The typical contribution for this error is 0.011 rad when
$S = 2$ mm and $\gamma = 0.786$ rad.

The typical errors were given above for each separate case to illustrate which was the largest and dominating error. It is obvious by comparing the typical contributions given for each factor above that the largest errors are due to the fuzziness of the trace and to the spatial resolution of the camera.

It should be emphasized that the above analysis for the error in γ is a pessimistic one. The analysis was limited to the error between two data points while the actual measurement of the angle typically resulted in 15 data points which were least-squares fitted to a straight line. The least-squares fitting of the data reduces the measuring error. In addition, placing the Vanguard analyzer's hairlines on film coordinates of about the same optical density reduces the trace width to less than the slit width. To compensate for these factors, personal judgment must be used. A reduction of one-half of the error due to the slit width error in Eq. (C.5) was used.

The same methods used in estimating errors in the trace angle apply and were used for the errors in the wave tilt angle ω.