Electronic Supplementary Material (ESI) for Dalton Trans.

"*Occurrence of slow relaxation of the magnetization in a family of copper(II)/manganese(II) quasi-isotropic complexes with different ground spin states.*"

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1- IR spectra.

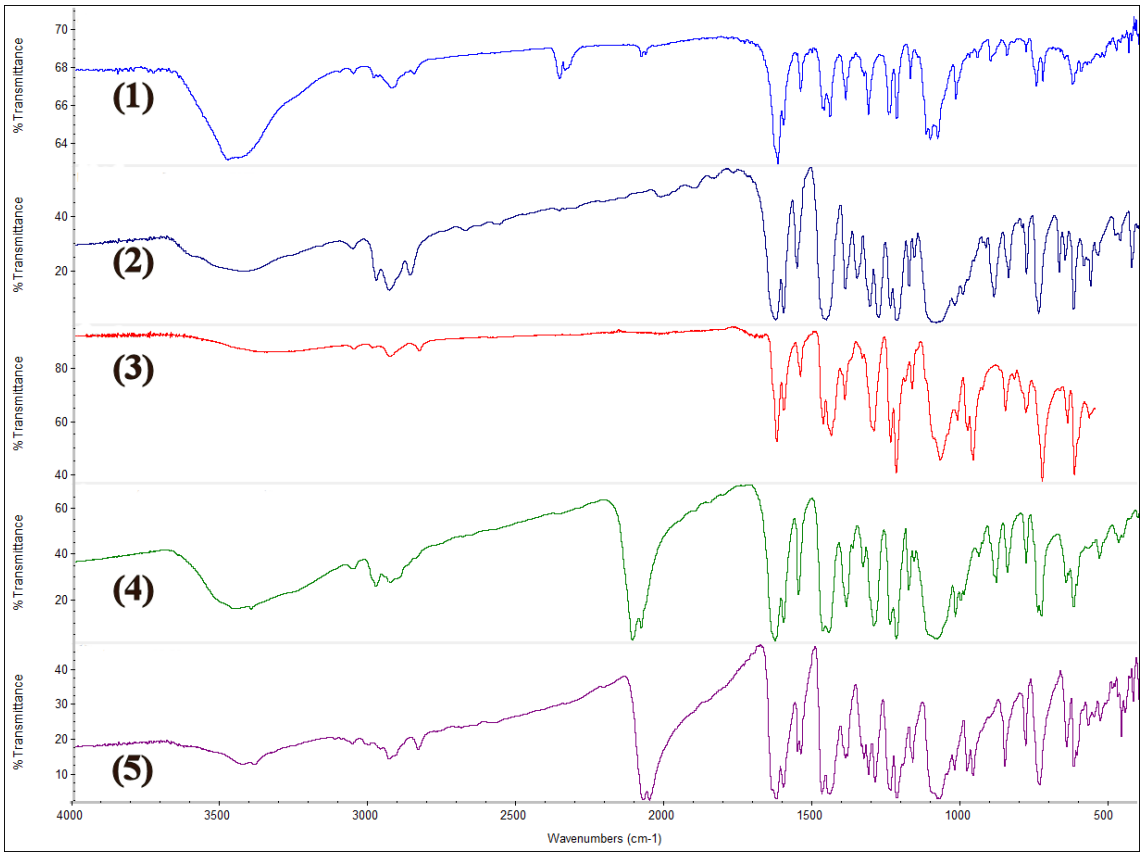

Fig. S1. IR spectra for complexes **1** - **5**. Characteristic bands: st. C-H 3000-2800 cm^{-1}; N=C iminic ~1600 cm^{-1}; C-O st. ClO_4^- 1075 cm^{-1}; δ ClO_4^- 620 cm^{-1}. Stretching for the azido lignads for **4** and **5** appears between 2050-2100 cm^{-1}. **2*RR*** and **2*SS*** exhibit superimposable spectra and only one spectrum is shown.

2-Structural aspects.

