



Full wwPDB EM Validation Report ⓘ

Mar 14, 2026 – 10:29 AM UTC

PDB ID : 7R41 / pdb_00007r41
EMDB ID : EMD-14251
Title : Bovine complex I in the presence of IM1761092, active class i (Composite map)
Authors : Bridges, H.R.; Blaza, J.N.; Yin, Z.; Chung, I.; Hirst, J.
Deposited on : 2022-02-08
Resolution : 2.30 Å(reported)

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

We welcome your comments at 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>.

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

EMDB validation analysis : 0.0.1.dev132
Mogul : **FAILED**
MolProbity : **FAILED**
Buster-report : **FAILED**
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

PERCENTILES INFOmissingINFO

ENTRY-COMPOSITION INFOmissingINFO

SEQUENCE-PLOTS INFOmissingINFO

1 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	48367	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	34.153	Depositor
Minimum map value	-13.918	Depositor
Average map value	0.004	Depositor
Map value standard deviation	1.021	Depositor
Recommended contour level	5	Depositor
Map size (Å)	482.46, 482.46, 482.46	wwPDB
Map dimensions	660, 660, 660	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.731, 0.731, 0.731	Depositor

2 Model quality [i](#)

2.1 Standard geometry [i](#)

MolProbity failed to run properly - this section is therefore empty.

2.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section is therefore empty.

2.3 Torsion angles [i](#)

2.3.1 Protein backbone [i](#)

MolProbity failed to run properly - this section is therefore empty.

2.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

2.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

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

Mogul failed to run properly - this section is therefore empty.

2.5 Carbohydrates [i](#)

Mogul failed to run properly - this section is therefore empty.

2.6 Ligand geometry [i](#)

Mogul failed to run properly - this section is therefore empty.

2.7 Other polymers [i](#)

Mogul failed to run properly - this section is therefore empty.

2.8 Polymer linkage issues

There are no chain breaks in this entry.

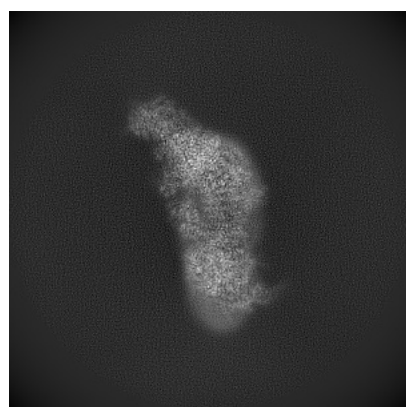
3 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14251. These allow visual inspection of the internal detail of the map and identification of artifacts.

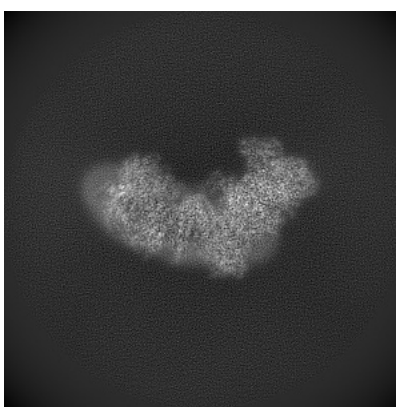
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

