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Supporting Information for the manuscript:

A Single Molecule Magnet to Single Molecule Magnet Transformation via a Solvothermal Process: $Fe_4Dy_2 \rightarrow Fe_6Dy_3$

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Table S1 Magnetic data of compounds **1-4** summarised from the dc measurements.

Compound	Ground state of Ln^{III}	χT expected for non-interacting ions per complex (cm^3 K mol^{-1})	χT measured at 300 K per complex (cm^3 K mol^{-1})	χT measured at 1.8 K per complex (cm^3 K mol^{-1})
Fe_4Y_2, **1**		17.5	14.5	0.02
Fe_4Dy_2, **2**	$^6H_{15/2}$	45.8	42.3	32.6
Fe_6Y_3, **3**		26.3	12.0	0.75
Fe_6Dy_3, **4**	$^6H_{15/2}$	68.8	54.7	31.1

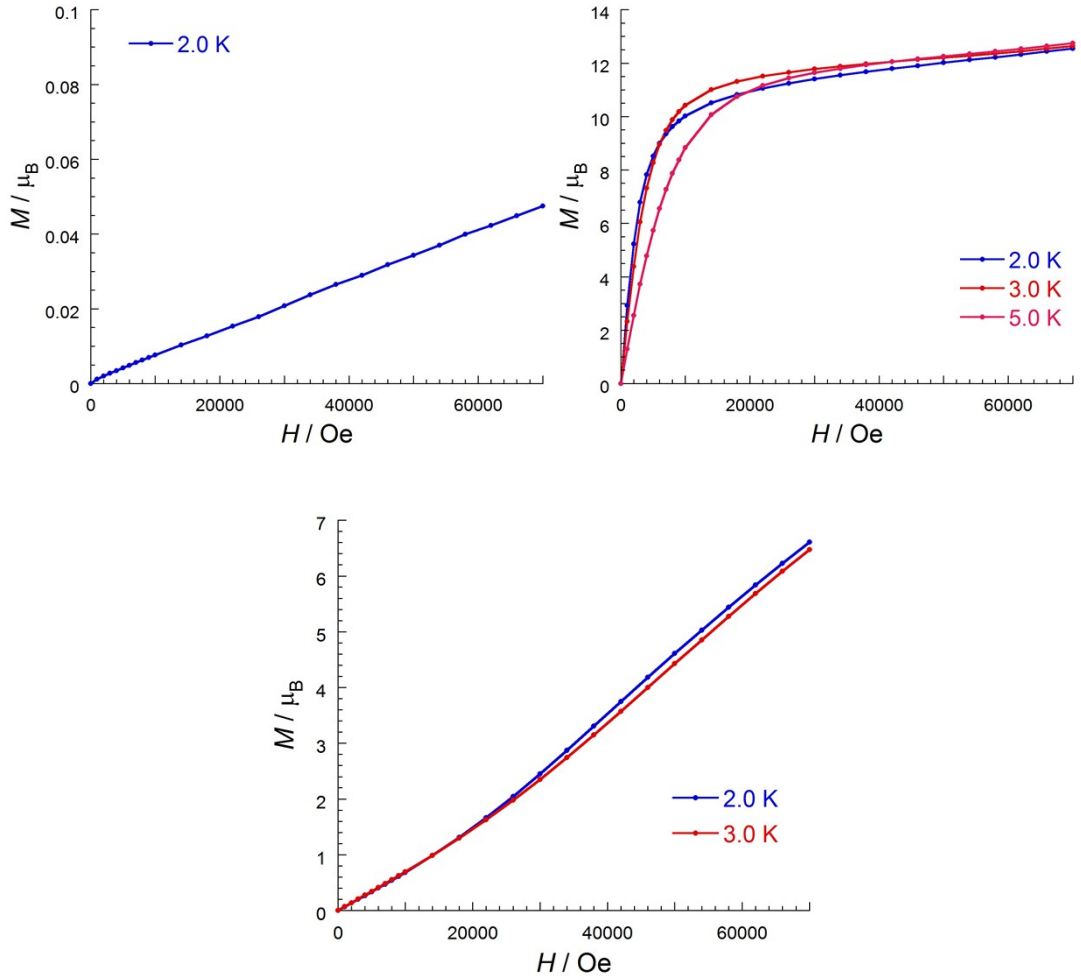

Figure S1 Field dependence of magnetisation at low temperature for compound **1** (top-left), **2** (top-right) and **3** (bottom).

