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Bis(1-methyl-1*H*-imidazole- κN^3)[*N*,*N*'-o-phenylenebis(pyridine-2-carboxamido)- $\kappa^4 N$]manganese(II)

Zaki N. Zahran,^a Nan Xu,^b Douglas R. Powell^b and George B. Richter-Addo^b*

^aChemistry Department, Faculty of Science, Tanta University, Tanta, Egypt, and ^bDepartment of Chemistry and Biochemistry, University of Oklahoma, 620 Parrington Oval, Norman, OK 73019 USA Correspondence e-mail: grichteraddo@ou.edu

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Key indicators: single-crystal X-ray study; T = 100 K; mean σ (C–C) = 0.003 Å; R factor = 0.025; wR factor = 0.062; data-to-parameter ratio = 10.4.

The title compound, $[Mn(C_{18}H_{12}N_4O_2)(C_4H_6N_2)_2]$, belongs to the family of 1,2-bis(pyridine-2-carboxamido)benzene (H₂bpb) ligated metal complexes. The manganese center is octahedrally coordinated by a bpb ligand and two axial 1methylimidazole molecules. The axial N-Mn-N group is bent with a bond angle of 151.79 (7)°.

Related literature

For the structures of related Mn complexes, see Liang *et al.* (2007), Lin *et al.* (2003), and Havranek *et al.* (1999).



Experimental

Crystal data

 $\begin{bmatrix} Mn(C_{18}H_{12}N_4O_2)(C_4H_6N_2)_2 \end{bmatrix} \\ M_r = 535.47 \\ Orthorhombic, Pca2_1 \\ a = 13.819 (3) \text{ Å} \\ b = 9.894 (2) \text{ Å} \\ c = 17.864 (4) \text{ Å}$

Data collection

Bruker APEX diffractometer Absorption correction: multi-scan (*SADABS*; Sheldrick, 2007) $T_{min} = 0.744, T_{max} = 0.977$

Refinement

 $R[F^2 > 2\sigma(F^2)] = 0.025$ $wR(F^2) = 0.062$ S = 1.023473 reflections 335 parameters 1 restraint $V = 2442.5 (9) \text{ Å}^{3}$ Z = 4 Mo K\alpha radiation $\mu = 0.58 \text{ mm}^{-1}$ T = 100 (2) K 0.54 \times 0.35 \times 0.04 mm

8288 measured reflections 3473 independent reflections 3301 reflections with $I > 2\sigma(I)$ $R_{\text{int}} = 0.022$

H-atom parameters constrained $\Delta \rho_{max} = 0.33 \text{ e} \text{ Å}^{-3}$ $\Delta \rho_{min} = -0.19 \text{ e} \text{ Å}^{-3}$ Absolute structure: Flack (1983), 989 Friedel pairs Flack parameter: 0.046 (17)

Data collection: *SMART* (Bruker, 1998); cell refinement: *SAINT* (Bruker, 1998); data reduction: *SAINT*; program(s) used to solve structure: *SHELXTL* (Sheldrick, 2008); program(s) used to refine structure: *SHELXTL*; molecular graphics: *SHELXTL*; software used to prepare material for publication: *SHELXTL*.

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Supplementary data and figures for this paper are available from the IUCr electronic archives (Reference: PK2130).

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Bis(1-methyl-1*H*-imidazole- κN^3)[*N*,*N*'-*o*-phenylenebis(pyridine-2-carboxamido)- $\kappa^4 N$]manganese(II)

Z. N. Zahran, N. Xu, D. R. Powell and G. B. Richter-Addo

Comment

In this paper, we report the structure of the title compound, a six-coordinate {bis(1-methylimidazole)}(bpb)manganese(II) (H₂bpb = 1,2-bis(pyridine-2-carboxamido)benzene). To the best of our knowledge, this is the first reported structure of a Mn(II) complex containing ligated bpb or its derivatives. The structures of the related [Mn(bpb)(H₂O)Cl] (Lin *et al.* 2003), [Mn(bpc)(DMF)Cl] (H₂bpc = 1,2-bis(pyridine-2-carboxamido)-4,5-dichlorobenzene) (Liang *et al.*,2007) and [Mn(bpmb)(OMe)(OCOCH₃)] (H₂bpmb = *N*,*N*'-bis(pyridine-2-ylcarbonyl)-4-methoxycarbonylbenzene-1,2-diamine) (Havranek *et al.*, 1999) complexes have been reported previously.

The molecular structure is shown in Fig. 1. The manganese center is six-coordinate, displaying a distorted octahedral geometry. A bpb ligand binds to the manganese through its two deprotonated amide N atoms and two pyridyl N atoms. The two axial positions are occupied by 1-methylimidazole molecules. The Mn—N(pyridyl) distances of 2.2621 (19) Å and 2.2684 (19)Å are longer than the Mn—N(amide) distances at 2.1764 (19) Å and 2.1794 (18) Å. Both of the Mn—N(pyridyl) and Mn—N(amide) distances are significantly longer than those in the related Mn complexes reported previously (Liang *et al.*, 2007; Lin *et al.*, 2003; Havranek *et al.*, 1999). In addition, the C13—C14 and C21—C22 distances of 1.513 (3) Å and 1.526 (3) Å are slightly longer than those of the other Mn complexes mentioned above. Mn—N(1-methylimidazole) distances are 2.2552 (19) Å and 2.280 (2) Å. The axial N—Mn—N linkage is bent with a bond angle of 151.79 (7)°.

Experimental

To a CH_2Cl_2 suspension (20 ml) of Mn(bpb)Cl (0.2 g, 0.49 mmol) was added excess piperidine (2 ml, 0.02 mol) (Aldrich Chemical Company, used as received) and then purged with nitric oxide (98%; Matheson Gas, purified by passing through KOH pellets and a cold trap (dry ice/acetone)) for 30 min. This resulted in the precipitation of a red-brown intermediate Mn(bpb)(NO)(pip) (v_{NO} 1732 cm⁻¹; KBr pellet) that was isolated by filtration. This intermediate was redissolved in CH₂Cl₂, and excess 1-methylimidazole (0.2 ml, 2.6 mmol) (Aldrich Chemical Company, used as received) was added. The resulting mixture was stirred for 30 min. A brown solid was obtained after removal of the solvent under vacuum. A suitable red plate-shaped crystal was grown by slow evaporation of a CH₂Cl₂ solution of the complex in the presence of excess 1-methylimidazole at room temperature under N₂.

Refinement

H atoms were positioned geometrically and refined using a riding model with C—H = 0.95 Å for aromatic carbons, 0.98 Å for methyl carbons. $U_{iso}(H)$ values were set to either 1.5 U_{eq} (RCH₃) or 1.2 U_{eq} of the attached atom.

Figures



Fig. 1. The molecular structure showing the atom-numbering scheme. Displacement ellipsoids are drawn at the 35% probability level (H atoms omitted for clarity).

$Bis(1-methyl-1H-imidazole-\kappa N^3)[N,N'-o-phenylenebis(pyridine-2-carboxamidato)-\kappa^4N]manganese(II)$

Crystal	data
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$[Mn(C_{18}H_{12}N_4O_2)(C_4H_6N_2)_2]$	$F_{000} = 1108$
$M_r = 535.47$	$D_{\rm x} = 1.456 {\rm ~Mg} {\rm ~m}^{-3}$
Orthorhombic, Pca2 ₁	Mo $K\alpha$ radiation $\lambda = 0.71073$ Å
Hall symbol: P 2c -2ac	Cell parameters from 6910 reflections
<i>a</i> = 13.819 (3) Å	$\theta = 2.5 - 28.3^{\circ}$
b = 9.894 (2) Å	$\mu = 0.58 \text{ mm}^{-1}$
c = 17.864 (4) Å	T = 100 (2) K
$V = 2442.5 (9) \text{ Å}^3$	Plate, red
Z = 4	$0.54 \times 0.35 \times 0.04 \text{ mm}$

Data collection

Bruker APEX diffractometer	3473 independent reflections
Radiation source: fine-focus sealed tube	3301 reflections with $I > 2\sigma(I)$
Monochromator: graphite	$R_{\rm int} = 0.022$
T = 100(2) K	$\theta_{\text{max}} = 26.0^{\circ}$
ω scans	$\theta_{\min} = 2.1^{\circ}$
Absorption correction: multi-scan (SADABS; Sheldrick, 2007)	$h = -16 \rightarrow 17$
$T_{\min} = 0.744, \ T_{\max} = 0.977$	$k = -12 \rightarrow 7$
8288 measured reflections	$l = -22 \rightarrow 13$

Refinement

Refinement on F^2	Hydrogen site location: inferred from neighbouring sites
Least-squares matrix: full	H-atom parameters constrained
$R[F^2 > 2\sigma(F^2)] = 0.025$	$w = 1/[\sigma^2(F_o^2) + (0.038P)^2 + 0.1P]$ where $P = (F_o^2 + 2F_c^2)/3$
$wR(F^2) = 0.062$	$(\Delta/\sigma)_{\rm max} < 0.001$

