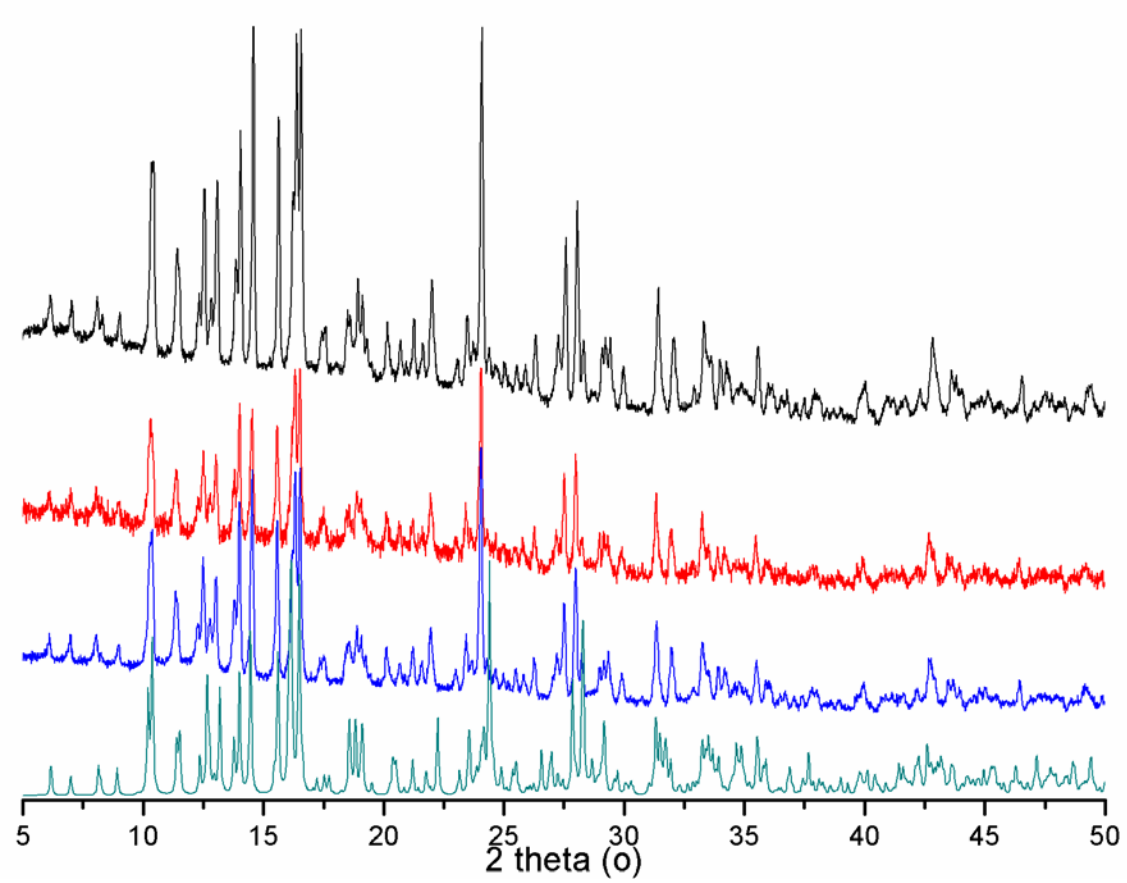


Fig. S1 Powder XRD patterns for compounds **1** (blue), **2** (red), **3** (black) and theoretical (light blue) for comparison