Table S1. Crystal data and structure refinement for complexes **1** - **5.**

	1	**2*SS*·** $2CH_2Cl_2$·0.5MeOH	**3**·MeOH	**4**·2MeOH	**5**
Formula	$C_{21}H_{26}ClCuN_2NaO_9$	$C_{101}H_{128}Cl_8Cu_4Mn_2N_8O_{35}$	$C_{56}H_{66}Cl_2Cu_3MnN_6O_{24}$	$C_{82}H_{100}Cl_2Cu_4Mn_2N_{14}O_{28}$	$C_{74}H_{80}Cl_2Cu_4Mn_2N_{20}Na_2O_{26}$
FW	572.42	2661.75	1523.60	2164.69	2146.5
System	Monoclinic	Triclinic	Monoclinic	Triclinic	Triclinic
Space group	P21/c	P 1	P21/c	P-1	P-1
a/Å	8.0671(4)	12.2722(6)	15.4787(6)	9.876(1)	12.3500(6)
b/Å	21.2492(9)	14.5327(7)	22.7556(9)	14.787(2)	13.0272(7)
c/Å	14.0782(7)	17.2926(8)	17.7148(7)	16.663(2)	13.9308(7)
α/deg.	90	101.148(2)	90	73.292(5)	107.897(2)
ß/deg.	103.285(2)	100.531(2)	97.002(1)	83.822(5)	91.793(2)
γ/deg.	90	111.062(2)	90	70.888(5)	94.147(2)
V/ Å^3	2348.7(2)	2714.5(2)	6193.1(4)	2201.8(5)	2123.9(2)
Z	4	1	4	1	1
T, K	100(2)	100(2)	100(2)	100(2)	100(2)
λ(MoKα), Å	0.71073	0.71073	0.71073	0.71073	0.71073
ρ_{calc}, g·cm^{-3}	1.619	1.628	1.634	1.633	1.678
μ(MoK$_\alpha$), mm^{-1}	1.118	1.279	1.389	1.376	1.435
Flack param.	----	0.02(1)	----	----	----
R	0.0340	0.0481	0.0479	0.0490	0.0334
ω*R*^{2}	0.0718	0.1328	0.1094	0.1328	0.0889

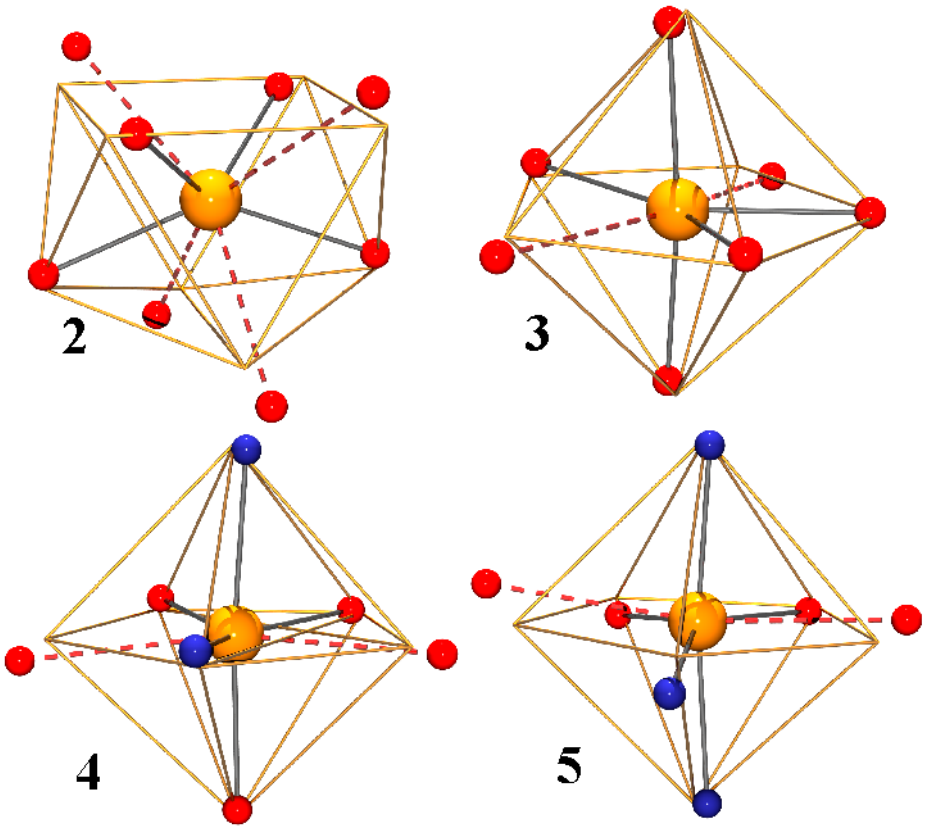

Fig. S2. Coordination environment for the Mn^{II} cation in complexes **2*SS***–**5**. Dashed red bonds show the large contacts Mn-O$_{alcoxo}$. The ideal polyhedra (biapicated trigonal prism for **2*SS*** and pentagonal bipyramid for **3-5** are shown in orange.

