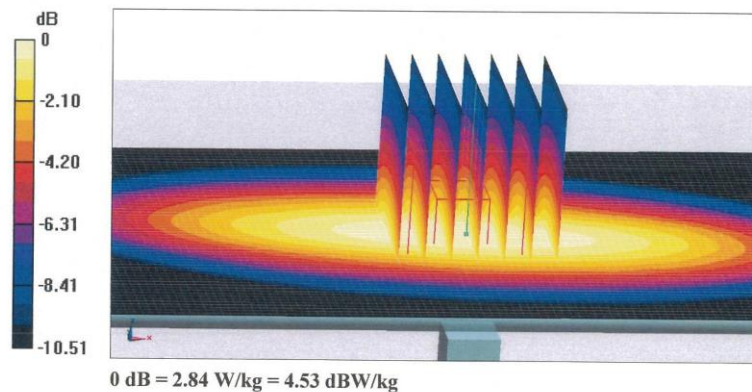
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.73 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.22 W/kg

SAR(1 g) = 2.11 W/kg; SAR(10 g) = 1.39 W/kg

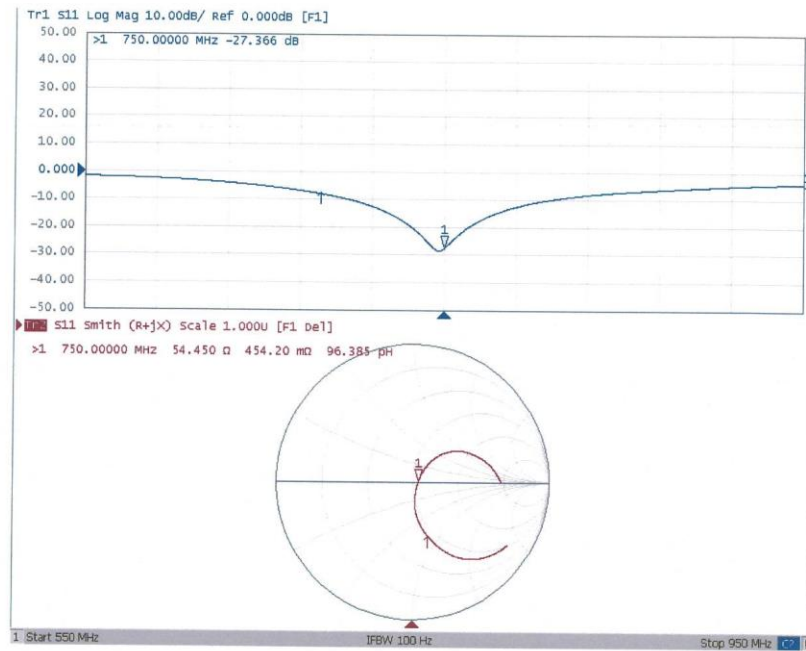
Maximum value of SAR (measured) = 2.84 W/kg





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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 10.25.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN: 1144

Communication System: UID 0, CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750$ MHz; $\sigma = 0.932$ S/m; $\epsilon_r = 55.6$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(9.68, 9.68, 9.68) @ 750 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

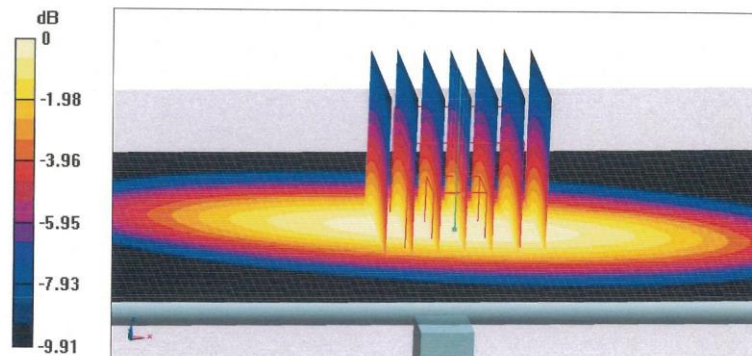
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 53.86 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 3.16 W/kg

