



## wwPDB EM Validation Summary Report ⓘ

Dec 10, 2022 – 04:02 pm GMT

PDB ID : 6QT9  
EMDB ID : EMD-4633  
Title : Cryo-EM structure of SH1 full particle.  
Authors : De Colibus, L.; Roine, E.; Walter, T.S.; Ilca, S.L.; Wang, X.; Wang, N.;  
Roseman, A.M.; Bamford, D.; Huiskonen, J.T.; Stuart, D.I.  
Deposited on : 2019-02-22  
Resolution : 3.80 Å(reported)

This is a wwPDB EM Validation Summary 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:

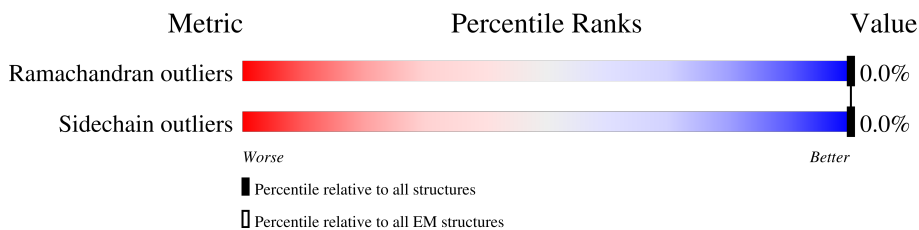
EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

# 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 3.80 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)
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	226	19% 99%
1	D	226	13% 100%
2	C	225	26% 100%
2	E	225	18% 100%
2	F	225	14% 100%
2	G	225	16% 100%
2	H	225	14% 100%
2	I	225	16% 100%
2	J	225	15% 100%

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Mol	Chain	Length	Quality of chain
2	K	225	10% 100%
2	L	225	13% 99%
2	M	225	19% 100%
3	a	173	36% 99%
3	b	173	19% 99%
3	c	173	20% 100%
3	d	173	16% 98%
3	e	173	22% 100%
3	f	173	26% 100%
3	i	173	31% 100%
3	j	173	34% 99%
3	k	173	17% 100%
3	m	173	40% 100%
3	o	173	24% 100%
4	g	167	20% 100%
4	l	167	20% 99%
4	n	167	21% 99%
5	h	175	11% 99%
6	Y	135	22% 99%
7	X	24	92% 100%
8	W	80	64% 95% 5%

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 82012 atoms, of which 39642 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 ORF 25.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
1	A	226	Total	C	H	N	O	S	0	0
			3422	1105	1654	292	369	2		
1	D	226	Total	C	H	N	O	S	0	0
			3422	1105	1654	292	369	2		

- Molecule 2 is a protein called ORF 25.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
2	C	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	E	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	F	225	Total	C	H	N	O	S	0	0
			3406	1100	1647	291	366	2		
2	G	225	Total	C	H	N	O	S	0	0
			3405	1100	1646	291	366	2		
2	H	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	I	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	J	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	K	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	L	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		
2	M	225	Total	C	H	N	O	S	0	0
			3407	1100	1648	291	366	2		

- Molecule 3 is a protein called ORF 24.

Mol	Chain	Residues	Atoms						AltConf	Trace
			Total	C	H	N	O	S		
3	a	173	Total	C	H	N	O	S	0	0
			2578	815	1256	224	279	4		

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Mol	Chain	Residues	Atoms						AltConf	Trace
3	b	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	c	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	d	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	e	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	f	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	i	173	Total	C	H	N	O	S	0	0
			2578	815	1256	224	279	4		
3	j	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	k	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	m	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		
3	o	173	Total	C	H	N	O	S	0	0
			2579	815	1257	224	279	4		

- Molecule 4 is a protein called ORF 24.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	g	167	Total	C	H	N	O	S	0	0
			2499	791	1217	216	271	4		
4	l	167	Total	C	H	N	O	S	0	0
			2499	791	1217	216	271	4		
4	n	167	Total	C	H	N	O	S	0	0
			2499	791	1217	216	271	4		

- Molecule 5 is a protein called ORF 24.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	h	175	Total	C	H	N	O	S	0	0
			2611	824	1275	227	281	4		

- Molecule 6 is a protein called ORF 31.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	Y	135	Total	C	H	N	O	0	0
			1927	617	928	175	207		

- Molecule 7 is a protein called VP12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
7	X	24	218	72	98	24	24	0	0

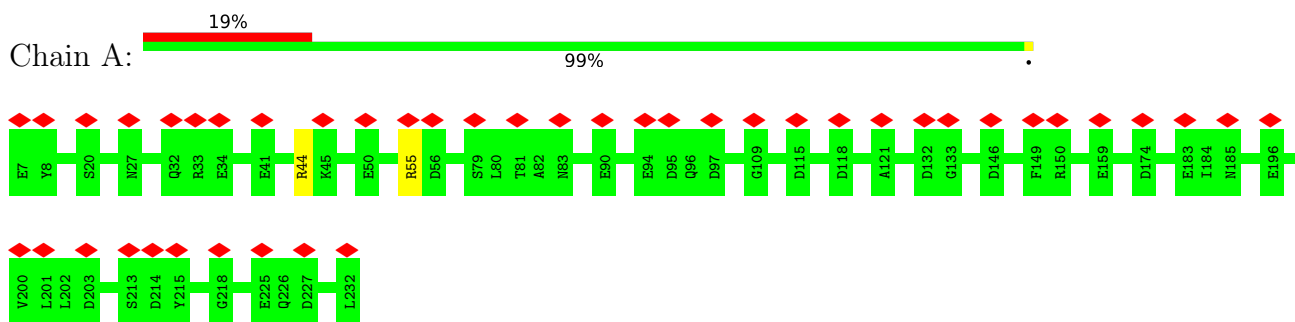
- Molecule 8 is a protein called VP13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	H	N	O		
8	W	80	481	240	80	80	81	0	0

