Abstracts

Millimeter Wave Spectroscopic Components

W.C. King. "Millimeter Wave Spectroscopic Components." 1954 Transactions on Microwave Theory and Techniques 2.3 (Sep. 1954 [T-MTT]): 13-16.

The very rapid development of the field of microwave electronics from the late 1930's to the present has opened up the region of the electromagnetic spectrum lying between the "radio" region and the infrared region. It is not generally realized, however, that these recent developments were by no means the earliest work in the field of centimeter and millimeter waves --- for example, Heinrich Hertz published in 1889 a description of the apparatus with which he generated and detected radiation of approximately 50 cm wavelength. In 1893-94 the Italian scientist, Righi, conducted experiments at even shorter wavelengths, and in 1923 the Americans, Nichols and Tear, published results of experiments covering the entire region from 50 mm to 0.22 mm --- from 5 kMc to 1300 kMc! Using small tungsten spark gaps, paraffin lenses, an eschellete grating, and a thermal-type detector they were able to prove experimentally the complete equivalence of "radio" and "infrared" radiation, thus closing the gap which had existed between the two.

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