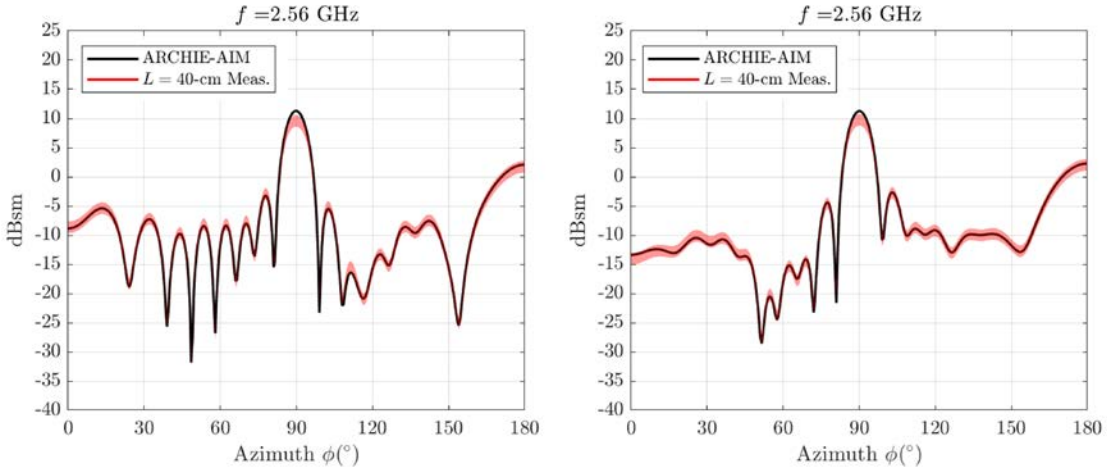

Figure 1: The HH ($\sigma_{\phi\phi,\mathrm{dB}}$, left) and VV ($\sigma_{\theta\theta,\mathrm{dB}}$, right) polarized RCS for the PEC Cobra-Duct Camera Box at frequency f = 2.56 GHz.

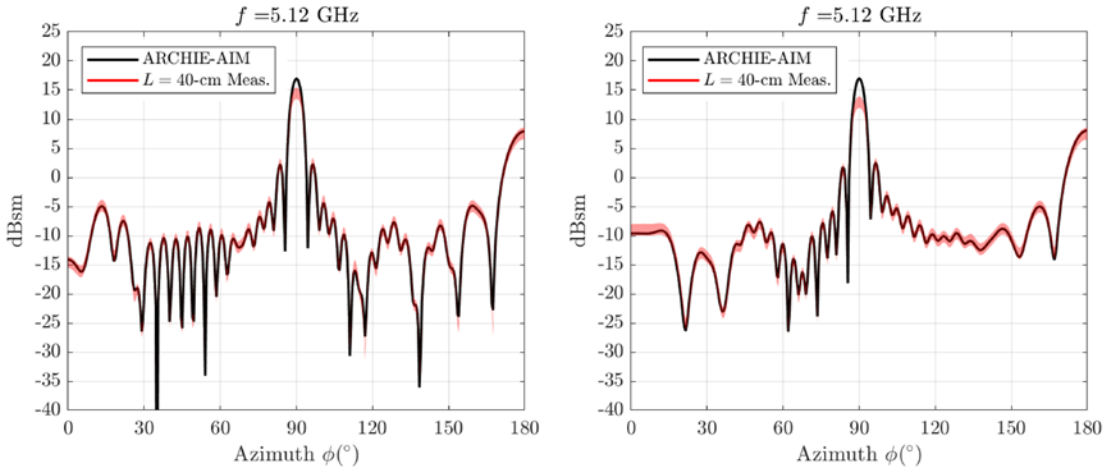

Figure 2: The HH ($\sigma_{\phi\phi,\mathrm{dB}}$, left) and VV ($\sigma_{\theta\theta,\mathrm{dB}}$, right) polarized RCS for the PEC Cobra-Duct Camera Box at frequency f = 5.12 GHz.