Table S2. Relevant donor-acceptor distances (Å) and donor-H···acceptor angles for the H-bonds present in complexes **1**, **3**, **4** and **5**. For **1** and **5** correspond to the intermolecular H-bonds that determines the 1D arrangement in the network whereas for **3** and **4** correspond to the intramolecular H-bonds between the central and the capping [CuL] fragments.

	D···A (Å)		D-H···A (deg.)		
Complex **1**	O9···O5'	2.831(2)	O9-H90···O5'	158.6(3)	Intermolecular
Complex **5**	O8···N7'	2.843(2)	O8-H8O···N7'	166(2)	
Complex **3**	O13···O9	2.955(4)	O13-H13B···O9	137(3)	Intramolecular
	O13···O10	2.806(3)	O13-H13B···O10	148(3)	
	O13···O11	2.752(3)	O13-H13A···O11	157(3)	
	O13···O12	2.975(4)	O13-H13A···O12	129(3)	
	O14···O1	3.024(4)	O14-H14A···O1	140(3)	
	O14···O2	2.762(4)	O14-H14A···O2	148(3)	
	O14···O3	2.809(3)	O14-H14B···O3	153(3)	
	O14···O4	3.059(4)	O14-H14B···O4	132(3)	
Complex **4**	O9···O5	2.963(3)	O9-H9B···O5	138(2)	
	O9···O6	2.820(2)	O9-H9B···O6	150(2)	
	O9···O7	2.872(3)	O9-H9A···O7	135(3)	
	O9···O8	2.971(3)	O9-H9A···O8	154(3)	

3-Magnetic data.

