



## Full wwPDB EM Validation Report ⓘ

Mar 20, 2024 – 07:19 AM JST

PDB ID : 7BTF  
EMDB ID : EMD-30178  
Title : SARS-CoV-2 RNA-dependent RNA polymerase in complex with cofactors in reduced condition  
Authors : Gao, Y.; Yan, L.; Huang, Y.; Liu, F.; Cao, L.; Wang, T.; Wang, Q.; Lou, Z.; Rao, Z.  
Deposited on : 2020-04-01  
Resolution : 2.95 Å (reported)  
Based on initial model : 6NUR

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

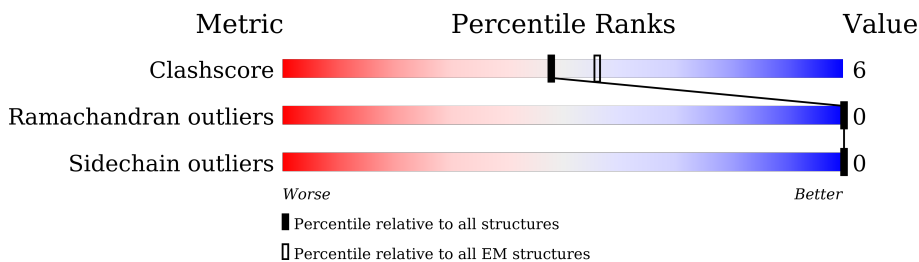
EMDB validation analysis : 0.0.1.dev70  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 2.95 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	942	
2	C	83	
3	B	198	
3	D	198	

## 2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 9685 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called RNA-directed RNA polymerase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	915	7376	4714	1239	1372	51	0	0

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	933	HIS	-	expression tag	UNP P0DTD1
A	934	HIS	-	expression tag	UNP P0DTD1
A	935	HIS	-	expression tag	UNP P0DTD1
A	936	HIS	-	expression tag	UNP P0DTD1
A	937	HIS	-	expression tag	UNP P0DTD1
A	938	HIS	-	expression tag	UNP P0DTD1
A	939	HIS	-	expression tag	UNP P0DTD1
A	940	HIS	-	expression tag	UNP P0DTD1
A	941	HIS	-	expression tag	UNP P0DTD1
A	942	HIS	-	expression tag	UNP P0DTD1

- Molecule 2 is a protein called Non-structural protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	68	519	328	85	101	5	0	0

- Molecule 3 is a protein called Non-structural protein 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	126	983	617	167	190	9	0	0
3	D	104	805	510	132	156	7	0	0

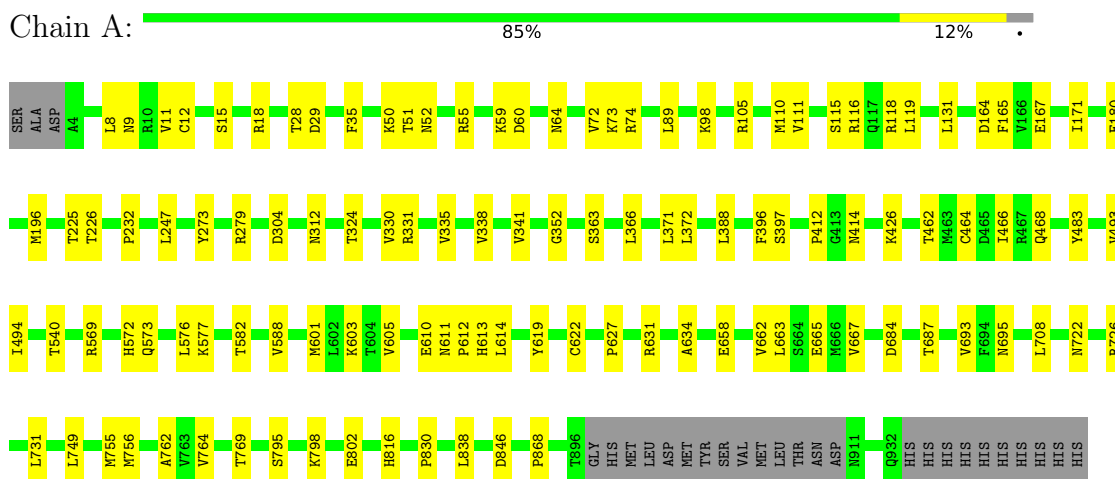
- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>AltConf</b>
4	A	2	Total 2	Zn 2	0

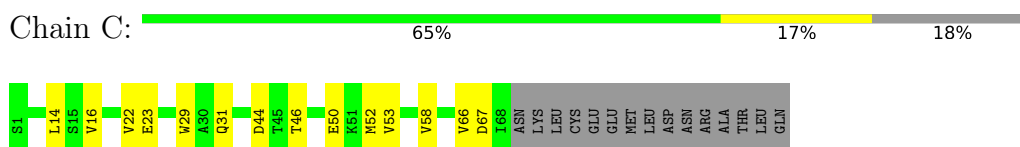
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

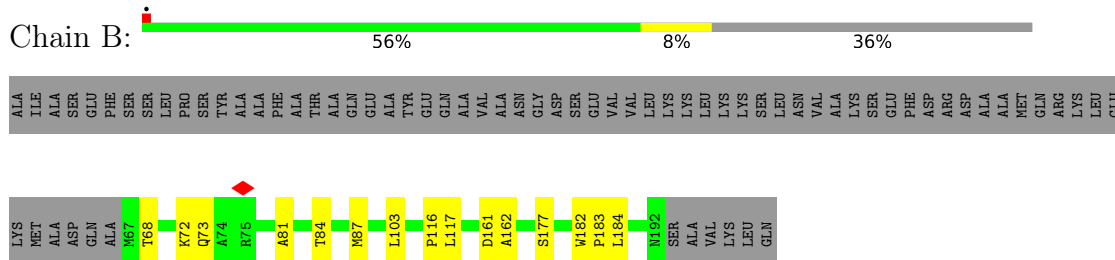
- Molecule 1: RNA-directed RNA polymerase



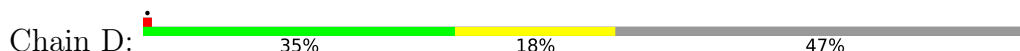
- Molecule 2: Non-structural protein 7



- Molecule 3: Non-structural protein 8



- Molecule 3: Non-structural protein 8



ALA	LYS	ALA
ILE	MET	ILE
ALA	ALA	ALA
SER	ASP	SER
GLU	GLN	GLU
PHE	ALA	PHE
SER	MET	SER
SER	THR	SER
LEU	GLN	LEU
PRO	MET	PRO
SER	TYR	SER
TYR	LYS	TYR
ALA	GLN	ALA
ALA	ALA	ALA
PHE	ARG	PHE
ALA	SER	ALA
THR	GLU	THR
ALA	ASP	ALA
GLN	LYS	GLN
GLU	ARG	GLU
ALA	ALA	ALA
ALA	LYS	ALA
TYR	VAL	TYR
GLU	VAL	GLU
GLN	TR4	GLN
ALA	M90	ALA
VAL	L91	VAL
ALA	ASN	ALA
GLY	N94	GLY
ASP	K97	ASP
SER	M100	SER
GLU	L103	GLU
VAL	L114	VAL
LEU	L115	LEU
LYS	C114	LYS
LYS	V115	LYS
LEU	F116	LEU
LYS	L117	LYS
SER	N118	SER
LEU	I119	LEU
ASN	I120	ASN
VAL	P121	VAL
ALA	L122	ALA
LYS	THR	LYS
SER	THR	SER
GLU	ALA	GLU
PHE	ALA	PHE
ASP	K127	ASP
ARG	L128	ARG
ASP	M129	ASP
ALA	V130	ALA
ALA	V131	ALA
MET	Y135	MET
GLN	Y138	GLN
ARG	F147	ARG
LYS		LYS
LEU		LEU
GLU		GLU

T148	L180
Y149	A181
W154	W182
Q157	P183
Q158	L184
V159	L189
D161	R190
A162	A191
I166	ASN
V167	SER
I172	ALA
S177	VAL
	LYS
	LEU
	GLN

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	145388	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION; CTF correction was done by patch CTF correction.	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	165000	Depositor
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	2.734	Depositor
Minimum map value	-1.507	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.082	Depositor
Recommended contour level	0.25	Depositor
Map size ( $\text{\AA}$ )	246.0, 246.0, 246.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	0.82, 0.82, 0.82	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section:  
ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 5$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.50	0/7562	0.47	0/10262
2	C	0.38	0/522	0.51	0/704
3	B	0.38	0/997	0.55	0/1356
3	D	0.34	0/817	0.50	0/1116
All	All	0.48	0/9898	0.49	0/13438

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7376	0	7131	80	0
2	C	519	0	552	13	0
3	B	983	0	998	10	0
3	D	805	0	807	26	0
4	A	2	0	0	0	0
All	All	9685	0	9488	120	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.