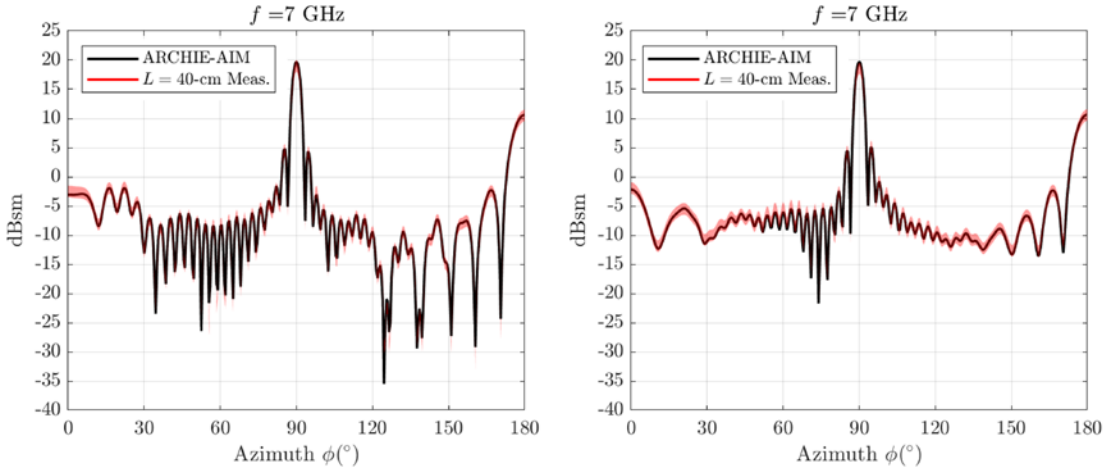

Figure 3: The HH ($\sigma_{\phi\phi,\mathrm{dB}}$, left) and VV ($\sigma_{\theta\theta,\mathrm{dB}}$, right) polarized RCS for the PEC Cobra-Duct Camera Box at frequency f = 7 GHz.

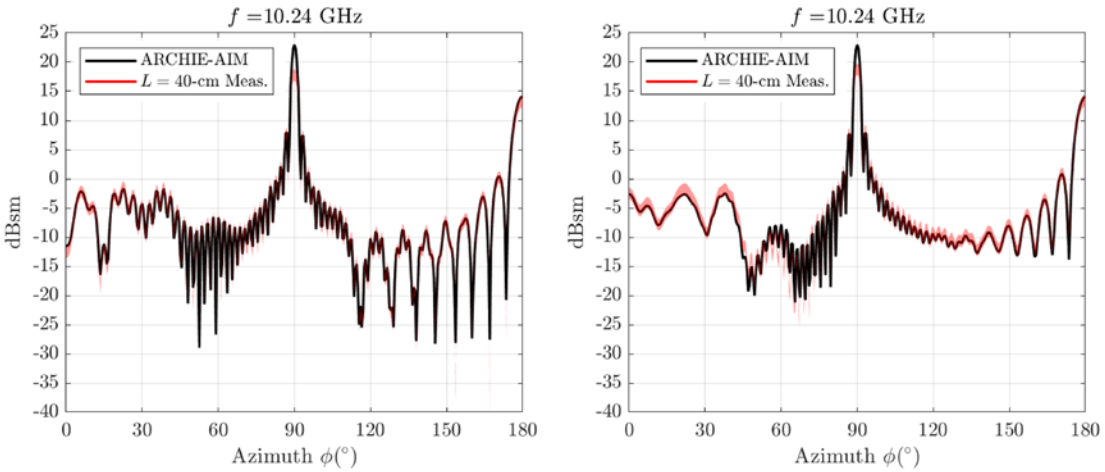

Figure 4: The HH ($\sigma_{\phi\phi,\mathrm{dB}}$, left) and VV ($\sigma_{\theta\theta,\mathrm{dB}}$, right) polarized RCS for the PEC Cobra-Duct Camera Box at frequency f = 10.24 GHz.

The above RCS results are that of the reference measurement and simulation data in the benchmark suite. The measurement data are plotted with a $\pm$1 dB uncertainty window to represent the measurement uncertainties.

Notes

1. Both the measurement and simulation data are provided at every 0.5° in the azimuthal range.
2. The instrumentation radar used in the measurements were saturated by the high return at 90° for the 10.24 GHz measurement. Thus, the measured RCS values near that look angle are inaccurate. The same phenomenon can be observed in Fig. 3 in [1].
3. The simulation data were calculated by using the ARCHIE-AIM code, a frequency-domain FFT-accelerated integral-equation solver developed at UT Austin [2]-[4].

References

[1] A. E. Yilmaz, E. Smith, S. Cox, B. MacKie-Mason, C. C. Courtney, and G. Burchuk, "Camera boxes: a set of complex scattering problems to test EM simulations and measurements," in *Proc. IEEE Antennas Propag. Soc. Int. Symp.*, July 2022.

[2] M. F. Wu, G. Kaur, and A. E. Yılmaz, "A multiple-grid adaptive integral method for multi-region problems," *IEEE Trans. Antennas Propag.*, vol. 58, no. 5, pp. 1601-1613, May 2010.

[3] F. Wei and A. E. Yılmaz, "A more scalable and efficient parallelization of the adaptive integral method part I: algorithm," *IEEE Trans. Antennas Propag.*, vol. 62, no.2, pp. 714-726, Feb. 2014.

[4] J. W. Massey, V. Subramanian, C. Liu, and A. E. Yılmaz, "Analyzing UHF band antennas near humans with a fast integral-equation method," in *Proc. EUCAP*, Apr. 2016.