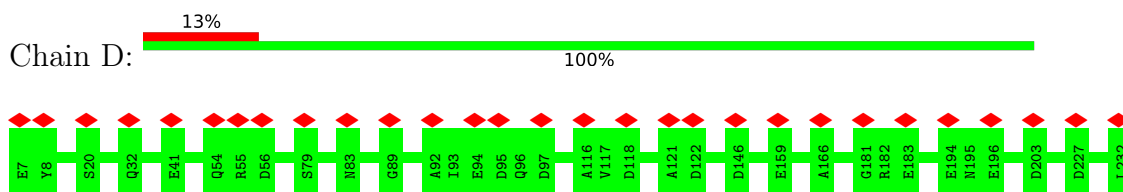
### 3 Residue-property plots [i](#)

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.

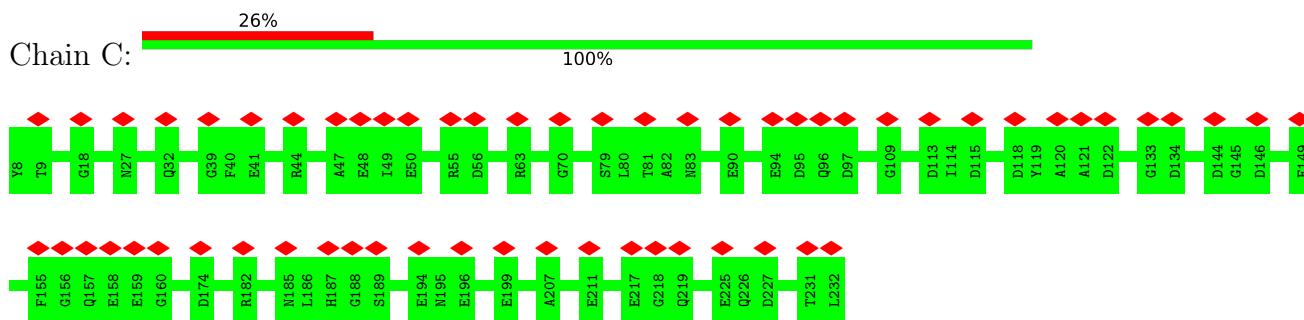
- Molecule 1: ORF 25



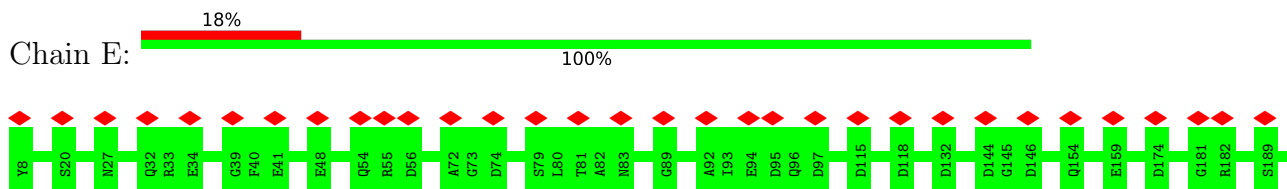
- Molecule 1: ORF 25

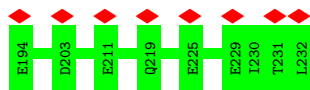


- Molecule 2: ORF 25

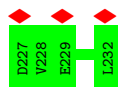
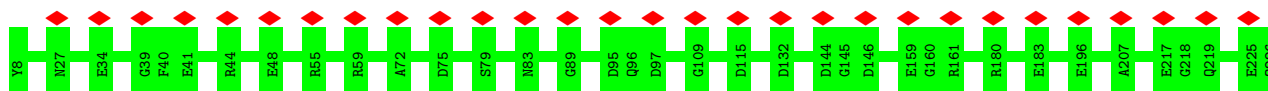


