

Appendix B: Tissue Stimulating Liquids, System Checks and System Validation

B.1. SAR System Check

Prior to SAR assessment, the system is verified to $\pm 10\%$ of the SAR measurement on the reference dipole at the time of calibration by the calibration facility. Full system validation status and result summary can be found in Section B.4.

Table 1 System Check Results (SAR)

System	Frequency (MHz)	Tissue Type	Date	Amb. Temp. (°C)	Tissue Temp (°C)	Input Power (dBm)	Verification Source SN	Probe SN	DAE SN	Measured 1g SAR (W/Kg)	1W Target 1g SAR (W/Kg)	1W Normalized 1g SAR (W/Kg)	1g SAR Deviation	Measured 10g SAR (W/Kg)	1W Target 10g SAR (W/Kg)	1W Normalized 10g SAR (W/Kg)	10g SAR Deviation (%)	Measured APD 4 cm ₂ (W/m ₂)	1W target APD 4cm ₂ (W/m ₂)	1W Normalized APD 4cm ₂ (W/m ₂)	APD 4cm ₂ Deviation
Beta	750	Head	01/23/2024	22.5	21.5	23	1235	7836	1839	1.670	8.690	8.370	-3.68%	1.100	5.690	5.513	-3.11%	N/A	N/A	N/A	N/A
Beta	750	Head	01/26/2024	22.5	22.4	23	1235	7836	1839	1.660	8.690	8.320	-4.26%	1.080	5.690	5.413	-4.87%	N/A	N/A	N/A	N/A
Beta	750	Head	02/09/2024	22.4	22.1	20	1235	7836	1839	0.899	8.690	8.990	3.45%	0.589	5.690	5.890	3.51%	N/A	N/A	N/A	N/A
Beta	835	Head	01/26/2024	22.5	22.4	23	4d311	7836	1839	1.910	9.820	9.573	-2.52%	1.240	6.370	6.215	-2.44%	N/A	N/A	N/A	N/A
Gamma	835	Head	02/09/2024	22.2	21.7	17	4d311	7859	1844	0.502	9.820	10.016	2.00%	0.328	6.370	6.544	2.74%	N/A	N/A	N/A	N/A
Gamma	835	Head	02/12/2024	21.6	21.5	17	4d311	7859	1844	0.510	9.820	10.176	3.62%	0.334	6.370	6.664	4.62%	N/A	N/A	N/A	N/A
Gamma	1750	Head	01/30/2024	22.1	20.4	17	1205	7859	1844	1.770	36.500	35.316	-3.24%	0.942	19.200	18.795	-2.11%	N/A	N/A	N/A	N/A
Gamma	1750	Head	02/08/2024	22.6	21.4	17	1205	7859	1844	1.730	36.500	34.518	-5.43%	0.919	19.200	18.336	-4.50%	N/A	N/A	N/A	N/A
Gamma	1750	Head	02/12/2024	21.6	21.5	17	1205	7859	1844	1.730	36.500	34.518	-5.43%	0.927	19.200	18.496	-3.67%	N/A	N/A	N/A	N/A
Beta	1900	Head	02/02/2024	22.9	22	17	5d252	7836	1839	1.830	39.800	36.513	-8.26%	0.949	21.000	18.935	-9.83%	N/A	N/A	N/A	N/A
Beta	1900	Head	02/09/2024	22.4	22.1	20	5d252	7836	1839	4.050	39.800	40.500	1.76%	2.100	21.000	21.000	0.00%	N/A	N/A	N/A	N/A
Gamma	2300	Head	01/31/2024	21.2	19.2	17	1139	7859	1844	2.450	49.000	48.884	-0.24%	1.170	23.700	23.345	-1.50%	N/A	N/A	N/A	N/A
Delta	2300	Head	02/07/2024	21.9	20.3	17	1139	7857	1843	2.300	49.000	45.891	-6.34%	1.100	23.700	21.948	-7.39%	N/A	N/A	N/A	N/A
Gamma	2450	Head	01/24/2024	22.1	20.1	17	1112	7853	1844	2.570	51.800	51.278	-1.01%	1.200	24.400	23.943	-1.87%	N/A	N/A	N/A	N/A
Beta	2600	Head	01/29/2024	22.7	21.6	17	1215	7836	1839	2.630	57.200	52.475	-8.26%	1.180	25.800	23.544	-8.74%	N/A	N/A	N/A	N/A
Beta	2600	Head	01/31/2024	21.3	20.5	17	1215	7836	1839	2.600	57.200	51.877	-9.31%	1.170	25.800	23.345	-9.52%	N/A	N/A	N/A	N/A
Beta	2600	Head	02/14/2024	23.1	21.8	17	1215	7836	1839	2.730	57.200	54.471	-4.77%	1.230	25.800	24.542	-4.88%	N/A	N/A	N/A	N/A
Delta	3500	Head	01/24/2024	22.2	19.7	17	1154	7857	1843	3.190	65.100	63.649	-2.23%	1.160	24.600	23.145	-5.91%	N/A	N/A	N/A	N/A
Delta	3500	Head	01/26/2024	23.5	21.1	17	1154	7857	1843	3.030	65.100	60.456	-7.13%	1.120	24.600	22.347	-9.16%	N/A	N/A	N/A	N/A
Delta	3500	Head	01/29/2024	22.9	21.9	17	1154	7857	1843	3.180	65.100	63.449	-2.54%	1.170	24.600	23.345	-5.10%	N/A	N/A	N/A	N/A
Delta	3700	Head	01/24/2024	22.2	19.7	17	1130	7857	1843	3.140	66.600	62.651	-5.93%	1.130	24.500	22.546	-7.97%	N/A	N/A	N/A	N/A
Delta	3700	Head	01/26/2024	23.5	21.1	17	1130	7857	1843	3.130	66.600	62.452	-6.23%	1.130	24.500	22.546	-7.97%	N/A	N/A	N/A	N/A
Delta	3700	Head	01/29/2024	22.9	21.9	17	1130	7857	1843	3.080	66.600	61.454	-7.73%	1.110	24.500	22.147	-9.60%	N/A	N/A	N/A	N/A
Beta	3700	Head	02/14/2024	23.1	21.8	17	1130	7836	1839	3.090	66.600	61.654	-7.43%	1.150	24.500	22.946	-6.34%	N/A	N/A	N/A	N/A
Delta	3900	Head	01/29/2024	22.9	21.9	17	1101	7857	1843	3.310	70.200	66.043	-5.92%	1.130	24.600	22.546	-8.35%	N/A	N/A	N/A	N/A
Gamma	5250	Head	01/24/2024	22.1	20.1	17	1396	7853	1844	3.890	81.000	77.616	-4.18%	1.120	23.000	22.347	-2.84%	N/A	N/A	N/A	N/A
Gamma	5600	Head	01/24/2024	22.1	20.1	17	1396	7853	1844	4.210	83.800	84.001	0.24%	1.200	23.900	23.943	0.18%	N/A	N/A	N/A	N/A
Gamma	5750	Head	01/24/2024	22.1	20.1	17	1396	7853	1844	3.910	81.100	78.015	-3.80%	1.120	22.900	22.347	-2.42%	N/A	N/A	N/A	N/A
Gamma	6500	Head	01/22/2024	22.1	21	20	1104	7853	1844	26.800	288.000	268.000	-6.94%	5.020	53.300	50.200	-5.82%	122.0	1300.0	1220.0	-6.15%
Gamma	6500	Head	02/06/2024	22.3	20.8	17	1104	7853	1844	14.100	288.000	281.332	-2.32%	2.650	53.300	52.874	-0.80%	64.6	1300.0	1288.9	-0.85%