All (120) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:28:THR:HG21	1:A:55:ARG:HD3	1.55	0.86
3:D:161:ASP:HB2	3:D:181:ALA:HB3	1.61	0.82
3:D:162:ALA:HB2	3:D:183:PRO:HG2	1.64	0.77
1:A:15:SER:HB3	1:A:118:ARG:HH21	1.53	0.72
1:A:28:THR:HG22	1:A:28:THR:O	1.90	0.72
2:C:66:VAL:HG13	2:C:67:ASP:H	1.54	0.71
1:A:28:THR:CG2	1:A:55:ARG:HD3	2.21	0.71
1:A:540:THR:CG2	1:A:667:VAL:HG22	2.21	0.70
1:A:312:ASN:HD21	1:A:464:CYS:H	1.39	0.69
1:A:225:THR:HG22	1:A:226:THR:H	1.61	0.66
3:B:162:ALA:HB2	3:B:183:PRO:HG2	1.79	0.64
1:A:684:ASP:HB3	1:A:687:THR:HG23	1.80	0.64
1:A:164:ASP:OD1	1:A:165:PHE:N	2.32	0.63
1:A:279:ARG:HH12	1:A:352:GLY:HA2	1.65	0.62
1:A:35:PHE:HZ	1:A:50:LYS:HD3	1.66	0.61
2:C:16:VAL:HG11	3:D:91:LEU:HD22	1.82	0.61
3:B:177:SER:HG	3:B:182:TRP:HZ2	1.50	0.60
3:D:135:TYR:HB3	3:D:182:TRP:CH2	2.37	0.60
1:A:540:THR:HG21	1:A:667:VAL:HG22	1.84	0.59
1:A:18:ARG:HB3	1:A:59:LYS:HG3	1.85	0.59
3:D:177:SER:HB3	3:D:182:TRP:HZ2	1.68	0.59
1:A:8:LEU:HA	1:A:11:VAL:HG12	1.86	0.58
1:A:493:VAL:HG13	1:A:573:GLN:HE21	1.69	0.58
1:A:695:ASN:HD21	1:A:762:ALA:HB2	1.69	0.57
3:D:120:ILE:HD11	3:D:149:TYR:HE2	1.70	0.57
1:A:9:ASN:O	1:A:12:CYS:SG	2.64	0.56
1:A:631:ARG:HG2	1:A:663:LEU:HD13	1.87	0.55
2:C:58:VAL:HG22	3:D:119:ILE:HG12	1.87	0.55
1:A:330:VAL:HG11	3:B:117:LEU:HD13	1.87	0.55
3:D:182:TRP:O	3:D:184:LEU:HD12	2.07	0.55
3:D:172:ILE:HA	3:D:180:LEU:HD21	1.89	0.55
1:A:601:MET:O	1:A:605:VAL:HG23	2.06	0.54
1:A:540:THR:HG22	1:A:667:VAL:HA	1.89	0.54
1:A:795:SER:HB3	1:A:798:LYS:HE2	1.91	0.52
3:D:147:PHE:HB3	3:D:154:TRP:HB2	1.91	0.51
1:A:324:THR:HG22	1:A:396:PHE:HZ	1.76	0.51
1:A:755:MET:HG2	1:A:764:VAL:HG22	1.91	0.51
1:A:335:VAL:HG22	1:A:363:SER:HB2	1.94	0.50
1:A:468:GLN:HA	1:A:731:LEU:HD22	1.94	0.50
2:C:52:MET:HG3	3:D:103:LEU:HD21	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:335:VAL:O	1:A:338:VAL:HG22	2.12	0.50
1:A:412:PRO:HG3	2:C:14:LEU:HD23	1.93	0.50
1:A:414:ASN:ND2	1:A:846:ASP:HB2	2.27	0.50
1:A:72:VAL:HA	1:A:115:SER:HA	1.94	0.49
1:A:372:LEU:HD12	3:B:87:MET:HE1	1.93	0.49
1:A:483:TYR:HE1	1:A:582:THR:HG21	1.78	0.49
2:C:44:ASP:OD1	2:C:46:THR:HG22	2.12	0.48
3:D:135:TYR:HA	3:D:138:TYR:HB3	1.94	0.48
1:A:105:ARG:HG2	1:A:110:MET:SD	2.54	0.48
1:A:388:LEU:HD23	1:A:397:SER:OG	2.15	0.47
3:D:114:CYS:HA	3:D:131:VAL:O	2.13	0.47
3:D:117:LEU:HB2	3:D:129:MET:HG3	1.97	0.47
1:A:830:PRO:O	1:A:868:PRO:HG2	2.15	0.46
1:A:569:ARG:O	1:A:573:GLN:HB2	2.14	0.46
1:A:572:HIS:O	1:A:576:LEU:HG	2.15	0.46
1:A:116:ARG:HG3	1:A:119:LEU:HD11	1.98	0.46
2:C:66:VAL:HG13	2:C:67:ASP:N	2.28	0.45
1:A:324:THR:HG22	1:A:396:PHE:CZ	2.51	0.45
1:A:612:PRO:O	1:A:613:HIS:HD2	1.99	0.45
3:D:90:MET:O	3:D:94:MET:HG3	2.16	0.45
1:A:722:ASN:HB3	1:A:726:ARG:NH1	2.32	0.45
1:A:180:GLU:HA	1:A:180:GLU:OE1	2.17	0.45
1:A:74:ARG:HD3	1:A:111:VAL:HG11	1.97	0.45
1:A:483:TYR:CE1	1:A:582:THR:HG21	2.52	0.45
1:A:60:ASP:HB3	1:A:64:ASN:OD1	2.17	0.45
1:A:605:VAL:HG22	1:A:756:MET:HB2	1.98	0.44
1:A:658:GLU:O	1:A:662:VAL:HG22	2.17	0.44
1:A:708:LEU:HD23	1:A:708:LEU:HA	1.83	0.44
3:B:81:ALA:HA	3:B:84:THR:HG22	1.99	0.44
1:A:52:ASN:HB3	1:A:73:LYS:HE2	1.98	0.44
1:A:494:ILE:HD11	1:A:577:LYS:HE3	1.99	0.44
1:A:29:ASP:HB3	1:A:51:THR:HG22	1.99	0.44
1:A:611:ASN:ND2	1:A:769:THR:OG1	2.51	0.44
1:A:462:THR:CG2	1:A:627:PRO:HB3	2.48	0.43
1:A:603:LYS:HA	1:A:603:LYS:HD2	1.80	0.43
3:D:116:PRO:HD3	3:D:149:TYR:OH	2.19	0.43
1:A:426:LYS:HD3	1:A:426:LYS:HA	1.81	0.43
2:C:22:VAL:HG23	2:C:29:TRP:HE3	1.83	0.43
1:A:273:TYR:HB3	3:B:116:PRO:HG3	2.01	0.43
3:B:161:ASP:HA	3:B:184:LEU:HD23	2.01	0.43
1:A:466:ILE:HD12	1:A:466:ILE:HA	1.88	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:749:LEU:HD23	1:A:749:LEU:HA	1.87	0.43
3:D:160:VAL:HG22	3:D:166:ILE:HD13	2.00	0.43
2:C:31:GLN:NE2	3:D:119:ILE:HD12	2.34	0.43
1:A:171:ILE:HD12	1:A:171:ILE:HA	1.87	0.42
1:A:614:LEU:HB2	1:A:802:GLU:HB3	2.01	0.42
3:D:100:ASN:HB3	3:D:103:LEU:HD12	1.99	0.42
2:C:50:GLU:O	2:C:53:VAL:HG22	2.19	0.42
3:D:117:LEU:HD11	3:D:131:VAL:HG23	2.01	0.42
3:B:73:GLN:H	3:B:73:GLN:CD	2.22	0.42
1:A:610:GLU:O	1:A:612:PRO:HD3	2.19	0.42
3:D:159:VAL:HG13	3:D:167:VAL:HG13	2.01	0.42
3:D:122:LEU:HA	3:D:190:ARG:HH21	1.85	0.42
1:A:540:THR:CG2	1:A:667:VAL:HA	2.49	0.42
1:A:588:VAL:HG13	1:A:588:VAL:O	2.19	0.42
2:C:23:GLU:HA	2:C:29:TRP:HB2	2.02	0.42
1:A:98:LYS:HE2	1:A:98:LYS:HB3	1.82	0.41
1:A:366:LEU:HB3	1:A:371:LEU:HG	2.02	0.41
1:A:838:LEU:HA	1:A:838:LEU:HD23	1.86	0.41
1:A:131:LEU:HD23	1:A:131:LEU:HA	1.81	0.41
1:A:196:MET:CE	1:A:232:PRO:HB3	2.50	0.41
1:A:722:ASN:HB3	1:A:726:ARG:HH12	1.85	0.41
3:D:157:GLN:HG3	3:D:189:LEU:HD13	2.03	0.41
1:A:89:LEU:HA	1:A:89:LEU:HD23	1.84	0.41
1:A:131:LEU:HD13	1:A:247:LEU:HD23	2.03	0.41
1:A:634:ALA:HA	1:A:693:VAL:HG11	2.02	0.41
1:A:665:GLU:H	1:A:665:GLU:HG2	1.70	0.41
1:A:494:ILE:O	1:A:494:ILE:HG13	2.21	0.41
2:C:46:THR:O	2:C:50:GLU:HG2	2.20	0.41
2:C:53:VAL:HG12	3:D:103:LEU:HG	2.02	0.41
1:A:304:ASP:N	1:A:304:ASP:OD1	2.54	0.41
1:A:619:TYR:HB2	1:A:622:CYS:HB2	2.02	0.41
3:D:177:SER:O	3:D:182:TRP:NE1	2.54	0.41
1:A:331:ARG:O	1:A:341:VAL:HA	2.21	0.40
1:A:462:THR:HG21	1:A:627:PRO:HB3	2.02	0.40
3:B:103:LEU:HD12	3:B:103:LEU:HA	1.85	0.40
1:A:816:HIS:O	1:A:830:PRO:HA	2.22	0.40
3:D:97:LYS:HB3	3:D:97:LYS:HE2	1.90	0.40
1:A:164:ASP:OD2	1:A:167:GLU:HB2	2.21	0.40
3:B:68:THR:O	3:B:72:LYS:HG2	2.21	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	911/942 (97%)	852 (94%)	59 (6%)	0	100	100
2	C	66/83 (80%)	59 (89%)	7 (11%)	0	100	100
3	B	124/198 (63%)	113 (91%)	11 (9%)	0	100	100
3	D	100/198 (50%)	93 (93%)	7 (7%)	0	100	100
All	All	1201/1421 (84%)	1117 (93%)	84 (7%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	808/833 (97%)	808 (100%)	0	100	100
2	C	63/77 (82%)	63 (100%)	0	100	100
3	B	111/167 (66%)	111 (100%)	0	100	100
3	D	92/167 (55%)	92 (100%)	0	100	100
All	All	1074/1244 (86%)	1074 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	117	GLN
1	A	312	ASN
1	A	356	ASN
1	A	414	ASN
1	A	573	GLN
1	A	611	ASN
1	A	613	HIS
1	A	642	HIS
1	A	695	ASN
1	A	713	ASN
1	A	790	ASN
2	C	19	GLN
2	C	31	GLN
2	C	36	HIS
3	B	118	ASN
3	D	105	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