- Molecule 2: ORF 25

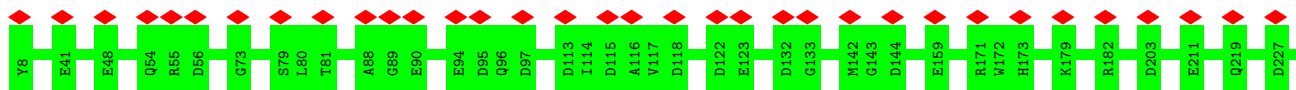




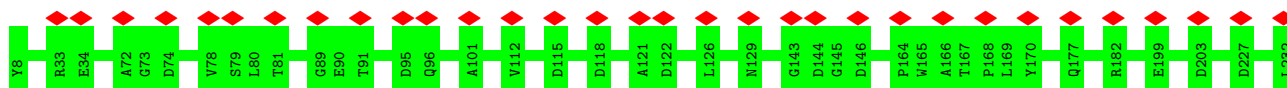
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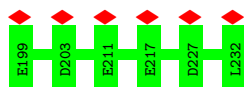
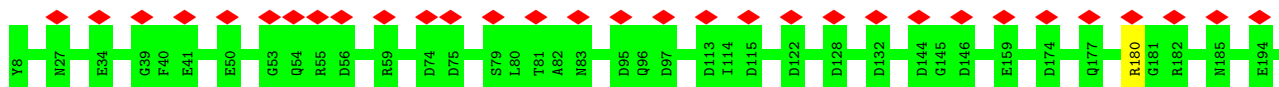
- Molecule 2: ORF 25