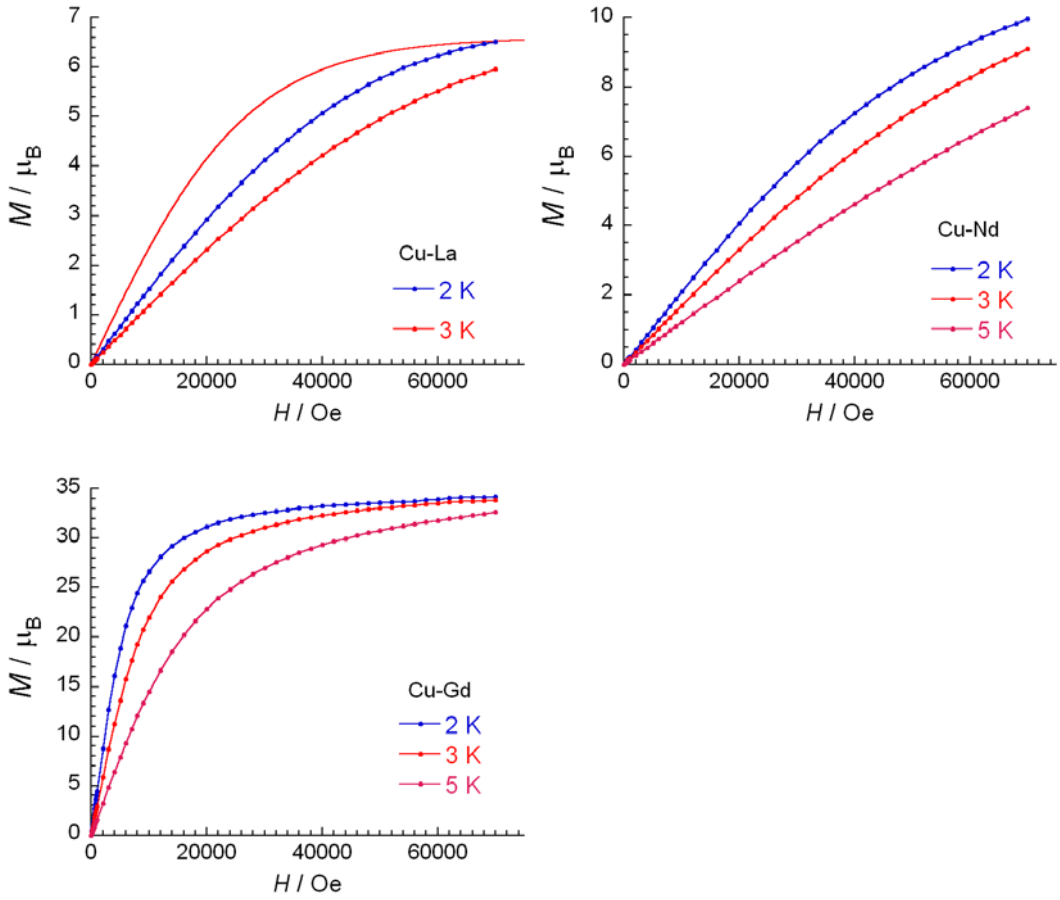
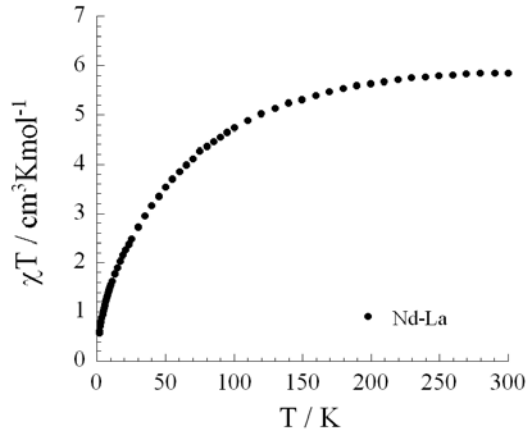
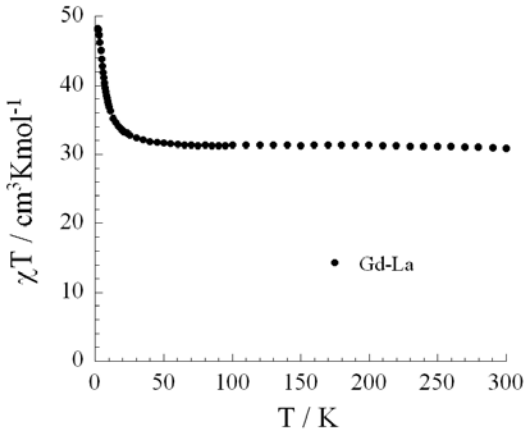


Figure S2 The magnetization of compounds **1**-**3**. The line without markers presented in **1** compound is the calculated curve corresponding to the sum of six Brillouin functions of S = ½ and g = 2.2 (see the main text for information).

a)



b)



c)