### 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

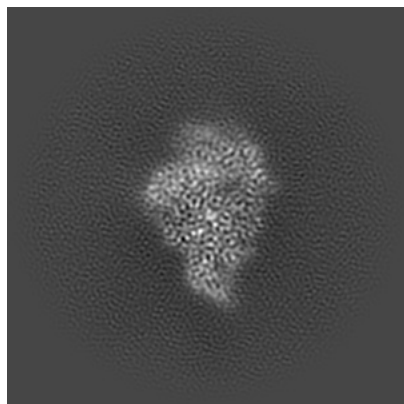
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-30178. These allow visual inspection of the internal detail of the map and identification of artifacts.

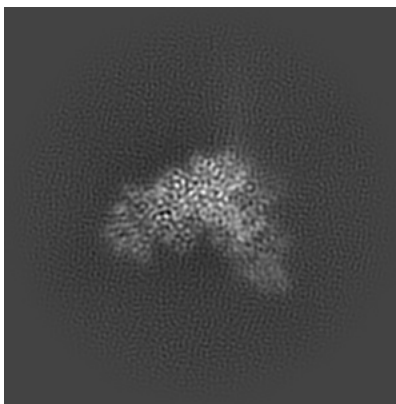
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

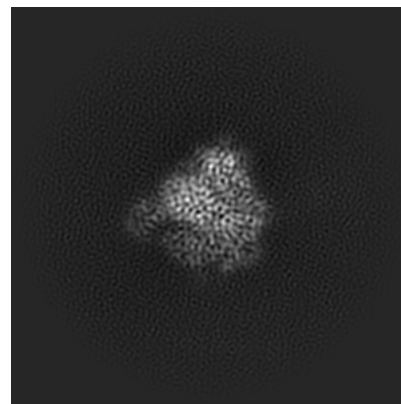
#### 6.1.1 Primary map



X

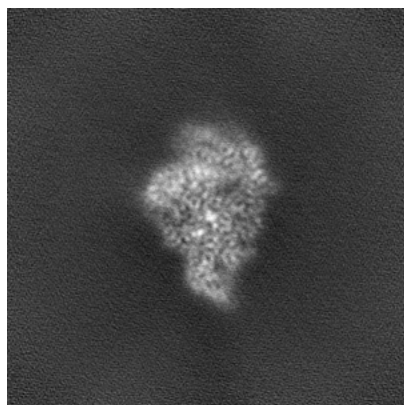


Y

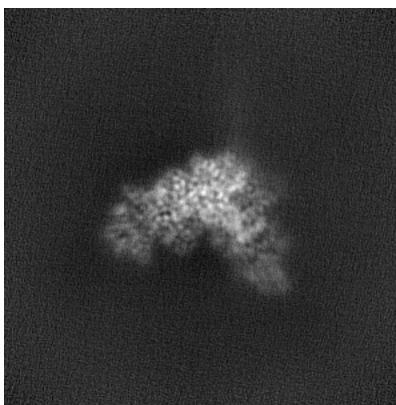


Z

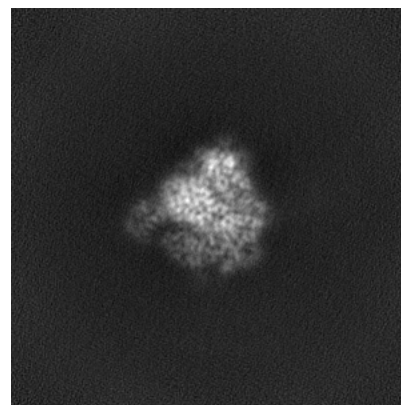
#### 6.1.2 Raw map



X



Y

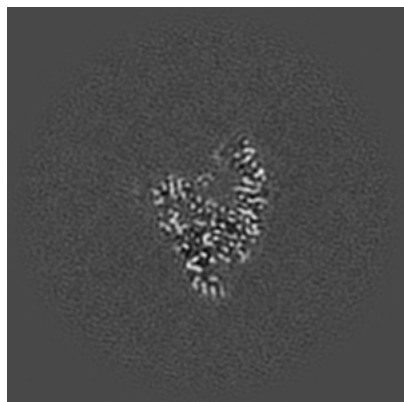


Z

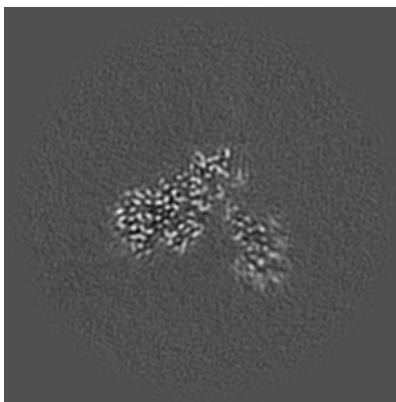
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