- Molecule 2: ORF 25



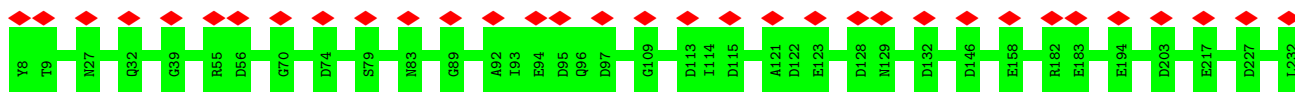
- Molecule 2: ORF 25



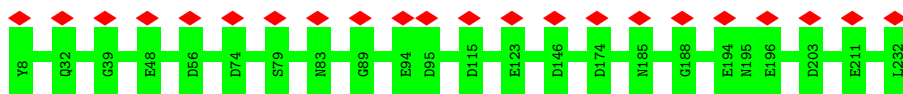
- Molecule 2: ORF 25



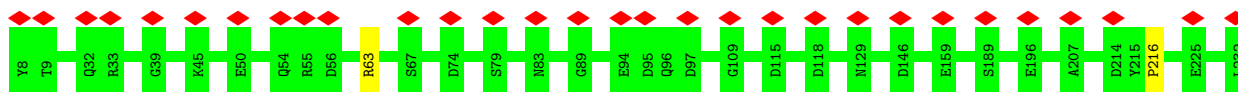




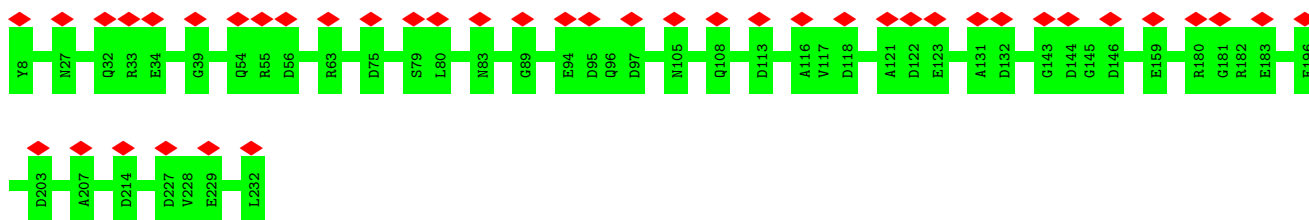
• Molecule 2: ORF 25



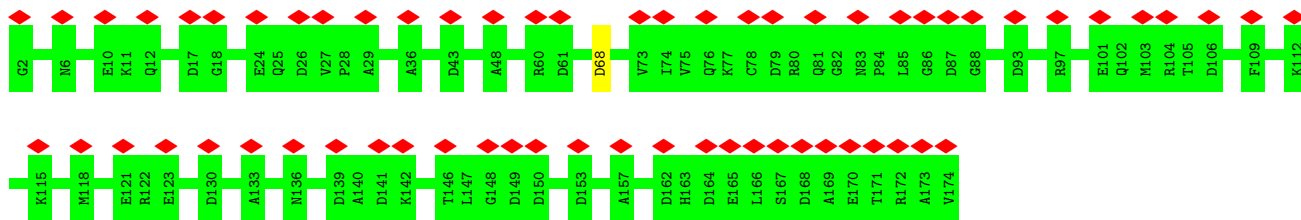
• Molecule 2: ORF 25



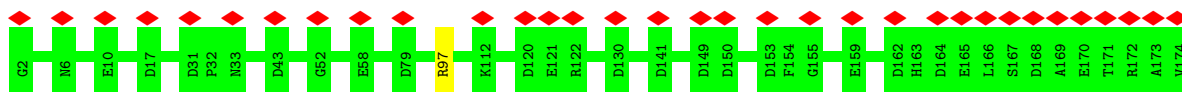
• Molecule 2: ORF 25



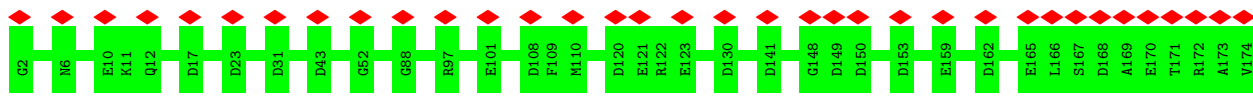
• Molecule 3: ORF 24



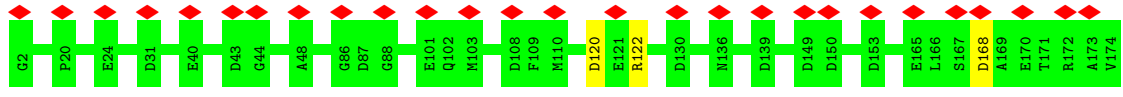
• Molecule 3: ORF 24



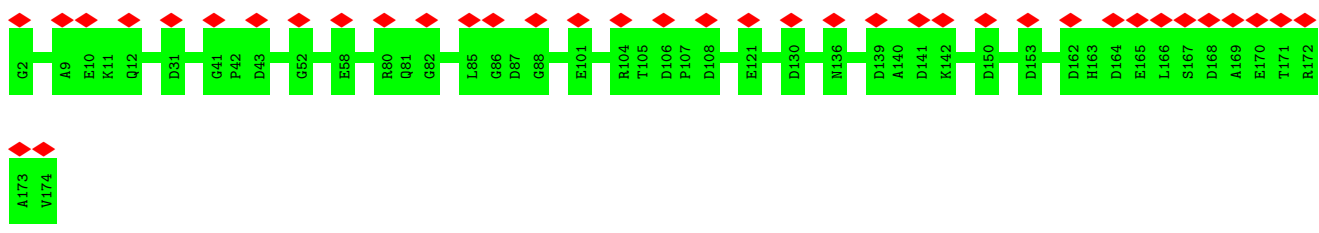
• Molecule 3: ORF 24



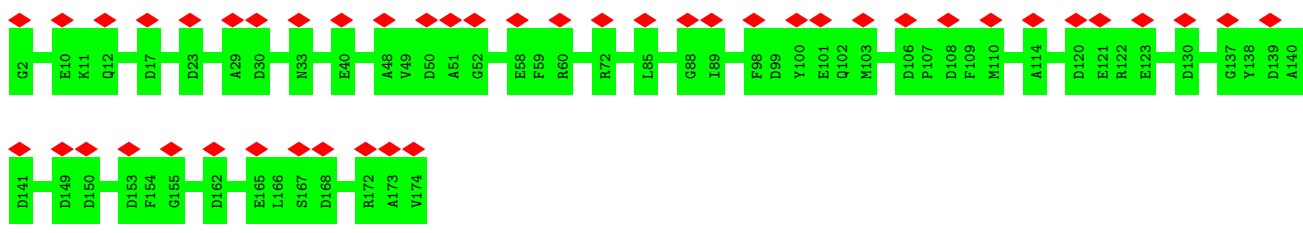
• Molecule 3: ORF 24



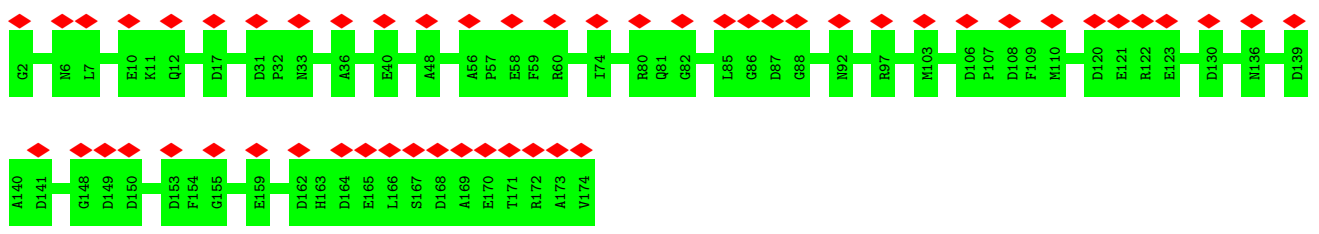
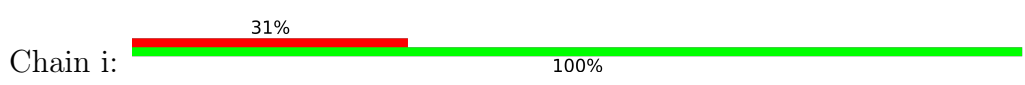
• Molecule 3: ORF 24



• Molecule 3: ORF 24

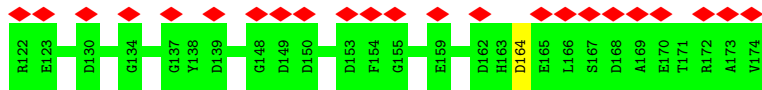
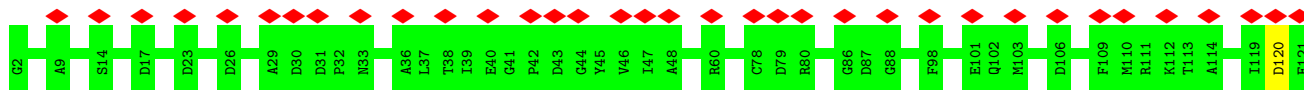