3.1 Orthogonal projections [i](#)

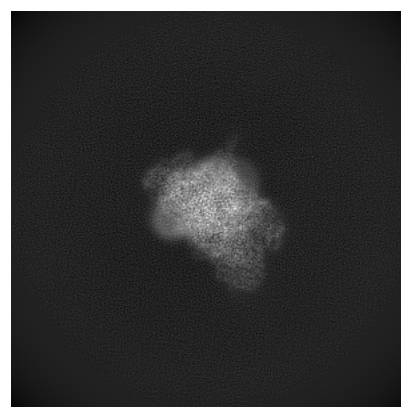
3.1.1 Primary map



X



Y

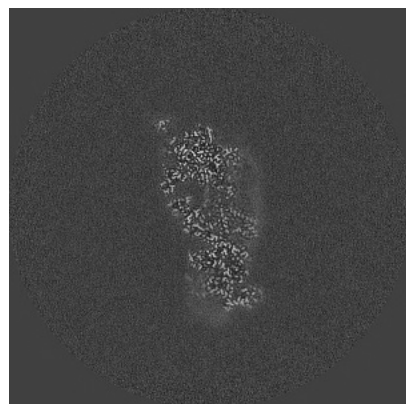


Z

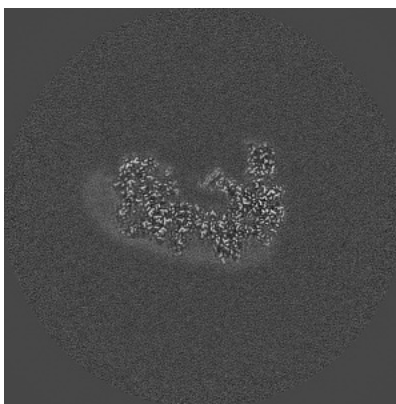
The images above show the map projected in three orthogonal directions.

3.2 Central slices [i](#)

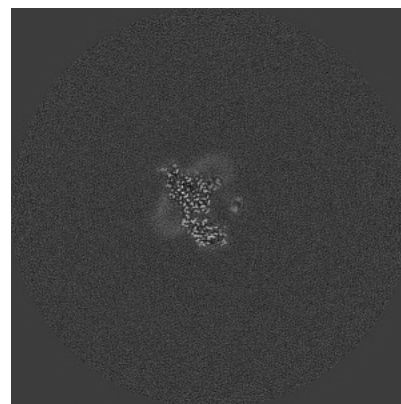
3.2.1 Primary map



X Index: 330



Y Index: 330

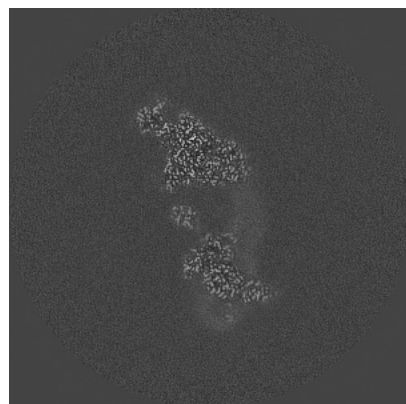


Z Index: 330

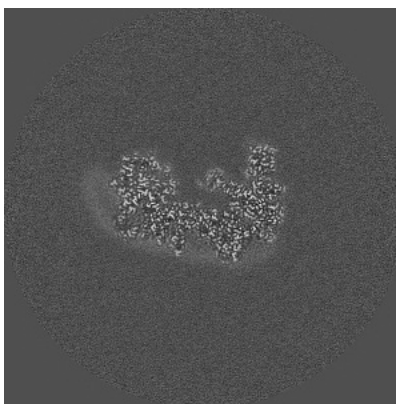
The images above show central slices of the map in three orthogonal directions.

3.3 Largest variance slices [i](#)

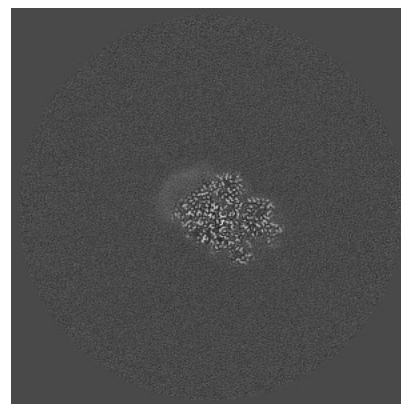
3.3.1 Primary map



X Index: 353



Y Index: 333

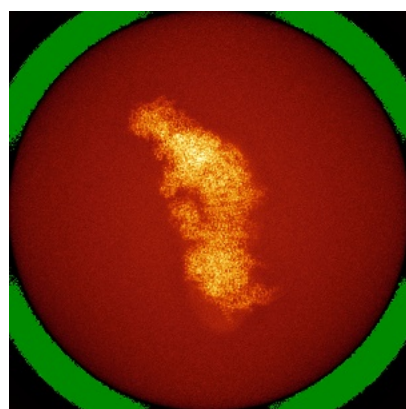


Z Index: 423

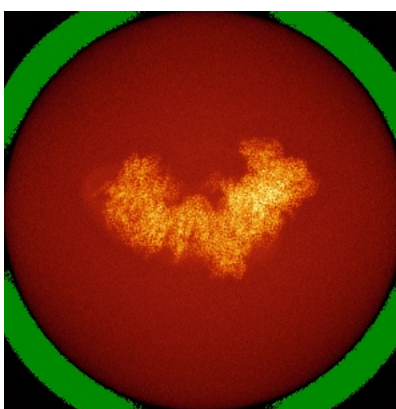
The images above show the largest variance slices of the map in three orthogonal directions.