SAR(1 g) = 2.09 W/kg; SAR(10 g) = 1.4 W/kg

Maximum value of SAR (measured) = 2.79 W/kg

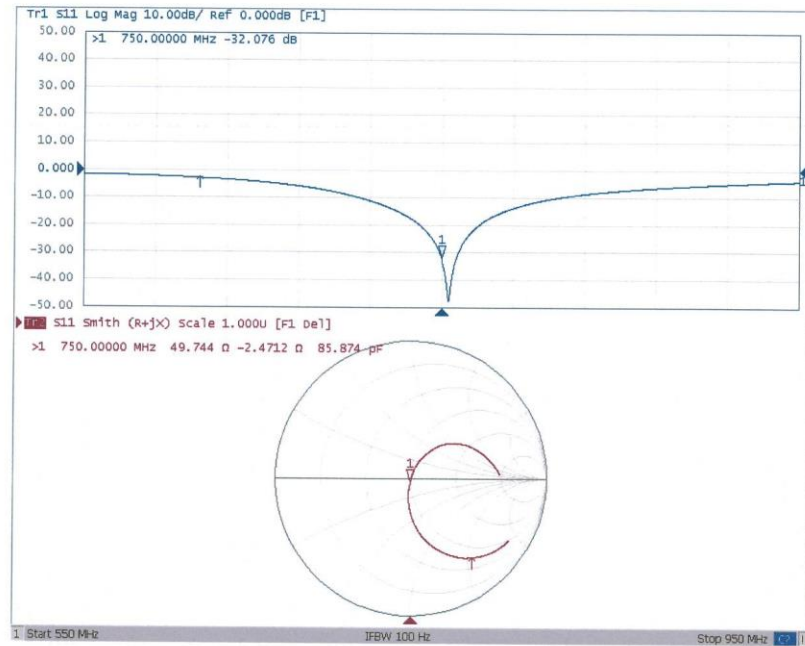


0 dB = 2.79 W/kg = 4.46 dBW/kg



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Impedance Measurement Plot for Body TSL



D730V3,Serial No.1144Extended Dipole Calibrations

Per IEEE Std 1528-2013,the dipole should have a return loss better than -20dB at the test frequency to reduce uncertainty in the power measurement.

Per KDB 865664 D01,if dipoles are verified in return loss(<-20dB,within 20% of prior calibration),and in impedance (within 5 ohm of prior calibration),the annual calibration is not necessary and the calibration interval can be extended.

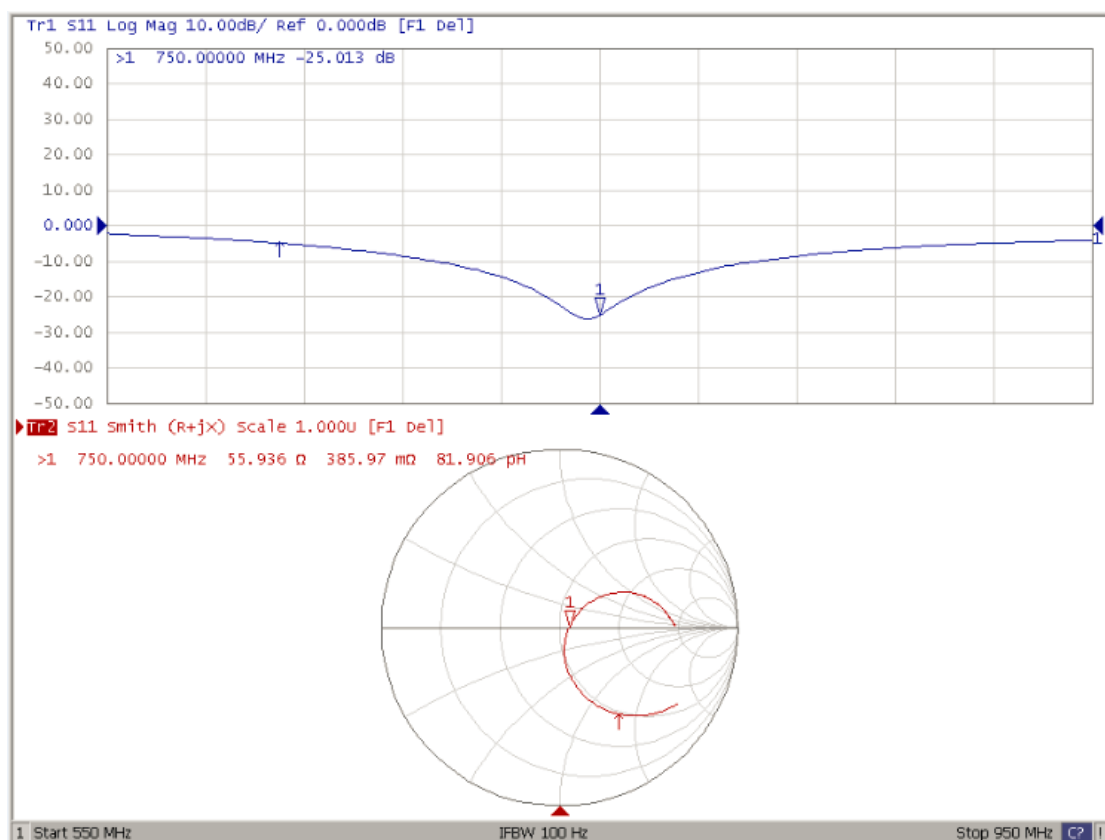
Justification of the extended calibration