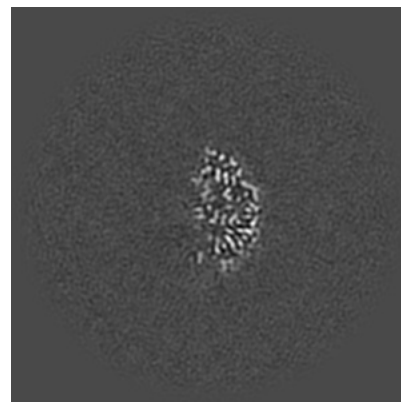
### 6.2.1 Primary map



X Index: 150

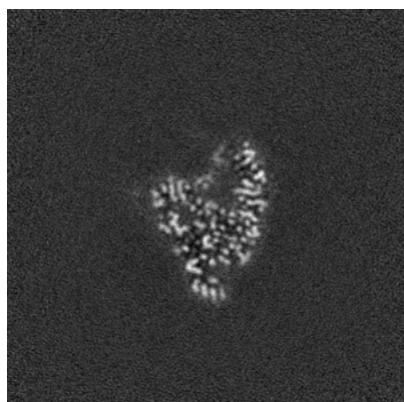


Y Index: 150

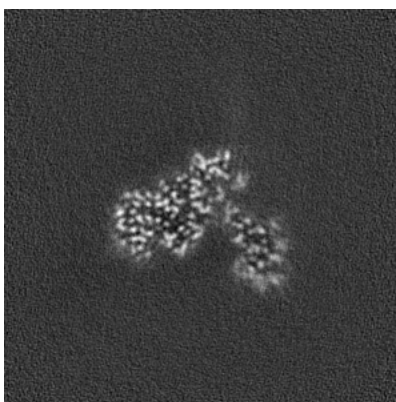


Z Index: 150

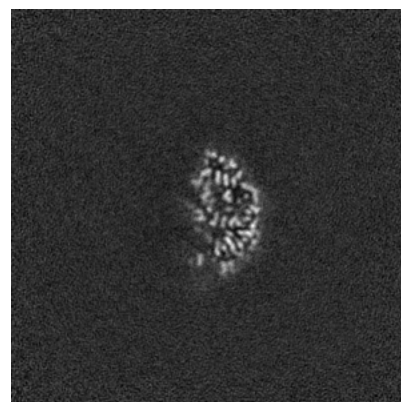
### 6.2.2 Raw map



X Index: 150



Y Index: 150



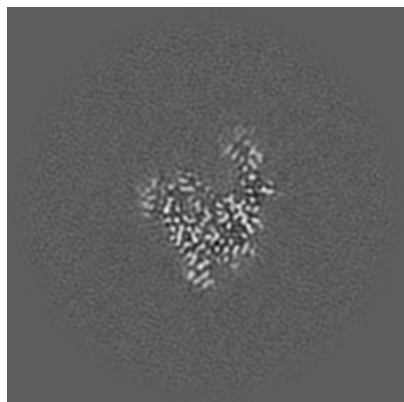
Z Index: 150

The images above show central slices of the map in three orthogonal directions.

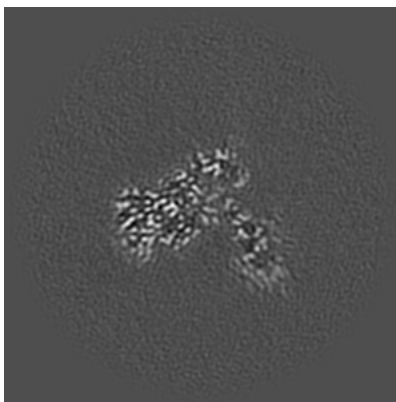


## 6.3 Largest variance slices [i](#)

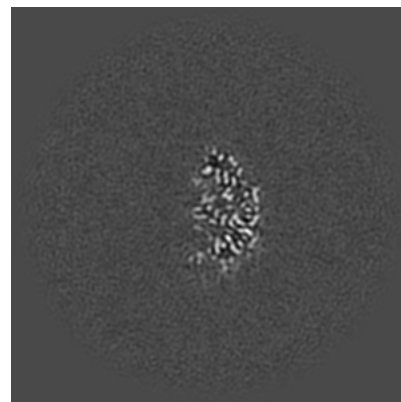
### 6.3.1 Primary map



X Index: 160

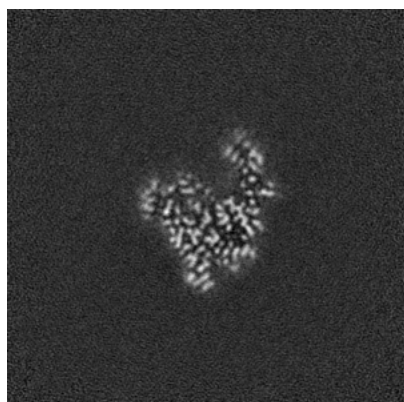


Y Index: 148

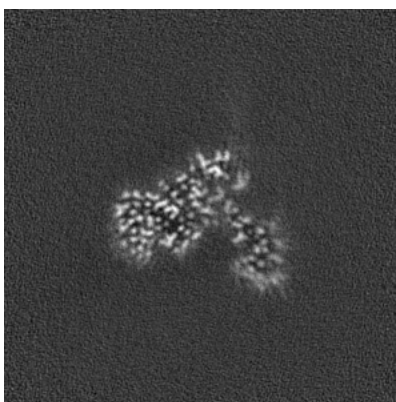


Z Index: 151

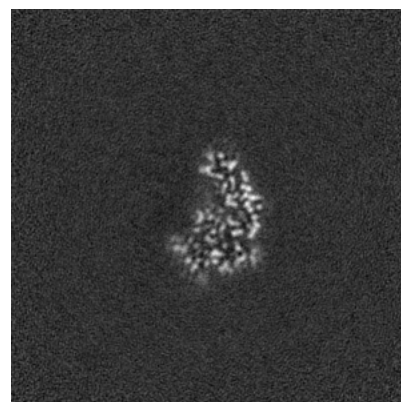
### 6.3.2 Raw map



X Index: 160



Y Index: 149

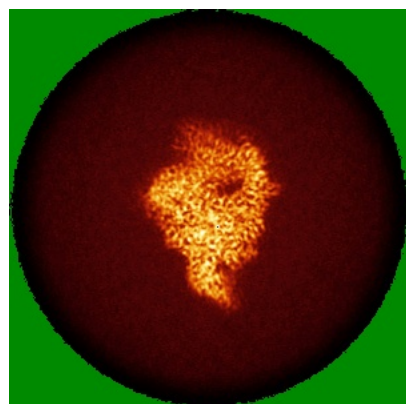


Z Index: 156

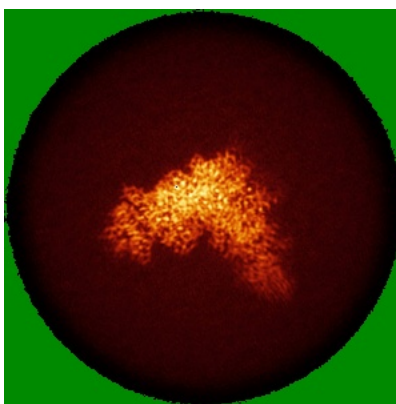
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