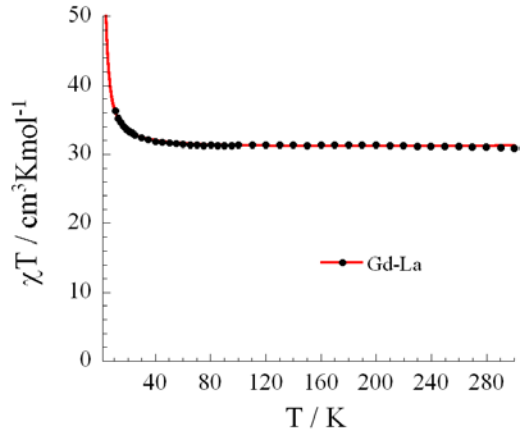


Figure S3 The χT vs T plots for **2**-Nd (a) and **3**-Gd (b) with the data for **1**-La subtracted, i.e. without the magnetic contribution of the six Cu ions. The Curie-Weiss fitting (above 20 K) of the χT vs T plot of **3**-Gd (b) with the data for **1**-La subtracted (c).

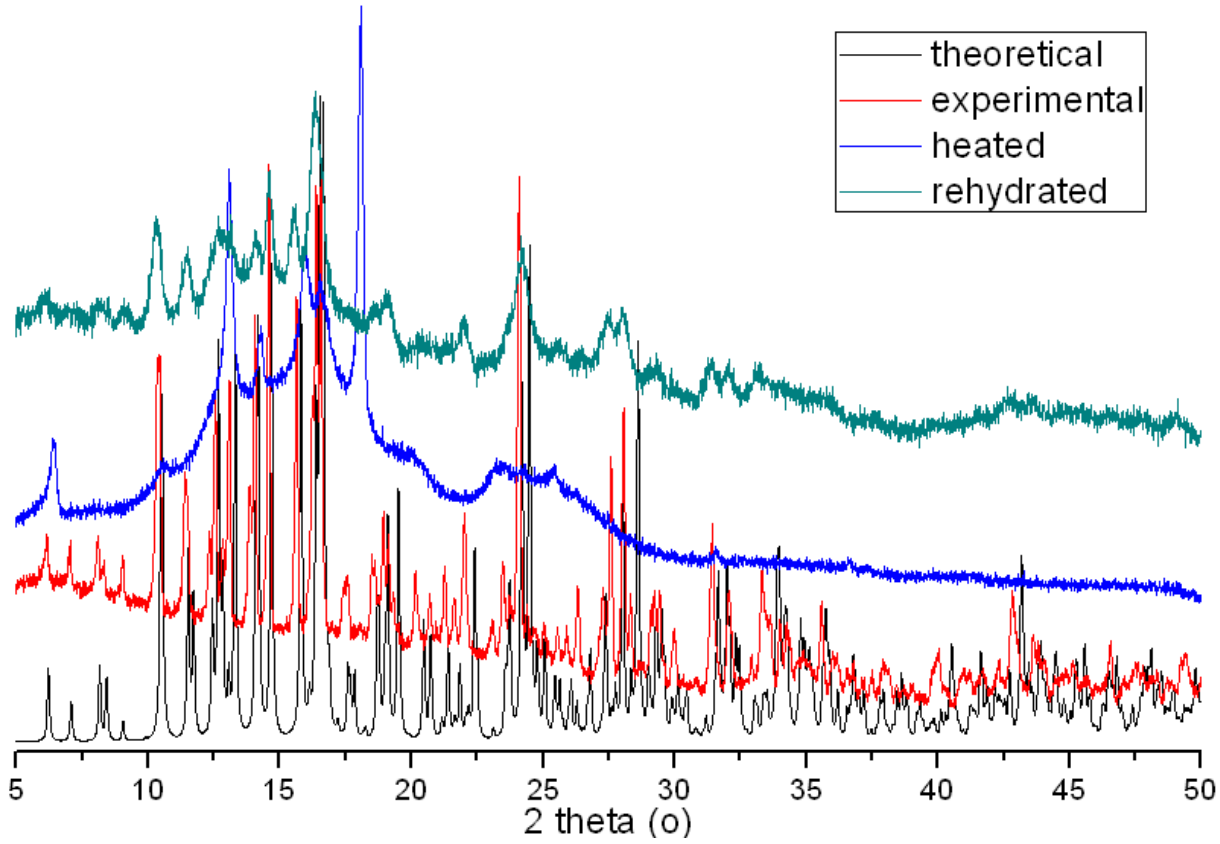


Fig S4 Powder XRD patterns for compound **2**, theoretical (black), experimental (red), heated (blue) rehydrated (light blue)