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

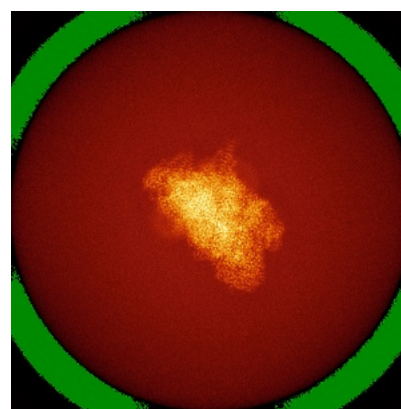
3.4.1 Primary map



X



Y

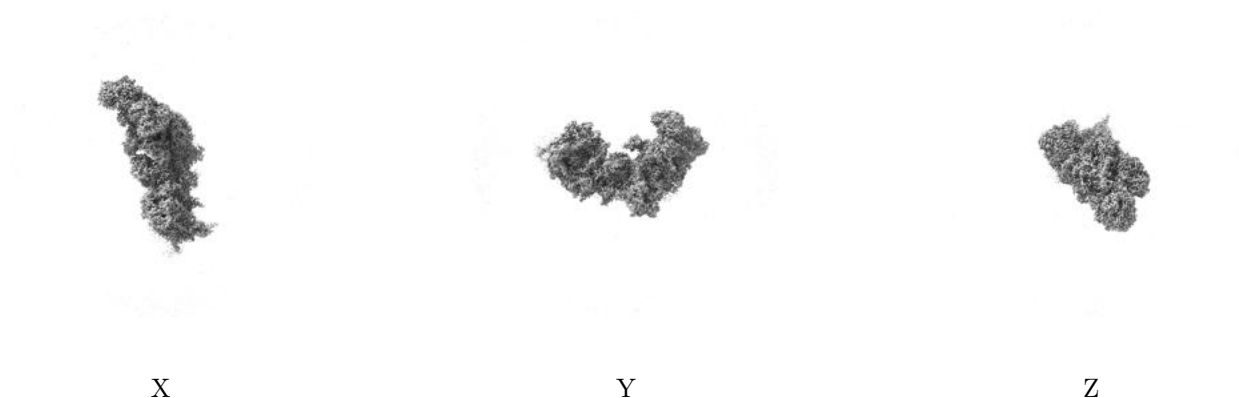


Z

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.

3.5 Orthogonal surface views [i](#)

3.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 5.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

