Abstracts

Data on the Temperature Dependence of X-Band Fluorescent Lamp Noise Sources

W.W. Mumford and R.L. Schafersman. "Data on the Temperature Dependence of X-Band Fluorescent Lamp Noise Sources." 1955 Transactions on Microwave Theory and Techniques 3.6 (Dec. 1955 [T-MTT]): 12-17.

This paper is concerned primarily with the performance of fluorescent lamps as microwave noise sources at 9,000 mc. In particular, it deals with the temperature dependence of the excess noise ratio of an 8-watt lamp running at a lamp current of 150 ma in a 10° E-plane holder. It was found that 1) the bulb temperature is much higher than that with a lamp current of 75 ma encountered in the 90° H-plane circuit investigated previously at 4,000 mc, hence the temperature coefficient of excess noise versus waveguide temperature obtained in the 4,000 mc circuit does not apply, 2) anomalous and unreproducible inversions in the temperature coefficient at these higher bulb temperatures have been observed, 3) these anomalies can be avoided by operating the bulb at lower temperatures, 40°C to 50°C, where the lamps appear to be just as uniform and stable and probably just as noisy as they are at 4,000 mc.

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