

data_p21c

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_chemical_name_systematic
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_chemical_name_common       ?
_chemical_melting_point     ?
_chemical_formula_moiety    ?
_chemical_formula_sum       'C16 H23 Cl2 Ir N2'
_chemical_formula_weight    506.46
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loop_

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_atom_type_scatter_dispersion_imag
_atom_type_scatter_source
'C' 'C' 0.0033 0.0016
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'
'H' 'H' 0.0000 0.0000
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'
'N' 'N' 0.0061 0.0033
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'
'Cl' 'Cl' 0.1484 0.1585
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'
'Ir' 'Ir' -1.4442 7.9887
'International Tables Vol C Tables 4.2.6.8 and 6.1.1.4'
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_symmetry_cell_setting      Monoclinic
_symmetry_space_group_name_H-M P21/c
_symmetry_space_group_name_Hall '-P 2ybc'
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loop_

```
_symmetry_equiv_pos_as_xyz
'x, y, z'
'-x, y+1/2, -z+1/2'
'-x, -y, -z'
'x, -y-1/2, z-1/2'
```

```
_cell_length_a              11.908(2)
_cell_length_b              8.4938(17)
_cell_length_c              17.194(3)
_cell_angle_alpha           90.00
_cell_angle_beta            96.42(3)
_cell_angle_gamma           90.00
_cell_volume                 1728.1(6)
_cell_formula_units_Z       4
_cell_measurement_temperature 293(2)
_cell_measurement_reflns_used ?
_cell_measurement_theta_min ?
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_cell_measurement_theta_max	?
_exptl_crystal_description	?
_exptl_crystal_colour	?
_exptl_crystal_size_max	?
_exptl_crystal_size_mid	?
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_exptl_crystal_density_meas	?
_exptl_crystal_density_diffn	1.947
_exptl_crystal_density_method	'not measured'
_exptl_crystal_F_000	976
_exptl_absorpt_coefficient_mu	8.031
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_exptl_absorpt_correction_T_min	?
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_exptl_absorpt_process_details	?
_exptl_special_details	
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_diffn_ambient_temperature	293(2)
_diffn_radiation_wavelength	0.71073
_diffn_radiation_type	MoK\alpha
_diffn_radiation_source	'fine-focus sealed tube'
_diffn_radiation_monochromator	graphite
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_diffn_reflns_limit_k_min	-10
_diffn_reflns_limit_k_max	10
_diffn_reflns_limit_l_min	-21
_diffn_reflns_limit_l_max	11
_diffn_reflns_theta_min	3.09
_diffn_reflns_theta_max	26.37
_reflns_number_total	3527
_reflns_number_gt	3113
_reflns_threshold_expression	>2sigma(I)
_computing_data_collection	
_computing_cell_refinement	?
_computing_data_reduction	?
_computing_structure_solution	'SHELXS-97 (Sheldrick, 2008)'
_computing_structure_refinement	'SHELXL-97 (Sheldrick, 2008)'
_computing_molecular_graphics	?
_computing_publication_material	?
_refine_special_details	

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Refinement of F^2^ against ALL reflections. The weighted R-factor wR
and
goodness of fit S are based on F^2^, conventional R-factors R are based
on F, with F set to zero for negative F^2^. The threshold expression of
F^2^ > 2sigma(F^2^) is used only for calculating R-factors(gt) etc. and
is
not relevant to the choice of reflections for refinement. R-factors
based
on F^2^ are statistically about twice as large as those based on F, and
R-
factors based on ALL data will be even larger.
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_refine_ls_weighting_details
'calc w=1/[\s^2^(Fo^2^)+(0.0352P)^2^+2.3426P] where P=(Fo^2^+2Fc^2^)/3'
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_atom_sites_solution_secondary    difmap
_atom_sites_solution_hydrogens    geom
_refine_ls_hydrogen_treatment     constr
_refine_ls_extinction_method      none
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_refine_ls_number_parameters      197
_refine_ls_number_restraints      0
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_refine_ls_wR_factor_ref          0.0675
_refine_ls_wR_factor_gt          0.0650
_refine_ls_goodness_of_fit_ref    1.042
_refine_ls_restrained_S_all       1.042
_refine_ls_shift/su_max           0.008
_refine_ls_shift/su_mean          0.000

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_atom_site_adp_type
_atom_site_occupancy
_atom_site_symmetry_multiplicity
_atom_site_calc_flag
_atom_site_refinement_flags
_atom_site_disorder_assembly
_atom_site_disorder_group
Ir1 Ir 0.230558(15) 0.29310(2) 0.095178(10) 0.02625(8) Uani 1 1 d . . .
Cl2 Cl 0.27428(11) 0.54880(15) 0.04041(8) 0.0401(3) Uani 1 1 d . . .
Cl1 Cl 0.15490(12) 0.43460(17) 0.19896(8) 0.0441(3) Uani 1 1 d . . .