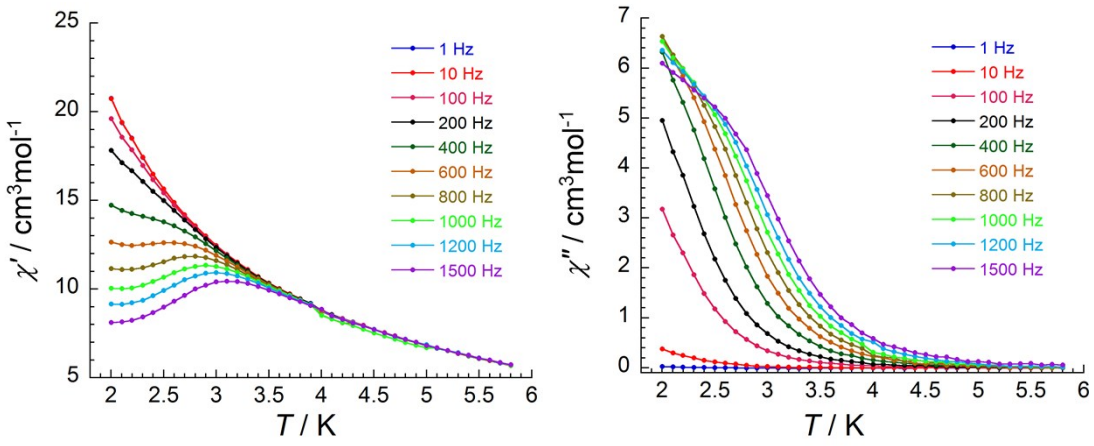

Figure S2 Temperature dependence of the in-phase (χ') (left) and out-of-phase (χ'') (right) ac susceptibility components at the indicated frequencies in zero dc field for **2**.

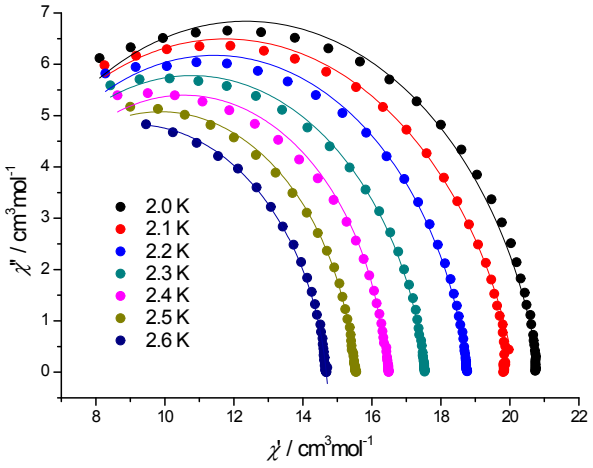

Figure S3 Cole-Cole plots under zero dc field for compound **2**.

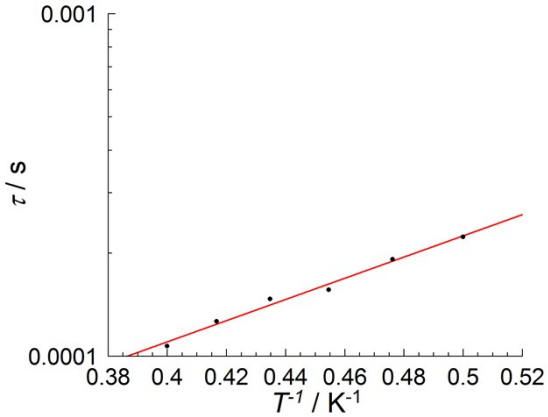

Figure S4 Arrhenius plot using ac data under zero dc field for compound **2**.

