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Position dependence of thin layer notch filter waveguides[1] TIM FAL, BIJOY K. KUANR, ROBERT E. CAMLEY, ZBIGNIEW CELINSKI, UCCS, UCCS TEAM — Because of the importance of processing high frequency electromagnetic waves for communication, there has been interest in developing ultra-small thin-layer magnetic notch filters. These filters operate in the 5-40 GHz range. In the past theoretical work has concentrated on a structure where the magnetic film was right next to the one of the conductive films in a waveguide. Here we present a theoretical model, which investigates the properties of a waveguide with two dielectric films and one magnetic film placed between two conductive layers. We find that this more general structure produces a deeper attenuation and a narrower peak compared to the earlier structure. The additional attenuation is on the order of 20 dB/cm for the same parameters. The comparison between experiment and theory is presented.

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