B.2. Power Density System Check

The system was verified to be within ± 0.66 dB of the power density targets on the calibration certificate according to the test system specification in the user’s manual and calibration facility recommendation. The 0.66 dB deviation threshold represents the expanded uncertainty for system performance checks using SPEAG’s mmWave verification sources.

The measured power density distribution of verification source was also confirmed through visual inspection to have no noticeable differences, both spatially (shape) and numerically (level) from the distribution provided by the manufacturer, per November 2017 TCBC Workshop Notes.

Table 2 System Check Results (Power Density)

Date	Probe SN	Frequency (MHz)	Source SN	Prad (mW)	Measured Normal psPD (W/m ²)	Target Normal psPD (W/m ²)	Deviation Normal psPD (dB)	Measured Total psPD (W/m ²)	Target Total psPD (W/m ²)	Deviation Total psPD (dB)
2/10/2024	9690	10000.0	1074	93.3	55.4	55.9	-0.04	55.7	56.6	-0.07

B.3. Dielectric Parameters of the TSL

Table 3 SAR Tissue Dielectric Parameters

Date	Tissue Type	Liquid Temp (°C)	Frequency (MHz)	Conductivity Measured (σ)	Conductivity Target (σ)	Deviation	Permittivity measured (ϵ_r)	Permittivity Target (ϵ_r)	Deviation
1/22/2024	Head	20.6	5985	5.39	5.46	-1.43%	34.0	35.1	-3.04%
1/22/2024	Head	20.6	6000	5.40	5.48	-1.49%	34.0	35.1	-3.07%
1/22/2024	Head	20.6	6050	5.47	5.54	-1.32%	33.9	35.0	-3.18%
1/22/2024	Head	20.6	6100	5.52	5.60	-1.43%	33.8	35.0	-3.24%
1/22/2024	Head	20.6	6150	5.59	5.66	-1.27%	33.8	34.9	-3.34%
1/22/2024	Head	20.6	6200	5.64	5.72	-1.33%	33.7	34.9	-3.42%
1/22/2024	Head	20.6	6250	5.70	5.78	-1.27%	33.6	34.8	-3.45%
1/22/2024	Head	20.6	6300	5.75	5.83	-1.38%	33.5	34.7	-3.55%
1/22/2024	Head	20.6	6350	5.81	5.89	-1.40%	33.4	34.7	-3.57%
1/22/2024	Head	20.6	6400	5.87	5.95	-1.32%	33.3	34.6	-3.70%
1/22/2024	Head	20.6	6450	5.92	6.01	-1.48%	33.3	34.6	-3.72%
1/22/2024	Head	20.6	6500	5.99	6.07	-1.35%	33.2	34.5	-3.84%
1/22/2024	Head	20.6	6550	6.04	6.13	-1.46%	33.1	34.4	-3.93%
1/22/2024	Head	20.6	6600	6.11	6.19	-1.28%	33.0	34.4	-3.97%
1/22/2024	Head	20.6	6650	6.16	6.24	-1.39%	32.9	34.3	-4.14%
1/22/2024	Head	20.6	6700	6.22	6.30	-1.26%	32.8	34.3	-4.12%
1/22/2024	Head	20.6	6750	6.28	6.36	-1.32%	32.7	34.2	-4.32%
1/22/2024	Head	20.6	6800	6.33	6.42	-1.31%	32.7	34.1	-4.22%
1/22/2024	Head	20.6	6850	6.39	6.48	-1.36%	32.6	34.1	-4.49%
1/22/2024	Head	20.6	6900	6.44	6.53	-1.42%	32.6	34.0	-4.32%
1/22/2024	Head	20.6	6950	6.51	6.59	-1.32%	32.4	34.0	-4.60%
