

APPENDIX E: 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 E-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.

| | | | | |
|--|--|--------------------------------------|---|-----------------------------------|
| FCC ID: A3LSMS906U |  PCTEST Proud to be part of  | WIFI 6 GHZ RF EXPOSURE EVALUATION |  | Approved by: Technical Manager |
| Test Dates: 10/12/2021 – 10/19/2021 | DUT Type: Portable Handset | APPENDIX E: Page 1 of 2 | | |

Measurement Certificate / Material Test

| | |
|--------------|---|
| Item Name | Head Tissue Simulating Liquid (HBBL600-10000V6) |
| Product No. | SL AAH U16 BC (Batch: 200805-4) |
| 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

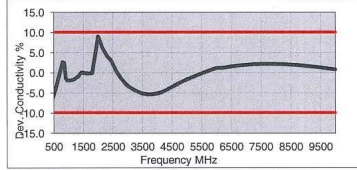
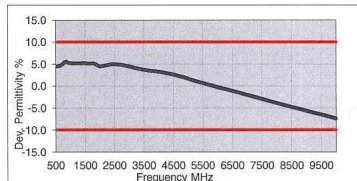
Ambient Condition 22°C ; 30% humidity
 TSL Temperature 22°C
 Test Date 6-Aug-20
 Operator CL

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 | 44.7 | 25.7 | 0.86 | 42.7 | 0.88 | 4.6 | -2.5 |
| 750 | 44.1 | 21.7 | 0.90 | 41.9 | 0.89 | 5.1 | 0.7 |
| 800 | 44.0 | 20.7 | 0.92 | 41.7 | 0.90 | 5.6 | 2.5 |
| 825 | 43.9 | 20.3 | 0.93 | 41.6 | 0.91 | 5.6 | 2.6 |
| 835 | 43.9 | 20.1 | 0.94 | 41.5 | 0.91 | 5.7 | 3.1 |
| 850 | 43.8 | 19.9 | 0.94 | 41.5 | 0.92 | 5.5 | 2.6 |
| 900 | 43.7 | 19.1 | 0.96 | 41.5 | 0.97 | 5.3 | -1.0 |
| 1400 | 42.7 | 15.1 | 1.18 | 40.6 | 1.18 | 5.2 | 0.0 |
| 1450 | 42.6 | 14.9 | 1.20 | 40.5 | 1.20 | 5.2 | 0.0 |
| 1600 | 42.4 | 14.4 | 1.28 | 40.3 | 1.28 | 5.2 | -0.3 |
| 1625 | 42.4 | 14.4 | 1.30 | 40.3 | 1.30 | 5.3 | 0.1 |
| 1640 | 42.4 | 14.3 | 1.31 | 40.3 | 1.31 | 5.3 | 0.3 |
| 1650 | 42.3 | 14.3 | 1.31 | 40.2 | 1.31 | 5.1 | -0.2 |
| 1700 | 42.2 | 14.2 | 1.34 | 40.2 | 1.34 | 5.1 | -0.2 |
| 1750 | 42.2 | 14.1 | 1.37 | 40.1 | 1.37 | 5.3 | -0.1 |
| 1800 | 42.1 | 14.0 | 1.40 | 40.0 | 1.40 | 5.3 | 0.0 |
| 1810 | 42.1 | 14.0 | 1.41 | 40.0 | 1.40 | 5.3 | 0.7 |
| 1825 | 42.1 | 13.9 | 1.42 | 40.0 | 1.40 | 5.3 | 1.4 |
| 1850 | 42.0 | 13.9 | 1.43 | 40.0 | 1.40 | 5.0 | 2.1 |
| 1900 | 41.9 | 13.8 | 1.46 | 40.0 | 1.40 | 4.7 | 4.3 |
| 1950 | 41.9 | 13.8 | 1.49 | 40.0 | 1.40 | 4.7 | 6.4 |
| 2000 | 41.8 | 13.7 | 1.53 | 40.0 | 1.40 | 4.5 | 9.3 |
| 2050 | 41.7 | 13.7 | 1.56 | 39.9 | 1.44 | 4.5 | 8.0 |
| 2100 | 41.7 | 13.7 | 1.60 | 39.8 | 1.49 | 4.7 | 7.5 |
| 2150 | 41.6 | 13.6 | 1.63 | 39.7 | 1.53 | 4.7 | 6.3 |
| 2200 | 41.5 | 13.6 | 1.67 | 39.6 | 1.58 | 4.7 | 5.8 |
| 2250 | 41.5 | 13.6 | 1.70 | 39.6 | 1.62 | 4.9 | 4.8 |
| 2300 | 41.4 | 13.6 | 1.74 | 39.5 | 1.67 | 4.9 | 4.4 |
| 2350 | 41.3 | 13.6 | 1.78 | 39.4 | 1.71 | 4.9 | 4.0 |
| 2400 | 41.2 | 13.6 | 1.82 | 39.3 | 1.76 | 4.9 | 3.7 |
| 2450 | 41.2 | 13.6 | 1.85 | 39.2 | 1.80 | 5.1 | 2.8 |
| 2500 | 41.1 | 13.6 | 1.89 | 39.1 | 1.85 | 5.0 | 1.9 |
| 2550 | 41.0 | 13.7 | 1.94 | 39.1 | 1.91 | 4.9 | 1.6 |
| 2600 | 40.9 | 13.7 | 1.98 | 39.0 | 1.96 | 4.8 | 0.8 |