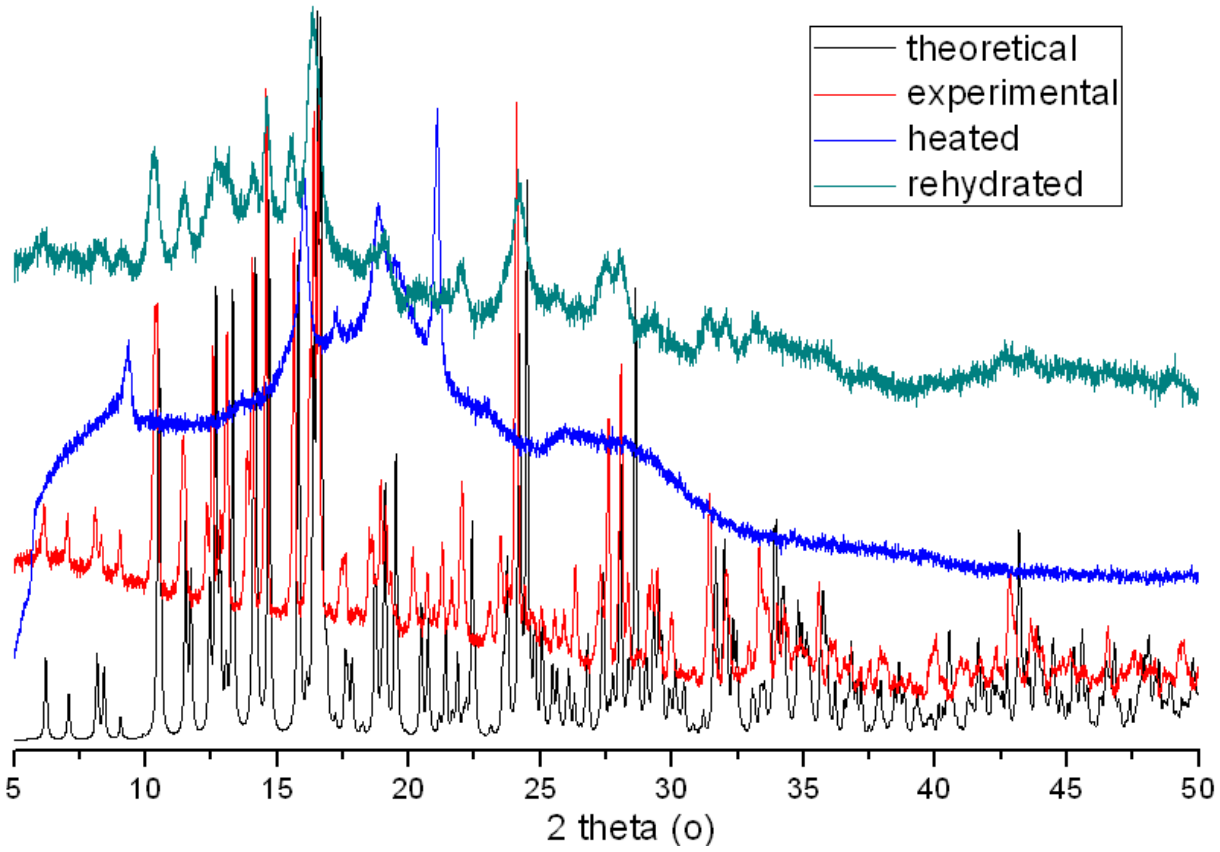


Fig S5 Powder XRD patterns for compound **3**, theoretical (black), experimental (red), heated (blue) rehydrated (light blue)