D750V3 Serial No.1144						
750 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.26.2018	-27.366	--	54.450	--	0.454	--
10.09.2019	-25.01	8.61%	55.936	1.486	0.386	0.068

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data D750V3 Serial No.1144

750MHz-Head



D730V3,Serial No.1144Extended Dipole Calibrations

Per IEEE Std 1528-2013,the dipole should have a return loss better than -20dB at the test frequency to reduce uncertainty in the power measurement.

Per KDB 865664 D01,if dipoles are verified in return loss(<-20dB,within 20% of prior calibration),and in impedance (within 5 ohm of prior calibration),the annual calibration is not necessary and the calibration interval can be extended.

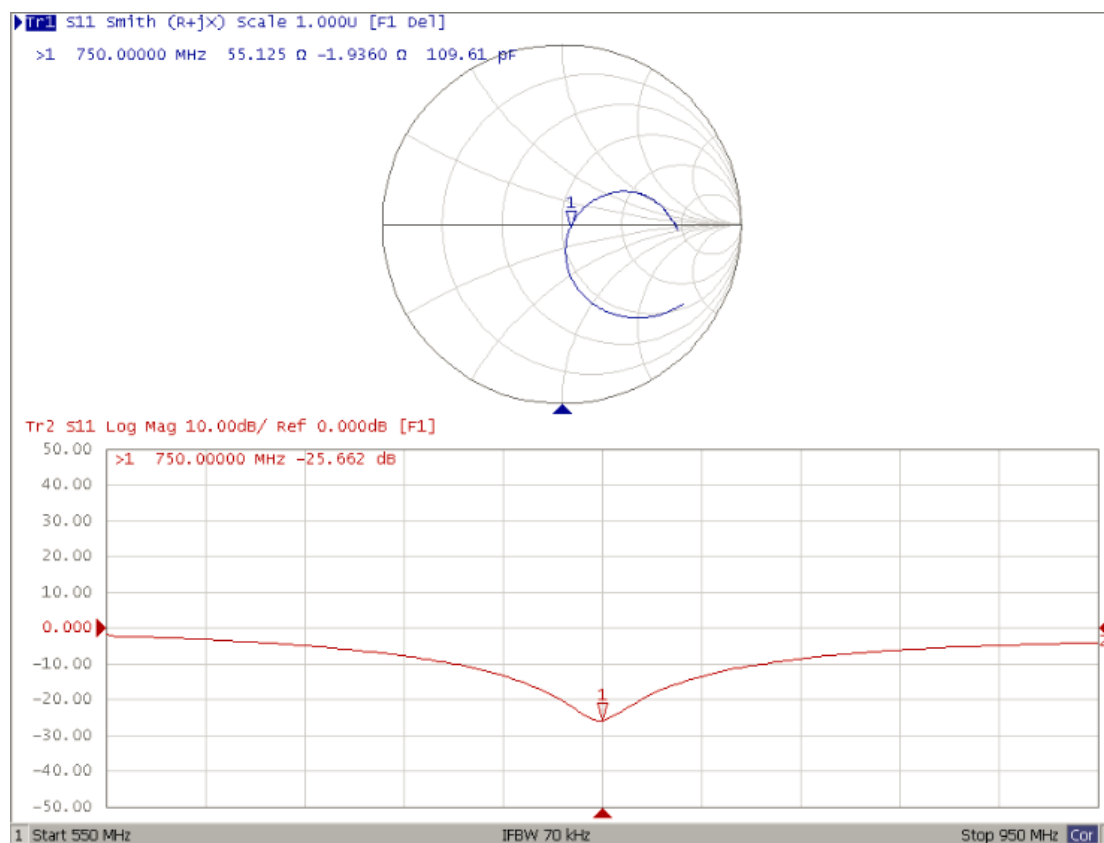
Justification of the extended calibration

