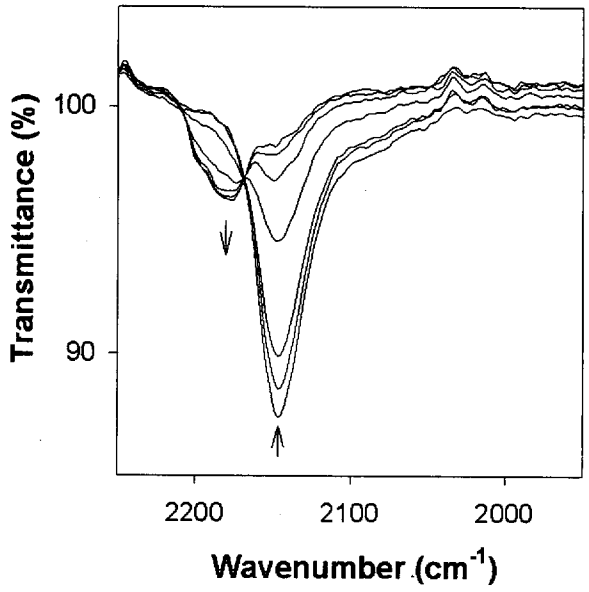

Figure S1. IR spectra showing the reduction of the Ru(III) complex,$[Ru(NH_3)_5(2,3,5,6\text{-}Cl_4pcyd)][ClO_4]_2$, in nitromethane, to the fully reduced Ru(II) complex.

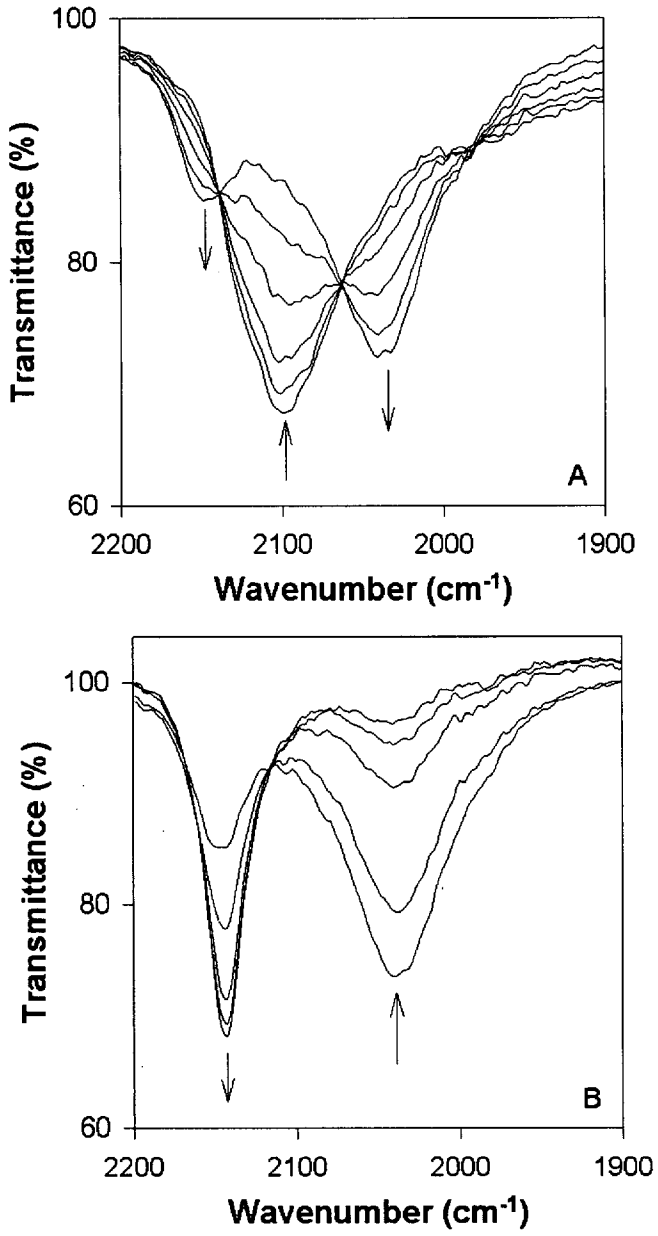

Figure S2... (a) IR spectra showing the reduction of the [III,III] complex, $[\{Ru(NH_3)_5\}_2(\mu\text{-dicyd})][PF_6]_4$ in DMSO, to the mixed-valence [III,II] complex. (b) IR spectra showing the reduction of the mixed valence complex to the fully reduced [II,II] complex.

