High frequency (240 GHz) ferrimagnetic resonance (FMR) of room temperature organic based magnetic semiconductor V[TCNE]_x (x~2) films N.P. RAJU, The Ohio State University, K.I. POKHODNYA, The Ohio State University and University of Utah, J.VAN TOL, NHMFL/FSU, J.S. MILLER, University of Utah, A.J. EPSTEIN — V[TCNE]_x (x~2) is an organic based ferrimagnetic semiconducting material (ρ_300K ~10^2Ω.cm and activation energy, E_a ~ 0.5 eV) with an ordering temperature well above room temperature. Magnetoresistance (MR) behavior of this material has been explained on the basis of spin polarization of charge carriers in the π* electronic subbands of [TCNE]^− forming a ‘half-semiconductor’. [1,2] X-band (~9 GHz) ferrimagnetic resonance (FMR) studies on V[TCNE]_x (x~2) have been reported earlier.[3] Temperature and angular dependence of FMR spectra of V[TCNE]_x (x~2) films, obtained using ~240 GHz radiation, indicate the coexistence of long-range magnetic ordering and glassy behaviors. These results will be discussed in terms of competing interactions between V^{2+} and [TCNE]^− spins based on the local structural order. 1.V.N. Prigodin et. al., Adv. Mater. 14, 1230 (2002). 2.N.P. Raju et. al., J. Appl. Phys., 93, 6799 (2003). 3.R. Plachy et. al., Phys. Rev. B 70, 064411 (2004).

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