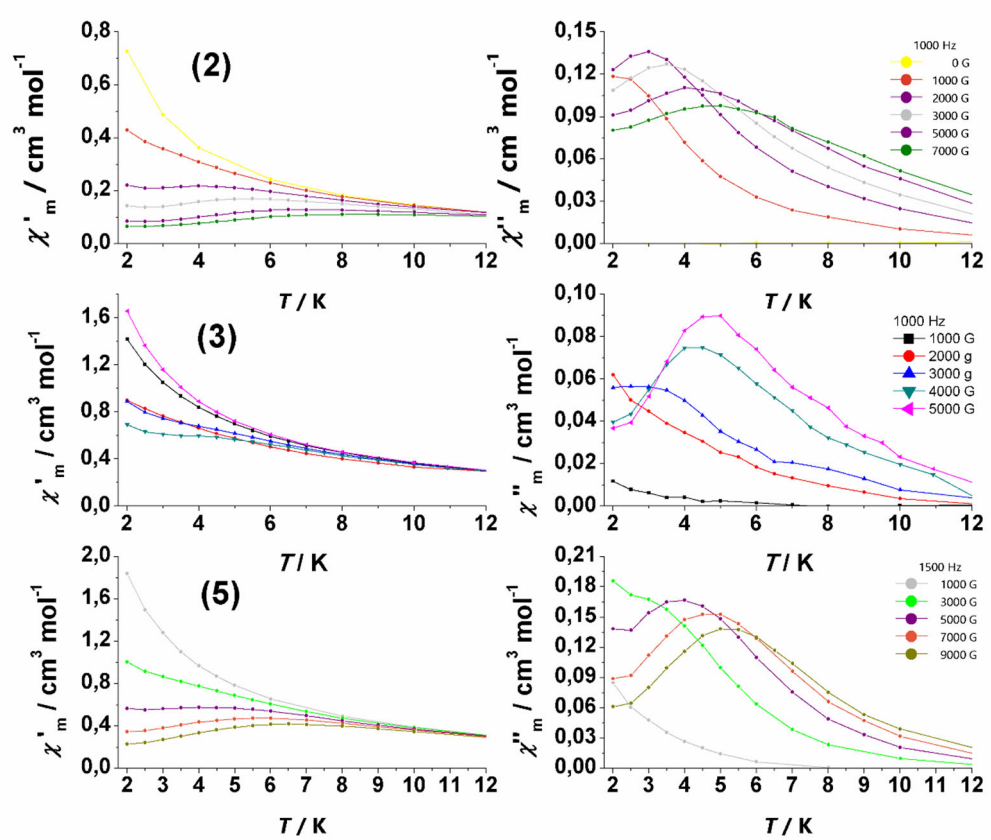

Fig. S3. χ_M'' dependence of the transverse field for complexes **2** (top), **3** (middle) and **5** (bottom).

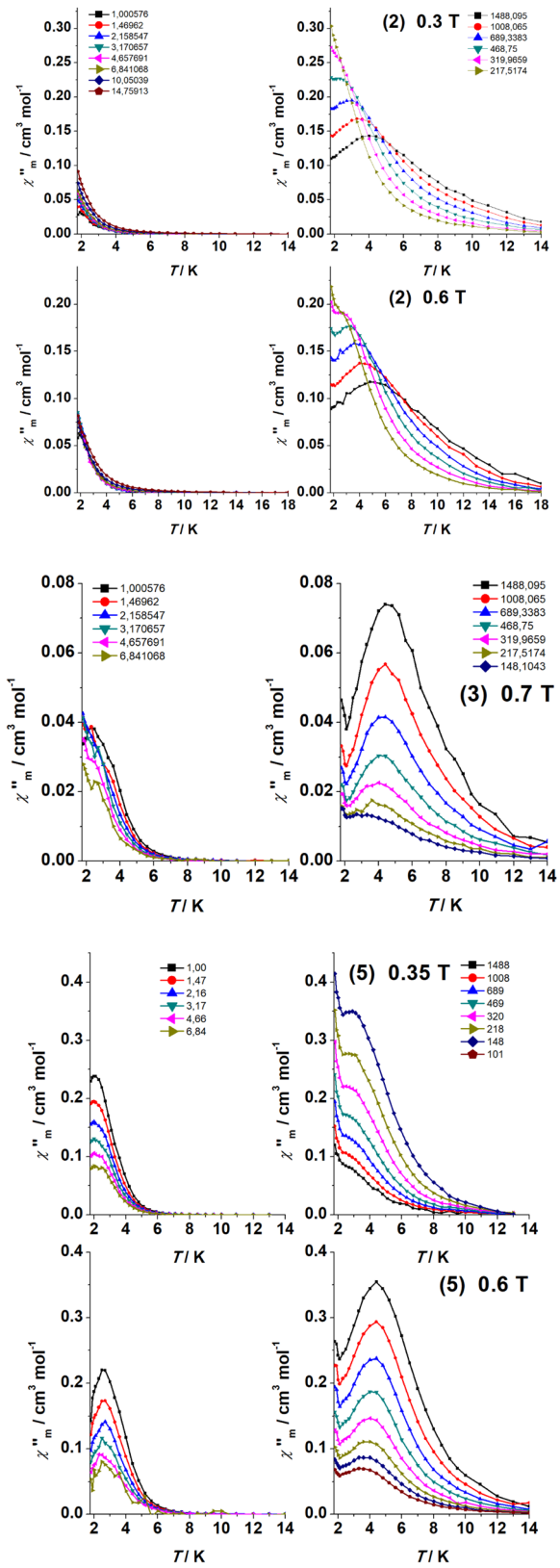

Fig. S4. χ_M''(T) for complexes **2**, **3** amd **5** showing the lower frequencies (left) and temperature dependent high frequencies (right) out-of-phase response. For the intermediate range of frequencies maxima are not defined.

