Abstracts

A Simple Grating System for Millimeter and Submillimeter Wavelength Separation (Correspondence)

K.B. Mallory, R.H. Miller and P.A. Szente. "A Simple Grating System for Millimeter and Submillimeter Wavelength Separation (Correspondence)." 1963 Transactions on Microwave Theory and Techniques 11.5 (Sep. 1963 [T-MTT]): 433-434.

In the course of a series of tests on a harmonic generator which multiplied a 10-Gc fundamental to frequencies as high as 700 Gc (0.4 mm wavelength), it was necessary to separate and identify the various harmonics that were generated simultaneously. A device to serve the function of a filter was required. High accuracy of wavelength measurement was not essential since the fundamental frequency was known to one part in 10. It was necessary only to identify which harmonic was being selected, In order to obtain high efficiency, an echelette grating spectrometer was constructed, in emulation of many, thus working with millimeter waves and the infrared. A spectrometer similar to that of Coates was considered, but expediency dictated a simpler system. The final design emphasized convenience in use by separating input and output paths, and simplicity of construction by having but one moving part. In Figs. 1 and 2 it may be seen that the grating merely rotates on fixed bushings; no other optical parts are moved.

❑ Return to main document.