```

N1 N 0.3905(4) 0.2862(4) 0.1667(2) 0.0284(9) Uani 1 1 d . . .
 N2 N 0.4976(4) 0.3406(6) 0.0641(2) 0.0378(10) Uani 1 1 d . . .
 H1 H 0.4836 0.2631 0.0323 0.045 Uiso 1 1 d R . .
 H2 H 0.4481 0.4134 0.0532 0.045 Uiso 1 1 d R . .
 C11 C 0.4920(4) 0.2901(5) 0.1392(3) 0.0279(10) Uani 1 1 d . . .
 C12 C 0.5925(4) 0.2401(6) 0.1846(3) 0.0316(11) Uani 1 1 d . . .
 C3 C 0.1153(5) 0.2202(6) -0.0039(3) 0.0390(13) Uani 1 1 d . . .
 C2 C 0.2243(5) 0.1578(6) -0.0107(3) 0.0343(11) Uani 1 1 d . . .
 C13 C 0.5837(5) 0.1839(6) 0.2590(3) 0.0380(12) Uani 1 1 d . . .
 H7 H 0.6475 0.1474 0.2898 0.046 Uiso 1 1 calc R . .
 C14 C 0.4793(5) 0.1819(6) 0.2878(3) 0.0386(12) Uani 1 1 d . . .
 H8 H 0.4725 0.1458 0.3381 0.046 Uiso 1 1 calc R . .
 C4 C 0.0755(5) 0.1583(6) 0.0667(3) 0.0401(13) Uani 1 1 d . . .
 C16 C 0.7034(5) 0.2476(8) 0.1512(3) 0.0461(14) Uani 1 1 d . . .
 H11A H 0.6982 0.1893 0.1031 0.069 Uiso 1 1 calc R . .
 H11B H 0.7615 0.2031 0.1879 0.069 Uiso 1 1 calc R . .
 H11C H 0.7214 0.3554 0.1413 0.069 Uiso 1 1 calc R . .
 C7 C 0.2892(6) 0.1845(8) -0.0787(3) 0.0565(17) Uani 1 1 d . . .
 H20A H 0.2888 0.2947 -0.0911 0.085 Uiso 1 1 calc R . .
 H20B H 0.2549 0.1265 -0.1230 0.085 Uiso 1 1 calc R . .
 H20C H 0.3657 0.1496 -0.0657 0.085 Uiso 1 1 calc R . .
 C8 C 0.0498(7) 0.3246(8) -0.0639(4) 0.069(2) Uani 1 1 d . . .
 H21A H -0.0252 0.3402 -0.0498 0.103 Uiso 1 1 calc R . .
 H21B H 0.0457 0.2756 -0.1144 0.103 Uiso 1 1 calc R . .
 H21C H 0.0872 0.4245 -0.0656 0.103 Uiso 1 1 calc R . .
 C9 C -0.0356(6) 0.1872(8) 0.0953(5) 0.068(2) Uani 1 1 d . . .
 H17A H -0.0245 0.2144 0.1498 0.102 Uiso 1 1 calc R . .
 H17B H -0.0810 0.0938 0.0884 0.102 Uiso 1 1 calc R . .
 H17C H -0.0732 0.2722 0.0662 0.102 Uiso 1 1 calc R . .
 C10 C 0.1602(6) -0.0357(8) 0.1773(4) 0.0650(19) Uani 1 1 d . . .
 H18A H 0.2350 -0.0455 0.2041 0.097 Uiso 1 1 calc R . .
 H18B H 0.1308 -0.1384 0.1635 0.097 Uiso 1 1 calc R . .
 H18C H 0.1122 0.0152 0.2109 0.097 Uiso 1 1 calc R . .
 C15 C 0.3869(5) 0.2339(6) 0.2409(3) 0.0324(11) Uani 1 1 d . . .
 H9 H 0.3175 0.2336 0.2609 0.039 Uiso 1 1 calc R . .
 C1 C 0.2546(4) 0.0573(6) 0.0554(3) 0.0332(11) Uani 1 1 d . . .
 C5 C 0.1641(5) 0.0600(6) 0.1049(3) 0.0365(12) Uani 1 1 d . . .
 C6 C 0.3613(5) -0.0361(7) 0.0713(4) 0.0504(15) Uani 1 1 d . . .
 H19A H 0.4188 0.0094 0.0434 0.076 Uiso 1 1 calc R . .
 H19B H 0.3477 -0.1428 0.0543 0.076 Uiso 1 1 calc R . .
 H19C H 0.3859 -0.0349 0.1264 0.076 Uiso 1 1 calc R . .