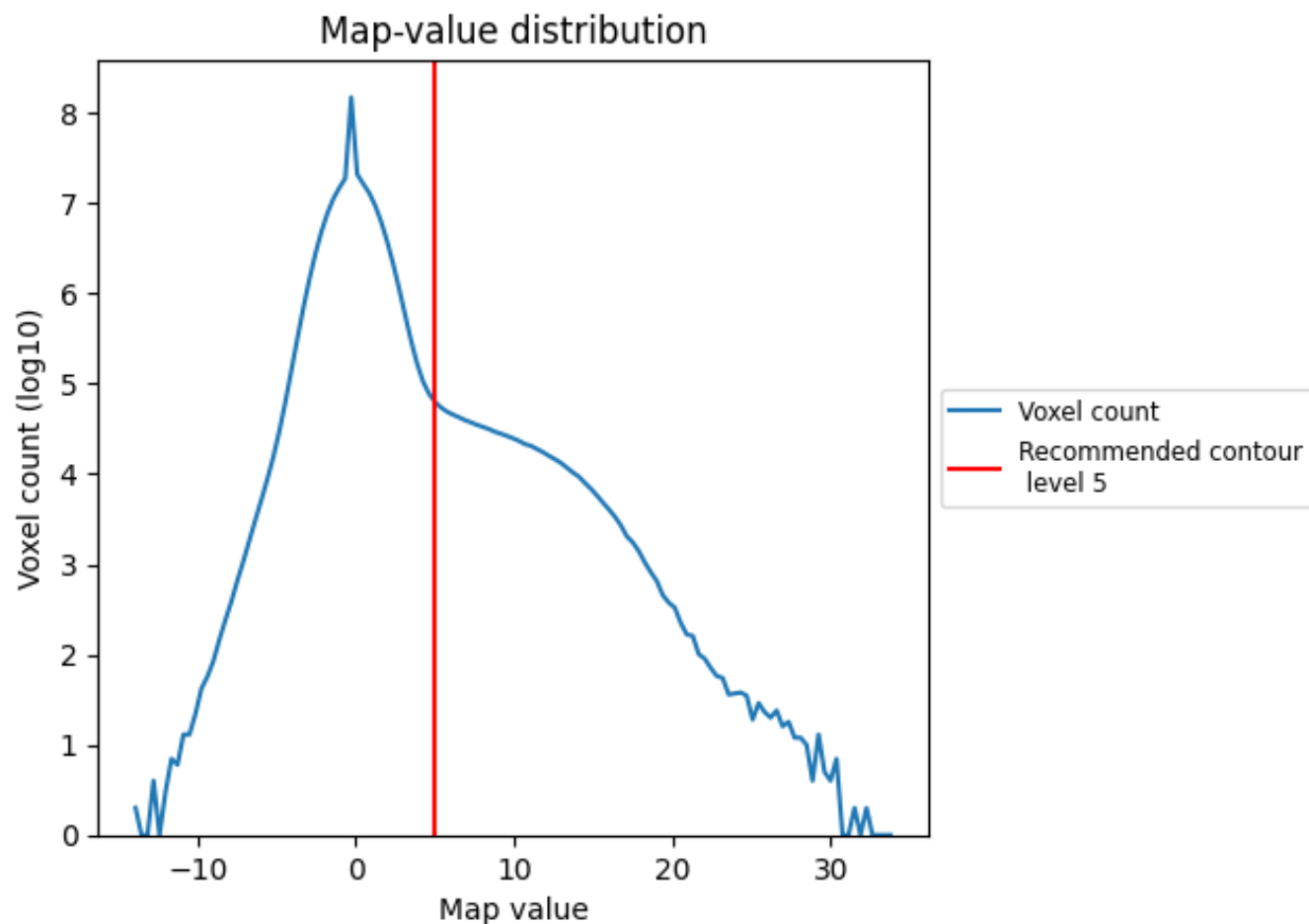
3.6 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

4 Map analysis [i](#)

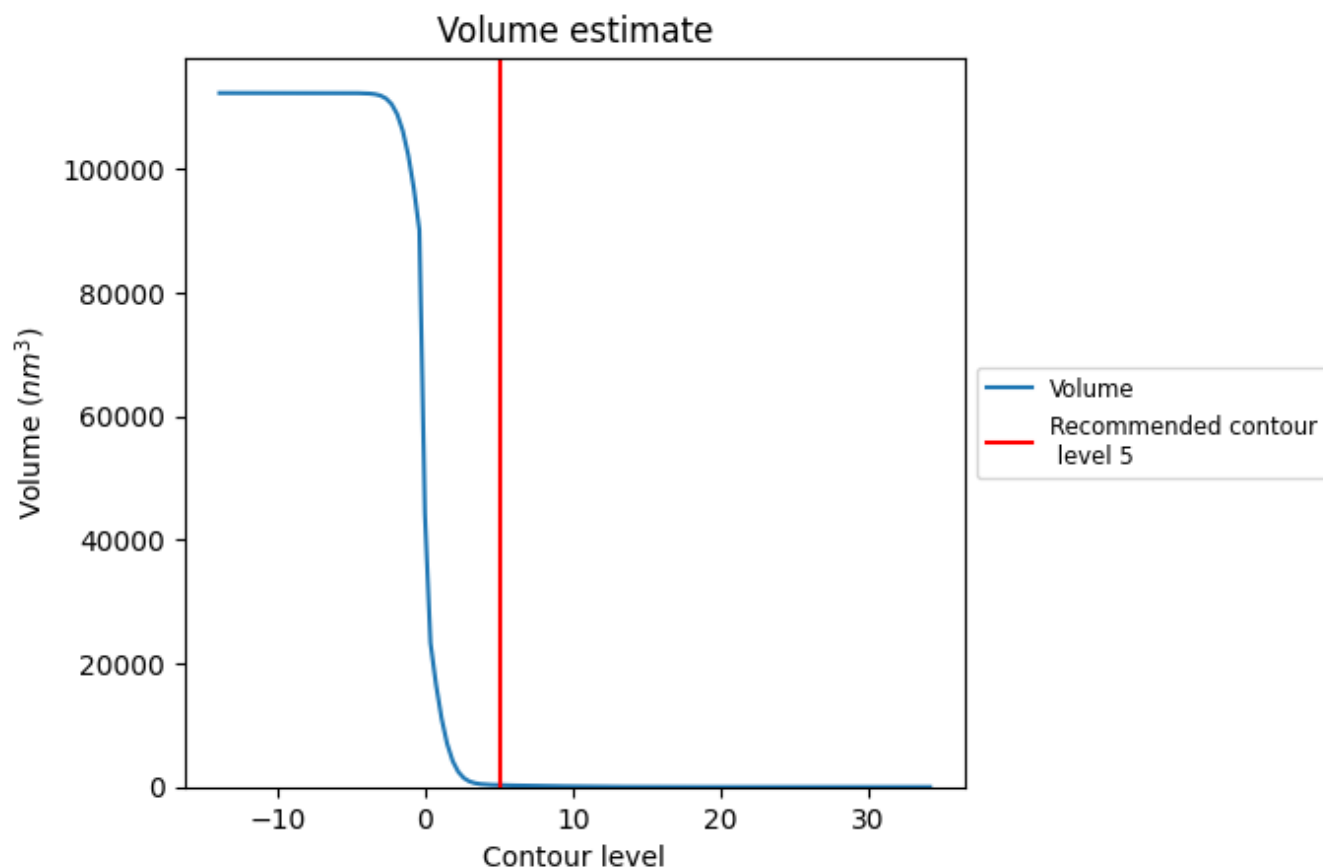
This section contains the results of statistical analysis of the map.

