

Excellent microwave absorption properties of partially substituted SrW-type hexaferrites in the Ka band (26.5–40 GHz)

S.I. Yoo,¹ S. Choi,¹ J.H. You,¹ and S.Y. Park²

¹*Department of Materials Science and Engineering,
and Research Institute of Advanced Materials,
Seoul National University, Seoul 151-744, Korea*

²*Spin Engineering Physics Team,
Division of Scientific Instrumentation,
Korea Basic Science Institute, Daejeon 34133, Korea*

It has been a challenging task to achieve an excellent microwave absorber in Ka band (26.5 – 40 GHz) which can exhibit the reflection loss (RL) less than -20. Such excellent microwave absorbers in Ka band are obtainable from partially substituted Strontium W-type (SrW) hexaferrites. Decomposition of partially substituted SrW hexaferrites during furnace-cooling could be effectively suppressed by the heat treatment in a reduced oxygen pressure [1,2]. For this study, the complex permittivity and complex permeability of samples were measured, and the reflection losses were calculated based on the obtained permittivity and permeability spectra. Details will be presented for discussion.

References:

- [1] Jae-Hyoung You, Hyo-Jin Kim, and Sang-Im Yoo, "Preparation of strontium W-type hexaferrites in a low oxygen pressure and their magnetic properties ", *Journal of Alloys and Compounds*, Vol. 695, (2017) pp. 3011-3017
- [2] Jae-Hyoung You and Sang-Im Yoo, "Improved magnetic properties of Zn-substituted strontium W-type hexaferrites", *Journal of Alloys and Compounds*, 763 (2018) pp. 459-465

This work was supported by a Grant from Chang Sung Co. in Korea.