1/22/2024	Head	20.6	7000	6.55	6.65	-1.53%	32.4	33.9	-4.43%
1/22/2024	Head	20.6	7050	6.62	6.71	-1.32%	32.3	33.8	-4.69%
1/22/2024	Head	20.6	7100	6.67	6.77	-1.43%	32.2	33.8	-4.65%
1/22/2024	Head	20.6	7150	6.75	6.83	-1.19%	32.1	33.7	-4.83%
1/23/2024	Head	23.3	680	0.89	0.89	0.33%	42.9	42.3	1.42%
1/23/2024	Head	23.3	695	0.89	0.89	0.85%	42.8	42.2	1.45%
1/23/2024	Head	23.3	710	0.90	0.89	1.40%	42.7	42.1	1.49%
1/23/2024	Head	23.3	750	0.91	0.89	2.14%	42.6	41.9	1.61%
1/23/2024	Head	23.3	770	0.92	0.89	2.84%	42.6	41.8	1.80%
1/23/2024	Head	23.3	785	0.92	0.89	3.23%	42.5	41.7	1.84%
1/24/2024	Head	20.1	2400	1.84	1.76	4.62%	40.0	39.3	1.88%
1/24/2024	Head	20.1	2450	1.88	1.80	4.20%	39.9	39.2	1.85%
1/24/2024	Head	20.1	2480	1.90	1.83	3.68%	39.9	39.2	1.77%
1/24/2024	Head	22.7	3330	2.84	2.74	3.85%	35.7	38.1	-6.32%
1/24/2024	Head	22.7	3350	2.86	2.76	3.84%	35.6	38.1	-6.48%
1/24/2024	Head	22.7	3400	2.92	2.81	3.81%	35.5	38.0	-6.77%
1/24/2024	Head	22.7	3450	2.97	2.86	3.94%	35.3	38.0	-7.06%
1/24/2024	Head	22.7	3500	3.02	2.91	3.83%	35.1	37.9	-7.37%
1/24/2024	Head	22.7	3550	3.08	2.96	4.00%	35.0	37.9	-7.61%
1/24/2024	Head	22.7	3600	3.14	3.02	4.06%	34.8	37.8	-7.96%
1/24/2024	Head	22.7	3650	3.19	3.07	4.08%	34.7	37.8	-8.16%
1/24/2024	Head	22.7	3700	3.25	3.12	4.19%	34.5	37.7	-8.53%
1/24/2024	Head	22.7	3750	3.30	3.17	4.12%	34.4	37.6	-8.71%
1/24/2024	Head	22.7	3800	3.36	3.22	4.36%	34.2	37.6	-9.04%
1/24/2024	Head	20.1	5150	4.51	4.60	-1.94%	34.9	36.0	-3.22%
1/24/2024	Head	20.1	5200	4.57	4.66	-1.86%	34.8	36.0	-3.30%
1/24/2024	Head	20.1	5250	4.62	4.71	-1.74%	34.7	35.9	-3.46%
1/24/2024	Head	20.1	5300	4.68	4.76	-1.68%	34.6	35.9	-3.51%
1/24/2024	Head	20.1	5350	4.73	4.81	-1.58%	34.5	35.8	-3.68%
1/24/2024	Head	20.1	5500	4.89	4.96	-1.48%	34.2	35.6	-3.92%
1/24/2024	Head	20.1	5550	4.95	5.01	-1.35%	34.1	35.6	-4.04%
1/24/2024	Head	20.1	5600	5.00	5.07	-1.23%	34.1	35.5	-4.15%
1/24/2024	Head	20.1	5650	5.06	5.12	-1.11%	34.0	35.5	-4.28%
1/24/2024	Head	20.1	5700	5.12	5.17	-0.94%	33.9	35.4	-4.41%
1/24/2024	Head	20.1	5750	5.17	5.22	-0.91%	33.8	35.4	-4.47%
1/24/2024	Head	20.1	5800	5.23	5.27	-0.72%	33.7	35.3	-4.61%
1/26/2024	Head	22.7	680	0.89	0.89	0.50%	42.4	42.3	0.38%
1/26/2024	Head	22.7	695	0.90	0.89	1.02%	42.3	42.2	0.36%
1/26/2024	Head	22.7	710	0.90	0.89	1.57%	42.3	42.1	0.37%
1/26/2024	Head	22.7	750	0.91	0.89	2.30%	42.2	41.9	0.50%
1/26/2024	Head	22.7	815	0.94	0.90	4.38%	41.9	41.6	0.83%
1/26/2024	Head	22.7	835	0.94	0.90	4.86%	41.9	41.5	0.95%
1/26/2024	Head	22.7	850	0.95	0.92	3.43%	41.9	41.5	0.85%

