Abstracts

Efficiency Measurement Techniques for Calibration of a Prototype 34-Meter-Diameter Beam-Waveguide Antenna at 8.45 and 32 Ghz

S.D. Slobin, T.Y. Otoshi, M.J. Britcliffe, L.S. Alvarez, S.R. Stewart and M.M. Franco. "Efficiency Measurement Techniques for Calibration of a Prototype 34-Meter-Diameter Beam-Waveguide Antenna at 8.45 and 32 Ghz." 1992 Transactions on Microwave Theory and Techniques 40.6 (Jun. 1992 [T-MTT] (Special Issue on Microwaves in Space)): 1301-1309.

Efficiency measurement: at 8.45 and 32 GHz (X- and Ku-bands) have been carried out on a new 34-meter-diameter beam-waveguide antenna now in use at the NASA/JPL Goldstone Deep Space Communications Complex. The use of portable test packages enabled measurements at both the Cassegrain and beam-waveguide focal points. Radio sources (quasars and Venus) were used as calibrators, and updated determinations of flux and source size correction were made during the period of the measurements. Gain and efficiency determinations as a function of elevation angle are presented, and the effects of the beam-waveguide system and antenna structure are clearly seen. At the beam-waveguide focus, an 8.45-GHz peak efficiency of 72.38 percent was measured; at 32 GHz, 44.89 percent was measured.

❑ Return to main document.