<i>S</i> = 1.02	$\Delta \rho_{\text{max}} = 0.33 \text{ e } \text{\AA}^{-3}$
3473 reflections	$\Delta \rho_{min} = -0.19 \text{ e } \text{\AA}^{-3}$
335 parameters	Extinction correction: none
1 restraint	Absolute structure: Flack (1983), 989 Friedel pairs
Primary atom site location: structure-invariant direct methods	Flack parameter: 0.046 (17)

Secondary atom site location: difference Fourier map

Special details

Geometry. All e.s.d.'s (except the e.s.d. in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell e.s.d.'s are taken into account individually in the estimation of e.s.d.'s in distances, angles and torsion angles; correlations between e.s.d.'s in cell parameters are only used when they are defined by crystal symmetry. An approximate (isotropic) treatment of cell e.s.d.'s is used for estimating e.s.d.'s involving l.s. planes.

	x	У	Ζ	$U_{\rm iso}*/U_{\rm eq}$
Mn1	0.38539 (2)	0.37818 (3)	0.51871 (2)	0.01386 (8)
01	0.36109 (12)	0.12118 (15)	0.32716 (9)	0.0186 (3)
O2	0.65501 (11)	0.32649 (17)	0.63464 (9)	0.0236 (4)
N1	0.30418 (13)	0.22376 (19)	0.58708 (11)	0.0194 (4)
N2	0.19272 (14)	0.08610 (19)	0.63164 (11)	0.0201 (4)
N3	0.40259 (14)	0.58964 (19)	0.46979 (11)	0.0185 (4)
N4	0.41706 (15)	0.74233 (19)	0.38026 (12)	0.0204 (4)
N5	0.25565 (14)	0.37585 (17)	0.44149 (10)	0.0157 (4)
N6	0.42608 (13)	0.24628 (19)	0.42643 (11)	0.0151 (4)
N7	0.53284 (12)	0.31457 (18)	0.54386 (10)	0.0156 (4)
N8	0.42419 (13)	0.48437 (18)	0.62717 (10)	0.0156 (4)
C1	0.21158 (16)	0.1926 (2)	0.58814 (13)	0.0206 (5)
H1	0.1635	0.2405	0.5610	0.025*
C2	0.27962 (17)	0.0447 (3)	0.66076 (15)	0.0283 (6)
H2	0.2902	-0.0294	0.6935	0.034*
C3	0.34717 (18)	0.1303 (2)	0.63362 (15)	0.0260 (5)
Н3	0.4143	0.1267	0.6449	0.031*
C4	0.09803 (17)	0.0263 (3)	0.64689 (15)	0.0266 (5)
H4A	0.0520	0.0549	0.6083	0.040*
H4B	0.0751	0.0564	0.6961	0.040*
H4C	0.1035	-0.0724	0.6465	0.040*
C5	0.38396 (16)	0.6197 (2)	0.39912 (15)	0.0183 (5)
Н5	0.3509	0.5611	0.3656	0.022*
C6	0.45966 (18)	0.7961 (2)	0.44268 (14)	0.0239 (5)
Н6	0.4896	0.8822	0.4470	0.029*
C7	0.45043 (16)	0.7012 (2)	0.49738 (13)	0.0216 (5)
H7	0.4735	0.7105	0.5472	0.026*
C8	0.4078 (2)	0.8059 (2)	0.30677 (15)	0.0271 (5)
H8A	0.3726	0.7453	0.2730	0.041*
H8B	0.4724	0.8239	0.2863	0.041*

Fractional atomic coordinates and isotropic or equivalent isotropic displacement parameters (\hat{A}^2)

H8C	0.3723	0.8912	0.3117	0.041*
C9	0.17954 (16)	0.4603 (2)	0.44273 (13)	0.0183 (5)
Н9	0.1700	0.5150	0.4858	0.022*
C10	0.11453 (15)	0.4712 (2)	0.38434 (14)	0.0200 (5)
H10	0.0623	0.5334	0.3865	0.024*
C11	0.12757 (17)	0.3891 (2)	0.32266 (15)	0.0206 (5)
H11	0.0835	0.3932	0.2819	0.025*
C12	0.20533 (16)	0.3006 (2)	0.32047 (13)	0.0188 (5)
H12	0.2149	0.2430	0.2785	0.023*
C13	0.26922 (15)	0.2974 (2)	0.38068 (13)	0.0158 (4)
C14	0.35901 (16)	0.2101 (2)	0.37724 (12)	0.0147 (4)
C15	0.51905 (15)	0.1872 (2)	0.43010 (13)	0.0151 (4)
C16	0.55961 (17)	0.1028 (2)	0.37494 (14)	0.0178 (5)
H16	0.5224	0.0787	0.3323	0.021*
C17	0.65348 (17)	0.0543 (2)	0.38227 (14)	0.0212 (5)
H17	0.6800	-0.0026	0.3447	0.025*
C18	0.70854 (17)	0.0888 (2)	0.44413 (14)	0.0216 (5)
H18	0.7723	0.0542	0.4492	0.026*
C19	0.67119 (15)	0.1736 (2)	0.49883 (13)	0.0193 (5)
H19	0.7102	0.1978	0.5405	0.023*
C20	0.57629 (15)	0.2242 (2)	0.49336 (13)	0.0163 (5)
C21	0.57588 (16)	0.3589 (2)	0.60555 (13)	0.0171 (5)
C22	0.51797 (15)	0.4679 (2)	0.64610 (12)	0.0160 (4)
C23	0.56201 (16)	0.5497 (2)	0.69906 (13)	0.0200 (5)
H23	0.6280	0.5363	0.7119	0.024*
C24	0.50893 (18)	0.6512 (2)	0.73299 (13)	0.0234 (5)
H24	0.5385	0.7100	0.7683	0.028*
C25	0.41228 (18)	0.6657 (2)	0.71479 (14)	0.0213 (5)
H25	0.3737	0.7328	0.7383	0.026*
C26	0.37272 (17)	0.5799 (2)	0.66128 (14)	0.0187 (5)
H26	0.3063	0.5898	0.6486	0.022*

Atomic displacement parameters (\AA^2)

	U^{11}	U^{22}	U^{33}	U^{12}	U^{13}	U^{23}
Mn1	0.01291 (14)	0.01638 (15)	0.01230 (15)	-0.00013 (12)	-0.00020 (14)	-0.00077 (16)
O1	0.0198 (8)	0.0179 (8)	0.0181 (9)	-0.0009 (6)	0.0002 (7)	-0.0041 (7)
O2	0.0145 (8)	0.0335 (9)	0.0227 (9)	0.0036 (7)	-0.0046 (7)	-0.0034 (8)
N1	0.0194 (10)	0.0207 (10)	0.0181 (10)	-0.0003 (8)	0.0007 (8)	0.0018 (8)
N2	0.0224 (10)	0.0204 (10)	0.0175 (10)	-0.0027 (8)	0.0029 (8)	-0.0006 (8)
N3	0.0208 (10)	0.0178 (9)	0.0170 (10)	0.0010 (7)	0.0003 (8)	0.0005 (8)
N4	0.0258 (10)	0.0165 (10)	0.0188 (10)	0.0017 (8)	0.0023 (8)	0.0012 (8)
N5	0.0172 (9)	0.0148 (9)	0.0149 (10)	-0.0009 (7)	0.0003 (8)	0.0010 (7)
N6	0.0153 (9)	0.0161 (8)	0.0138 (9)	0.0004 (7)	0.0029 (7)	0.0003 (7)
N7	0.0120 (9)	0.0188 (9)	0.0161 (9)	0.0009 (7)	0.0013 (7)	0.0014 (7)
N8	0.0171 (9)	0.0181 (9)	0.0116 (9)	-0.0019 (7)	0.0007 (7)	0.0020 (8)
C1	0.0217 (12)	0.0219 (12)	0.0181 (12)	-0.0003 (10)	0.0002 (9)	0.0028 (9)
C2	0.0294 (13)	0.0272 (13)	0.0282 (14)	0.0023 (10)	0.0008 (11)	0.0096 (11)