Table 4 SAR Tissue Dielectric Parameters (Continued)

Date	Tissue Type	Liquid Temp (°C)	Frequency (MHz)	Conductivity Measured (σ)	Conductivity Target (σ)	Deviation	Permittivity measured (εr)	Permittivity Target (εr)	Deviation
1/26/2024	Head	23.5	3330	2.88	2.74	5.07%	36.0	38.1	-5.43%
1/26/2024	Head	23.5	3350	2.90	2.76	5.02%	36.0	38.1	-5.58%
1/26/2024	Head	23.5	3400	2.95	2.81	5.05%	35.8	38.0	-5.86%
1/26/2024	Head	23.5	3450	3.01	2.86	5.17%	35.6	38.0	-6.15%
1/26/2024	Head	23.5	3500	3.06	2.91	5.15%	35.5	37.9	-6.48%
1/26/2024	Head	23.5	3550	3.12	2.96	5.29%	35.3	37.9	-6.74%
1/26/2024	Head	23.5	3600	3.18	3.02	5.38%	35.1	37.8	-7.10%
1/26/2024	Head	23.5	3650	3.23	3.07	5.32%	35.0	37.8	-7.32%
1/26/2024	Head	23.5	3700	3.29	3.12	5.44%	34.8	37.7	-7.69%
1/26/2024	Head	23.5	3750	3.34	3.17	5.32%	34.7	37.6	-7.88%
1/26/2024	Head	23.5	3800	3.40	3.22	5.55%	34.5	37.6	-8.19%
1/26/2024	Head	23.5	3850	3.45	3.27	5.45%	34.4	37.5	-8.45%
1/29/2024	Head	21.9	2500	1.84	1.85	-0.83%	38.2	39.1	-2.36%
1/29/2024	Head	21.9	2550	1.87	1.91	-1.86%	38.1	39.1	-2.41%
1/29/2024	Head	21.9	2600	1.91	1.96	-2.54%	38.1	39.0	-2.43%
1/29/2024	Head	21.9	2650	1.95	2.02	-3.44%	38.0	38.9	-2.50%
1/29/2024	Head	21.9	2680	1.97	2.05	-3.58%	37.9	38.9	-2.48%
1/29/2024	Head	21.9	2700	1.99	2.07	-3.97%	37.9	38.9	-2.51%
1/29/2024	Head	21.9	3330	2.87	2.74	4.97%	36.7	38.1	-3.81%
1/29/2024	Head	21.9	3350	2.90	2.76	4.97%	36.6	38.1	-3.97%
1/29/2024	Head	21.9	3400	2.95	2.81	5.00%	36.4	38.0	-4.24%
1/29/2024	Head	21.9	3450	3.01	2.86	5.15%	36.3	38.0	-4.54%
1/29/2024	Head	21.9	3500	3.06	2.91	5.10%	36.1	37.9	-4.84%
1/29/2024	Head	21.9	3550	3.12	2.96	5.29%	35.9	37.9	-5.10%
1/29/2024	Head	21.9	3600	3.18	3.02	5.37%	35.8	37.8	-5.44%
1/29/2024	Head	21.9	3650	3.23	3.07	5.42%	35.6	37.8	-5.63%
1/29/2024	Head	21.9	3700	3.29	3.12	5.55%	35.4	37.7	-6.02%
1/29/2024	Head	21.9	3750	3.34	3.17	5.52%	35.3	37.6	-6.20%
1/29/2024	Head	21.9	3800	3.41	3.22	5.76%	35.1	37.6	-6.53%
1/29/2024	Head	21.9	3850	3.46	3.27	5.68%	35.0	37.5	-6.77%
1/29/2024	Head	21.9	3900	3.52	3.32	5.97%	34.8	37.5	-7.05%
1/29/2024	Head	21.9	3950	3.57	3.37	5.93%	34.7	37.4	-7.32%
1/30/2024	Head	21.6	1710	1.37	1.35	1.56%	40.2	40.1	0.26%
1/30/2024	Head	21.6	1750	1.39	1.37	1.57%	40.2	40.1	0.23%
