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**Electromagnetic response of the planar metamaterial consisting of cut-wire pair and continuous wire** VU DINH LAM, NGUYEN THANH TUNG, JINWOO PARK, SEONGJAE LEE, YOUNGPAK LEE, Hanyang University, Korea — The left-handed materials (LHMs) attract more and more attention in recent years because of their intriguing physical properties and applications. Recently, a simple structure, the so-called cut-wire pair (CWP) was proposed and successfully used as the magnetic component in fabricating the LHMs. The simple geometry of CWPs means that such structures can be scaled down to the nanometer dimension much more easily than those based on the conventional split-ring resonator structures. In addition, the main advantages of the CWP structure comparing to the other structures is its ability to produce a strong magnetic resonance for the normal-to-plane propagation with only one CWP layer. In this report, we present the influence of lattice constants on the electromagnetic properties of CWP structures in the microwave frequency regime. In addition, we also discussed on how the lattice constants affect the LH behavior of combined structure consisting of CWP and continuous wire. A good agreement between the measurement and the numerical simulation is achieved.

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