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**Magnetic Properties of Single-Crystal and Polycrystalline YIG Films Using a Custom Broad-Band FMR System** SCOOTER JOHNSON, HARVEY NEWMAN, SANGHOON SHIN, EVAN GLASER, Naval Research Laboratory — We present a comparison of ferromagnetic resonance data acquired from single-crystal and polycrystalline yttrium iron garnet thick films deposited by liquid phase epitaxy and aerosol deposition, respectively. Data were taken using a custom broad-band measurement system consisting of a 1.2 T dc magnet and a 40 GHz vector network analyzer, which is used to track the ferromagnetic resonance signal up to 40 GHz. Ferromagnetic resonance data of the films were also taken using a high-sensitivity cavity system operating at 9.5 GHz. We include details on the experimental configuration and include an empirical conversion scheme relating frequency-swept to field-swept linewidths obtained from analysis of  $S$ -parameter data. Our results show that using these complementary measurement techniques can provide insight into dynamic magnetization characteristics of ferromagnetic materials.

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