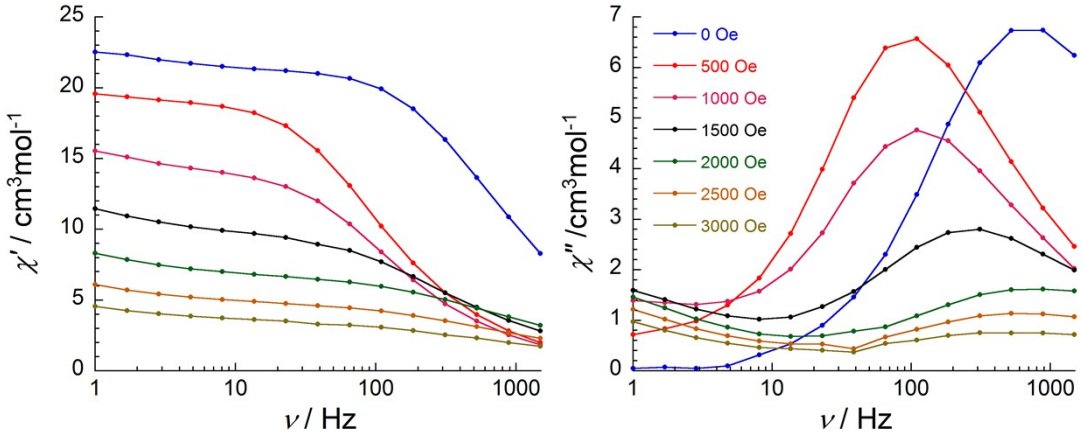

Figure S5 Frequency dependence of the in-phase (χ') (left) and out-of-phase (χ'') (right) ac susceptibility components under the indicated dc fields at 1.8 K for **2**.

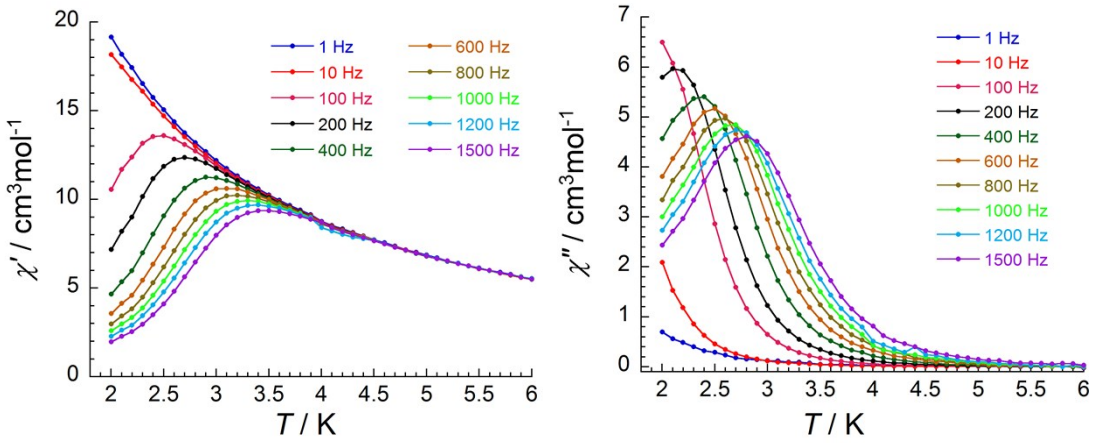

Figure S6 Temperature dependence of the in-phase (χ') (left) and out-of-phase (χ'') (right) ac susceptibility components at the indicated frequencies under 500 Oe dc field for **2**.

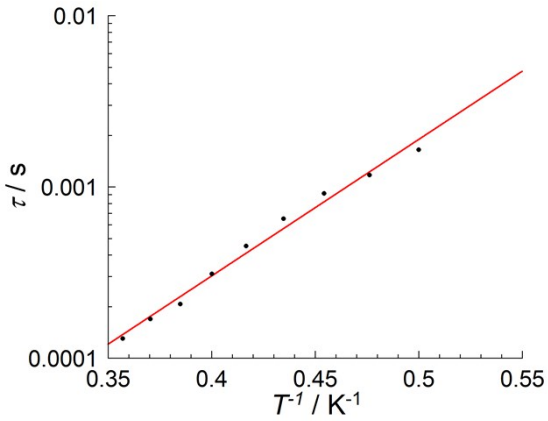

Figure S7 Arrhenius plot using ac data under 500 Oe dc field for compound **2**.

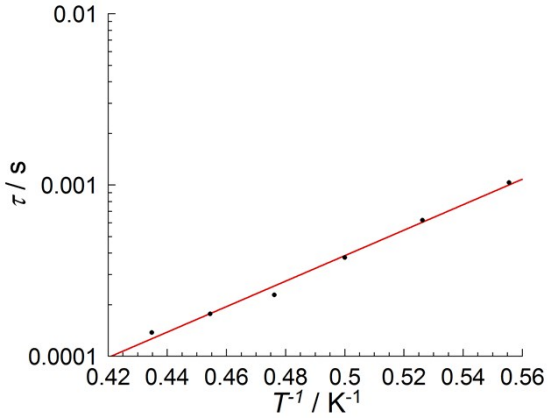

Figure S8 Arrhenius plot using ac data under 1000 Oe dc field for compound **4**.