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 _atom_site_aniso_U_33
 _atom_site_aniso_U_23
 _atom_site_aniso_U_13
 _atom_site_aniso_U_12

Ir1 0.02208(12) 0.02628(11) 0.03018(11) -0.00149(8) 0.00199(7) -
 0.00151(8)
 C12 0.0385(7) 0.0305(6) 0.0508(7) 0.0090(6) 0.0024(6) -0.0014(6)
 C11 0.0353(7) 0.0511(8) 0.0470(7) -0.0145(6) 0.0092(6) 0.0034(6)

N1 0.027(2) 0.027(2) 0.030(2) -0.0014(17) 0.0019(16) -0.0034(17)
 N2 0.034(3) 0.048(3) 0.033(2) 0.006(2) 0.0061(18) 0.005(2)
 C11 0.030(3) 0.023(2) 0.031(2) 0.001(2) 0.0057(19) 0.001(2)
 C12 0.026(3) 0.032(2) 0.036(3) -0.003(2) 0.003(2) 0.002(2)
 C3 0.033(3) 0.036(3) 0.045(3) -0.011(2) -0.009(2) -0.005(2)
 C2 0.039(3) 0.033(2) 0.031(2) -0.006(2) 0.005(2) -0.010(2)
 C13 0.036(3) 0.040(3) 0.037(3) 0.003(2) -0.003(2) 0.007(2)
 C14 0.040(3) 0.044(3) 0.032(3) 0.005(2) 0.004(2) 0.005(2)
 C4 0.027(3) 0.041(3) 0.053(3) -0.013(3) 0.006(2) -0.013(2)
 C16 0.029(3) 0.064(4) 0.046(3) 0.002(3) 0.006(2) 0.009(3)
 C7 0.075(5) 0.059(4) 0.036(3) -0.007(3) 0.010(3) -0.006(3)
 C8 0.069(5) 0.061(4) 0.067(4) -0.002(3) -0.036(4) 0.005(4)
 C9 0.036(4) 0.067(5) 0.102(6) -0.019(4) 0.017(4) -0.016(3)
 C10 0.073(5) 0.060(4) 0.063(4) 0.015(3) 0.012(3) -0.024(4)
 C15 0.031(3) 0.035(3) 0.031(3) 0.004(2) 0.007(2) -0.002(2)
 C1 0.032(3) 0.026(2) 0.041(3) -0.006(2) -0.001(2) -0.001(2)
 C5 0.037(3) 0.030(2) 0.042(3) -0.007(2) 0.008(2) -0.015(2)
 C6 0.048(4) 0.035(3) 0.066(4) -0.007(3) 0.000(3) 0.013(3)

_geom_special_details

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All esds (except the esd in the dihedral angle between two l.s. planes) are estimated using the full covariance matrix. The cell esds are taken into account individually in the estimation of esds in distances, angles and torsion angles; correlations between esds in cell parameters are only

used when they are defined by crystal symmetry. An approximate (isotropic)

treatment of cell esds is used for estimating esds involving l.s. planes.

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loop_

_geom_bond_atom_site_label_1

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_geom_bond_site_symmetry_2

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Ir1 C1 2.146(5) . ?

Ir1 C5 2.146(5) . ?

Ir1 C2 2.147(5) . ?

Ir1 N1 2.149(4) . ?

Ir1 C3 2.155(5) . ?

Ir1 C4 2.181(5) . ?

Ir1 C11 2.4083(14) . ?

Ir1 C12 2.4464(13) . ?

N1 C11 1.347(6) . ?

N1 C15 1.356(6) . ?

N2 C11 1.370(6) . ?

N2 H1 0.8602 . ?

N2 H2 0.8609 . ?

C11 C12 1.418(7) . ?

C12 C13 1.380(7) . ?

C12 C16 1.499(8) . ?