D750V3 Serial No.1144						
750 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.26.2018	-27.366	--	54.450	--	0.454	--
10.09.2019	-25.01	8.61%	55.936	1.486	0.386	0.068
09.30.2020	-25.662	2.61%	55.125	0.811	-1.936	2.390

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data D750V3 Serial No.1144

750MHz-Head





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Client **ECIT**

Certificate No: **Z18-60425**

CALIBRATION CERTIFICATE

Object **D835V2 - SN: 4d112**

Calibration Procedure(s) **FF-Z11-003-01**
Calibration Procedures for dipole validation kits

Calibration date: **October 25, 2018**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRVD	102083	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Power sensor NRV-Z5	100542	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1555	20-Aug-18(SPEAG,No.DAE4-1555_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-18 (CTTL, No.J18X00560)	Jan-19
NetworkAnalyzer E5071C	MY46110673	24-Jan-18 (CTTL, No.J18X00561)	Jan-19

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

Issued: October 29, 2018

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Certificate No: Z18-60425

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

- 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
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	42.4 $\pm$ 6 %	0.89 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.38 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.63 mW / g $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.55 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.25 mW / g $\pm$ 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	55.3 $\pm$ 6 %	0.96 mho/m $\pm$ 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.42 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.75 mW / g $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.59 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.40 mW / g $\pm$ 18.7 % (k=2)

Certificate No: Z18-60425

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Appendix (Additional assessments outside the scope of CNAS L0570)

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.7Ω- 1.03jΩ
Return Loss	- 31.0dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.2Ω- 6.11jΩ
Return Loss	- 24.1dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.265 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
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DASY5 Validation Report for Head TSL

Date: 10.24.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d112

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.892$ S/m; $\epsilon_r = 42.41$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(9.09, 9.09, 9.09) @ 835 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

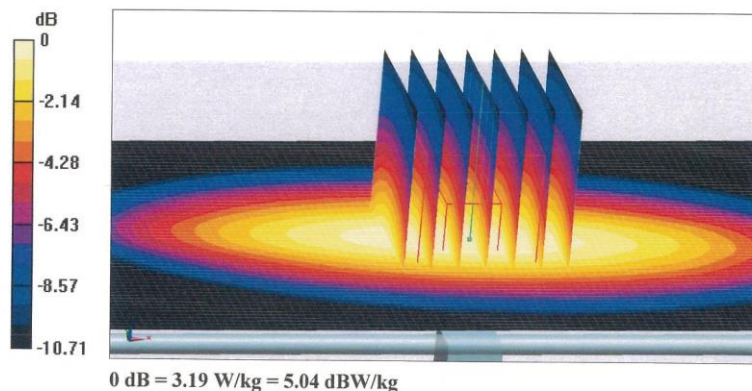
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 58.97 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 3.59 W/kg

