Abstracts

A Note on "Submillimeter Wave Harmonic Mixing" (Correspondence)

G. Schulten, J.P. Stoll, R.G. Strauch, R.A. Miesch and R.E. Cupp. "A Note on "Submillimeter Wave Harmonic Mixing" (Correspondence)." 1967 Transactions on Microwave Theory and Techniques 15.1 (Jan. 1967 [T-MTT]): 60-60.

In their recent correspondence, Strauch et al., described two ways to prove the generation of harmonics by a crystal harmonic generator. In their experiments they used two millimeter-wave klystrons, one of them was swept with A}, the other acted as local oscillator operated in CW. The two outputs were mixed at the diode of a crossed-waveguide device. There, a fundamental or a harmonic mixing, respectively, took place. The difference frequency signals produced in this way were amplified in a 30 MHz IF amplifier. The detected video output was displayed on an oscilloscope. They observed upper and lower sidebands. The distances between these were 60, 30, 20, 150 · · · MHz, in general 60 MHz/n. Now they stated that all these beats were produced by harmonics, moreover they claimed to have observed more than 20 harmonics from a 72.9 GHz klystron. We have strong objections to these statements. This also holds for the papers of Murai, who claimed to have observed harmonics of the order of 14 in a similar experiment.

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