1/30/2024	Head	21.6	1790	1.41	1.39	1.47%	40.1	40.0	0.25%
1/31/2024	Head	21.5	2300	1.73	1.67	3.80%	39.1	39.5	-1.03%
1/31/2024	Head	21.5	2310	1.74	1.68	3.70%	39.0	39.4	-0.99%
1/31/2024	Head	21.5	2320	1.75	1.68	3.61%	39.0	39.4	-0.98%
1/31/2024	Head	21.2	2500	1.87	1.85	1.07%	39.4	39.1	0.68%
1/31/2024	Head	21.2	2550	1.91	1.91	0.11%	39.3	39.1	0.63%
1/31/2024	Head	21.2	2600	1.95	1.96	-0.58%	39.3	39.0	0.63%
1/31/2024	Head	21.2	2650	1.99	2.02	-1.35%	39.2	38.9	0.56%
1/31/2024	Head	21.2	2680	2.02	2.05	-1.52%	39.1	38.9	0.59%
1/31/2024	Head	21.2	2700	2.03	2.07	-1.93%	39.1	38.9	0.56%
2/2/2024	Head	22.1	1850	1.41	1.40	0.88%	40.1	40.0	0.16%
2/2/2024	Head	22.1	1880	1.43	1.40	1.85%	40.0	40.0	0.07%
2/2/2024	Head	22.1	1920	1.44	1.40	3.21%	39.9	40.0	-0.14%
2/6/2024	Head	21.5	5985	5.23	5.46	-4.36%	32.5	35.1	-7.39%
2/6/2024	Head	21.5	6000	5.24	5.48	-4.46%	32.5	35.1	-7.45%
2/6/2024	Head	21.5	6050	5.30	5.54	-4.24%	32.4	35.0	-7.54%
2/6/2024	Head	21.5	6100	5.35	5.60	-4.42%	32.3	35.0	-7.64%
2/6/2024	Head	21.5	6150	5.42	5.66	-4.21%	32.2	34.9	-7.72%
2/6/2024	Head	21.5	6200	5.47	5.72	-4.35%	32.1	34.9	-7.82%
2/6/2024	Head	21.5	6250	5.53	5.78	-4.25%	32.1	34.8	-7.83%
2/6/2024	Head	21.5	6300	5.58	5.83	-4.38%	32.0	34.7	-7.97%
2/6/2024	Head	21.5	6350	5.63	5.89	-4.41%	31.9	34.7	-7.97%
2/6/2024	Head	21.5	6400	5.69	5.95	-4.33%	31.8	34.6	-8.14%
2/6/2024	Head	21.5	6450	5.74	6.01	-4.55%	31.8	34.6	-8.13%
2/6/2024	Head	21.5	6500	5.81	6.07	-4.34%	31.6	34.5	-8.28%
2/6/2024	Head	21.5	6550	5.85	6.13	-4.55%	31.6	34.4	-8.33%
2/6/2024	Head	21.5	6600	5.92	6.19	-4.26%	31.5	34.4	-8.41%
2/6/2024	Head	21.5	6650	5.96	6.24	-4.51%	31.4	34.3	-8.56%
2/6/2024	Head	21.5	6700	6.03	6.30	-4.29%	31.3	34.3	-8.55%
2/6/2024	Head	21.5	6750	6.07	6.36	-4.49%	31.2	34.2	-8.77%
2/6/2024	Head	21.5	6800	6.14	6.42	-4.35%	31.2	34.1	-8.65%
2/6/2024	Head	21.5	6850	6.18	6.48	-4.50%	31.0	34.1	-8.95%
2/6/2024	Head	21.5	6900	6.24	6.53	-4.50%	31.0	34.0	-8.75%
2/6/2024	Head	21.5	6950	6.30	6.59	-4.49%	30.9	34.0	-9.08%
2/6/2024	Head	21.5	7000	6.34	6.65	-4.61%	30.9	33.9	-8.84%
2/6/2024	Head	21.5	7050	6.41	6.71	-4.47%	30.7	33.8	-9.18%
2/6/2024	Head	21.5	7100	6.46	6.77	-4.55%	30.7	33.8	-9.07%
2/6/2024	Head	21.5	7150	6.53	6.83	-4.33%	30.6	33.7	-9.31%