SAR(1 g) = 2.38 W/kg; SAR(10 g) = 1.55 W/kg

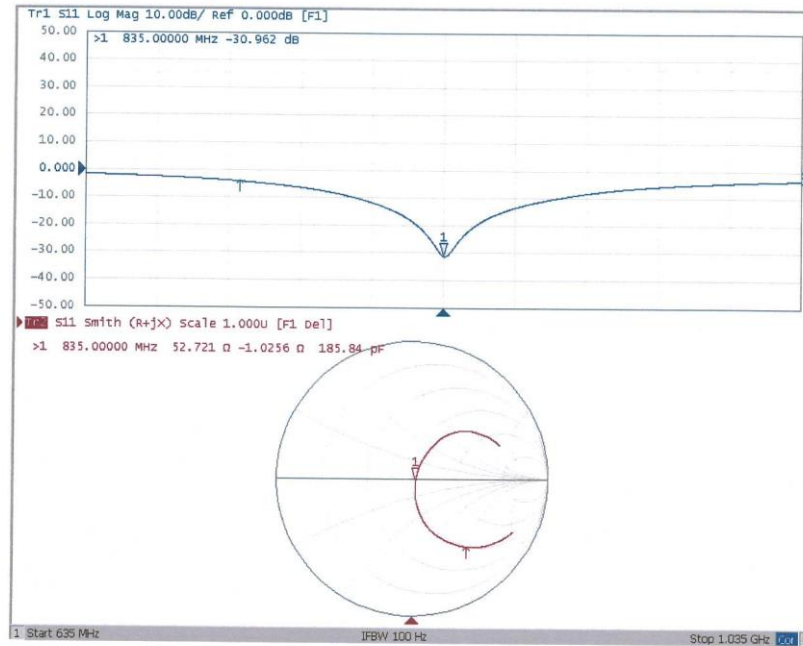
Maximum value of SAR (measured) = 3.19 W/kg





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Impedance Measurement Plot for Head TSL





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DASY5 Validation Report for Body TSL

Date: 10.25.2018

Test Laboratory: CTTL, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d112

Communication System: UID 0, CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835$ MHz; $\sigma = 0.961$ S/m; $\epsilon_r = 55.25$; $\rho = 1000$ kg/m³

Phantom section: Center Section

DASY5 Configuration:

- Probe: EX3DV4 - SN7514; ConvF(9.47, 9.47, 9.47) @ 835 MHz; Calibrated: 8/27/2018
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn1555; Calibrated: 8/20/2018
- Phantom: MFP_V5.1C ; Type: QD 000 P51CA; Serial: 1062
- Measurement SW: DASY52, Version 52.10 (2); SEMCAD X Version 14.6.12 (7450)

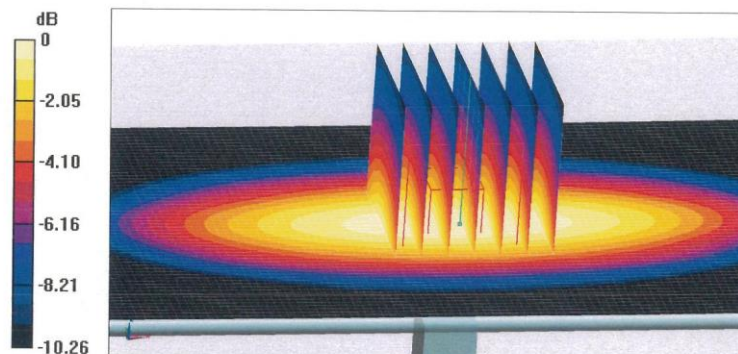
Dipole Calibration/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 57.14 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 3.68 W/kg