C3	0.0206 (12)	0.0314 (14)	0.0259 (13)	0.0031 (10)	-0.0013 (11)	0.0050 (11)
C4	0.0241 (12)	0.0291 (13)	0.0266 (13)	-0.0073 (10)	0.0035 (10)	0.0032 (11)
C5	0.0177 (12)	0.0151 (12)	0.0220 (13)	-0.0017 (8)	0.0020 (9)	-0.0010 (9)
C6	0.0309 (13)	0.0188 (11)	0.0220 (13)	-0.0047 (10)	0.0013 (10)	0.0000 (10)
C7	0.0231 (11)	0.0213 (12)	0.0203 (12)	-0.0039 (9)	0.0017 (9)	-0.0002 (9)
C8	0.0400 (15)	0.0218 (12)	0.0197 (12)	0.0026 (11)	0.0031 (11)	0.0045 (10)
C9	0.0183 (11)	0.0192 (11)	0.0174 (11)	0.0009 (9)	0.0038 (9)	-0.0002 (9)
C10	0.0158 (11)	0.0207 (11)	0.0235 (12)	0.0008 (9)	0.0015 (9)	0.0040 (10)
C11	0.0188 (12)	0.0225 (12)	0.0206 (12)	-0.0035 (9)	-0.0038 (9)	0.0054 (10)
C12	0.0213 (12)	0.0187 (11)	0.0163 (11)	-0.0027 (9)	0.0005 (9)	-0.0002 (9)
C13	0.0178 (11)	0.0124 (10)	0.0172 (11)	-0.0039 (8)	0.0033 (9)	-0.0002 (9)
C14	0.0177 (11)	0.0132 (10)	0.0131 (10)	-0.0025 (8)	0.0019 (9)	0.0041 (9)
C15	0.0161 (11)	0.0143 (10)	0.0151 (11)	-0.0006 (8)	0.0021 (9)	0.0032 (9)
C16	0.0218 (12)	0.0164 (11)	0.0153 (11)	-0.0013 (9)	0.0025 (9)	-0.0013 (9)
C17	0.0240 (12)	0.0187 (12)	0.0209 (12)	0.0018 (10)	0.0070 (10)	-0.0015 (10)
C18	0.0142 (11)	0.0224 (12)	0.0283 (13)	0.0030 (9)	0.0036 (10)	0.0029 (10)
C19	0.0145 (10)	0.0216 (11)	0.0218 (13)	0.0010 (8)	0.0004 (9)	0.0027 (9)
C20	0.0148 (10)	0.0166 (10)	0.0173 (11)	-0.0028 (8)	0.0019 (8)	0.0033 (9)
C21	0.0144 (11)	0.0212 (12)	0.0157 (11)	-0.0030 (9)	0.0007 (9)	0.0011 (9)
C22	0.0171 (10)	0.0175 (11)	0.0135 (11)	-0.0024 (8)	0.0025 (8)	0.0051 (9)
C23	0.0174 (11)	0.0227 (12)	0.0199 (12)	-0.0047 (9)	-0.0023 (9)	0.0004 (10)
C24	0.0327 (14)	0.0209 (12)	0.0168 (12)	-0.0043 (10)	-0.0057 (10)	-0.0014 (10)
C25	0.0278 (12)	0.0192 (11)	0.0168 (11)	0.0025 (9)	-0.0008 (10)	-0.0006 (10)
C26	0.0186 (11)	0.0192 (11)	0.0181 (12)	0.0010 (9)	-0.0011 (9)	0.0017 (10)

Geometric parameters (Å, °)

Mn1—N6	2.1764 (19)	C6—C7	1.361 (3)
Mn1—N7	2.1794 (18)	С6—Н6	0.9500
Mn1—N1	2.2552 (19)	С7—Н7	0.9500
Mn1—N5	2.2621 (19)	C8—H8A	0.9800
Mn1—N8	2.2684 (19)	C8—H8B	0.9800
Mn1—N3	2.280 (2)	C8—H8C	0.9800
O1—C14	1.255 (3)	C9—C10	1.381 (3)
O2—C21	1.252 (3)	С9—Н9	0.9500
N1—C1	1.316 (3)	C10-C11	1.381 (4)
N1—C3	1.378 (3)	C10—H10	0.9500
N2—C1	1.335 (3)	C11—C12	1.387 (3)
N2—C2	1.371 (3)	C11—H11	0.9500
N2—C4	1.462 (3)	C12—C13	1.392 (3)
N3—C5	1.322 (3)	С12—Н12	0.9500
N3—C7	1.378 (3)	C13—C14	1.513 (3)
N4—C5	1.340 (3)	C15—C16	1.408 (3)
N4—C6	1.369 (3)	C15—C20	1.427 (3)
N4—C8	1.461 (3)	C16—C17	1.389 (3)
N5—C9	1.343 (3)	C16—H16	0.9500
N5—C13	1.348 (3)	C17—C18	1.384 (3)
N6—C14	1.326 (3)	C17—H17	0.9500
N6—C15	1.413 (3)	C18—C19	1.387 (3)