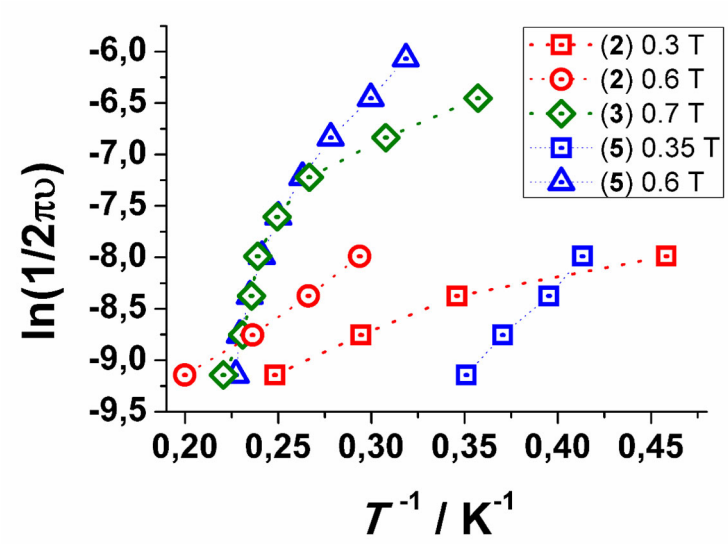

Fig. S5. Plot of ln(1/2πν) vs. T^{-1} from the $\chi_M''(T)$ data for complexes **2** (red), **3** (green) and **5** (blue).The data is limited to the HF region for which the maxima of χ_M'' can be observed.

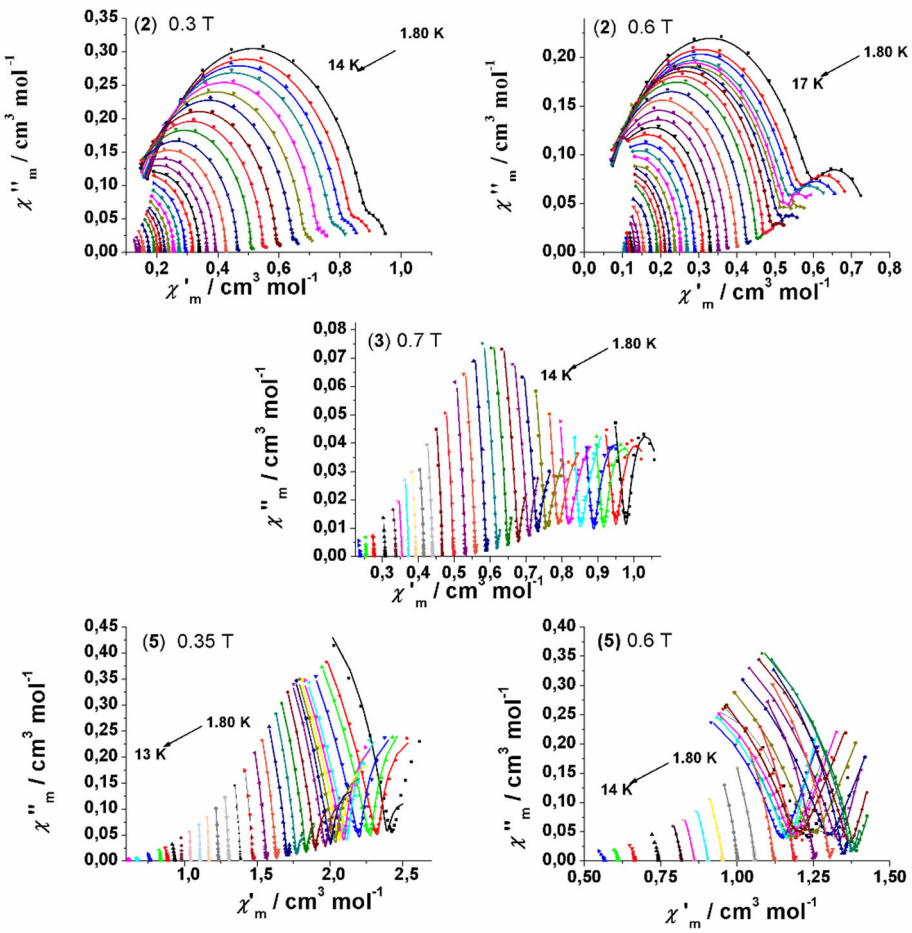

Fig. S6. Cole-Cole plots for complexes **2**, **3** and **5.** Solid lines show the best fit of the experimental data.