SAR(1 g) = 2.42 W/kg; SAR(10 g) = 1.59 W/kg

Maximum value of SAR (measured) = 3.24 W/kg

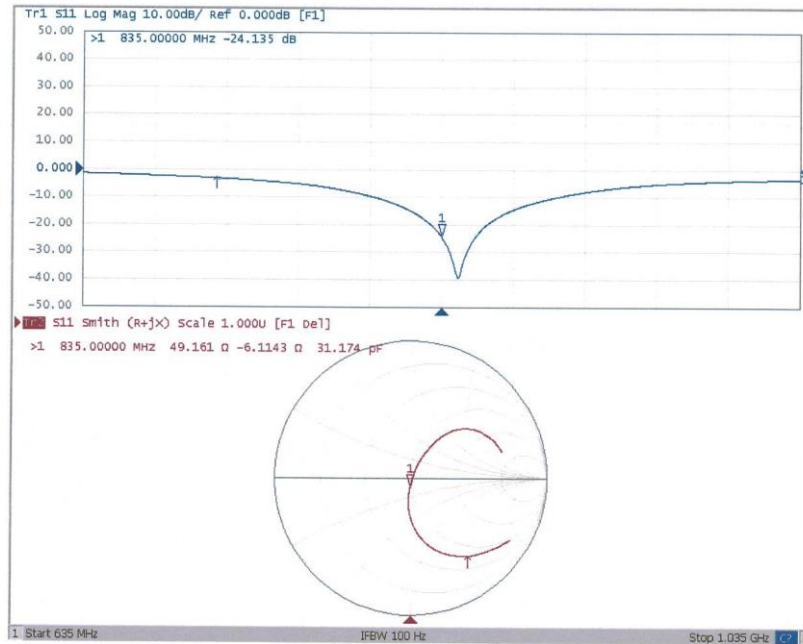


0 dB = 3.24 W/kg = 5.11 dBW/kg



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Impedance Measurement Plot for Body TSL





D835V2, Serial No.4d112 Extended Dipole Calibrations

Per IEEE Std 1528-2013, the dipole should have a return loss better than -20dB at the test frequency to reduce uncertainty in the power measurement.

Per KDB 865664 D01, if dipoles are verified in return loss (<-20dB, within 20% of prior calibration), and in impedance (within 5 ohm of prior calibration), the annual calibration is not necessary and the calibration interval can be extended.

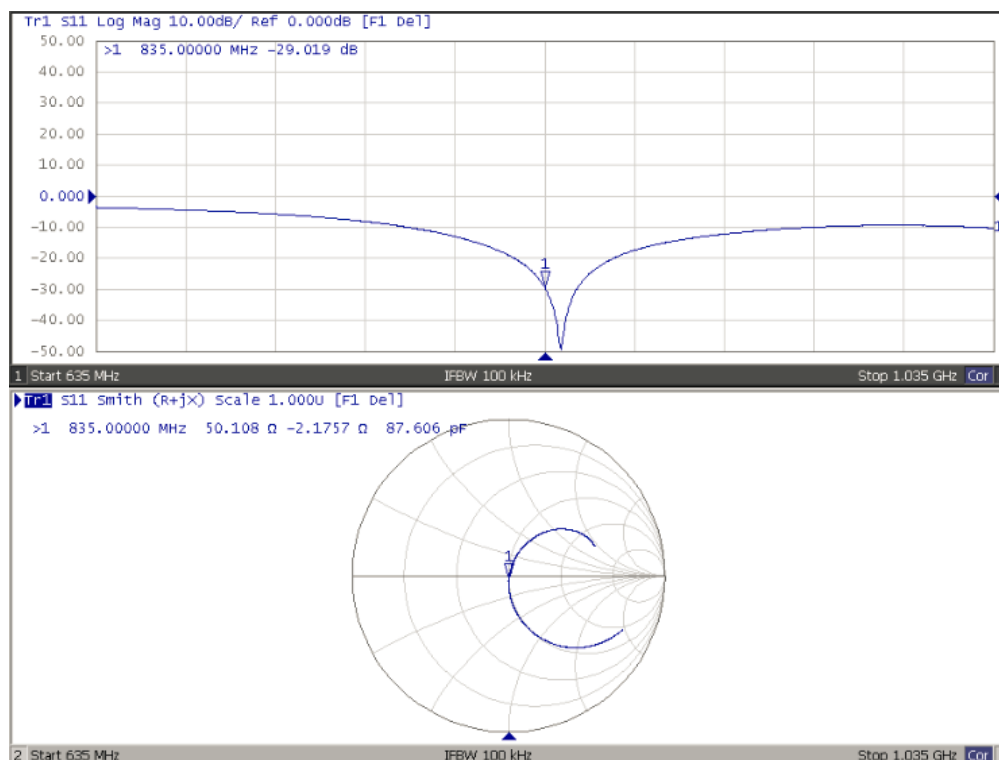
Justification of the extended calibration

