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Far infrared magnetospectroscopy of quasi-1D and 2-D density wave compounds.[1] A.F. ISAKOVIC, G.L. CARR, NSLS, Brookhaven National Lab — We report a far infrared reflectance study of quasi-1D blue bronze ($K_{0.3}MoO_3$) and magnetically doped quasi-2D $Mn_{0.01}NbSe_2$ over the temperature range from 10K up to 180K and fields up to 10T. For blue bronze, several features in the magnetoreflectance spectra, including amplitudon and phonon-like modes, change substantially (up to 50%) when a magnetic field is applied. For 100K<T<180K (below the CDW T_C of 183K), the spectra change nearly monotonically with T. Changes at lower T involve primarily the amplitudon mode (CDW order parameter), consistent with creep transport of the CDW. The B and T dependent spectra of Mn doped $NbSe_2$ reveal the presence of an isosbestic point near 5 meV photon energy and having a shape suggesting a local transfer of oscillator strength. The magnetoreflectance changes abruptly around a temperature of 16K for fields below 6T. Though a Drude-Lorentz fit can be applied to the spectra, a full understanding of charge transport in these materials will require a more detailed model.

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