Table 5 SAR Tissue Dielectric Parameters (Continued)

Date	Tissue Type	Liquid Temp (°C)	Frequency (MHz)	Conductivity Measured (σ)	Conductivity Target (σ)	Deviation	Permittivity measured (ϵ_r)	Permittivity Target (ϵ_r)	Deviation
2/7/2024	Head	20.4	2300	1.74	1.67	4.69%	40.5	39.5	2.64%
2/7/2024	Head	20.4	2310	1.75	1.68	4.61%	40.5	39.4	2.66%
2/7/2024	Head	20.4	2320	1.76	1.68	4.53%	40.5	39.4	2.67%
2/8/2024	Head	23.5	1710	1.34	1.35	-0.55%	40.9	40.1	1.83%
2/8/2024	Head	23.5	1750	1.37	1.37	-0.21%	40.8	40.1	1.86%
2/8/2024	Head	23.5	1790	1.39	1.39	-0.09%	40.7	40.0	1.82%
2/9/2024	Head	23	680	0.88	0.89	-0.76%	42.1	42.3	-0.36%
2/9/2024	Head	23	695	0.88	0.89	-0.20%	42.0	42.2	-0.41%
2/9/2024	Head	23	710	0.89	0.89	0.41%	41.9	42.1	-0.44%
2/9/2024	Head	23	750	0.90	0.89	1.18%	41.8	41.9	-0.27%
2/9/2024	Head	23	770	0.91	0.89	1.84%	41.8	41.8	-0.05%
2/9/2024	Head	23	785	0.91	0.89	2.24%	41.7	41.7	-0.01%
2/9/2024	Head	21.4	815	0.91	0.90	1.28%	42.8	41.6	2.90%
2/9/2024	Head	21.4	835	0.92	0.90	1.72%	42.8	41.5	3.03%
2/9/2024	Head	21.4	850	0.92	0.92	0.39%	42.7	41.5	2.93%
2/9/2024	Head	22.3	1850	1.42	1.40	1.68%	39.4	40.0	-1.49%
2/9/2024	Head	22.3	1880	1.44	1.40	2.79%	39.4	40.0	-1.51%
2/9/2024	Head	22.3	1920	1.46	1.40	4.35%	39.3	40.0	-1.71%
2/12/2024	Head	21.7	815	0.93	0.90	3.76%	43.5	41.6	4.54%
2/12/2024	Head	21.7	835	0.94	0.90	4.23%	43.4	41.5	4.67%
2/12/2024	Head	21.7	850	0.94	0.92	2.91%	43.4	41.5	4.55%
2/12/2024	Head	21.7	1710	1.35	1.35	0.47%	41.3	40.1	2.93%
2/12/2024	Head	21.7	1750	1.38	1.37	0.68%	41.3	40.1	3.01%
2/12/2024	Head	21.7	1790	1.40	1.39	0.74%	41.2	40.0	2.97%
2/14/2024	Head	21.8	2500	1.88	1.85	1.21%	40.2	39.1	2.62%
2/14/2024	Head	21.8	2550	1.91	1.91	0.29%	40.1	39.1	2.57%
2/14/2024	Head	21.8	2600	1.96	1.96	-0.34%	40.0	39.0	2.54%
2/14/2024	Head	21.8	2650	2.00	2.02	-1.08%	39.9	38.9	2.45%
2/14/2024	Head	21.8	2680	2.02	2.05	-1.22%	39.9	38.9	2.45%
2/14/2024	Head	21.8	2700	2.04	2.07	-1.60%	39.8	38.9	2.40%
2/14/2024	Head	21.8	3330	2.57	2.74	-6.14%	38.6	38.1	1.31%
2/14/2024	Head	21.8	3350	2.59	2.76	-6.25%	38.6	38.1	1.23%
2/14/2024	Head	21.8	3400	2.63	2.81	-6.47%	38.5	38.0	1.16%
2/14/2024	Head	21.8	3450	2.67	2.86	-6.59%	38.4	38.0	1.09%
2/14/2024	Head	21.8	3500	2.71	2.91	-6.87%	38.3	37.9	1.01%
2/14/2024	Head	21.8	3550	2.76	2.96	-6.89%	38.2	37.9	0.98%
2/14/2024	Head	21.8	3600	2.80	3.02	-6.99%	38.1	37.8	0.88%
2/14/2024	Head	21.8	3650	2.85	3.07	-7.12%	38.1	37.8	0.88%
2/14/2024	Head	21.8	3700	2.89	3.12	-7.16%	38.0	37.7	0.76%
2/14/2024	Head	21.8	3750	2.94	3.17	-7.29%	37.9	37.6	0.77%
2/14/2024	Head	21.8	3800	2.99	3.22	-7.21%	37.8	37.6	0.68%
2/14/2024	Head	21.8	3850	3.03	3.27	-7.36%	37.8	37.5	0.64%
2/14/2024	Head	21.8	3900	3.08	3.32	-7.18%	37.7	37.5	0.59%
2/14/2024	Head	21.8	3950	3.13	3.37	-7.27%	37.6	37.4	0.51%