• Molecule 3: ORF 24

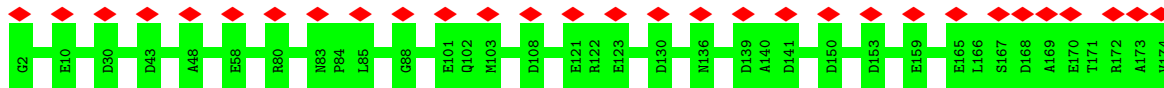


• Molecule 3: ORF 24

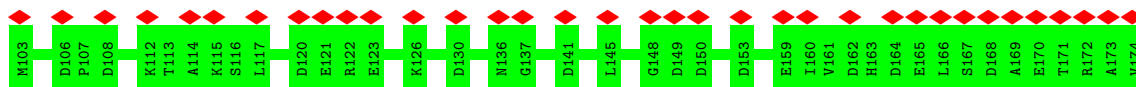
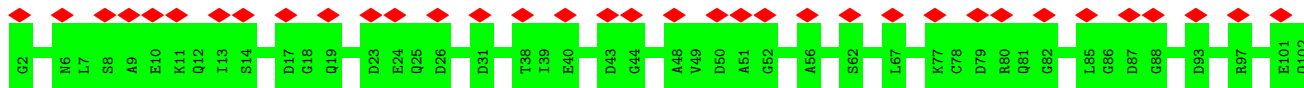
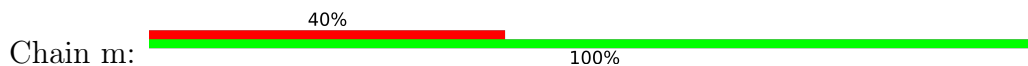




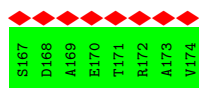
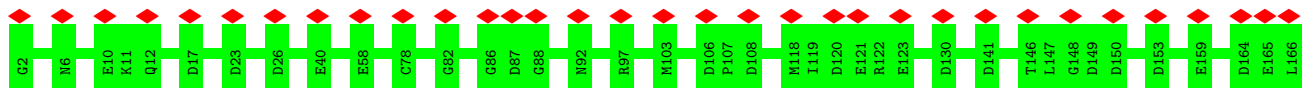
• Molecule 3: ORF 24



• Molecule 3: ORF 24



• Molecule 3: ORF 24

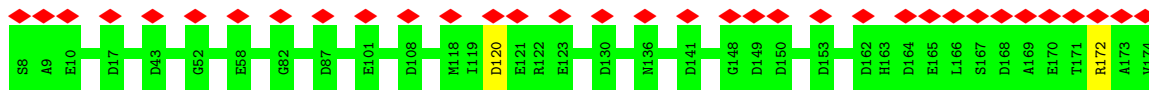


• Molecule 4: ORF 24

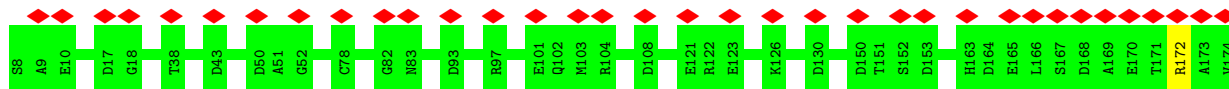


• Molecule 4: ORF 24

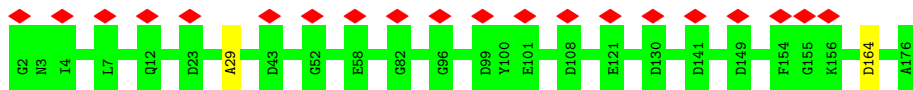




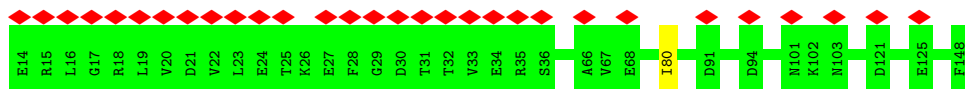
• Molecule 4: ORF 24



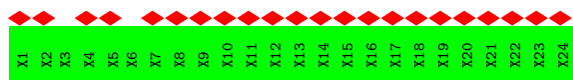
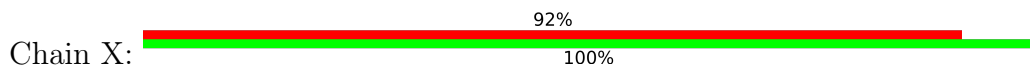
• Molecule 5: ORF 24



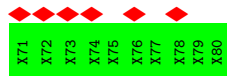
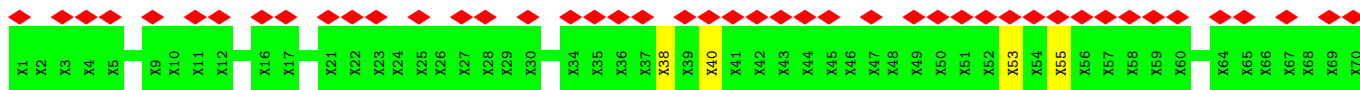
• Molecule 6: ORF 31