NP-C20 1.405 (3) C19-C20 1.407 (3) NB-C26 1.330 (3) C19-H19 0.9500 NB-C22 1.349 (3) C21-C22 1.556 (3) C1-H1 0.9500 C23-C24 1.383 (3) C2-H2 0.9500 C23-H23 0.9500 C3-H13 0.9500 C24-H24 0.9500 C4-H4A 0.9800 C24-H24 0.9500 C4-H4B 0.9800 C25-H25 0.9500 C5-H5 0.9500 C26-H26 0.9500 C6-H14C 0.9800 C26-H26 0.9500 C6-M1-N1 9.962 (7) N4-C8-H8B 109.5 N6-Mn1-N1 9.962 (7) N4-C8-H8B 109.5 N6-Mn1-N5 149.74 (7) N4-C8-H8B 109.5 N7-Mn1-N5 149.74 (7) N4-C8-H8C 109.5 N1-Mn1-N5 149.74 (7) N4-C8-H8C 109.5 N7-Mn1-N8 149.72 (7) H8A-C8-H8C 109.5 N1-Mn1-N5 15.717 N5-C9-H9 18.5 N5-Mn1-N8 19.74 (7) N5-C9-H9 18.5 N	N7—C21	1.327 (3)	C18—H18	0.9500
N8-C26 1.330 (3) C19-H19 0.9500 N8-C22 1.349 (3) C21-C22 1.526 (3) C1-H1 0.9500 C22-C23 1.386 (3) C2-C3 1.350 (3) C23-C24 1.383 (3) C2-H2 0.9500 C24-H23 0.9500 C3-H3 0.9500 C24-L25 1.382 (3) C4-H4A 0.9800 C25-H26 0.9500 C4-H4A 0.9800 C25-H25 0.9500 C4-H4C 0.9800 C26-H26 0.9500 C5-H5 0.9500 C26-H26 0.9500 N6-Mn1-N1 9.02 (7) N4-C8-H8A 109.5 N7-Mn1-N1 9.09 (7) N4-C8-H8B 109.5 N7-Mn1-N5 149.74 (7) N4-C8-H8C 109.5 N5-Mn1-N5 149.73 (7) N5-C9-C10 123.1 (2) N1-Mn1-N5 85.93 (7) H8A-C8-H8C 109.5 N5-Mn1-N8 19.7 (7) N5-C9-C10 123.1 (2) N1-Mn1-N5 18.547 (7) C10-C19-H19 118.5 <	N7—C20	1.405 (3)	C19—C20	1.407 (3)
N8-C22 1.349 (3) C21-C22 1.526 (3) C1-H1 0.9500 C22-C23 1.386 (3) C2-C3 1.350 (3) C23-C24 1.383 (3) C2-H2 0.9500 C23-H23 0.9500 C3-H3 0.9500 C24-H24 0.9500 C4-H4A 0.9800 C25-C26 1.390 (4) C4-H4B 0.9800 C25-H25 0.9500 C5-H5 0.9500 C26-H26 0.9500 N6-Mn1-N7 75.02 (7) N3-C7-H7 125.0 N6-Mn1-N1 97.62 (7) N4-C8-H8B 109.5 N6-Mn1-N5 7.74 (7) H8A-C8-H8B 109.5 N6-Mn1-N5 7.74 (7) H8A-C8-H8C 109.5 N6-Mn1-N5 8.59.3 (7) H8A-C8-H8C 109.5 N6-Mn1-N8 149.72 (7) H8B-C8-H8C 109.5 N6-Mn1-N8 149.72 (7) H8B-C8-H8C 109.5 N5-Mn1-N8 13.547 (7) C10-C0-H9 118.5 N5-Mn1-N8 13.547 (7) C10-C10-C19 18.2 (2) N1-Mn1-N8 15.79 (7) C0-C10-H10 120.9	N8—C26	1.330 (3)	С19—Н19	0.9500
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	N8—C22	1.349 (3)	C21—C22	1.526 (3)
C2-C3 1.350 (3) $C23-C24$ 1.383 (3) $C2-H2$ 0.9500 $C23-H23$ 0.9500 $C3-H3$ 0.9500 $C24-C25$ 1.382 (3) $C4-H4A$ 0.9800 $C25-C26$ 1.390 (4) $C4-H4C$ 0.9800 $C25-H25$ 0.9500 $C5-H5$ 0.9500 $C26-H26$ 0.9500 $C5-H5$ 0.9500 $C26-H26$ 0.9500 $C5-H5$ 0.9500 $C26-H26$ 0.9500 $N-MnI-N1$ 9.09 (7) $N4-C8-H8B$ 109.5 $N-MnI-N5$ 7.474 (7) $H8A-C8-H8C$ 109.5 $N-MnI-N5$ 7.474 (7) $H8A-C8-H8C$ 109.5 $N-MnI-N5$ 8.93 (7) $H8A-C8-H8C$ 109.5 $N-MnI-N5$ 8.93 (7) $H8A-C8-H8C$ 109.5 $N-MnI-N8$ 149.72 (7) $H8A-C8-H8C$ 109.5 $N-MnI-N8$ 149.72 (7) $H8A-C8-H8C$ 109.5 $N-MnI-N8$ 149.72 (7) $H8-C9-H9$ 118.5 $N-MnI-N8$ 13.547 (7) $C1-C9-H9$ 118.5 $N-MnI-N8$ 13.547 (7) $C1-C9-H10$ 120.9 $N-MnI-N3$ 10.427 (7) $C1-C1-H11$ 120.2 $N-MnI-N3$ 10.348 (8) $C11-C10-H10$ 120.9 $N-MnI-N3$ 10.457 (19) $C12-C11-H11$ 120.2 $C1-N1-C3$ 104.67 (19) $C12-C1-H12$ 19.02 $C1-N2-C4$ 12.51 (2) $N-C1-C1-C12$ 119.02 $C1-N2-C4$ 12.51 (2) $N-C1-C1-C12$ 119.02 $C1-N2-C4$ 12.52 (2) </td <td>C1—H1</td> <td>0.9500</td> <td>C22—C23</td> <td>1.386 (3)</td>	C1—H1	0.9500	C22—C23	1.386 (3)
C2-H2 0.9500 C23-H23 0.9500 C3-H3 0.9500 C24-C25 1.382 (3) C4-H4A 0.9800 C24-H24 0.9500 C4-H4B 0.9800 C25-C26 1.390 (4) C4-H4B 0.9800 C25-H25 0.9500 C5-H5 0.9500 C26-H26 0.9500 N6-Mn1-N7 7.502 (7) N4-C8-H8A 109.5 N7-Mn1-N1 99.09 (7) N4-C8-H8B 109.5 N6-Mn1-N5 7.74 (7) H8A-C8-H8C 109.5 N7-Mn1-N5 149.74 (7) N4-C8-H8C 109.5 N7-Mn1-N8 149.72 (7) H8D-C8-H8C 109.5 N7-Mn1-N8 149.72 (7) N5-C9-C10 123.1 (2) N1-Mn1-N8 88.21 (7) N5-C9-H9 118.5 N6-Mn1-N3 103.48 (8) C11-C10-C9 118.2 (2) N7-Mn1-N3 104.27 (7) C10-C1-C12 119.7 (2) N8-Mn1-N3 105.17 (7) C10-C1-C12 119.7 (2) N5-Mn1-N3 104.27 (7) C10-C1-C12 <td>С2—С3</td> <td>1.350 (3)</td> <td>C23—C24</td> <td>1.383 (3)</td>	С2—С3	1.350 (3)	C23—C24	1.383 (3)
C3—H3 0.9500 C24—C25 1.382 (3) C4—H4A 0.9800 C24—H24 0.9500 C4—H4B 0.9800 C25—C26 1.390 (4) C4—H4B 0.9500 C26—H25 0.9500 C5—H5 0.9500 C26—H26 0.9500 C4—H4D 0.9500 C26—H26 0.9500 N6—Mn1—N1 97.62 (7) N4—C8—H8B 109.5 N7—Mn1—N1 99.09 (7) N4—C8—H8B 109.5 N7—Mn1—N5 14.974 (7) H8A—C8—H8B 109.5 N1—Mn1—N5 85.93 (7) H8A—C8—H8C 109.5 N7—Mn1—N8 14.974 (7) N5—C9—H9 118.5 N5—M1—N8 14.974 (7) N5—C9—H9 118.5 N5—Mn1—N8 135.47 (7) C10—C9—H9 118.5 N5—Mn1—N3 104.27 (7) C11—C10—H10 120.9 N5—Mn1—N3 135.47 (7) C10—C11—H11 120.2 N5—Mn1—N3 136.57 C10—C11—C12 119.7 (2) N5—Mn1—N3 136.5 (7) C10—C11—C12 <t< td=""><td>С2—Н2</td><td>0.9500</td><td>С23—Н23</td><td>0.9500</td></t<>	С2—Н2	0.9500	С23—Н23	0.9500
C4—H4A 0.9800 C24—H24 0.9500 C4—H4B 0.9800 C25—C26 1.390 (4) C4—H4C 0.9800 C25—H25 0.9500 C5—H5 0.9500 C26—H26 0.9500 N6—Mnl—N1 97.62 (7) N3—C7—H7 125.0 N6—Mnl—N1 99.09 (7) N4—C8—H8A 109.5 N6—Mnl—N5 74.74 (7) H8A—C8—H8B 109.5 N1—M1—N5 85.93 (7) H8A—C8—H8C 109.5 N6—Mnl—N5 85.93 (7) H8A—C8—H8C 109.5 N6—Mnl—N8 149.72 (7) H8B—C8—H8C 109.5 N5—Mnl—N8 149.72 (7) H8B—C8—H8C 109.5 N5—Mnl—N8 135.47 (7) N5—C9—C10 123.1 (2) N1—MnI—N3 103.48 (8) C11—C10—C9 118.5 N6—MnI—N3 104.27 (7) C10—C1—H11 120.9 N5—MnI—N3 15.179 (7) C10—C11—H11 120.2 C1—N1—C3 104.67 (19) C12—C11—H11 120.2 C1—N1—C3 106.58 (19) C13—C1	С3—Н3	0.9500	C24—C25	1.382 (3)
C4—H4B 0.9800 C25—C26 1.390 (4) C4—H4C 0.9800 C25—H25 0.9500 C5—H5 0.9500 C26—H26 0.9500 M6—MnI—N7 75.02 (7) N3—C7—H7 125.0 N6—MnI—N1 97.62 (7) N4—C8—H8B 109.5 N7—MnI—N1 99.09 (7) N4—C8—H8B 109.5 N7—MnI—N5 149.74 (7) H8A—C8—H8B 109.5 N1—M1—N5 149.72 (7) H8B—C8—H8C 109.5 N7—MnI—N8 147.37 (7) N5—C9—C10 123.1 (2) N1—M1—N8 147.37 (7) N5—C9—H9 118.5 N6—MnI—N8 135.47 (7) C10—C9—H9 118.5 N6—MnI—N3 103.48 (8) C11—C10—H10 120.9 NT—MnI—N3 151.79 (7) C19—C10—H11 120.2 C1—N1—N3 18.53 (7) C10—C11—H11 120.2 C1—N1—N3 19.0 (2) C3 C1 C1 NS—MnI—N3 8.29 7 (7) C10—C11—H11 120.2 C1—N1—M1 130.57 (15)	C4—H4A	0.9800	C24—H24	0.9500
C4—H4C0.9800C25—H2S0.9500C5—H50.9500C26—H260.9500N6—M1—N775.02 (7)N3—C7—H7125.0N6—M1—N197.62 (7)N4—C8—H8A109.5N7—M1—N199.09 (7)N4—C8—H8B109.5N7—M1—N514.74 (7)H8A—C8—H8B109.5N7—M1—N514.74 (7)H8A—C8—H8C109.5N1—M1—N514.97 (7)N4—C8—H8C109.5N1—M1—N514.97 (7)H8A—C8—H8C109.5N1—M1—N885.93 (7)H8A—C8—H8C109.5N1—M1—N815.37 (7)N5—C9—C10123.1 (2)N1—M1—N8135.47 (7)C10—C9—H9118.5N6—M1—N3103.48 (8)C11—C10—C9118.2 (2)N1—M1—N3103.48 (8)C11—C10—H10120.9N1—M1—N3151.79 (7)C9—C10—H10120.9N1—M1—N381.85 (7)C10—C11—C11120.2C1—N1—C3104.67 (19)C12—C11—H11120.2C1—N1—M1130.57 (15)C11—C12—H12120.5C1—N2—C4125.12)C13—C12—H12120.5C1—N2—C4125.32)N5—C13—C12121.4(2)C3—N3—M1130.40 (16)01—C14—C13116.61 (19)C5—N3—C7104.76 (19)C13—C13116.61 (19)C5—N3—C7104.76 (19)C13—C14118.38 (19)C5—N3—C7104.76 (19)C13—C14118.38 (19)C5—N3—M1130.40 (16)01—C14—C13116.61 (19)C5—N3—M1127.12)N6—C15—C20115.75 (19) <t< td=""><td>C4—H4B</td><td>0.9800</td><td>C25—C26</td><td>1.390 (4)</td></t<>	C4—H4B	0.9800	C25—C26	1.390 (4)
C5—H5 0.9500 C26—H26 0.9500 N6—MnI—N7 75.02 (7) N3—C7—H7 125.0 N6—MnI—N1 97.62 (7) N4—C8—H8A 109.5 N7—MnI—N1 99.09 (7) N4—C8—H8B 109.5 N6—MnI—N5 74.74 (7) H8A—C8—H8B 109.5 N7—MnI—N5 149.74 (7) H8A—C8—H8C 109.5 N6—MnI—N5 149.72 (7) H8A—C8—H8C 109.5 N6—MnI—N8 149.72 (7) H8A—C8—H8C 109.5 N6—MnI—N8 149.72 (7) H8A—C8—H8C 109.5 N5—MnI—N8 135.47 (7) C10—C9—H9 118.5 N6—MnI—N3 103.48 (8) C11—C10—C11 120.9 N1—MnI—N3 104.27 (7) C10—C11—C12 119.7 (2) N5—MnI—N3 81.85 (7) C10—C11—C12 119.7 (2) N5—MnI—N3 82.97 (7) C10—C11—C12 119.7 (2) N5—MnI—N3 82.97 (7) C10—C11—C12 120.5 C1—NI—C3 104.67 (19) C12—C11—H11 120.2 C1—NI—M1 1	C4—H4C	0.9800	С25—Н25	0.9500
N6—MnI—N7 75.02 (7) N3—C7—H7 125.0 N6—MnI—N1 97.62 (7) N4—C8—H8A 109.5 N7—MnI—N1 99.09 (7) N4—C8—H8A 109.5 N6—MnI—N5 74.74 (7) H8A—C8—H8B 109.5 N6—MnI—N5 149.74 (7) N4—C8—H8C 109.5 N1—MnI—N5 85.93 (7) H8A—C8—H8C 109.5 N6—MnI—N8 149.72 (7) H8B—C8—H8C 109.5 N7—MnI—N8 74.73 (7) N5—C9—C10 123.1 (2) N1—MnI—N8 84.21 (7) N5—C9—H9 118.5 N5—MnI—N8 135.47 (7) C10—C9—H9 118.2 (2) N7—MnI—N3 104.42 (7) C11—C10—H10 120.9 NI—MnI—N3 151.79 (7) C9—C10—H10 120.9 NI—MnI—N3 81.85 (7) C10—C11—H11 120.2 C1—N1—C3 104.67 (19) C13—C12—H12 120.5 C1—N1—M1 130.57 (15) C11—C12—H12 120.5 C1—N1—M1 130.57 (15) C11—C12—H12 120.5 C1—N1—M1 130.57 (15) C11—C12—H12 120.5 C1—N1—M1 130.	С5—Н5	0.9500	С26—Н26	0.9500