The above measured tissue parameters were used in the DASY software. The DASY software was used to perform interpolation to determine the dielectric parameters at the SAR test device frequencies (per KDB Publication 865664 D01v01r04 and IEEE 1528-2013 6.6.1.2). The tissue parameters listed in the SAR test plots may slightly differ from the table above due to significant digit rounding in the software.

The SAR values were compensated for deviations between the measured and required tissue dielectric properties, as described in IEEE 1528-2013. The SAR values were applied to only scale up the measured SAR values, and not downward, per KDB Publication 865664 D01v04r04.

B.4. System Validation

Per FCC KDB Publication 865664 D02 Section 2.3 a) states “SAR system validation status and system verification results should be documented in a separate section of the SAR report, or as an attachment, to confirm measurement accuracy.”

The SAR systems used for evaluating this device were validated against its performance specifications prior to the SAR measurements.

Reference dipoles were used with the required tissue-equivalent media for system validation, according to the procedures outlined in FCC KDB Publication 865664 D01 and IEEE 1528-2013. Since SAR probe calibrations are frequency dependent, each probe calibration point was validated at a frequency within the valid frequency range of the probe calibration point.

Per FCC KDB 865664 D02, “the validation status should be documented according to the validation date(s), measurement frequencies, SAR probes, calibrated signal type(s) and tissue dielectric parameters.” A tabulated summary of the system validation status is provided accordingly:

Table 6 System Validation

Date	Probe	DAE	Probe CalF		Cond. (σ)	Perm (ϵ_r)	CW Validation			Mod Validation		
			Freq (MHz)	Tissue Type			Sensitivity	Probe Linearity	Probe Isotropy	Mod Type	Duty Factor	PAR
11/18/2023	7836	1839	750	Head	0.897	43.5	PASS	PASS	PASS	N/A	N/A	N/A
11/18/2023	7836	1839	835	Head	0.927	43.2	PASS	PASS	PASS	GMSK	PASS	N/A
01/29/2024	7859	1844	835	Head	0.921	41.6	PASS	PASS	PASS	GMSK	PASS	N/A
01/15/2024	7859	1844	1750	Head	1.34	40.5	PASS	PASS	PASS	N/A	N/A	N/A
11/24/2023	7836	1839	1900	Head	1.44	40.4	PASS	PASS	PASS	GMSK	PASS	N/A
01/11/2024	7859	1844	2300	Head	1.72	40.5	PASS	PASS	PASS	N/A	N/A	N/A
01/04/2024	7857	1843	2300	Head	1.75	40.4	PASS	PASS	PASS	N/A	N/A	N/A
12/13/2023	7853	1844	2450	Head	1.82	39.5	PASS	PASS	PASS	OFDM	N/A	PASS
11/20/2023	7836	1839	2600	Head	1.97	39.8	PASS	PASS	PASS	TDD	PASS	N/A
12/29/2023	7857	1843	3500	Head	2.8	38.8	PASS	PASS	PASS	TDD	PASS	N/A
12/29/2023	7857	1843	3700	Head	2.98	38.5	PASS	PASS	PASS	TDD	PASS	N/A
11/24/2023	7836	1839	3700	Head	2.99	37.7	PASS	PASS	PASS	TDD	PASS	N/A
12/29/2023	7857	1843	3900	Head	3.18	38.2	PASS	PASS	PASS	TDD	PASS	N/A
12/12/2023	7853	1844	5250	Head	4.54	34.8	PASS	PASS	PASS	OFDM	N/A	PASS
12/12/2023	7853	1844	5600	Head	4.91	34.3	PASS	PASS	PASS	OFDM	N/A	PASS
12/13/2023	7853	1844	5750	Head	5.07	34	PASS	PASS	PASS	OFDM	N/A	PASS
12/14/2023	7853	1844	6500	Head	6.06	33.5	PASS	PASS	PASS	OFDM	N/A	PASS

NOTE: The probes have been calibrated for both CW and modulated signals. Modulations in the table above represent test configurations for which the measurement system has been validated per FCC KDB Publication 865664 D01 for scenarios when CW probe calibrations are used with other signal types.