Table S1. Bond lengths [Å] for **1**

La(1)-O(3A)	2.406(7)	N(1A)-C(2A)	1.446(13)
La(1)-O(3B)#1	2.440(7)	N(2A)-C(5A)	1.292(13)
La(1)-O(4A)#2	2.442(7)	N(2A)-C(6A)	1.491(12)
La(1)-O(6B)	2.501(7)	C(1A)-C(2A)	1.515(15)
La(1)-O(4W)	2.541(7)	C(3A)-C(4A)	1.513(13)
La(1)-O(1W)	2.551(7)	C(4A)-C(5A)	1.522(13)
La(1)-O(2W)	2.555(8)	C(6A)-C(7A)	1.513(15)
La(1)-O(3W)	2.559(7)	Cu(2)-N(2B)	1.895(8)
O(1W)-H(11W)	0.8392	Cu(2)-N(1B)	1.907(8)
O(1W)-H(21W)	0.8964	Cu(2)-O(1B)	1.950(7)
O(2W)-H(12W)	0.8915	Cu(2)-O(5B)	1.955(7)
O(2W)-H(22W)	0.8269	O(1B)-C(1B)	1.276(12)
O(3W)-H(13W)	0.8333	O(2B)-C(1B)	1.257(12)
O(3W)-H(23W)	0.8217	O(3B)-C(3B)	1.259(12)
O(4W)-H(14W)	0.8798	O(3B)-La(1)#1	2.440(7)
O(4W)-H(24W)	0.8323	O(4B)-C(5B)	1.265(13)
La(2)-O(4B)	2.374(8)	O(5B)-C(7B)	1.289(12)
La(2)-O(4C)#3	2.433(7)	O(6B)-C(7B)	1.249(13)
La(2)-O(3C)	2.456(7)	N(1B)-C(3B)	1.325(13)
La(2)-O(8W)	2.519(7)	N(1B)-C(2B)	1.478(12)
La(2)-O(9W)	2.531(7)	N(2B)-C(5B)	1.300(13)
La(2)-O(7W)	2.540(8)	N(2B)-C(6B)	1.453(12)
La(2)-O(5W)	2.549(9)	C(1B)-C(2B)	1.510(14)
La(2)-O(6W)	2.594(7)	C(3B)-C(4B)	1.528(13)
O(5W)-H(15W)	0.9709	C(4B)-C(5B)	1.501(14)
O(5W)-H(25W)	0.8867	C(6B)-C(7B)	1.494(14)
O(6W)-H(16W)	0.8840	Cu(3)-N(1C)	1.898(9)
O(6W)-H(26W)	0.9221	Cu(3)-N(2C)	1.905(8)
O(7W)-H(17W)	0.8827	Cu(3)-O(5C)	1.932(8)
O(7W)-H(27W)	0.8611	Cu(3)-O(1C)	1.963(7)
O(8W)-H(18W)	0.8872	O(1C)-C(1C)	1.262(13)
O(8W)-H(28W)	0.9442	O(2C)-C(1C)	1.254(13)
O(9W)-H(19W)	0.8841	O(3C)-C(3C)	1.276(12)
O(9W)-H(29W)	0.8796	O(4C)-C(5C)	1.264(12)
Cu(1)-N(2A)	1.902(8)	O(4C)-La(2)#3	2.433(7)
Cu(1)-N(1A)	1.907(8)	O(5C)-C(7C)	1.307(14)
Cu(1)-O(2A)	1.922(7)	O(6C)-C(7C)	1.217(14)
Cu(1)-O(5A)	1.948(7)	N(1C)-C(3C)	1.325(13)
O(1A)-C(1A)	1.230(12)	N(1C)-C(2C)	1.454(13)
O(2A)-C(1A)	1.303(12)	N(2C)-C(5C)	1.317(13)
O(3A)-C(3A)	1.265(12)	N(2C)-C(6C)	1.459(13)
O(4A)-C(5A)	1.269(13)	C(1C)-C(2C)	1.528(14)
O(4A)-La(1)#2	2.442(7)	C(3C)-C(4C)	1.519(13)
O(5A)-C(7A)	1.277(12)	C(4C)-C(5C)	1.510(14)
O(6A)-C(7A)	1.247(12)	C(6C)-C(7C)	1.522(15)
N(1A)-C(3A)	1.312(13)		

Symmetry transformations used to generate equivalent atoms: #1 -x+1,-y+1,-z+2 #2 -x,-y,-z+2 #3 -x+1,-y,-z+3