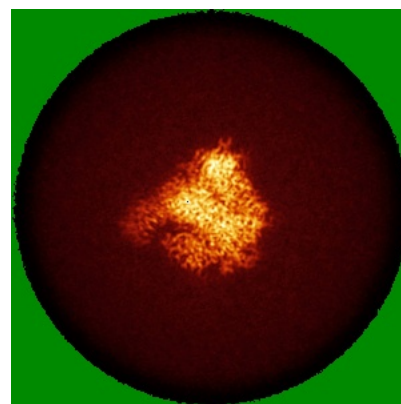
### 6.4.1 Primary map



X

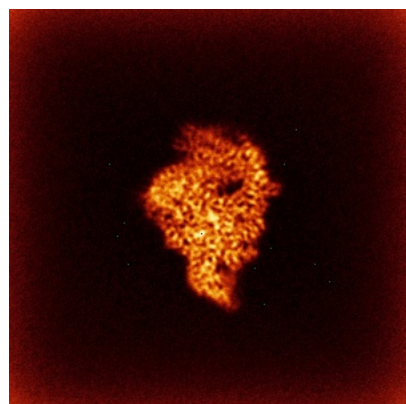


Y

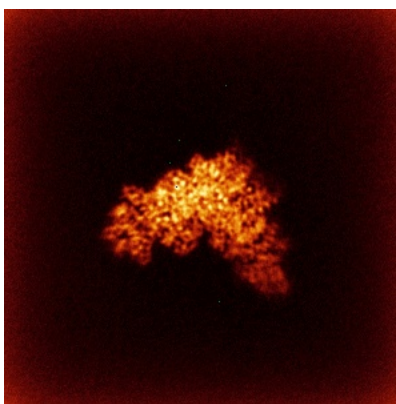


Z

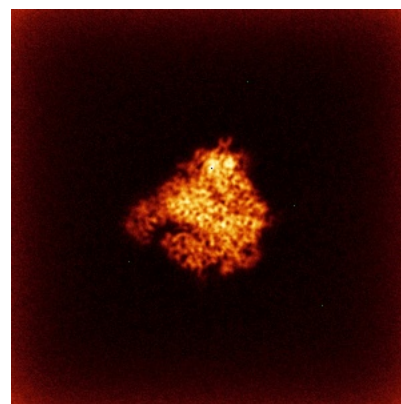
### 6.4.2 Raw map



X



Y

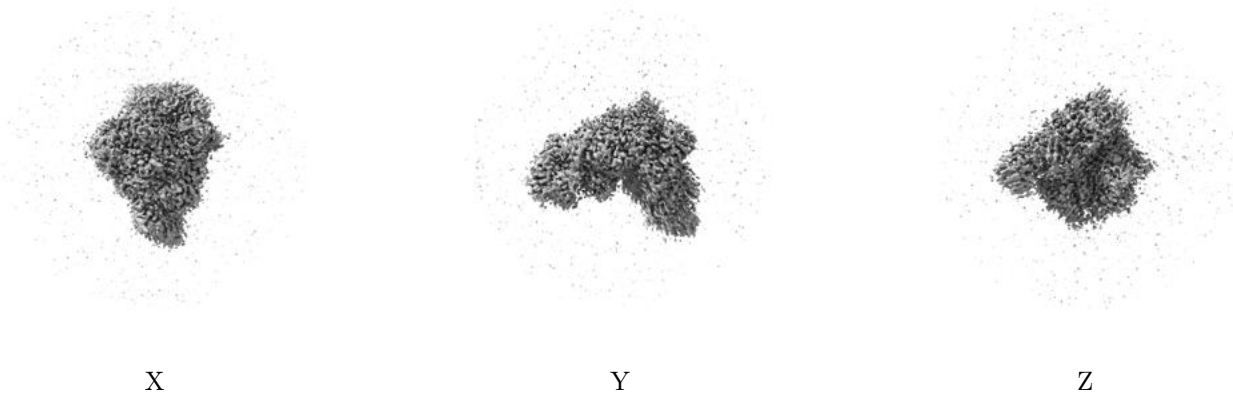


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

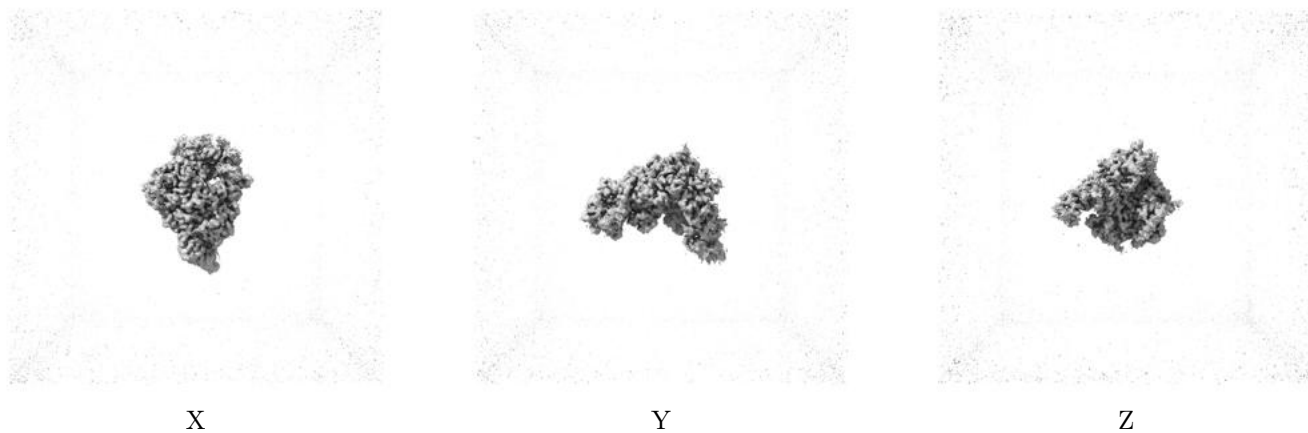
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

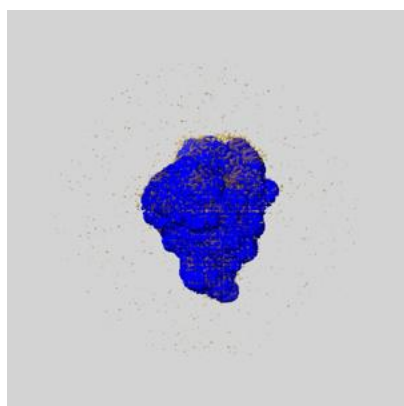
## 6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

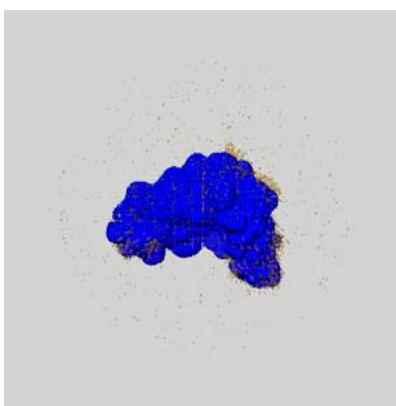
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

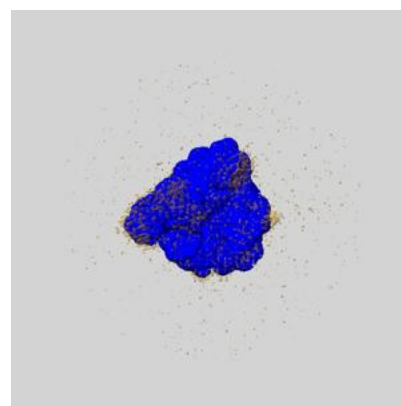
### 6.6.1 emd\_30178\_msk\_1.map [i](#)



