

Figure 1: The HH ($\sigma_{\phi\phi}$, dB, left) and VV ($\sigma_{\theta\theta}$, dB, right) polarized RCS for the solid resin almond of length $L=9.936$ in at frequency $f=2.58$ GHz.

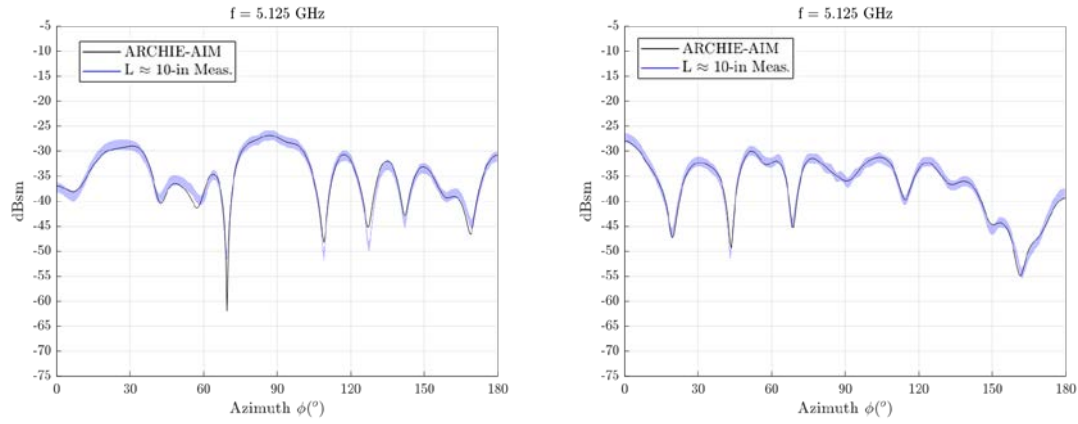


Figure 2: The HH ($\sigma_{\phi\phi}$, dB, left) and VV ($\sigma_{\theta\theta}$, dB, right) polarized RCS for the solid resin almond of length $L=9.936$ in at frequency $f=5.125$ GHz.

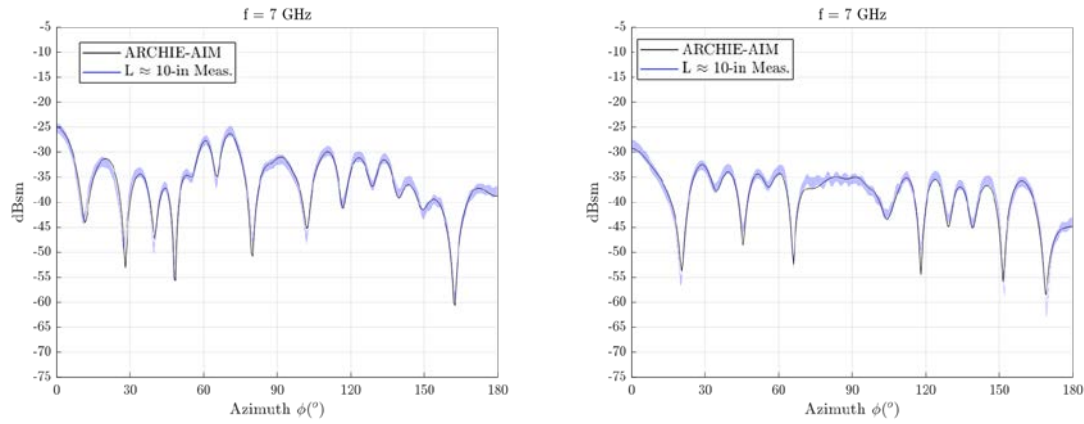


Figure 3: The HH ($\sigma_{\phi\phi}$, dB, left) and VV ($\sigma_{\theta\theta}$, dB, right) polarized RCS for the solid resin almond of length $L=9.936$ in at frequency $f=7$ GHz.

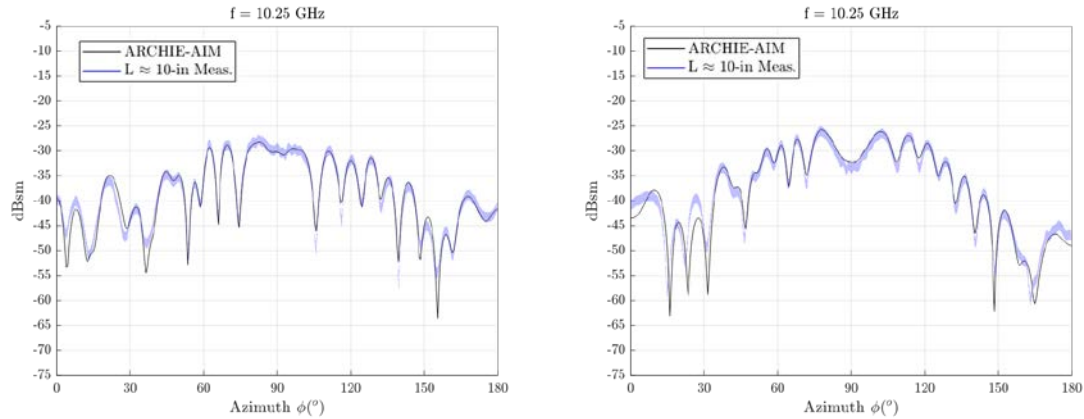


Figure 4: The HH ($\sigma_{\phi\phi}$, dB, left) and VV ($\sigma_{\theta\theta}$, dB, right) polarized RCS for the solid resin almond of length $L = 9.936$ in at frequency $f = 10.25$ GHz.

The above RCS results are that of the reference measurement and simulation data in the benchmark suite. The measurement data in the suite are the same as that shown in [1] and are plotted within a ± 1 dB window to represent the measurement uncertainties. The simulation data are slightly different than that shown in [1] due to the change in the Debye model parameters (see the “problem description” document and [2] for the reason behind this change).

Notes

1. The measurement and simulation data are provided at every 0.5° in the azimuthal range.
2. The simulation data were calculated by using the ARCHIE-AIM code, a frequency-domain FFT-accelerated integral-equation solver developed at UT Austin [3]-[5], and are the same as the finest mesh (≈ 0.6 -mm average edge length) results in [1],[6].

References

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- [6] J. T. Kelley, D. A. Chamulak, C. C. Courtney, and A. E. Yilmaz, “Rye Canyon radar cross-section measurements of benchmark almond targets,” *IEEE Ant. Propag. Soc. Mag.*, Feb. 2020.