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To: Holographers

From: Alan E.E. Rogers AEER

Subject: Sunscans taken on 29 April 1992

Small scale roughness (using method of memo dated 24 April 1992):

SCAN	SMALL SCALE RMS
1A	4.9
1B	4.8
2A	4.8
2B	5.1
Average	4.9 ± 0.2

Symmetry of far out sidelobes

To date, all sunscans have been azimuth scans crossing the center of the sun. As a check of symmetry we measured the antenna temperature at 8 points on a circle of radius 0.5° around the sun. The results were as follows

ANGLE	TEMP
0	156
45	173
90	160
135	140
180	145
225	141
270	141
315	138

which shows some asymmetry but not enough to make a significant change in the power in sidelobes used to estimate the rms roughness.

Radome correction

The overall uncorrected small scale roughness with normal feed illumination is now slightly under 5 mils. I have not yet been able to accurately tie down the effect of the radome spaceframe on the sunscan measurements but an upper limit can be obtained by assuming all of the 1 dB blockage results in sidelobes in a region outside that seen by the holography but within the 0.8° of the sunscan. In this case, the effective rms produced by the radome is 3.8 mils and removing this in an rss sense gives lower limits of 5.6, 2.9 and 3.1 for the small rms of the outer, inner and overall surface respectively. A more likely radome correction is about 50% or 2.7 mils giving 6.2, 3.9 and 4.1 mils for outer, inner and overall small scale - more work is needed to refine this further.