X



Y

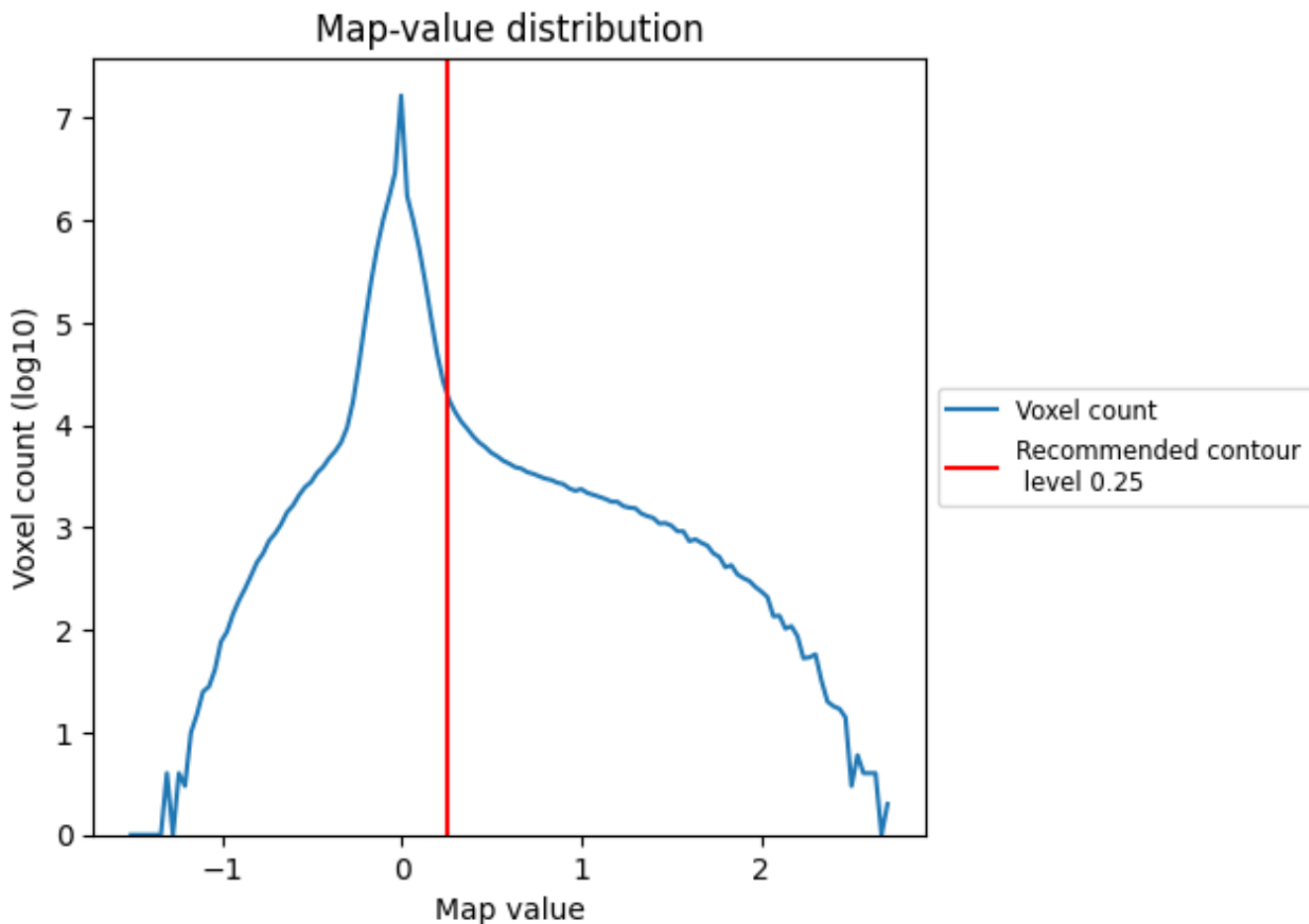


Z

## 7 Map analysis [i](#)

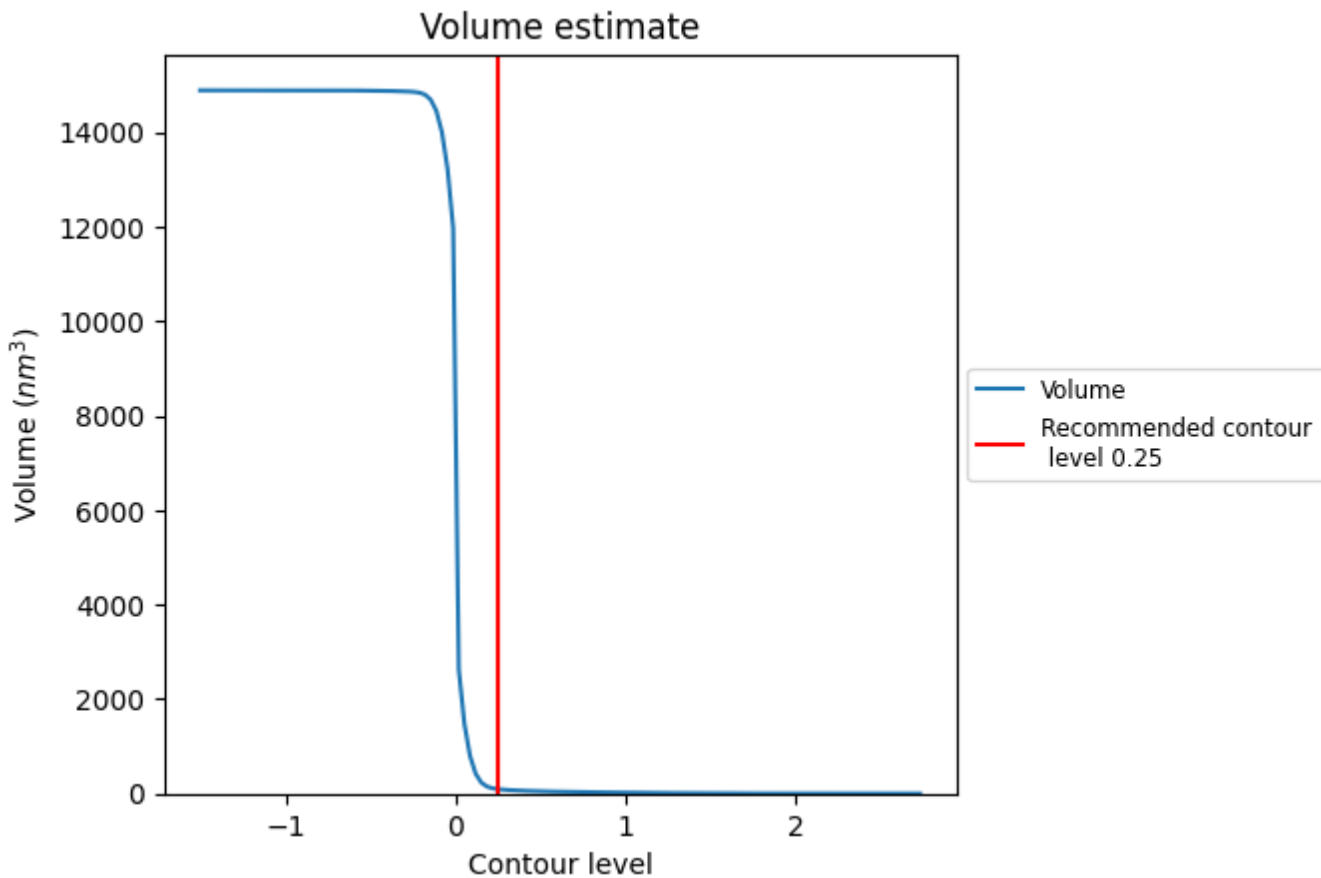
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