4.1 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.

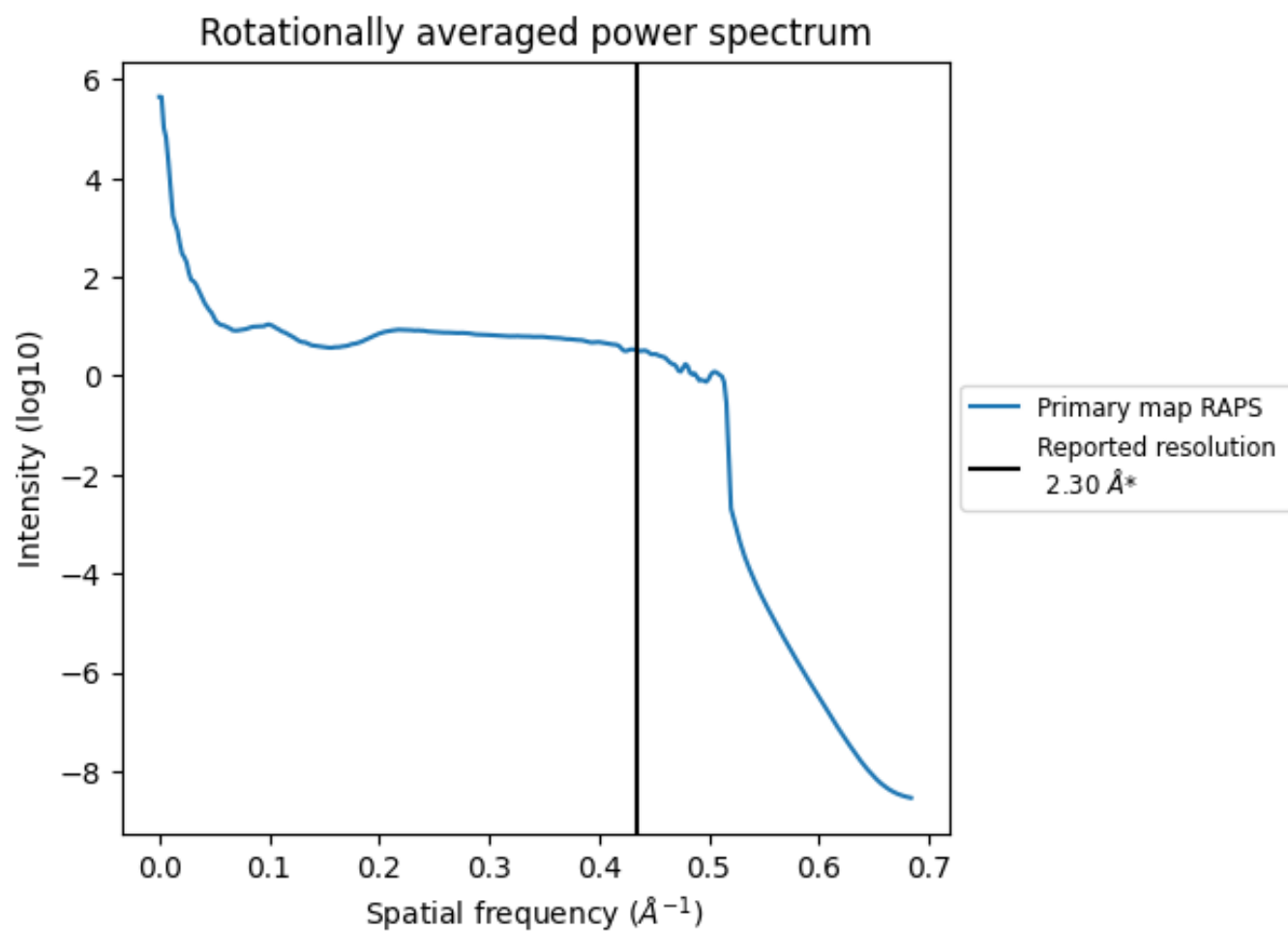
4.2 Volume estimate [i](#)