• Molecule 7: VP12



• Molecule 8: VP13



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C532	Depositor
Number of particles used	16185	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	1	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	37037	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	13.590	Depositor
Minimum map value	-8.843	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.549	Depositor
Recommended contour level	2.25	Depositor
Map size (Å)	1080.0, 1080.0, 1080.0	wwPDB
Map dimensions	800, 800, 800	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.35, 1.35, 1.35	Depositor

## 5 Model quality [i](#)

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

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	0.49	0/1808	0.69	2/2475 (0.1%)
1	D	0.49	0/1808	0.65	0/2475
2	C	0.43	0/1799	0.63	0/2463
2	E	0.46	0/1799	0.65	0/2463
2	F	0.48	0/1799	0.65	0/2463
2	G	0.48	0/1799	0.65	0/2463
2	H	0.61	0/1799	0.70	0/2463
2	I	0.45	0/1799	0.65	1/2463 (0.0%)
2	J	0.48	0/1799	0.65	0/2463
2	K	0.51	0/1799	0.66	0/2463
2	L	0.49	0/1799	0.64	0/2463
2	M	0.45	0/1799	0.63	0/2463
3	a	0.40	0/1344	0.71	1/1825 (0.1%)
3	b	0.44	0/1344	0.70	2/1825 (0.1%)
3	c	0.45	0/1344	0.66	0/1825
3	d	0.45	0/1344	0.75	3/1825 (0.2%)
3	e	0.46	0/1344	0.66	0/1825
3	f	0.43	0/1344	0.66	0/1825
3	i	0.41	0/1344	0.64	0/1825
3	j	0.40	0/1344	0.67	1/1825 (0.1%)
3	k	0.47	0/1344	0.68	0/1825
3	m	0.43	0/1344	0.66	0/1825
3	o	0.44	0/1344	0.64	0/1825
4	g	0.45	0/1304	0.65	0/1771
4	l	0.47	0/1304	0.71	2/1771 (0.1%)
4	n	0.45	0/1304	0.67	1/1771 (0.1%)
5	h	0.61	0/1358	0.74	0/1843
6	Y	0.66	0/1016	0.71	0/1389
All	All	0.48	0/42676	0.67	13/58200 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
3	j	0	1
5	h	0	1
6	Y	0	1
8	W	0	4
All	All	0	7

There are no bond length outliers.

The worst 5 of 13 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	d	168	ASP	CB-CG-OD1	8.80	126.22	118.30
3	a	68	ASP	CB-CG-OD1	6.93	124.54	118.30
3	b	97	ARG	NE-CZ-NH1	6.76	123.68	120.30
3	d	120	ASP	CB-CG-OD1	6.70	124.33	118.30
4	l	120	ASP	CB-CG-OD1	6.04	123.74	118.30

There are no chirality outliers.

5 of 7 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
8	W	38	UNK	Peptide
8	W	40	UNK	Peptide
6	Y	80	ILE	Peptide
5	h	164	ASP	Peptide
3	j	164	ASP	Peptide

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

Due to software issues we are unable to calculate clashes - this section is therefore empty.

## 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	224/226 (99%)	195 (87%)	29 (13%)	0	100	100
1	D	224/226 (99%)	196 (88%)	28 (12%)	0	100	100
2	C	223/225 (99%)	196 (88%)	27 (12%)	0	100	100
2	E	223/225 (99%)	197 (88%)	26 (12%)	0	100	100
2	F	223/225 (99%)	200 (90%)	23 (10%)	0	100	100
2	G	223/225 (99%)	196 (88%)	27 (12%)	0	100	100
2	H	223/225 (99%)	196 (88%)	27 (12%)	0	100	100
2	I	223/225 (99%)	200 (90%)	23 (10%)	0	100	100
2	J	223/225 (99%)	199 (89%)	24 (11%)	0	100	100
2	K	223/225 (99%)	195 (87%)	28 (13%)	0	100	100
2	L	223/225 (99%)	201 (90%)	21 (9%)	1 (0%)	34	70
2	M	223/225 (99%)	195 (87%)	28 (13%)	0	100	100
3	a	171/173 (99%)	149 (87%)	22 (13%)	0	100	100
3	b	171/173 (99%)	154 (90%)	17 (10%)	0	100	100
3	c	171/173 (99%)	153 (90%)	18 (10%)	0	100	100
3	d	171/173 (99%)	154 (90%)	17 (10%)	0	100	100
3	e	171/173 (99%)	151 (88%)	20 (12%)	0	100	100
3	f	171/173 (99%)	150 (88%)	21 (12%)	0	100	100
3	i	171/173 (99%)	154 (90%)	17 (10%)	0	100	100
3	j	171/173 (99%)	153 (90%)	18 (10%)	0	100	100
3	k	171/173 (99%)	156 (91%)	15 (9%)	0	100	100
3	m	171/173 (99%)	141 (82%)	30 (18%)	0	100	100
3	o	171/173 (99%)	150 (88%)	21 (12%)	0	100	100
4	g	165/167 (99%)	146 (88%)	19 (12%)	0	100	100
4	l	165/167 (99%)	146 (88%)	19 (12%)	0	100	100
4	n	165/167 (99%)	145 (88%)	20 (12%)	0	100	100
5	h	173/175 (99%)	148 (86%)	24 (14%)	1 (1%)	25	62
6	Y	133/135 (98%)	107 (80%)	26 (20%)	0	100	100
All	All	5360/5416 (99%)	4723 (88%)	635 (12%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:



Mol	Chain	Res	Type
5	h	29	ALA
2	L	216	PRO

### 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	191/191 (100%)	191 (100%)	0	100	100
1	D	191/191 (100%)	191 (100%)	0	100	100
2	C	190/190 (100%)	190 (100%)	0	100	100
2	E	190/190 (100%)	190 (100%)	0	100	100
2	F	190/190 (100%)	190 (100%)	0	100	100
2	G	190/190 (100%)	190 (100%)	0	100	100
2	H	190/190 (100%)	190 (100%)	0	100	100
2	I	190/190 (100%)	190 (100%)	0	100	100
2	J	190/190 (100%)	190 (100%)	0	100	100
2	K	190/190 (100%)	190 (100%)	0	100	100
2	L	190/190 (100%)	189 (100%)	1 (0%)	88	94
2	M	190/190 (100%)	190 (100%)	0	100	100
3	a	145/145 (100%)	145 (100%)	0	100	100
3	b	145/145 (100%)	145 (100%)	0	100	100
3	c	145/145 (100%)	145 (100%)	0	100	100
3	d	145/145 (100%)	145 (100%)	0	100	100
3	e	145/145 (100%)	145 (100%)	0	100	100
3	f	145/145 (100%)	145 (100%)	0	100	100
3	i	145/145 (100%)	145 (100%)	0	100	100
3	j	145/145 (100%)	145 (100%)	0	100	100
3	k	145/145 (100%)	145 (100%)	0	100	100
3	m	145/145 (100%)	145 (100%)	0	100	100

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	o	145/145 (100%)	145 (100%)	0	100	100
4	g	141/141 (100%)	141 (100%)	0	100	100
4	l	141/141 (100%)	141 (100%)	0	100	100
4	n	141/141 (100%)	141 (100%)	0	100	100
5	h	146/146 (100%)	146 (100%)	0	100	100
6	Y	99/115 (86%)	99 (100%)	0	100	100
All	All	4545/4561 (100%)	4544 (100%)	1 (0%)	100	100

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	L	63	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 10 such sidechains are listed below:

Mol	Chain	Res	Type
3	j	83	ASN
3	o	6	ASN
3	o	83	ASN
2	H	226	GLN
3	e	83	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](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

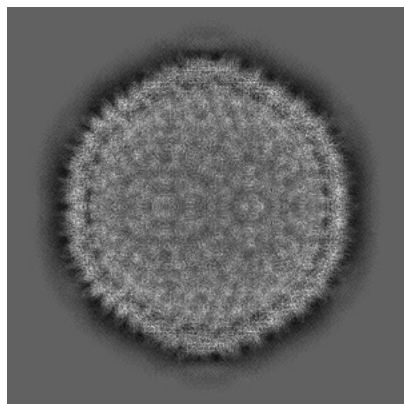
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4633. These allow visual inspection of the internal detail of the map and identification of artifacts.

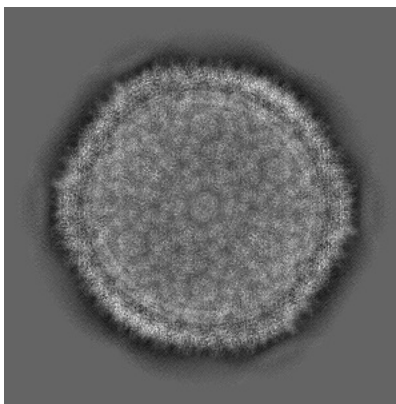
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