N6—MnI—N197.62 (7)N4—C8—H8A109.5N7—MnI—N199.09 (7)N4—C8—H8B109.5N6—MnI—N574.74 (7)N4—C8—H8B109.5N7—MnI—N5149.74 (7)N4—C8—H8C109.5N1—MnI—N585.93 (7)H8A—C8—H8C109.5N1—MnI—N8149.72 (7)H8B—C8—H8C109.5N1—MnI—N8149.72 (7)H8B—C8—H8C109.5N1—MnI—N8149.72 (7)N5—C9—H9118.5N5—MnI—N8135.47 (7)C10—C9—H9118.5N5—MnI—N3103.48 (8)C11—C10—C9118.2 (2).N7—MnI—N3104.27 (7)C11—C10—H10120.9N1—MnI—N3151.79 (7)C9—C10—H10120.9N5—MnI—N3161.79 (7)C10—C11—H11120.2C1—NI—M1130.57 (15)C11—C12—C13119.0 (2)C1—NI—M1130.57 (15)C11—C12—H12120.5C1—NI—M1130.57 (15)C11—C12—H12120.5C1—NI—M1124.52 (15)C11—C12—H12120.5C1—N2—C2106.58 (19)C13—C12—H12120.5C1—N2—C4125.1 (16)O1—C14—M6130.2 (2)C5—N3—C7104.76 (19)C12—C13—C14183.8 (19)C5—N3—M1130.40 (16)O1—C14—C13116.61 (19)C5—N3—M1125.51 (16)O1—C14—M6130.2 (2)C7—N3—M1130.40 (16)O1—C14—C13116.61 (19)C5—N3—C7104.76 (19)C12—C13—C14120.1 (2)C5—N3—C7104.76 (19)C12—C13—C14120.1 (2)C5—N3—C6 <td< td=""><td>N6—Mn1—N7</td><td>75.02 (7)</td><td>N3—C7—H7</td><td>125.0</td></td<>	N6—Mn1—N7	75.02 (7)	N3—C7—H7	125.0
N7-Mn1-N199.09 (7)N4-C8-H8B109.5N6-Mn1-N574.74 (7)H8A-C8-H8B109.5N7-Mn1-N5149.74 (7)N4-C8-H8C109.5N6-Mn1-N585.93 (7)H8B-C8-H8C109.5N6-Mn1-N8149.72 (7)H8B-C8-H8C109.5N7-Mn1-N874.73 (7)N5-C9-C10123.1 (2)N1-Mn1-N888.21 (7)N5-C9-H9118.5N5-Mn1-N8135.47 (7)C10-C9-H9118.5N6-Mn1-N3103.48 (8)C11-C10-C9118.2 (2)N7-Mn1-N3104.27 (7)C11-C10-H10120.9N5-Mn1-N381.85 (7)C10-C11-H11120.2C1-N1-M381.85 (7)C10-C11-H11120.2C1-N1-C3104.67 (19)C12-C11-H11120.2C1-N1-M1130.57 (15)C11-C12-H12120.5C1-N2-C4127.1 (2)N5-C13-C12121.4 (2)C1-N2-C4127.1 (2)N5-C13-C14118.38 (19)C5-N3-M1123.51 (16)O1-C14-N6130.2 (2)C7-N3-Mn1130.40 (16)O1-C14-C13116.61 (19)C5-N3-M1125.9 (2)C16-C15-N6125.1 (2)C5-N3-M1125.9 (2)C16-C15-N6125.1 (2)C5-N3-M1127.17 (15)C17-C16-C15120.7 (2)C5-N3-M1127.17 (15)C17-C16-C15120.7 (2)C5-N3-M1127.17 (15)C17-C16-H16119.7C5-N3-M1127.17 (15)C17-C16-H16119.7C5-N3-M1127.17 (15)C17-C16-H16119.7C14-N6-C15123	N6—Mn1—N1	97.62 (7)	N4—C8—H8A	109.5
N6-Mn1-N574.74 (7)H8A-C8-H8B109.5N7-Mn1-N5149.74 (7)N4-C8-H8C109.5N1-Mn1-N585.93 (7)H8A-C8-H8C109.5N6-Mn1-N8149.72 (7)H8B-C8-H8C109.5N7-Mn1-N874.73 (7)N5-C9-C10123.1 (2)N1-Mn1-N888.21 (7)N5-C9-H9118.5N6-Mn1-N3103.48 (8)C11-C10-C9118.2 (2)N7-Mn1-N3104.27 (7)C11-C10-H10120.9N1-Mn1-N3151.79 (7)C9-C10-H10120.9N5-Mn1-N381.85 (7)C10-C11-H11120.2C1-N1-M382.97 (7)C10-C11-H11120.2C1-N1-G3104.67 (19)C12-C11-H11120.2C1-N1-Mn1130.57 (15)C11-C12-C13119.0 (2)C1-N2-C2106.58 (19)C13-C12-H12120.5C1-N2-C4127.1 (2)N5-C13-C12121.4 (2)C2-N2-C4126.3 (2)N5-C13-C14118.38 (19)C5-N3-Mn1120.40 (16)O1-C14-N6130.2 (2)C7-N3-Mn1120.40 (16)O1-C14-N6130.2 (2)C7-N3-Mn1125.9 (2)C16-C15-N6125.1 (2)C6-N4-C8125.9 (2)C16-C15-N6125.1 (2)C6-N4-C8125.9 (2)C16-C15-N6125.1 (2)C6-N4-C8125.9 (2)C16-C15-C20115.75 (19)C9-N5-Mn1127.17 (15)C17-C16-C15120.7 (2)C14-N6-Mn1118.88 (14)C18-C17-C16120.2 (2)C14-N6-Mn1116.61 (14)C18-C17-H17119.9C14-	N7—Mn1—N1	99.09 (7)	N4—C8—H8B	109.5
$\begin{array}{llllllllllllllllllllllllllllllllllll$	N6—Mn1—N5	74.74 (7)	H8A—C8—H8B	109.5
N1-Mn1-N585.93 (7)H8A-C8-H8C109.5N6-Mn1-N8149.72 (7)H8B-C8-H8C109.5N7-Mn1-N874.73 (7)N5-C9-C10123.1 (2)N1-Mn1-N888.21 (7)N5-C9-H9118.5N6-Mn1-N3103.48 (8)C11-C10-C9-H9118.5N6-Mn1-N3104.27 (7)C11-C10-H10120.9N7-Mn1-N3151.79 (7)C9-C10-H10120.9N5-Mn1-N381.85 (7)C10-C1-H11120.2C1-N1-C3104.67 (19)C12-C11-H11120.2C1-N1-C3104.67 (19)C12-C11-H11120.2C1-N1-C3104.67 (19)C12-C11-H11120.2C1-N1-Mn1130.57 (15)C11-C12-H12120.5C1-N2-C2106.58 (19)C13-C12-H12120.5C1-N2-C4127.12 (2)N5-C13-C12121.4 (2)C2-N2-C4126.3 (2)N5-C13-C14118.38 (19)C5-N3-C7104.76 (19)C12-C13-C14120.1 (2)C5-N3-Mn1130.40 (16)O1-C14-N6130.2 (2)C7-N3-Mn1130.40 (16)O1-C14-C13116.61 (19)C5-N4-C6107.1 (2)N6-C15-C20119.1 (2)C6-N4-C8127.0 (2)C16-C15-M6125.1 (2)C6-N4-C8127.0 (2)C16-C15-C20119.7 (2)C13-N5-Mn1127.7 (14)C17-C16-H16119.7C14-N6-C15123.67 (19)C15-C16-H16119.7C14-N6-Mn1118.88 (14)C18-C17-C16120.2 (2)C13-N5-Mn1116.61 (14)C18-C17-H17119.9C1	N7—Mn1—N5	149.74 (7)	N4—C8—H8C	109.5
N6-MnI-N8149.72 (7)H8B-C8-H8C109.5N7-MnI-N874.73 (7)N5-C9-C10123.1 (2)N1-MnI-N888.21 (7)N5-C9-H9118.5N5-MnI-N8135.47 (7)C10-C9-H9118.5N6-MnI-N3103.48 (8)C11-C10-C9118.2 (2)N7-MnI-N3104.27 (7)C11-C10-H10120.9N1-MnI-N3151.79 (7)C9-C10-H10120.9N5-MnI-N381.85 (7)C10-C11-H11120.2C1-N1-C3104.67 (19)C12-C11-H11120.2C1-N1-C3104.67 (19)C12-C11-H11120.2C1-N1-Mn1130.57 (15)C11-C12-H12120.5C1-N2-C2106.58 (19)C13-C12-H12120.5C1-N2-C4127.1 (2)N5-C13-C12121.4 (2)C2-N2-C4126.3 (2)N5-C13-C14118.38 (19)C5-N3-C7104.76 (19)C12-C13-C14120.2 (2)C7-N3-Mn1130.40 (16)O1-C14-C13116.61 (19)C5-N3-C6107.1 (2)N6-C14-C13113.10 (19)C5-N4-C6107.1 (2)N6-C15-C20119.1 (2)C9-N5-Mn1127.7 (14)C17-C16-C15120.7 (2)C13-N5-Mn1123.51 (18)C16-C15-C16119.7C14-N6-C15123.67 (19)C15-C16-H16119.7C14-N6-C15123.67 (19)C15-C16-H16119.7C14-N6-C15123.67 (19)C15-C16-H16119.7C14-N6-Mn1118.88 (14)C18-C17-C16120.2 (2)C15-N6-Mn1116.61 (14)C18-C17-H17119.9 <tr< td=""><td>N1—Mn1—N5</td><td>85.93 (7)</td><td>H8A—C8—H8C</td><td>109.5</td></tr<>	N1—Mn1—N5	85.93 (7)	H8A—C8—H8C	109.5
N7Mn1N874.73 (7)N5C9C10123.1 (2)N1Mn1N888.21 (7)N5C9H9118.5N5Mn1N8135.47 (7)C10C9H9118.5N6Mn1N3103.48 (8)C11C10C9118.2 (2)N7Mn1N3104.27 (7)C11C10H10120.9N1Mn1N3151.79 (7)C9C10H10120.9N5Mn1N381.85 (7)C10C11C12119.7 (2)N8Mn1N382.97 (7)C10C11H11120.2C1N1C3104.67 (19)C12C11H11120.2C1N1C3104.67 (19)C12C11H11120.2C1N1Mn1130.57 (15)C11C12C13119.0 (2)C3N1Mn1124.52 (15)C11C12H12120.5C1N2C2106.58 (19)C13C12H12120.5C1-N2C4127.1 (2)N5C13C14118.38 (19)C5N3C7104.76 (19)C12C13C14118.38 (19)C5N3C7104.76 (19)C12C13C14130.2 (2)C7N3Mn1123.51 (16)O1C14N6130.2 (2)C7N3Mn1123.51 (16)O1C14C13116.61 (19)C5N3C7104.76 (19)C12C13C14113.10 (19)C5N3C7104.76 (19)C12C13C14113.10 (19)C5N3C7104.76 (19)C12C13C14113.10 (19)C5N3C7104.76 (19)C12C13C14113.10 (19)C5N4C6107.1 (2)N6C14C13116.61 (19)C9N5C13118.77 (14)C17-	N6—Mn1—N8	149.72 (7)	H8B—C8—H8C	109.5
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	N7—Mn1—N8	74.73 (7)	N5—C9—C10	123.1 (2)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	N1—Mn1—N8	88.21 (7)	N5—C9—H9	118.5
N6Mn1N3103.48 (8)C11C10C9118.2 (2)N7Mn1N3104.27 (7)C11C10H10120.9N1Mn1N3151.79 (7)C9C10H10120.9N5Mn1N381.85 (7)C10C11C12119.7 (2)N8Mn1N382.97 (7)C10C11H11120.2C1N1C3104.67 (19)C12C11H11120.2C1N1Mn1130.57 (15)C11C12H12120.5C1N2C2106.58 (19)C13C12H12120.5C1N2C4127.1 (2)N5C13C12121.4 (2)C2N2C4126.3 (2)N5C13C14118.38 (19)C5N3C7104.76 (19)C12C13C14120.1 (2)C5N3Mn1123.51 (16)O1C14N6130.2 (2)C7N3Mn113.040 (16)O1C14N6130.2 (2)C5N4C6107.1 (2)N6C15N6125.1 (2)C6N4-C8127.0 (2)C16C15-N6125.1 (2)C6N4-C8127.0 (2)C16C15-N6125.1 (2)C6N4-C8127.0 (2)C16C15C20115.75 (19)C9N5Mn1127.77 (14)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6Mn1118.88 (14)C18C17H17119.9C21N7Mn1116.61 (14)C18C17H17119.9C21N7Mn1119.67 (14)C17C16H16120.4 (2)C20-N7Mn1116.81 (14)C17C18H18119.8C20-N7Mn1116.81 (14)C17C18H18<	N5—Mn1—N8	135.47 (7)	С10—С9—Н9	118.5
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	N6—Mn1—N3	103.48 (8)	C11—C10—C9	118.2 (2)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	N7—Mn1—N3	104.27 (7)	С11—С10—Н10	120.9
N5Mn1N3 81.85 (7)C10C11C12 119.7 (2)N8Mn1N3 82.97 (7)C10C11H11 120.2 C1N1C3 104.67 (19)C12C11H11 120.2 C1N1Mn1 130.57 (15)C11C12C13 119.0 (2)C3N1Mn1 124.52 (15)C11C12H12 120.5 C1N2C2 106.58 (19)C13C12H12 120.5 C1N2C4 127.1 (2)N5C13C14 118.38 (19)C5N3C7 104.76 (19)C12C13C14 120.1 (2)C5N3Mn1 123.51 (16)O1C14N6 130.2 (2)C7N3Mn1 13.40 (16)O1C14C13 116.61 (19)C5N4C6 107.1 (2)N6C14C13 116.61 (19)C5N4C8 125.9 (2)C16C15N6 125.1 (2)C6N4C8 127.0 (2)C16C15C20 119.1 (2)C9N5C13 118.7 (2)N6C15C20 115.75 (19)C9N5Mn1 122.67 (19)C15C16H16 119.7 C14N6C15 123.67 (19)C15C16H16 119.7 C14N6Mn1 118.88 (14)C18C17C16 120.2 (2)C15N6Mn1 116.61 (14)C18C17H17 119.9 C21N7Mn1 119.67 (14)C17C18H18 119.8 C20-N7Mn1 119.68 (14)C17C18H18 119.8 C20-N7Mn1 116.81 (14)C17C18H18 119.8	N1—Mn1—N3	151.79 (7)	С9—С10—Н10	120.9