The volume at the recommended contour level is 299 nm^3 ; this corresponds to an approximate mass of 270 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.

4.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.435 Å⁻¹

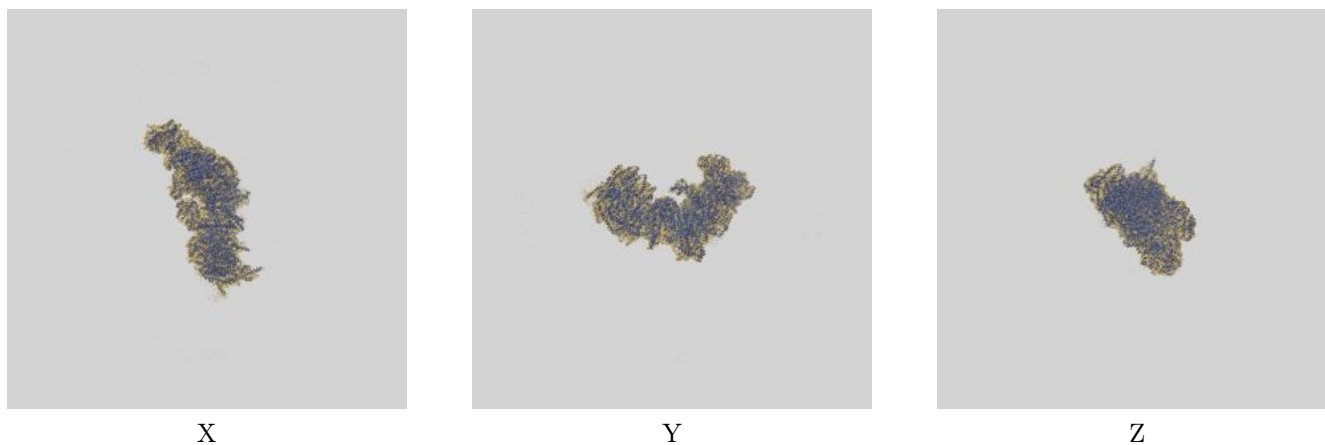
5 Fourier-Shell correlation ⓘ

This section was not generated. No FSC curve or half-maps provided.