C3 C2 1.418(8) . ?
C3 C4 1.451(8) . ?
C3 C8 1.509(8) . ?
C2 C1 1.435(7) . ?
C2 C7 1.489(7) . ?
C13 C14 1.388(8) . ?
C13 H7 0.9300 . ?
C14 C15 1.363(7) . ?
C14 H8 0.9300 . ?
C4 C5 1.445(8) . ?
C4 C9 1.483(9) . ?
C16 H11A 0.9600 . ?
C16 H11B 0.9600 . ?
C16 H11C 0.9600 . ?
C7 H20A 0.9600 . ?
C7 H20B 0.9600 . ?
C7 H20C 0.9600 . ?
C8 H21A 0.9600 . ?
C8 H21B 0.9600 . ?
C8 H21C 0.9600 . ?
C9 H17A 0.9600 . ?
C9 H17B 0.9600 . ?
C9 H17C 0.9600 . ?
C10 C5 1.491(8) . ?
C10 H18A 0.9600 . ?
C10 H18B 0.9600 . ?
C10 H18C 0.9600 . ?
C15 H9 0.9300 . ?
C1 C5 1.446(7) . ?
C1 C6 1.498(7) . ?
C6 H19A 0.9600 . ?
C6 H19B 0.9600 . ?
C6 H19C 0.9600 . ?

loop_

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C1 Ir1 C2 39.05(19) . . ?
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C1 Ir1 N1 90.90(16) . . ?
C5 Ir1 N1 103.95(18) . . ?
C2 Ir1 N1 114.52(18) . . ?
C1 Ir1 C3 64.90(19) . . ?
C5 Ir1 C3 65.7(2) . . ?
C2 Ir1 C3 38.5(2) . . ?
N1 Ir1 C3 152.80(19) . . ?
C1 Ir1 C4 65.0(2) . . ?
C5 Ir1 C4 39.0(2) . . ?

C2 Ir1 C4 65.2(2) . . ?
N1 Ir1 C4 141.98(18) . . ?
C3 Ir1 C4 39.1(2) . . ?
C1 Ir1 C11 140.93(14) . . ?
C5 Ir1 C11 103.35(14) . . ?
C2 Ir1 C11 156.19(15) . . ?
N1 Ir1 C11 88.33(11) . . ?
C3 Ir1 C11 118.11(16) . . ?
C4 Ir1 C11 92.93(15) . . ?
C1 Ir1 C12 131.61(15) . . ?
C5 Ir1 C12 161.00(14) . . ?
C2 Ir1 C12 97.90(14) . . ?
N1 Ir1 C12 91.79(11) . . ?
C3 Ir1 C12 95.43(15) . . ?
C4 Ir1 C12 126.23(16) . . ?
C11 Ir1 C12 87.45(5) . . ?
C11 N1 C15 117.5(4) . . ?
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C15 N1 Ir1 115.3(3) . . ?
C11 N2 H1 109.5 . . ?
C11 N2 H2 109.0 . . ?
H1 N2 H2 109.4 . . ?
N1 C11 N2 118.6(4) . . ?
N1 C11 C12 122.4(4) . . ?
N2 C11 C12 119.0(5) . . ?
C13 C12 C11 117.8(5) . . ?
C13 C12 C16 122.1(5) . . ?
C11 C12 C16 120.1(5) . . ?
C2 C3 C4 108.7(5) . . ?
C2 C3 C8 124.8(6) . . ?
C4 C3 C8 126.3(6) . . ?
C2 C3 Ir1 70.4(3) . . ?
C4 C3 Ir1 71.4(3) . . ?
C8 C3 Ir1 127.3(4) . . ?
C3 C2 C1 108.0(5) . . ?
C3 C2 C7 124.6(5) . . ?
C1 C2 C7 127.3(5) . . ?
C3 C2 Ir1 71.1(3) . . ?
C1 C2 Ir1 70.4(3) . . ?
C7 C2 Ir1 127.7(4) . . ?
C12 C13 C14 119.9(5) . . ?
C12 C13 H7 120.1 . . ?
C14 C13 H7 120.1 . . ?
C15 C14 C13 118.7(5) . . ?
C15 C14 H8 120.6 . . ?
C13 C14 H8 120.6 . . ?
C5 C4 C3 107.5(5) . . ?
C5 C4 C9 125.3(6) . . ?
C3 C4 C9 127.2(6) . . ?
C5 C4 Ir1 69.2(3) . . ?
C3 C4 Ir1 69.5(3) . . ?
C9 C4 Ir1 127.1(4) . . ?
C12 C16 H11A 109.5 . . ?
C12 C16 H11B 109.5 . . ?