N8—Mn1—N382.97 (7)C10—C11—H11120.2C1—N1—C3104.67 (19)C12—C11—H11120.2C1—N1—Mn1130.57 (15)C11—C12—C13119.0 (2)C3—N1—Mn1124.52 (15)C11—C12—H12120.5C1—N2—C2106.58 (19)C13—C12—H12120.5C1—N2—C4127.1 (2)N5—C13—C12121.4 (2)C2—N2—C4126.3 (2)N5—C13—C14118.38 (19)C5—N3—C7104.76 (19)C12—C13—C14120.1 (2)C5—N3—Mn1123.51 (16)O1—C14—N6130.2 (2)C7—N3—Mn1130.40 (16)O1—C14—C13116.61 (19)C5—N4—C6107.1 (2)N6—C14—C13113.10 (19)C5—N4—C6107.1 (2)N6—C14—C13113.10 (19)C5—N4—C8125.9 (2)C16—C15—N6125.1 (2)C6—N4—C8127.0 (2)C16—C15—C20115.75 (19)C9—N5—Mn1127.17 (15)C17—C16—C15120.7 (2)C13—N5—Mn1112.77 (14)C17—C16—H16119.7C14—N6—C15123.67 (19)C15—C16—H16119.7C14—N6—C15123.67 (19)C15—C16—H16119.7C14—N6—Mn1118.88 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—H18119.8C20—N7—Mn1116.81 (14)C17—C18—H18119.8C20—N7—Mn1116.81 (14)C17—C18—H18119.8	N5—Mn1—N3	81.85 (7)	C10-C11-C12	119.7 (2)
C1-N1-C3 104.67 (19) $C12-C11-H11$ 120.2 C1-N1-Mn1 130.57 (15) $C11-C12-C13$ 119.0 (2)C3-N1-Mn1 124.52 (15) $C11-C12-H12$ 120.5 C1-N2-C2 106.58 (19) $C13-C12-H12$ 120.5 C1-N2-C4 127.1 (2) $N5-C13-C12$ 121.4 (2)C2-N2-C4 126.3 (2) $N5-C13-C14$ 18.38 (19)C5-N3-C7 104.76 (19) $C12-C13-C14$ 120.1 (2)C5-N3-Mn1 123.51 (16) $01-C14-N6$ 130.2 (2)C7-N3-Mn1 130.40 (16) $01-C14-C13$ 116.61 (19)C5-N4-C6 107.1 (2) $N6-C14-C13$ 113.10 (19)C5-N4-C6 107.1 (2) $N6-C14-C13$ 113.10 (19)C5-N4-C8 127.0 (2) $C16-C15-N6$ 125.1 (2)C6-N4-C8 127.0 (2) $C16-C15-C20$ 119.1 (2)C9-N5-C13 118.7 (2) $N6-C15-C20$ 115.75 (19)C9-N5-Mn1 127.17 (15) $C17-C16-H16$ 119.7 C14-N6-C15 123.67 (19) $C15-C16-H16$ 119.7 C14-N6-M11 118.88 (14) $C18-C17-H17$ 119.9 C21-N7-C20 123.51 (18) $C16-C17-H17$ 119.9 C21-N7-Mn1 119.67 (14) $C17-C18-H18$ 119.8 C20-N7-Mn1 116.81 (14) $C17-C18-H18$ 119.8	N8—Mn1—N3	82.97 (7)	C10-C11-H11	120.2
C1N1Mn1130.57 (15)C11C12C13119.0 (2)C3N1Mn1124.52 (15)C11C12H12120.5C1-N2C2106.58 (19)C13C12H12120.5C1-N2C4127.1 (2)N5C13C12121.4 (2)C2-N2C4126.3 (2)N5C13C14118.38 (19)C5-N3C7104.76 (19)C12C13C14120.1 (2)C5-N3Mn1123.51 (16)01C14N6130.2 (2)C7N3Mn1130.40 (16)01C14C13116.61 (19)C5N4C6107.1 (2)N6C14C13113.10 (19)C5N4C8125.9 (2)C16C15N6125.1 (2)C6N4C8127.0 (2)C16C15C20119.1 (2)C9N5C13118.7 (2)N6C15C20115.75 (19)C9N5Mn1127.17 (15)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C20-N7Mn1116.81 (14)C17C18H18119.8	C1—N1—C3	104.67 (19)	C12—C11—H11	120.2
C3N1Mn1124.52 (15)C11C12H12120.5C1-N2C2106.58 (19)C13C12H12120.5C1-N2C4127.1 (2)N5C13C12121.4 (2)C2-N2C4126.3 (2)N5C13C14118.38 (19)C5-N3C7104.76 (19)C12C13C14120.1 (2)C5-N3Mn1123.51 (16)01C14N6130.2 (2)C7N3Mn1130.40 (16)01C14C13116.61 (19)C5-N4C6107.1 (2)N6C14C13113.10 (19)C5N4C8125.9 (2)C16C15N6125.1 (2)C6N4C8127.0 (2)C16C15C20119.1 (2)C9N5C13118.7 (2)N6C15C20115.75 (19)C9N5Mn1127.17 (15)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17C16120.2 (2)C15N6Mn1116.61 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C20N7Mn1116.81 (14)C17C18H18119.8	C1—N1—Mn1	130.57 (15)	C11—C12—C13	119.0 (2)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	C3—N1—Mn1	124.52 (15)	C11—C12—H12	120.5
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	C1—N2—C2	106.58 (19)	C13—C12—H12	120.5
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	C1—N2—C4	127.1 (2)	N5-C13-C12	121.4 (2)
C5N3C7104.76 (19)C12C13C14120.1 (2)C5N3Mn1123.51 (16)01C14N6130.2 (2)C7N3Mn1130.40 (16)01C14C13116.61 (19)C5N4C6107.1 (2)N6C14C13113.10 (19)C5N4C8125.9 (2)C16C15N6125.1 (2)C6N4C8127.0 (2)C16C15C20119.1 (2)C9N5C13118.7 (2)N6C15C20115.75 (19)C9N5Mn1127.17 (15)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17C16120.2 (2)C15N6Mn1116.61 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C20N7Mn1116.81 (14)C17C18H18119.8	C2—N2—C4	126.3 (2)	N5-C13-C14	118.38 (19)
C5N3Mn1123.51 (16)O1C14N6130.2 (2)C7N3Mn1130.40 (16)O1C14C13116.61 (19)C5N4C6107.1 (2)N6C14C13113.10 (19)C5N4C8125.9 (2)C16C15N6125.1 (2)C6N4C8127.0 (2)C16C15C20119.1 (2)C9N5C13118.7 (2)N6C15C20115.75 (19)C9N5Mn1127.17 (15)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17C16120.2 (2)C15N6Mn1116.61 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C26N8C22118.98 (19)C19C18H18119.8	C5—N3—C7	104.76 (19)	C12—C13—C14	120.1 (2)
C7N3Mn1130.40 (16)O1C14C13116.61 (19)C5N4C6107.1 (2)N6C14C13113.10 (19)C5N4C8125.9 (2)C16C15N6125.1 (2)C6N4C8127.0 (2)C16C15C20119.1 (2)C9N5C13118.7 (2)N6C15C20115.75 (19)C9N5Mn1127.17 (15)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17C16120.2 (2)C15N6Mn1116.61 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C26N8C22118.98 (19)C19C18H18119.8	C5—N3—Mn1	123.51 (16)	O1—C14—N6	130.2 (2)
C5N4C6107.1 (2)N6C14C13113.10 (19)C5N4C8125.9 (2)C16C15N6125.1 (2)C6N4C8127.0 (2)C16C15C20119.1 (2)C9N5C13118.7 (2)N6C15C20115.75 (19)C9N5Mn1127.17 (15)C17C16C15120.7 (2)C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17C16120.2 (2)C15N6Mn1116.61 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C26N8C22118.98 (19)C19C18H18119.8	C7—N3—Mn1	130.40 (16)	O1—C14—C13	116.61 (19)
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	C5—N4—C6	107.1 (2)	N6-C14-C13	113.10 (19)
C6—N4—C8127.0 (2)C16—C15—C20119.1 (2)C9—N5—C13118.7 (2)N6—C15—C20115.75 (19)C9—N5—Mn1127.17 (15)C17—C16—C15120.7 (2)C13—N5—Mn1112.77 (14)C17—C16—H16119.7C14—N6—C15123.67 (19)C15—C16—H16119.7C14—N6—Mn1118.88 (14)C18—C17—C16120.2 (2)C15—N6—Mn1116.61 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C5—N4—C8	125.9 (2)	C16—C15—N6	125.1 (2)
C9—N5—C13118.7 (2)N6—C15—C20115.75 (19)C9—N5—Mn1127.17 (15)C17—C16—C15120.7 (2)C13—N5—Mn1112.77 (14)C17—C16—H16119.7C14—N6—C15123.67 (19)C15—C16—H16119.7C14—N6—Mn1118.88 (14)C18—C17—C16120.2 (2)C15—N6—Mn1116.61 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C6—N4—C8	127.0 (2)	C16—C15—C20	119.1 (2)
C9—N5—Mn1127.17 (15)C17—C16—C15120.7 (2)C13—N5—Mn1112.77 (14)C17—C16—H16119.7C14—N6—C15123.67 (19)C15—C16—H16119.7C14—N6—Mn1118.88 (14)C18—C17—C16120.2 (2)C15—N6—Mn1116.61 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C9—N5—C13	118.7 (2)	N6—C15—C20	115.75 (19)
C13N5Mn1112.77 (14)C17C16H16119.7C14N6C15123.67 (19)C15C16H16119.7C14N6Mn1118.88 (14)C18C17C16120.2 (2)C15N6Mn1116.61 (14)C18C17H17119.9C21N7C20123.51 (18)C16C17H17119.9C21N7Mn1119.67 (14)C17C18C19120.4 (2)C20N7Mn1116.81 (14)C17C18H18119.8C26N8C22118.98 (19)C19C18H18119.8	C9—N5—Mn1	127.17 (15)	C17—C16—C15	120.7 (2)
C14—N6—C15123.67 (19)C15—C16—H16119.7C14—N6—Mn1118.88 (14)C18—C17—C16120.2 (2)C15—N6—Mn1116.61 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C13—N5—Mn1	112.77 (14)	С17—С16—Н16	119.7
C14—N6—Mn1118.88 (14)C18—C17—C16120.2 (2)C15—N6—Mn1116.61 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C14—N6—C15	123.67 (19)	С15—С16—Н16	119.7
C15—N6—Mn1116.61 (14)C18—C17—H17119.9C21—N7—C20123.51 (18)C16—C17—H17119.9C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C14—N6—Mn1	118.88 (14)	C18—C17—C16	120.2 (2)
C21-N7-C20123.51 (18)C16-C17-H17119.9C21-N7-Mn1119.67 (14)C17-C18-C19120.4 (2)C20-N7-Mn1116.81 (14)C17-C18-H18119.8C26-N8-C22118.98 (19)C19-C18-H18119.8	C15—N6—Mn1	116.61 (14)	С18—С17—Н17	119.9
C21—N7—Mn1119.67 (14)C17—C18—C19120.4 (2)C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C21—N7—C20	123.51 (18)	С16—С17—Н17	119.9
C20—N7—Mn1116.81 (14)C17—C18—H18119.8C26—N8—C22118.98 (19)C19—C18—H18119.8	C21—N7—Mn1	119.67 (14)	C17—C18—C19	120.4 (2)
C26—N8—C22 118.98 (19) C19—C18—H18 119.8	C20—N7—Mn1	116.81 (14)	C17—C18—H18	119.8
	C26—N8—C22	118.98 (19)	C19—C18—H18	119.8