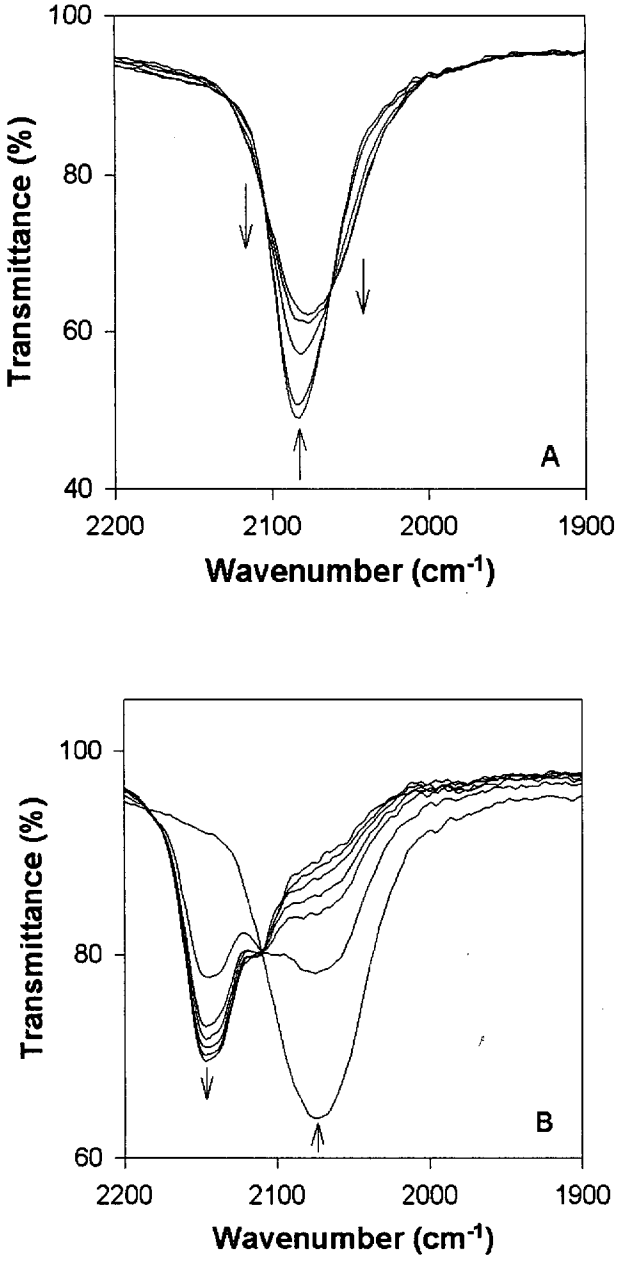

Figure S3. (a) IR spectra showing the reduction of the [III,III] complex, *mer, mer*-$[\{Ru(NH_3)_3(bpy)\}_2(\mu\text{-dicyd})][ClO_4]_4$ in DMSO, to the mixed-valence [III,II] complex. (b) IR spectra showing the reduction of the mixed valence complex to the [II,II] complex.