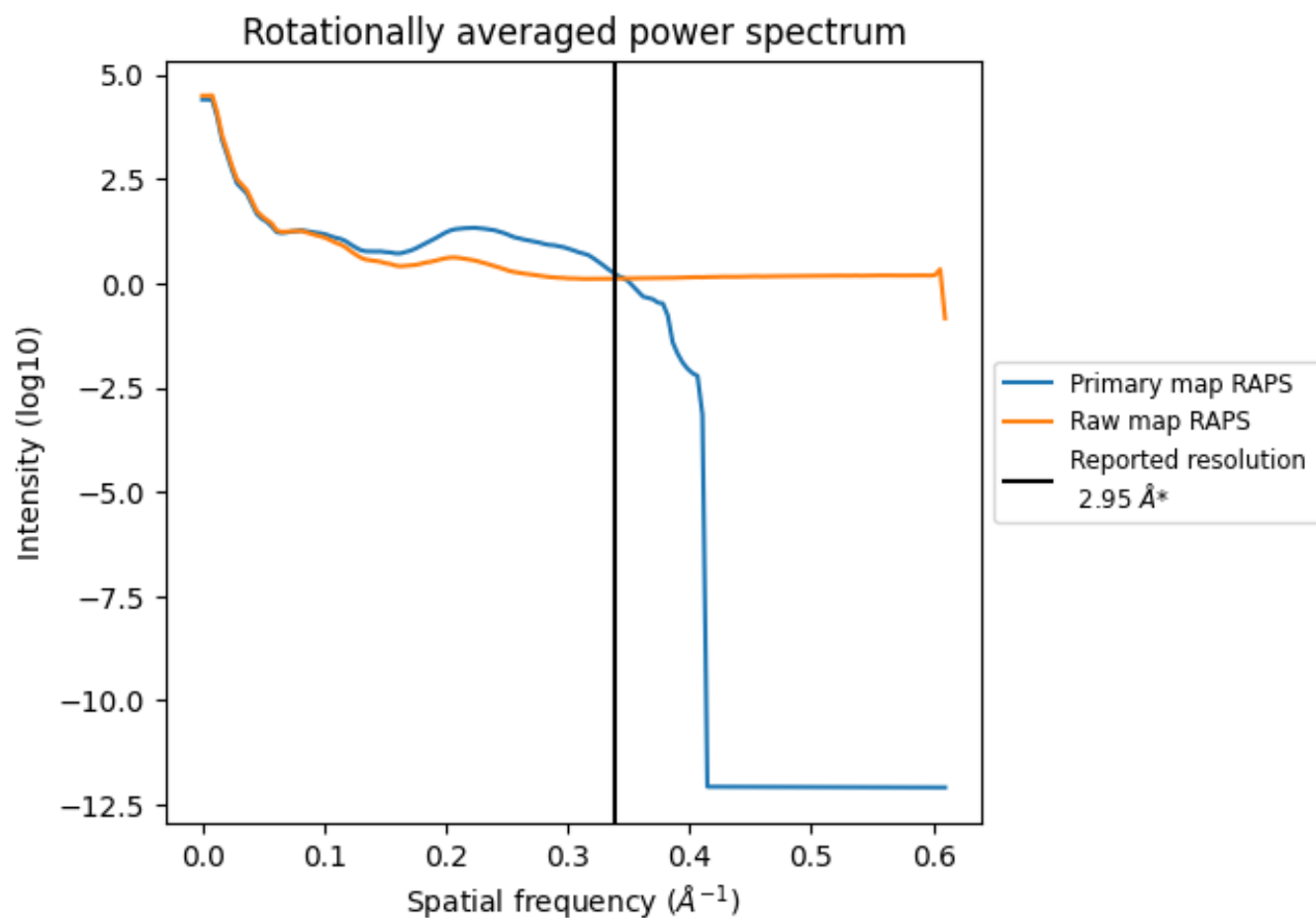
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 93  $\text{nm}^3$ ; this corresponds to an approximate mass of 84 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum [i](#)

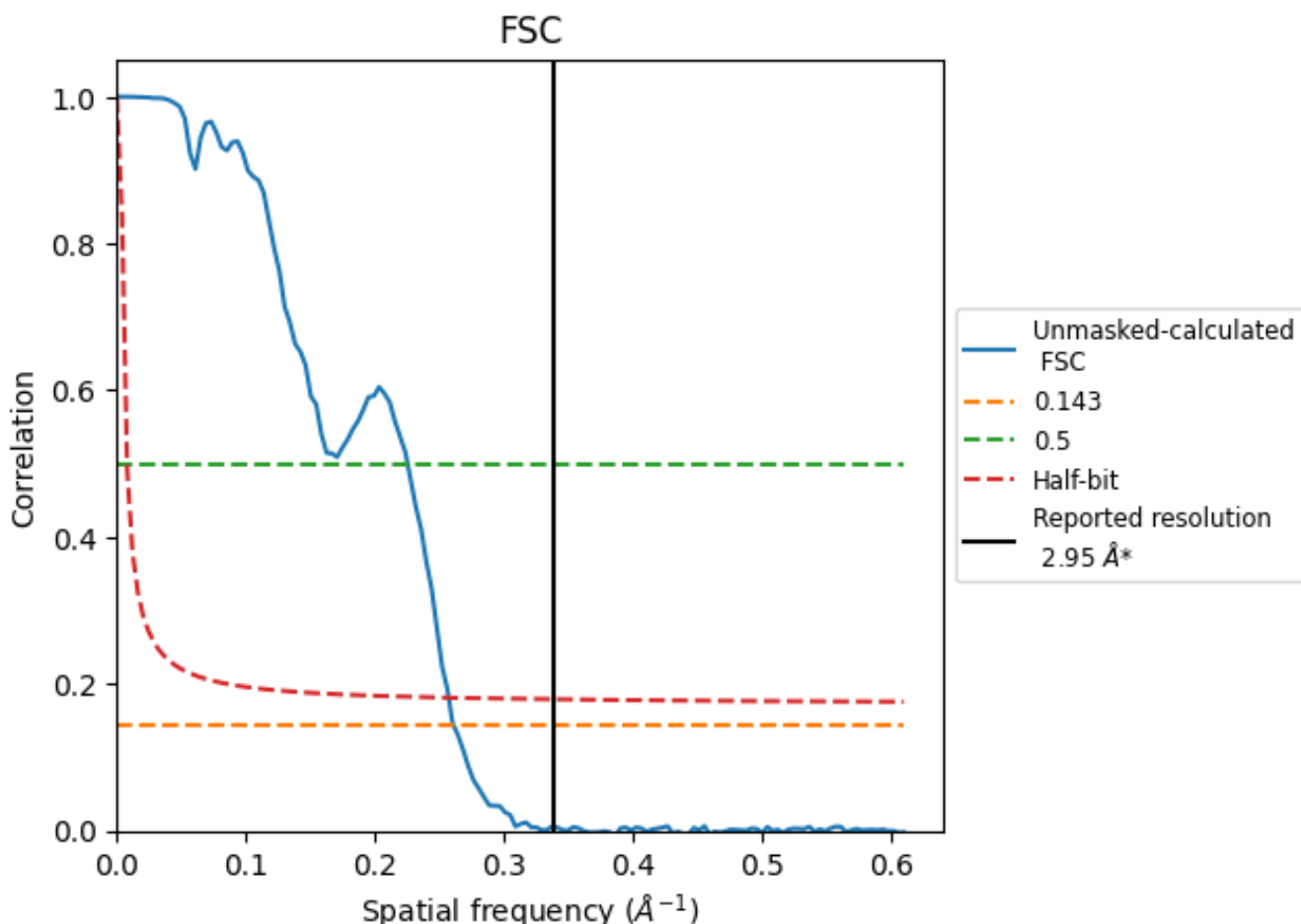


\*Reported resolution corresponds to spatial frequency of 0.339 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.339 Å<sup>-1</sup>



## 8.2 Resolution estimates [i](#)

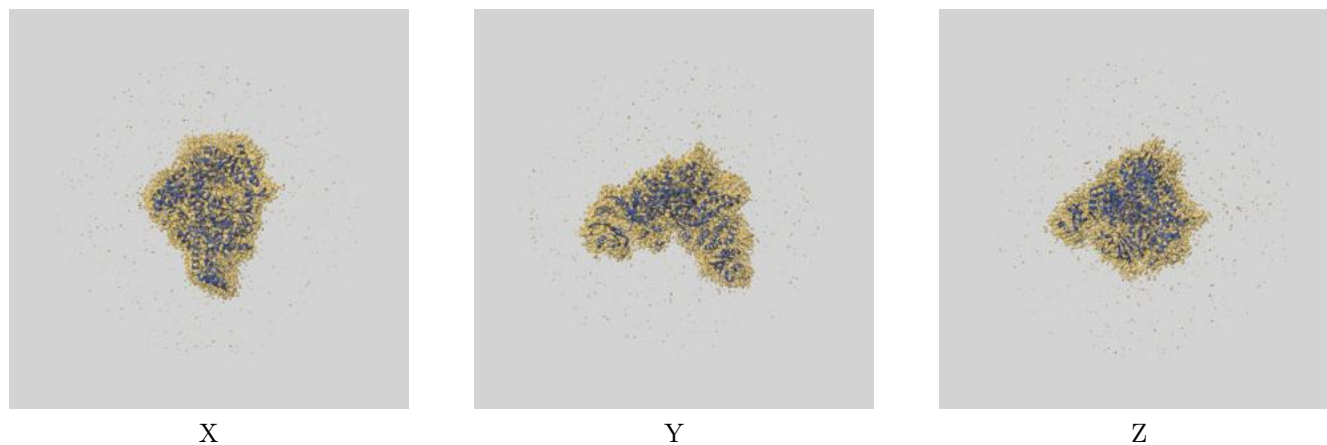
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.95	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.83	4.44	3.89