SAR systems were additionally validated for modulated signals with a periodic duty cycle or with a high PAR (peak to average ratio) >5 dB, such as OFDM according to FCC KDB Publication 865664 D01 v01r04.

B.5. Sample TSL Compositions

TSL recipes are proprietary to SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer data sheets are provided below.

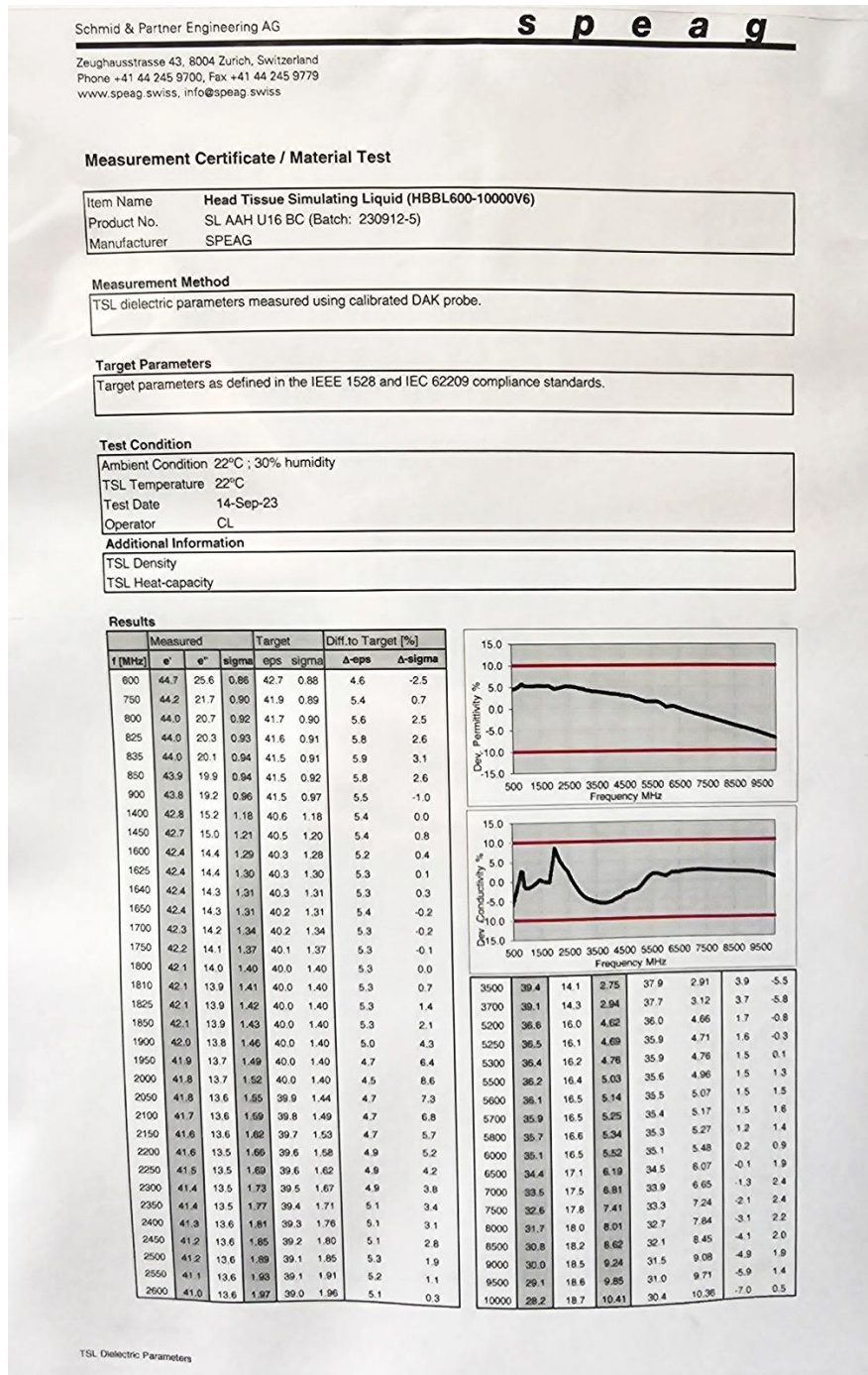


Figure 1 - Head TSL Calibration Certificate Example