| | | | | | | | |
|-------|------|------|-------|------|-------|------|------|
| 3500 | 39.4 | 14.2 | 2.77 | 37.9 | 2.91 | 3.7 | -5.1 |
| 3700 | 39.0 | 14.3 | 2.95 | 37.7 | 3.12 | 3.5 | -5.3 |
| 5200 | 36.4 | 15.9 | 4.61 | 36.0 | 4.66 | 1.3 | -1.0 |
| 5250 | 36.4 | 16.0 | 4.67 | 35.9 | 4.71 | 1.2 | -0.9 |
| 5300 | 36.3 | 16.0 | 4.72 | 35.9 | 4.76 | 1.1 | -0.7 |
| 5500 | 35.9 | 16.2 | 4.96 | 35.6 | 4.96 | 0.7 | -0.1 |
| 5600 | 35.7 | 16.3 | 5.07 | 35.5 | 5.07 | 0.5 | 0.2 |
| 5700 | 35.5 | 16.4 | 5.19 | 35.4 | 5.17 | 0.3 | 0.4 |
| 5800 | 35.4 | 16.5 | 5.31 | 35.3 | 5.27 | 0.1 | 0.7 |
| 6000 | 35.0 | 16.6 | 5.54 | 35.1 | 5.48 | -0.2 | 1.2 |
| 6500 | 34.1 | 17.1 | 6.17 | 34.5 | 6.07 | -1.1 | 1.6 |
| 7000 | 33.2 | 17.4 | 6.78 | 33.9 | 6.65 | -2.0 | 2.0 |
| 7500 | 32.3 | 17.7 | 7.40 | 33.3 | 7.24 | -2.9 | 2.2 |
| 8000 | 31.5 | 18.0 | 8.01 | 32.7 | 7.84 | -3.8 | 2.2 |
| 8500 | 30.6 | 18.2 | 8.63 | 32.1 | 8.45 | -4.7 | 2.1 |
| 9000 | 29.8 | 18.4 | 9.24 | 31.5 | 9.08 | -5.6 | 1.8 |
| 9500 | 29.0 | 18.6 | 9.84 | 31.0 | 9.71 | -6.5 | 1.3 |
| 10000 | 28.1 | 18.8 | 10.44 | 30.4 | 10.36 | -7.4 | 0.8 |

Figure E-2
600 – 10000 MHz Head Tissue Equivalent Matter

| | | | | |
|--|--|--------------------------------------|---|-----------------------------------|
| FCC ID: A3LSMS906U |  PCTEST Proud to be part of element | WIFI 6 GHZ RF EXPOSURE EVALUATION |  | Approved by: Technical Manager |
| Test Dates: 10/12/2021 – 10/19/2021 | DUT Type: Portable Handset | APPENDIX E: Page 2 of 2 | | |