D835V2 Serial No.4d112						
835 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.25.2018	-30.962	--	52.721	--	-1.0256	--
10.09.2019	-29.019	6.28	50.108	2.613	-2.1757	1.150

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data D835V2 Serial No.4d112

835MHz-Head



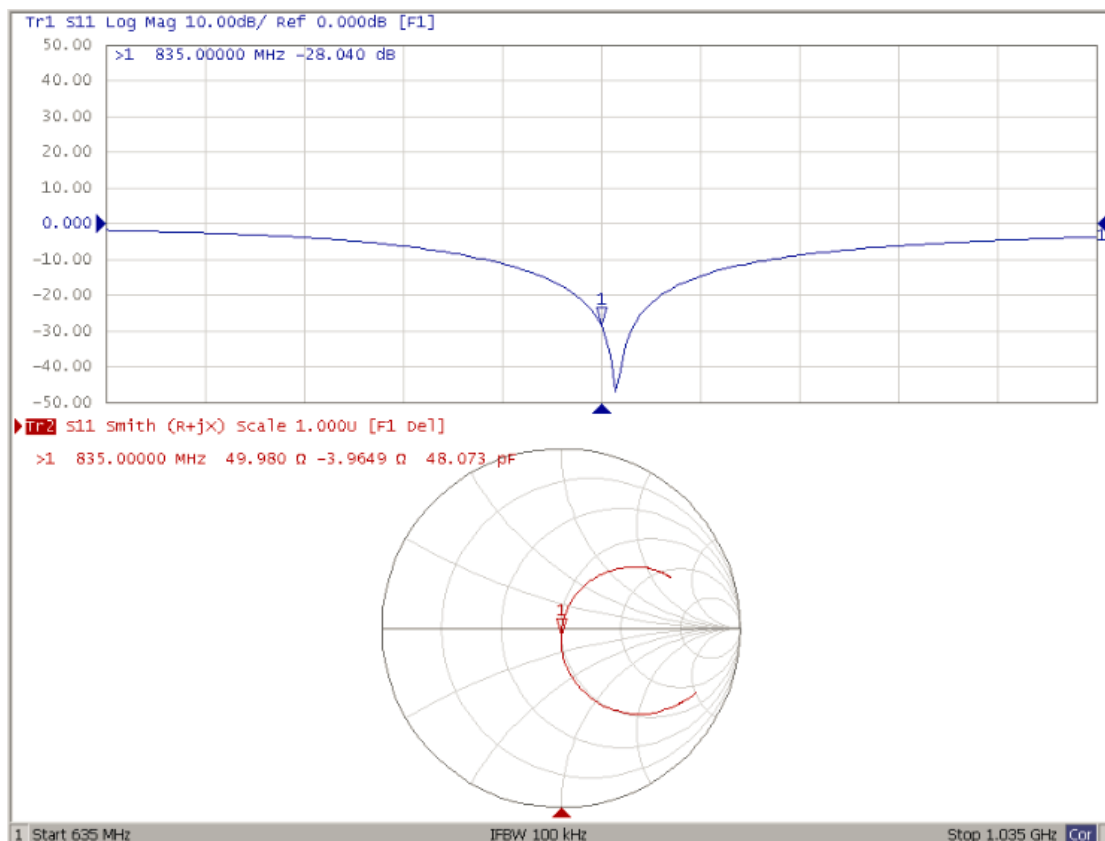
Justification of the extended calibration