Table S2. Bond lengths [Å] for **2**

Nd(1)-O(3A)	2.347(3)	N(1A)-C(2A)	1.443(6)
Nd(1)-O(4A)#1	2.382(3)	N(2A)-C(5A)	1.280(6)
Nd(1)-O(3B)#2	2.385(3)	N(2A)-C(6A)	1.492(6)
Nd(1)-O(6B)	2.443(3)	C(1A)-C(2A)	1.521(7)
Nd(1)-O(4W)	2.474(3)	C(3A)-C(4A)	1.513(6)
Nd(1)-O(1W)	2.492(4)	C(4A)-C(5A)	1.512(6)
Nd(1)-O(3W)	2.499(3)	C(6A)-C(7A)	1.497(7)
Nd(1)-O(2W)	2.505(4)	Cu(2)-N(2B)	1.896(4)
O(1W)-H(11W)	0.8636	Cu(2)-N(1B)	1.912(4)
O(1W)-H(21W)	0.9250	Cu(2)-O(1B)	1.950(3)
O(2W)-H(12W)	0.9021	Cu(2)-O(5B)	1.963(3)
O(2W)-H(22W)	0.8425	O(1B)-C(1B)	1.281(6)
O(3W)-H(13W)	0.8507	O(2B)-C(1B)	1.239(6)
O(3W)-H(23W)	0.8514	O(3B)-C(3B)	1.258(5)
O(4W)-H(14W)	0.9035	O(3B)-Nd(1)#2	2.385(3)
O(4W)-H(24W)	0.8729	O(4B)-C(5B)	1.275(6)
Nd(2)-O(4B)	2.303(4)	O(5B)-C(7B)	1.281(6)
Nd(2)-O(4C)#3	2.369(3)	O(6B)-C(7B)	1.235(6)
Nd(2)-O(3C)	2.400(3)	N(1B)-C(3B)	1.302(6)
Nd(2)-O(8W)	2.454(3)	N(1B)-C(2B)	1.463(6)
Nd(2)-O(7W)	2.467(4)	N(2B)-C(5B)	1.302(6)
Nd(2)-O(9W)	2.470(3)	N(2B)-C(6B)	1.460(6)
Nd(2)-O(5W)	2.495(4)	C(1B)-C(2B)	1.513(7)
Nd(2)-O(6W)	2.553(3)	C(3B)-C(4B)	1.536(7)
O(5W)-H(15W)	1.0069	C(4B)-C(5B)	1.475(7)
O(5W)-H(25W)	0.8559	C(6B)-C(7B)	1.503(7)
O(6W)-H(16W)	0.8394	Cu(3)-N(2C)	1.905(4)
O(6W)-H(26W)	0.9626	Cu(3)-N(1C)	1.912(4)
O(7W)-H(17W)	0.9271	Cu(3)-O(5C)	1.942(3)
O(7W)-H(27W)	0.8872	Cu(3)-O(1C)	1.962(3)
O(8W)-H(18W)	0.8890	O(1C)-C(1C)	1.282(6)
O(8W)-H(28W)	0.9655	O(2C)-C(1C)	1.242(6)
O(9W)-H(19W)	0.8908	O(3C)-C(3C)	1.271(5)
O(9W)-H(29W)	0.8554	O(4C)-C(5C)	1.268(5)
Cu(1)-N(2A)	1.904(4)	O(4C)-Nd(2)#3	2.369(3)
Cu(1)-N(1A)	1.911(4)	O(5C)-C(7C)	1.302(6)
Cu(1)-O(2A)	1.936(3)	O(6C)-C(7C)	1.221(6)
Cu(1)-O(5A)	1.954(3)	N(1C)-C(3C)	1.311(6)
O(1A)-C(1A)	1.242(6)	N(1C)-C(2C)	1.449(6)
O(2A)-C(1A)	1.300(6)	N(2C)-C(5C)	1.311(6)
O(3A)-C(3A)	1.267(6)	N(2C)-C(6C)	1.456(6)
O(4A)-C(5A)	1.293(6)	C(1C)-C(2C)	1.508(6)
O(4A)-Nd(1)#1	2.382(3)	C(3C)-C(4C)	1.506(6)
O(5A)-C(7A)	1.300(5)	C(4C)-C(5C)	1.506(6)
O(6A)-C(7A)	1.248(5)	C(6C)-C(7C)	1.514(7)
N(1A)-C(3A)	1.297(6)		

Symmetry transformations used to generate equivalent atoms: #1 -x,-y,-z+2 #2 -x+1,-y+1,-z+2 #3 -x+1,-y,-z+3