6 Map-model fit [i](#)

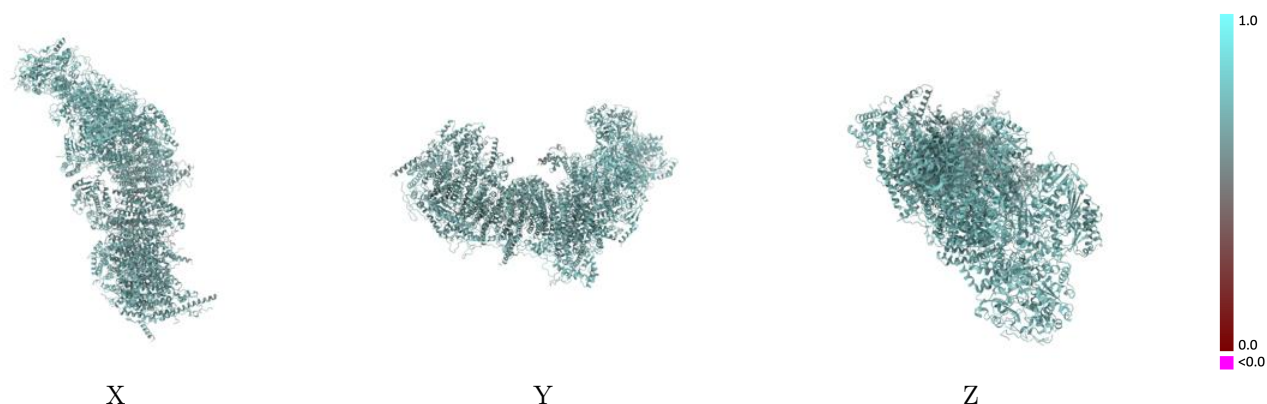
This section contains information regarding the fit between EMDB map EMD-14251 and PDB model 7R41. Per-residue inclusion information can be found in section ?? on page ??.

6.1 Map-model overlay [i](#)



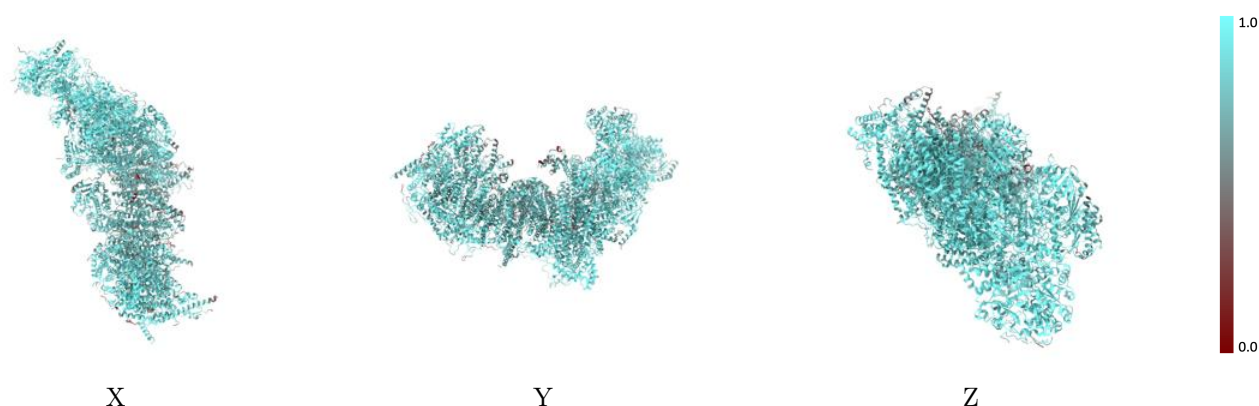
The images above show the 3D surface view of the map at the recommended contour level 5.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