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.83 differs from the reported value 2.95 by more than 10 %

## 9 Map-model fit [i](#)

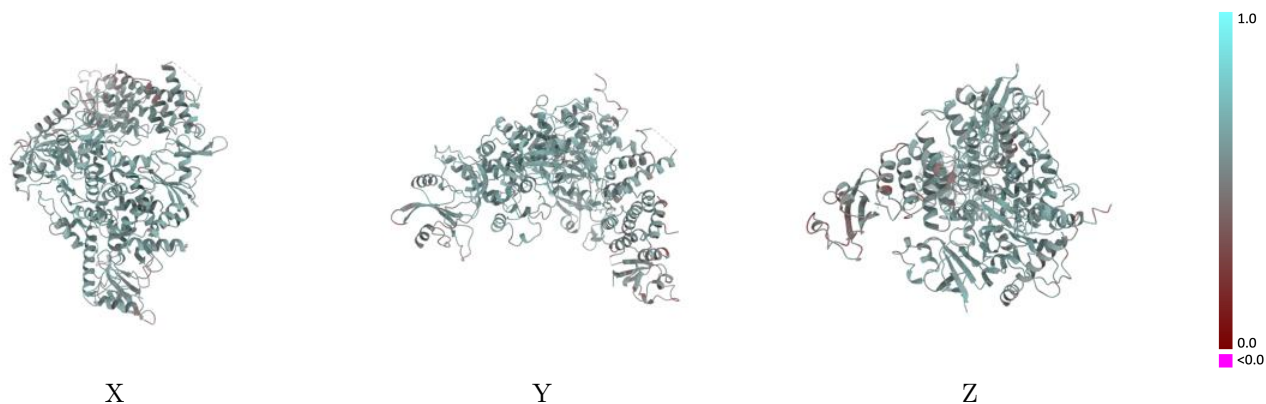
This section contains information regarding the fit between EMDB map EMD-30178 and PDB model 7BTF. Per-residue inclusion information can be found in section 3 on page 5.

### 9.1 Map-model overlay [i](#)



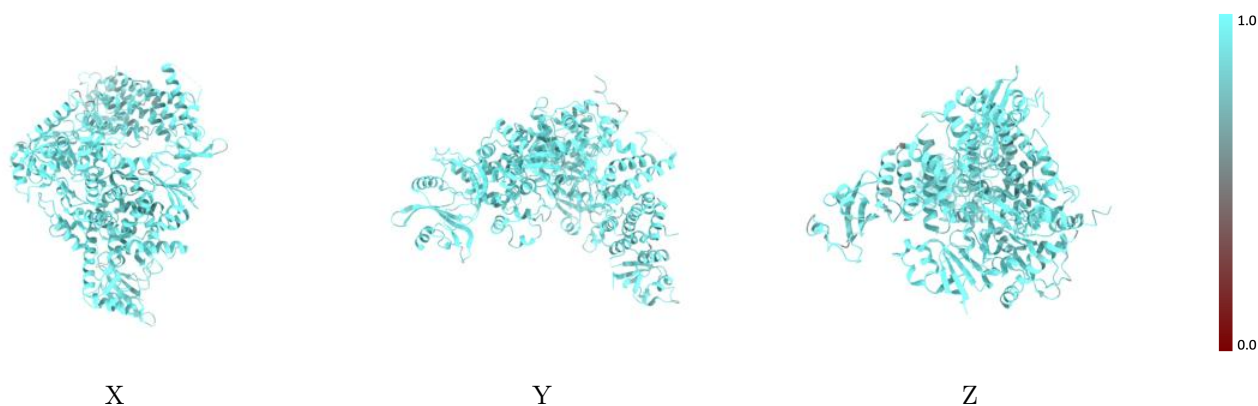
The images above show the 3D surface view of the map at the recommended contour level 0.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [\(i\)](#)



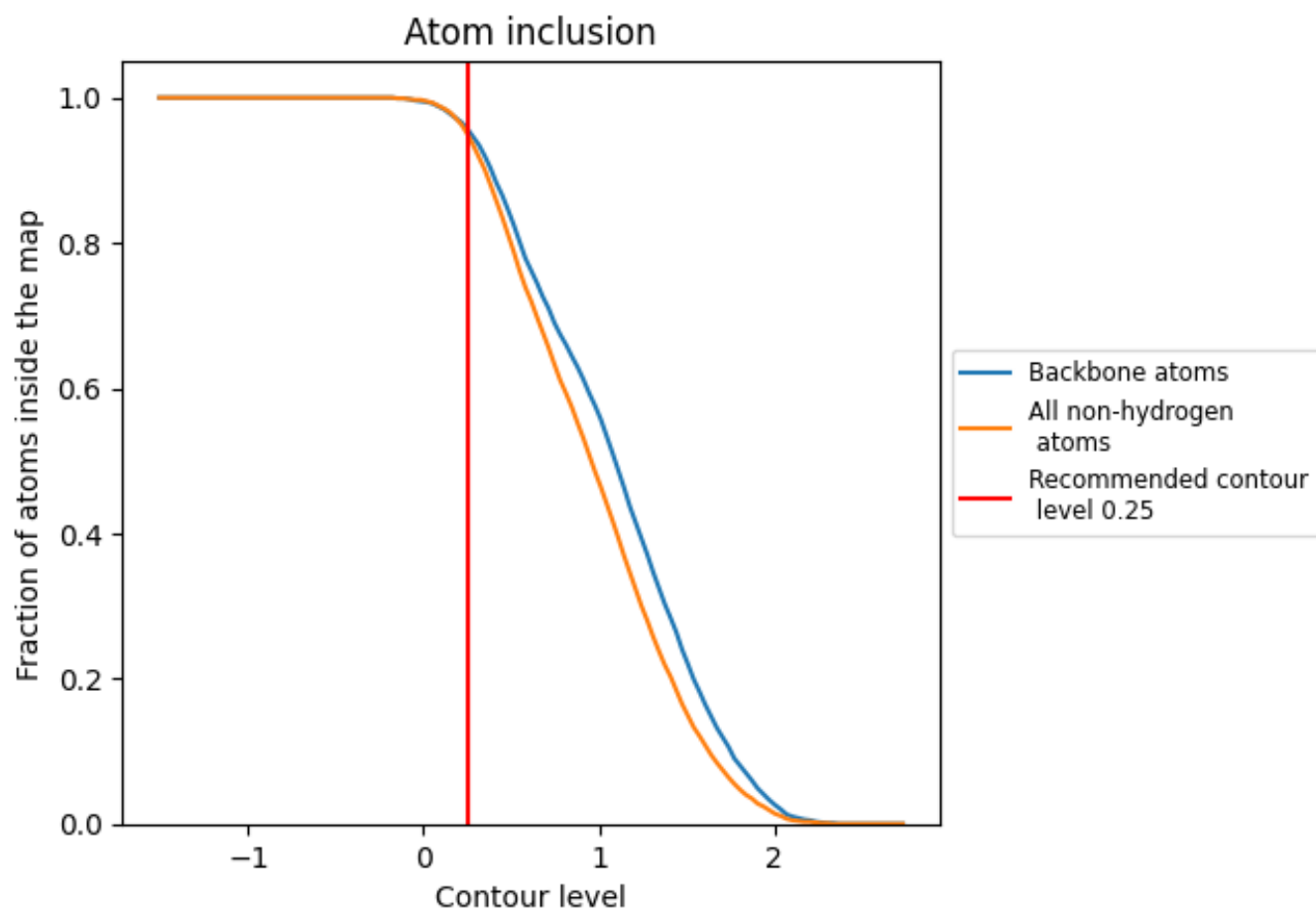
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).


## 9.4 Atom inclusion [i](#)



At the recommended contour level, 96% of all backbone atoms, 95% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9500	 0.5690
A	 0.9630	 0.5840
B	 0.9350	 0.5420
C	 0.9050	 0.5370
D	 0.8800	 0.4810

