

APPENDIX B: SAR TISSUE SPECIFICATIONS

Measurement Procedure for Tissue verification:

- 1) The network analyzer and probe system was configured and calibrated.
- 2) The probe was immersed in the tissue. The tissue was placed in a nonmetallic container. Trapped air bubbles beneath the flange were minimized by placing the probe at a slight angle.
- 3) The complex admittance with respect to the probe aperture was measured
- 4) The complex relative permittivity ϵ' can be calculated from the below equation (Pournaropoulos and Misra):

$$Y = \frac{j2\omega\epsilon_r\epsilon_0}{[\ln(b/a)]^2} \int_a^b \int_a^b \int_0^\pi \cos\phi' \frac{\exp[-j\omega r(\mu_0\epsilon_r'\epsilon_0)^{1/2}]}{r} d\phi' d\rho' d\rho$$

where Y is the admittance of the probe in contact with the sample, the primed and unprimed coordinates refer to source and observation points, respectively, $r^2 = \rho^2 + \rho'^2 - 2\rho\rho'\cos\phi'$, ω is the angular frequency, and $j = \sqrt{-1}$.

3 Composition / Information on ingredients

3.2 Mixtures

Description: Aqueous solution with surfactants and inhibitors

Declarable, or hazardous components:

CAS: 107-21-1 EINECS: 203-473-3 Reg.nr.: 01-2119456816-28-0000	Ethanediol STOT RE 2, H373; Acute Tox. 4, H302	>1.0-4.9%
CAS: 68608-26-4 EINECS: 271-781-5 Reg.nr.: 01-2119527859-22-0000	Sodium petroleum sulfonate Eye Irrit. 2, H319	< 2.9%
CAS: 107-41-5 EINECS: 203-489-0 Reg.nr.: 01-2119539582-35-0000	Hexylene Glycol / 2-Methyl-pentane-2,4-diol Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 2.9%
CAS: 68920-66-1 NLP: 500-236-9 Reg.nr.: 01-2119489407-26-0000	Alkoxyated alcohol, > C₁₆ Aquatic Chronic 2, H411; Skin Irrit. 2, H315; Eye Irrit. 2, H319	< 2.0%

Additional information:

For the wording of the listed risk phrases refer to section 16.

Not mentioned CAS-, EINECS- or registration numbers are to be regarded as Proprietary/Confidential.

The specific chemical identity and/or exact percentage concentration of proprietary components is withheld as a trade secret.

Figure B-1

Note: Liquid recipes are proprietary SPEAG. Since the composition is approximate to the actual liquids utilized, the manufacturer tissue-equivalent liquid data sheets are provided below.

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Measurement Certificate / Material Test

Item Name **Head Tissue Simulating Liquid (HBBL600-10000V6)**
Product No. **SL AAH U16 BC (Batch: 240521-1)**
Manufacturer **SPEAG**

Measurement Method

TSL dielectric parameters measured using calibrated DAK probe.

Target Parameters

Target parameters as defined in the IEEE 1528 and IEC 62209 compliance standards.

Test Condition

Ambient Condition **22°C ; 30% humidity**
TSL Temperature **22°C**
Test Date **22-May-24**
Operator **CL**

Additional Information

TSL Density
TSL Heat-capacity

Results

f [MHz]	Measured			Target		Diff.to Target [%]	
	e'	e''	sigma	eps	sigma	Δ-eps	Δ-sigma
600	44.4	25.1	0.84	42.7	0.88	3.9	-4.7
750	43.8	21.2	0.89	41.9	0.89	4.4	-0.4
800	43.6	20.3	0.90	41.7	0.90	4.6	0.3
825	43.6	19.9	0.91	41.6	0.91	4.8	0.4
835	43.6	19.7	0.92	41.5	0.91	4.9	0.9
850	43.5	19.5	0.92	41.5	0.92	4.8	0.4
900	43.4	18.8	0.94	41.5	0.97	4.6	-3.1
1400	42.4	14.9	1.16	40.6	1.18	4.5	-1.6
1450	42.3	14.7	1.18	40.5	1.20	4.4	-1.7
1600	42.1	14.2	1.26	40.3	1.28	4.4	-1.9
1625	42.1	14.1	1.28	40.3	1.30	4.5	-1.4
1640	42.1	14.1	1.29	40.3	1.31	4.6	-1.2
1650	42.0	14.0	1.29	40.2	1.31	4.4	-1.8
1700	41.9	13.9	1.32	40.2	1.34	4.3	-1.6
1750	41.8	13.8	1.35	40.1	1.37	4.3	-1.5
1800	41.8	13.7	1.38	40.0	1.40	4.5	-1.4
1810	41.8	13.7	1.39	40.0	1.40	4.5	-0.7
1825	41.8	13.7	1.40	40.0	1.40	4.5	0.0
1850	41.7	13.7	1.41	40.0	1.40	4.3	0.7
1900	41.6	13.6	1.44	40.0	1.40	4.0	2.9
1950	41.5	13.5	1.47	40.0	1.40	3.8	5.0
2000	41.5	13.5	1.50	40.0	1.40	3.8	7.1
2050	41.4	13.5	1.54	39.9	1.44	3.7	6.6
2100	41.3	13.4	1.57	39.8	1.49	3.7	5.4
2150	41.3	13.4	1.60	39.7	1.53	3.9	4.3
2200	41.2	13.4	1.64	39.6	1.58	3.9	3.9
2250	41.1	13.4	1.68	39.6	1.62	3.9	3.6
2300	41.0	13.4	1.71	39.5	1.67	3.9	2.6
2350	41.0	13.4	1.75	39.4	1.71	4.1	2.3
2400	40.9	13.4	1.79	39.3	1.76	4.1	2.0
2450	40.8	13.4	1.83	39.2	1.80	4.1	1.7
2500	40.7	13.4	1.87	39.1	1.85	4.0	0.8
2550	40.7	13.4	1.91	39.1	1.91	4.2	0.0
2600	40.6	13.5	1.95	39.0	1.96	4.1	-0.7

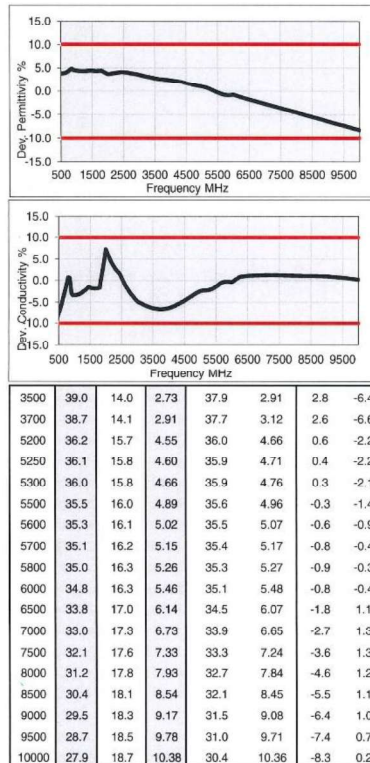


Figure B-2
600 – 5800 MHz Head Tissue Equivalent Matter

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