C26—N8—Mn1	126.43 (15)	C18—C19—C20	120.9 (2)
C22—N8—Mn1	112.66 (14)	C18—C19—H19	119.6
N1—C1—N2	112.5 (2)	С20—С19—Н19	119.6
N1—C1—H1	123.7	N7—C20—C19	125.5 (2)
N2—C1—H1	123.7	N7—C20—C15	115.78 (18)
C3—C2—N2	106.4 (2)	C19—C20—C15	118.7 (2)
С3—С2—Н2	126.8	O2—C21—N7	130.6 (2)
N2—C2—H2	126.8	O2—C21—C22	116.22 (19)
C2—C3—N1	109.8 (2)	N7—C21—C22	113.13 (19)
С2—С3—Н3	125.1	N8—C22—C23	121.5 (2)
N1—C3—H3	125.1	N8—C22—C21	118.04 (19)
N2—C4—H4A	109.5	C23—C22—C21	120.44 (19)
N2—C4—H4B	109.5	C24—C23—C22	119.4 (2)
H4A—C4—H4B	109.5	С24—С23—Н23	120.3
N2—C4—H4C	109.5	С22—С23—Н23	120.3
H4A—C4—H4C	109.5	C25—C24—C23	119.0 (2)
H4B—C4—H4C	109.5	C25—C24—H24	120.5
N3—C5—N4	112.2 (2)	C23—C24—H24	120.5
N3—C5—H5	123.9	C24—C25—C26	118.6 (2)
N4—C5—H5	123.9	C24—C25—H25	120.7
C7—C6—N4	106.0 (2)	С26—С25—Н25	120.7
С7—С6—Н6	127.0	N8—C26—C25	122.6 (2)
N4—C6—H6	127.0	N8—C26—H26	118.7
C6—C7—N3	109.9 (2)	С25—С26—Н26	118.7
С6—С7—Н7	125.0		
N6—Mn1—N1—C1	-92.7 (2)	Mn1—N1—C3—C2	-174.18 (17)
N7—Mn1—N1—C1	-168.6 (2)	C7—N3—C5—N4	0.2 (3)
N5—Mn1—N1—C1	-18.7 (2)	Mn1—N3—C5—N4	-167.83 (14)
N8—Mn1—N1—C1	117.1 (2)	C6—N4—C5—N3	-0.3 (3)
N3—Mn1—N1—C1	45.6 (3)	C8—N4—C5—N3	-179.6 (2)
N6—Mn1—N1—C3	80.7 (2)	C5—N4—C6—C7	0.3 (3)
N7—Mn1—N1—C3	4.8 (2)	C8—N4—C6—C7	179.6 (2)
N5—Mn1—N1—C3	154.7 (2)	N4—C6—C7—N3	-0.1 (3)
N8—Mn1—N1—C3	-69.46 (19)	C5—N3—C7—C6	0.0 (3)
N3—Mn1—N1—C3	-140.97 (19)	Mn1—N3—C7—C6	166.84 (16)
N6—Mn1—N3—C5	34.70 (19)	C13—N5—C9—C10	-0.4 (3)
N7—Mn1—N3—C5	112.38 (18)	Mn1—N5—C9—C10	165.25 (17)
N1—Mn1—N3—C5	-102.6 (2)	N5-C9-C10-C11	1.5 (3)
N5—Mn1—N3—C5	-37.38 (18)	C9—C10—C11—C12	-1.0 (3)
N8—Mn1—N3—C5	-175.39 (18)	C10-C11-C12-C13	-0.5 (3)
N6—Mn1—N3—C7	-130.0 (2)	C9—N5—C13—C12	-1.2 (3)
N7—Mn1—N3—C7	-52.4 (2)	Mn1—N5—C13—C12	-168.82 (16)
N1—Mn1—N3—C7	92.6 (2)	C9—N5—C13—C14	175.61 (19)
N5—Mn1—N3—C7	157.9 (2)	Mn1—N5—C13—C14	8.0 (2)
N8—Mn1—N3—C7	19.9 (2)	C11—C12—C13—N5	1.6 (3)
N6—Mn1—N5—C9	-166.23 (19)	C11—C12—C13—C14	-175.1 (2)
N7—Mn1—N5—C9	-164.19 (16)	C15—N6—C14—O1	1.1 (4)
N1—Mn1—N5—C9	94.73 (18)	Mn1—N6—C14—O1	-168.07 (19)
N8-Mn1-N5-C9	11.5 (2)	C15—N6—C14—C13	-174.87 (18)