D835V2 Serial No.4d112						
835 Head						
Date of Measurement	Return-Loss (dB)	Delta (%)	Real Impedance (ohm)	Delta (ohm)	Imaginary Impedance (ohm)	Delta (ohm)
10.25.2018	-30.962	--	52.721	--	-1.0256	--
10.09.2019	-29.019	6.28	50.108	2.613	-2.1757	1.150
09.30.2020	-28.040	3.37	49.98	0.128	-3.965	1.789

The return loss is < -20dB, within 20% of prior calibration; the impedance is within 5 ohm of prior calibration. Therefore the verification result should support extended calibration.

Dipole Verification Data D835V2 Serial No.4d112

835MHz-Head





In Collaboration with
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CALIBRATION LABORATORY

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Certificate No: **Z18-60427**

CALIBRATION CERTIFICATE

Object **D1750V2 - SN: 1044**

Calibration Procedure(s) **FF-Z11-003-01**
Calibration Procedures for dipole validation kits

Calibration date: **October 31, 2018**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRVD	102083	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Power sensor NRV-Z5	100542	01-Nov-17 (CTTL, No.J17X08756)	Oct-18
Reference Probe EX3DV4	SN 7514	27-Aug-18(SPEAG,No.EX3-7514_Aug18)	Aug-19
DAE4	SN 1555	20-Aug-18(SPEAG,No.DAE4-1555_Aug18)	Aug-19
Secondary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Signal Generator E4438C	MY49071430	23-Jan-18 (CTTL, No.J18X00560)	Jan-19
NetworkAnalyzer E5071C	MY46110673	24-Jan-18 (CTTL, No.J18X00561)	Jan-19

	Name	Function	Signature
Calibrated by:	Zhao Jing	SAR Test Engineer	
Reviewed by:	Lin Jun	SAR Test Engineer	
Approved by:	Qi Dianyuan	SAR Project Leader	

Issued: November 5, 2018

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

Certificate No: Z18-60427

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Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM _{x,y,z}
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Calibration is Performed According to the Following Standards:

- 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
- IEC 62209-1, "Measurement procedure for assessment of specific absorption rate of human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices- Part 1: Device used next to the ear (Frequency range of 300MHz to 6GHz)", July 2016
- IEC 62209-2, "Procedure to measure the Specific Absorption Rate (SAR) For wireless communication devices used in close proximity to the human body (frequency range of 30MHz to 6GHz)", March 2010
- KDB865664, SAR Measurement Requirements for 100 MHz to 6 GHz

Additional Documentation:

- DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- Measurement Conditions:** Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- Antenna Parameters with TSL:** The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- Feed Point Impedance and Return Loss:** These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- Electrical Delay:** One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- SAR measured:** SAR measured at the stated antenna input power.
- SAR normalized:** SAR as measured, normalized to an input power of 1 W at the antenna connector.
- SAR for nominal TSL parameters:** The measured TSL parameters are used to calculate the nominal SAR result.

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%.



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Measurement Conditions

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

DASY Version	DASY52	52.10.2.1495
Extrapolation	Advanced Extrapolation	
Phantom	Triple Flat Phantom 5.1C	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1750 MHz $\pm$ 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.1	1.37 mho/m
Measured Head TSL parameters	(22.0 $\pm$ 0.2) °C	40.4 $\pm$ 6 %	1.39 mho/m $\pm$ 6 %
Head TSL temperature change during test	<1.0 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.19 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	36.5 mW / g $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	4.88 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	19.4 mW / g $\pm$ 18.7 % (k=2)

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.4	1.49 mho/m
Measured Body TSL parameters	(22.0 $\pm$ 0.2) °C	54.1 $\pm$ 6 %	1.49 mho/m $\pm$ 6 %
Body TSL temperature change during test	<1.0 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.32 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	37.4 mW / g $\pm$ 18.8 % (k=2)
SAR averaged over 10 cm ³ (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	4.97 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	19.9 mW / g $\pm$ 18.7 % (k=2)

Certificate No: Z18-60427

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