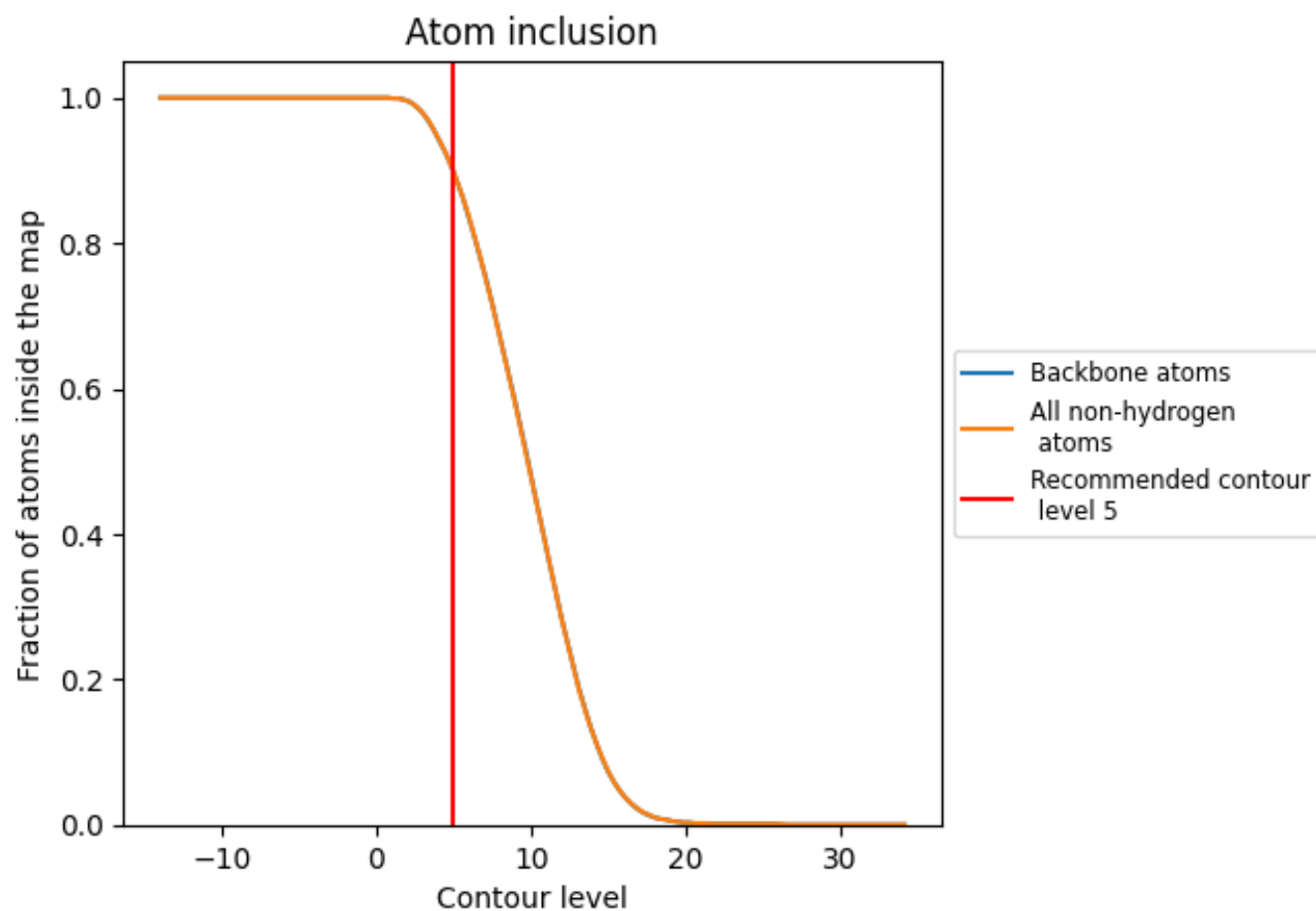
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

6.3 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 (5).

6.4 Atom inclusion [i](#)



At the recommended contour level, 90% of all backbone atoms, 90% of all non-hydrogen atoms, are inside the map.

6.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8990	 0.6860
A	 0.8860	 0.6930
B	 0.9520	 0.7230
C	 0.9640	 0.7270
D	 0.9530	 0.7240
E	 0.8920	 0.6780
F	 0.9480	 0.6960
G	 0.9280	 0.7030
H	 0.9640	 0.7150
I	 0.9710	 0.7290
J	 0.8840	 0.6840
K	 0.9200	 0.7050
L	 0.8980	 0.6670
M	 0.9520	 0.6950
N	 0.9470	 0.7040
O	 0.8970	 0.6720
P	 0.8970	 0.6960
Q	 0.9310	 0.7130
R	 0.9050	 0.7040
S	 0.8650	 0.6730
T	 0.6270	 0.5950
U	 0.9120	 0.6660
V	 0.8880	 0.6930
W	 0.8920	 0.6960
X	 0.8830	 0.6700
Y	 0.6980	 0.6350
Z	 0.8830	 0.6780
a	 0.9440	 0.6960
b	 0.8620	 0.6590
c	 0.7550	 0.6470
d	 0.8810	 0.6790
e	 0.8380	 0.6660
f	 0.8010	 0.6470
g	 0.8940	 0.6700
h	 0.9050	 0.6820



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Chain	Atom inclusion	Q-score
i	 0.8230	 0.6480
j	 0.8080	 0.6350
k	 0.8680	 0.6390
l	 0.8060	 0.6420
m	 0.7780	 0.6540
n	 0.8840	 0.6670
o	 0.8730	 0.6420
p	 0.8890	 0.6650
q	 0.8870	 0.6950
r	 0.9240	 0.7040
s	 0.8700	 0.6780