H11A C16 H11B 109.5 . . ?
C12 C16 H11C 109.5 . . ?
H11A C16 H11C 109.5 . . ?
H11B C16 H11C 109.5 . . ?
C2 C7 H20A 109.5 . . ?
C2 C7 H20B 109.5 . . ?
H20A C7 H20B 109.5 . . ?
C2 C7 H20C 109.5 . . ?
H20A C7 H20C 109.5 . . ?
H20B C7 H20C 109.5 . . ?
C3 C8 H21A 109.5 . . ?
C3 C8 H21B 109.5 . . ?
H21A C8 H21B 109.5 . . ?
C3 C8 H21C 109.5 . . ?
H21A C8 H21C 109.5 . . ?
H21B C8 H21C 109.5 . . ?
C4 C9 H17A 109.5 . . ?
C4 C9 H17B 109.5 . . ?
H17A C9 H17B 109.5 . . ?
C4 C9 H17C 109.5 . . ?
H17A C9 H17C 109.5 . . ?
H17B C9 H17C 109.5 . . ?
C5 C10 H18A 109.5 . . ?
C5 C10 H18B 109.5 . . ?
H18A C10 H18B 109.5 . . ?
C5 C10 H18C 109.5 . . ?
H18A C10 H18C 109.5 . . ?
H18B C10 H18C 109.5 . . ?
N1 C15 C14 123.6(5) . . ?
N1 C15 H9 118.2 . . ?
C14 C15 H9 118.2 . . ?
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C2 C1 C6 126.4(5) . . ?
C5 C1 C6 125.0(5) . . ?
C2 C1 Ir1 70.5(3) . . ?
C5 C1 Ir1 70.3(3) . . ?
C6 C1 Ir1 125.2(4) . . ?
C4 C5 C1 107.2(4) . . ?
C4 C5 C10 127.2(5) . . ?
C1 C5 C10 125.3(5) . . ?
C4 C5 Ir1 71.8(3) . . ?
C1 C5 Ir1 70.3(3) . . ?
C10 C5 Ir1 127.9(4) . . ?
C1 C6 H19A 109.5 . . ?
C1 C6 H19B 109.5 . . ?
H19A C6 H19B 109.5 . . ?
C1 C6 H19C 109.5 . . ?
H19A C6 H19C 109.5 . . ?
H19B C6 H19C 109.5 . . ?

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 C5 Ir1 N1 C11 109.5(4) ?
 C2 Ir1 N1 C11 39.8(4) ?
 C3 Ir1 N1 C11 45.8(6) ?
 C4 Ir1 N1 C11 120.2(4) ?
 C11 Ir1 N1 C11 -147.2(4) ?
 C12 Ir1 N1 C11 -59.8(3) ?
 C1 Ir1 N1 C15 -90.5(4) ?
 C5 Ir1 N1 C15 -52.9(4) ?
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 C11 Ir1 N1 C15 50.5(3) ?
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 C11 Ir1 C3 C2 -174.1(2) ?
 C12 Ir1 C3 C2 95.9(3) ?
 C1 Ir1 C3 C4 80.7(3) ?
 C5 Ir1 C3 C4 37.1(3) ?
 C2 Ir1 C3 C4 118.6(5) ?
 N1 Ir1 C3 C4 109.8(5) ?
 C11 Ir1 C3 C4 -55.5(3) ?
 C12 Ir1 C3 C4 -145.5(3) ?
 C1 Ir1 C3 C8 -157.3(7) ?
 C5 Ir1 C3 C8 159.1(7) ?
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 C4 C3 C2 C1 -0.4(6) ?
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 Ir1 C3 C2 C1 61.1(3) ?
 C4 C3 C2 C7 175.2(5) ?
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 Ir1 C3 C2 C7 -123.3(5) ?

C4 C3 C2 Ir1 -61.5(3) ?
C8 C3 C2 Ir1 122.4(5) ?
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C12 Ir1 C2 C7 30.8(5) ?
C11 C12 C13 C14 -1.8(7) ?
C16 C12 C13 C14 178.9(5) ?
C12 C13 C14 C15 1.0(8) ?
C2 C3 C4 C5 1.9(6) ?
C8 C3 C4 C5 177.9(5) ?
Ir1 C3 C4 C5 -59.0(3) ?
C2 C3 C4 C9 -177.5(5) ?
C8 C3 C4 C9 -1.5(9) ?
Ir1 C3 C4 C9 121.6(6) ?
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C8 C3 C4 Ir1 -123.1(5) ?
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C5 Ir1 C4 C3 -119.0(5) ?
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C7 C2 C1 C5 -176.7(5) ?
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C9 C4 C5 C10 2.9(9) ?
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C3 C4 C5 Ir1 59.2(3) ?
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C6 C1 C5 C10 -3.3(8) ?
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C12 Ir1 C5 C1 71.2(6) ?
C1 Ir1 C5 C10 120.0(7) ?
C2 Ir1 C5 C10 157.0(6) ?
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C3 Ir1 C5 C10 -160.7(6) ?
C4 Ir1 C5 C10 -123.5(7) ?
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