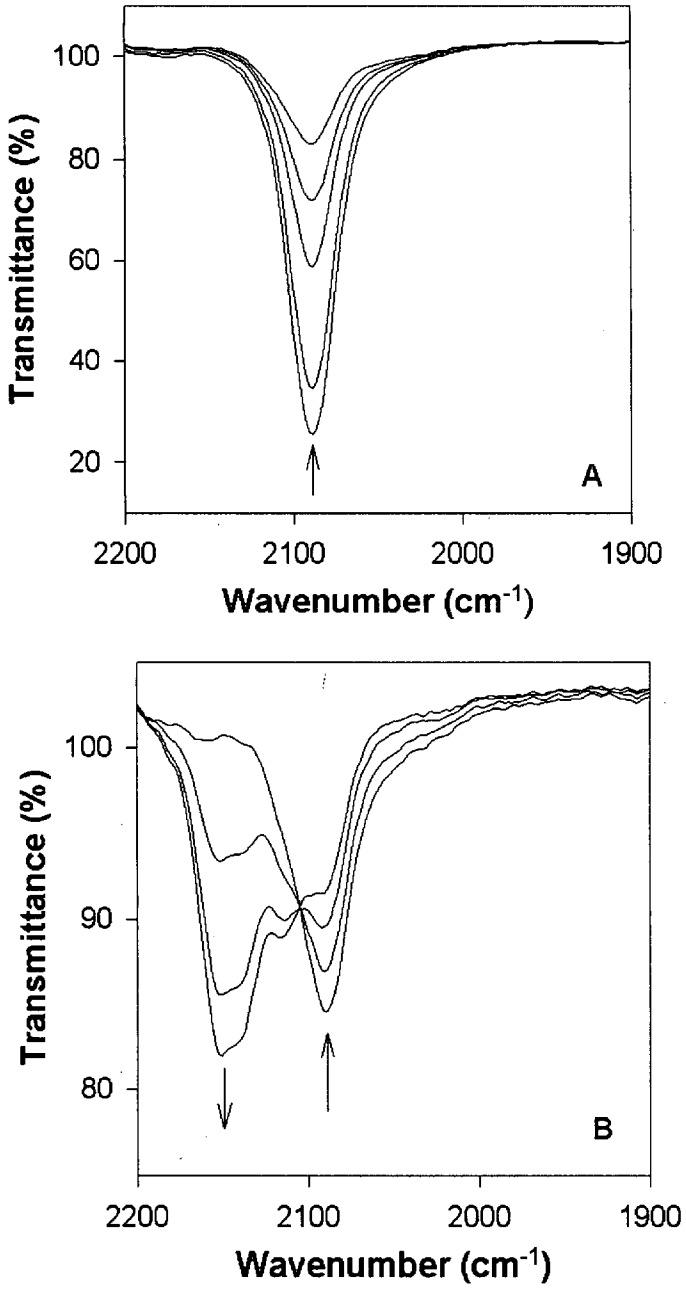

Figure S4. (a) IR spectra showing the reduction of the [III,III] complex, *mer, mer*-$[\{Ru(NH_3)_3(bpy)\}_2(\mu\text{-dicyd})][ClO_4]_4$ in acetonitrile, to the mixed-valence [II1/2,II1/2] complex. (b) IR spectra showing the reduction of the mixed valence complex to the [II,II] complex.

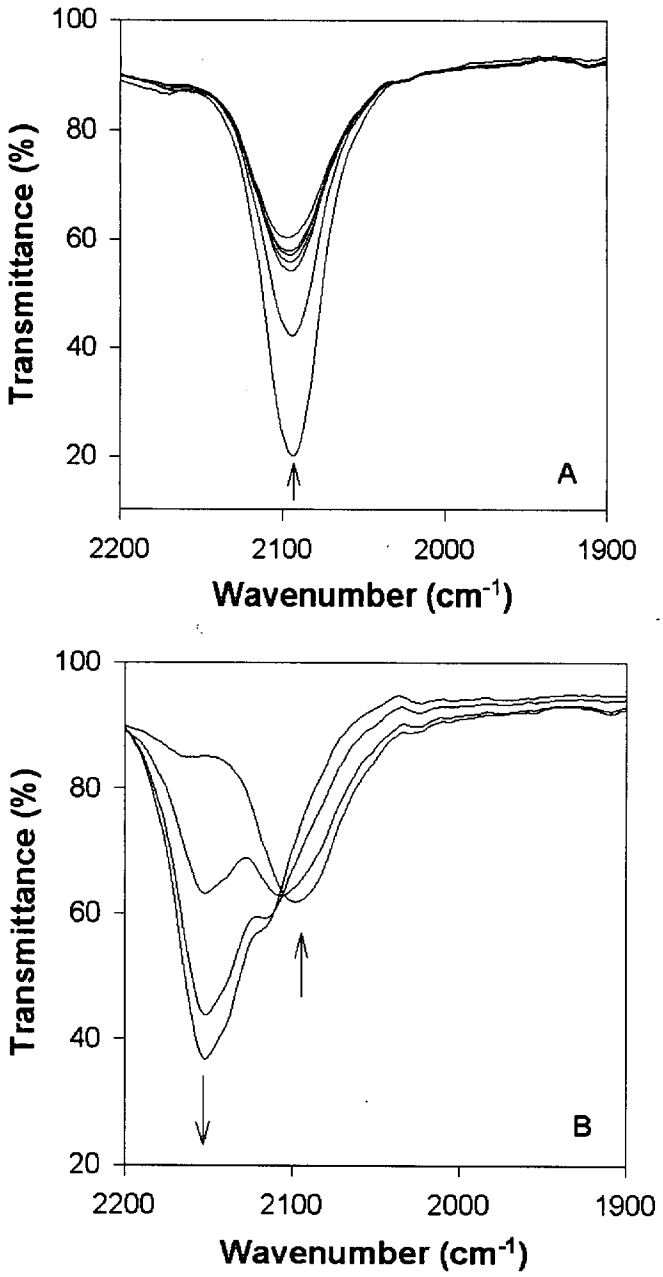

Figure S5. (a) IR spectra showing the reduction of the [III,III] complex, *mer, mer*-[{$Ru(NH_3)_3(bpy)$}$_2$(μ-dicyd)][ClO_4]$_4$ in nitomethane, to the mixed-valence [II1/2,II1/2] complex. (b) IR spectra showing the reduction of the mixed valence complex to the [II,II] complex.