N3—Mn1—N5—C9	-59.78 (18)	Mn1-N6-C14-C13	16.0 (2)
N6—Mn1—N5—C13	0.09 (14)	N5-C13-C14-O1	167.57 (19)
N7—Mn1—N5—C13	2.1 (2)	C12-C13-C14-O1	-15.6 (3)
N1—Mn1—N5—C13	-98.95 (15)	N5-C13-C14-N6	-15.9 (3)
N8—Mn1—N5—C13	177.77 (13)	C12-C13-C14-N6	161.0 (2)
N3—Mn1—N5—C13	106.54 (15)	C14—N6—C15—C16	12.7 (3)
N7-Mn1-N6-C14	171.66 (18)	Mn1-N6-C15-C16	-177.88 (17)
N1-Mn1-N6-C14	74.24 (17)	C14—N6—C15—C20	-170.9 (2)
N5-Mn1-N6-C14	-9.40 (16)	Mn1-N6-C15-C20	-1.6 (2)
N8—Mn1—N6—C14	173.83 (15)	N6-C15-C16-C17	177.1 (2)
N3—Mn1—N6—C14	-86.90 (17)	C20-C15-C16-C17	0.9 (3)
N7—Mn1—N6—C15	1.75 (14)	C15-C16-C17-C18	-0.1 (3)
N1—Mn1—N6—C15	-95.67 (15)	C16-C17-C18-C19	-1.0 (4)
N5-Mn1-N6-C15	-179.31 (16)	C17—C18—C19—C20	1.2 (3)
N8—Mn1—N6—C15	3.9 (2)	C21—N7—C20—C19	-3.1 (3)
N3—Mn1—N6—C15	103.19 (15)	Mn1—N7—C20—C19	178.62 (17)
N6—Mn1—N7—C21	179.90 (17)	C21—N7—C20—C15	179.81 (19)
N1—Mn1—N7—C21	-84.58 (16)	Mn1—N7—C20—C15	1.5 (2)
N5—Mn1—N7—C21	177.87 (15)	C18—C19—C20—N7	-177.3 (2)
N8—Mn1—N7—C21	1.03 (15)	C18—C19—C20—C15	-0.3 (3)
N3—Mn1—N7—C21	79.48 (17)	C16—C15—C20—N7	176.57 (19)
N6—Mn1—N7—C20	-1.75 (14)	N6-C15-C20-N7	0.0 (3)
N1—Mn1—N7—C20	93.76 (15)	C16—C15—C20—C19	-0.7 (3)
N5-Mn1-N7-C20	-3.8 (2)	N6-C15-C20-C19	-177.28 (18)
N8—Mn1—N7—C20	179.38 (15)	C20—N7—C21—O2	-5.9 (4)
N3—Mn1—N7—C20	-102.17 (15)	Mn1—N7—C21—O2	172.31 (19)
N6—Mn1—N8—C26	168.94 (17)	C20—N7—C21—C22	173.58 (18)
N7—Mn1—N8—C26	171.1 (2)	Mn1—N7—C21—C22	-8.2 (2)
N1-Mn1-N8-C26	-88.97 (19)	C26—N8—C22—C23	-1.3 (3)
N5-Mn1-N8-C26	-6.6 (2)	Mn1-N8-C22-C23	163.93 (17)
N3—Mn1—N8—C26	64.18 (19)	C26—N8—C22—C21	-179.3 (2)
N6-Mn1-N8-C22	5.1 (2)	Mn1-N8-C22-C21	-14.1 (2)
N7—Mn1—N8—C22	7.25 (14)	O2—C21—C22—N8	-165.29 (19)
N1—Mn1—N8—C22	107.17 (15)	N7-C21-C22-N8	15.1 (3)
N5-Mn1-N8-C22	-170.47 (13)	O2—C21—C22—C23	16.7 (3)
N3—Mn1—N8—C22	-99.68 (15)	N7—C21—C22—C23	-162.9 (2)
C3—N1—C1—N2	-0.2 (3)	N8—C22—C23—C24	-0.4 (3)
Mn1—N1—C1—N2	174.15 (16)	C21—C22—C23—C24	177.6 (2)
C2—N2—C1—N1	-0.3 (3)	C22—C23—C24—C25	1.9 (3)
C4—N2—C1—N1	178.6 (2)	C23—C24—C25—C26	-1.8 (4)
C1—N2—C2—C3	0.6 (3)	C22—N8—C26—C25	1.4 (3)
C4—N2—C2—C3	-178.2 (2)	Mn1-N8-C26-C25	-161.57 (18)
N2-C2-C3-N1	-0.8 (3)	C24—C25—C26—N8	0.2 (4)
C1—N1—C3—C2	0.6 (3)		