Table S3. Bond lengths [Å] for **3**

Gd(1)-O(3A)	2.295(3)	N(1A)-C(2A)	1.451(7)
Gd(1)-O(4A)#1	2.327(3)	N(2A)-C(5A)	1.305(6)
Gd(1)-O(3B)#2	2.331(4)	N(2A)-C(6A)	1.470(6)
Gd(1)-O(6B)	2.394(4)	C(1A)-C(2A)	1.528(7)
Gd(1)-O(4W)	2.417(4)	C(3A)-C(4A)	1.517(7)
Gd(1)-O(1W)	2.431(4)	C(4A)-C(5A)	1.517(7)
Gd(1)-O(3W)	2.449(4)	C(6A)-C(7A)	1.513(7)
Gd(1)-O(2W)	2.457(4)	Cu(2)-N(2B)	1.894(4)
O(1W)-H(11W)	0.8645	Cu(2)-N(1B)	1.914(4)
O(1W)-H(21W)	0.9362	Cu(2)-O(1B)	1.954(3)
O(2W)-H(12W)	0.9274	Cu(2)-O(5B)	1.963(4)
O(2W)-H(22W)	0.8754	O(1B)-C(1B)	1.283(6)
O(3W)-H(13W)	0.8745	O(2B)-C(1B)	1.242(6)
O(3W)-H(23W)	0.8475	O(3B)-C(3B)	1.264(6)
O(4W)-H(14W)	0.9571	O(3B)-Gd(1)#2	2.331(4)
O(4W)-H(24W)	0.8916	O(4B)-C(5B)	1.274(6)
Gd(2)-O(4B)	2.259(4)	O(5B)-C(7B)	1.283(6)
Gd(2)-O(4C)#3	2.323(3)	O(6B)-C(7B)	1.240(6)
Gd(2)-O(3C)	2.351(3)	N(1B)-C(3B)	1.307(6)
Gd(2)-O(7W)	2.402(4)	N(1B)-C(2B)	1.454(6)
Gd(2)-O(8W)	2.404(4)	N(2B)-C(5B)	1.314(7)
Gd(2)-O(9W)	2.409(4)	N(2B)-C(6B)	1.441(6)
Gd(2)-O(5W)	2.430(4)	C(1B)-C(2B)	1.515(7)
Gd(2)-O(6W)	2.510(4)	C(3B)-C(4B)	1.521(7)
O(5W)-H(15W)	1.0502	C(4B)-C(5B)	1.482(8)
O(5W)-H(25W)	0.8665	C(6B)-C(7B)	1.505(7)
O(6W)-H(16W)	0.8166	Cu(3)-N(1C)	1.897(4)
O(6W)-H(26W)	0.9744	Cu(3)-N(2C)	1.906(4)
O(7W)-H(17W)	0.9920	Cu(3)-O(5C)	1.951(4)
O(7W)-H(27W)	0.7954	Cu(3)-O(1C)	1.961(4)
O(8W)-H(18W)	0.9007	O(1C)-C(1C)	1.278(7)
O(8W)-H(28W)	0.9956	O(2C)-C(1C)	1.249(6)
O(9W)-H(19W)	0.9151	O(3C)-C(3C)	1.267(6)
O(9W)-H(29W)	0.8814	O(4C)-C(5C)	1.272(6)
Cu(1)-N(2A)	1.905(4)	O(4C)-Gd(2)#3	2.323(3)
Cu(1)-N(1A)	1.907(4)	O(5C)-C(7C)	1.299(7)
Cu(1)-O(2A)	1.929(4)	O(6C)-C(7C)	1.223(7)
Cu(1)-O(5A)	1.952(3)	N(1C)-C(3C)	1.322(6)
O(1A)-C(1A)	1.239(6)	N(1C)-C(2C)	1.451(6)
O(2A)-C(1A)	1.285(6)	N(2C)-C(5C)	1.307(6)
O(3A)-C(3A)	1.277(6)	N(2C)-C(6C)	1.455(7)
O(4A)-C(5A)	1.269(6)	C(1C)-C(2C)	1.507(7)
O(4A)-Gd(1)#1	2.327(3)	C(3C)-C(4C)	1.506(7)
O(5A)-C(7A)	1.277(6)	C(4C)-C(5C)	1.511(7)
O(6A)-C(7A)	1.250(6)	C(6C)-C(7C)	1.510(7)
N(1A)-C(3A)	1.296(6)		

Symmetry transformations used to generate equivalent atoms: #1 -x,-y,-z+2 #2 -x+1,-y+1,-z+2 #3 -x+1,-y,-z+3