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To: Holographers

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Subject: Comparison of focus from holography and radiometry

Holography data are taken with a focus position of +50 mils (subreflector away from box) relative to the SG&H equations. At the holography elevation of about 32° , radiometry shows the gain is maximized at about -40 mils. The difference of 90 mils (0.23 cm) is observed in the holographic maps. We have checked the signs, and the +0.23 cm on holography map printouts corresponds to the subreflector being too far away from the box. By rigging the antenna using holography taken at +60 mils and taking out only a focus correction in software, we have introduced a small amount of spherical aberration. The portion of spherical aberration not compensated by focus (since focus and spherical aberration are highly correlated) is only 1 mil of illumination-weighted rms.

Haystack Observatory
FOCUS, 7 mm, 1992, days 265--266

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