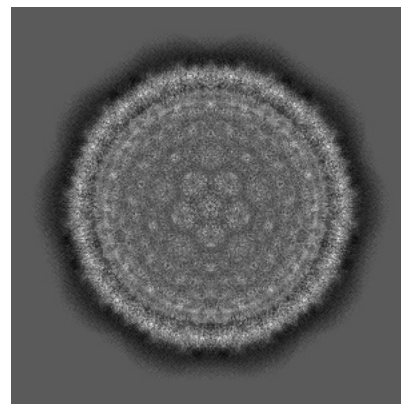
#### 6.1.1 Primary map



X

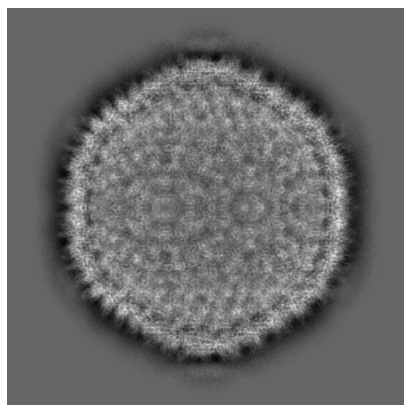


Y

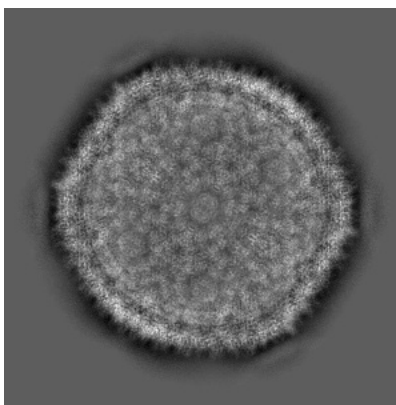


Z

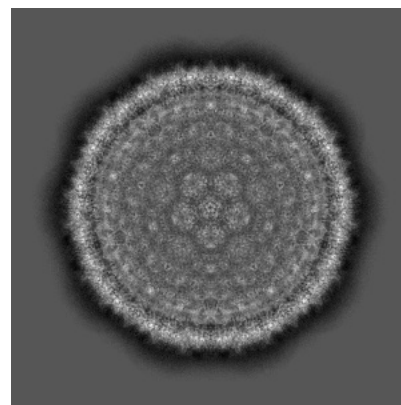
#### 6.1.2 Raw map



X



Y

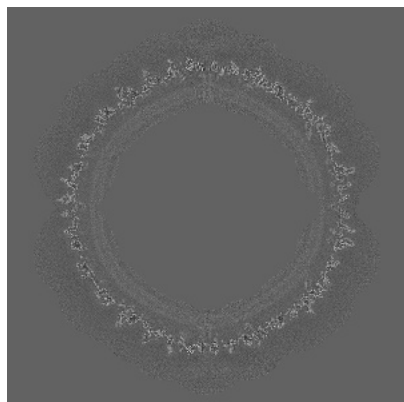


Z

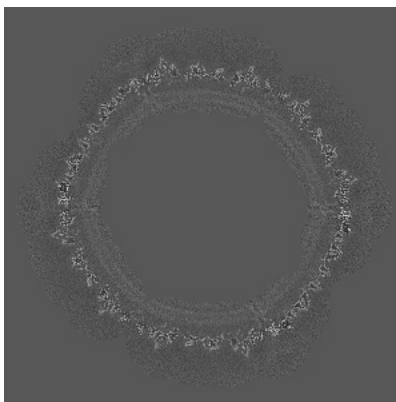
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

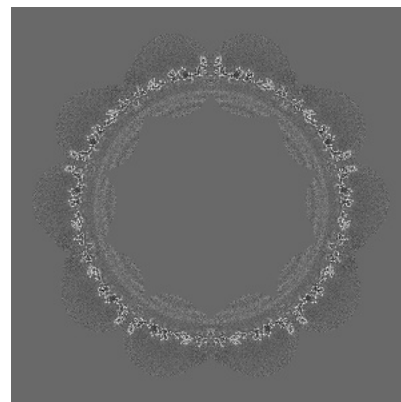
### 6.2.1 Primary map



X Index: 400

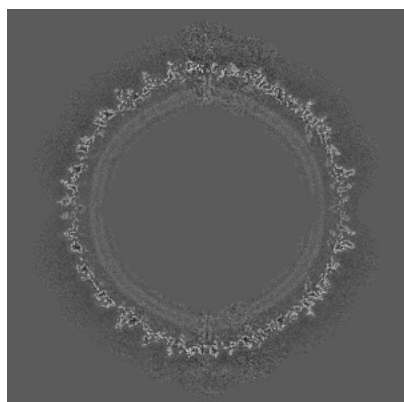


Y Index: 400

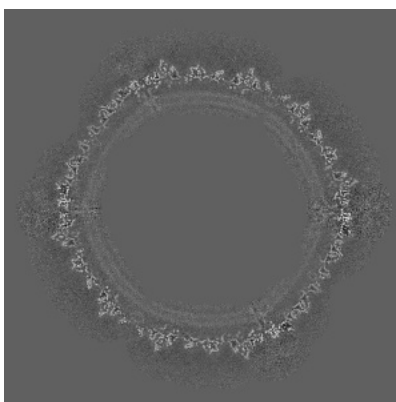


Z Index: 400

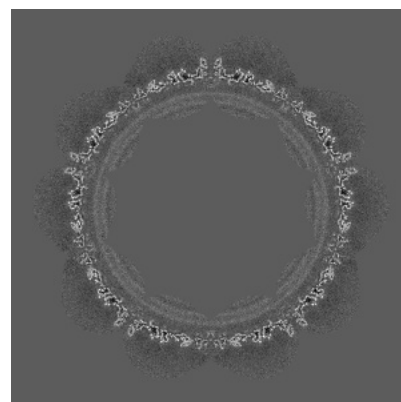
### 6.2.2 Raw map



X Index: 400



Y Index: 400

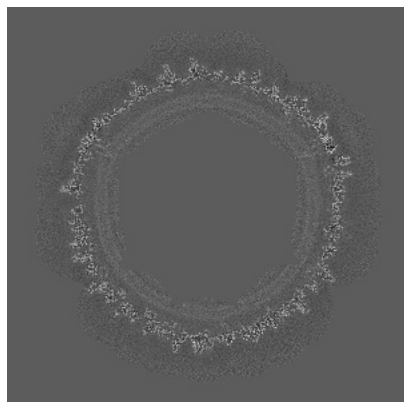


Z Index: 400

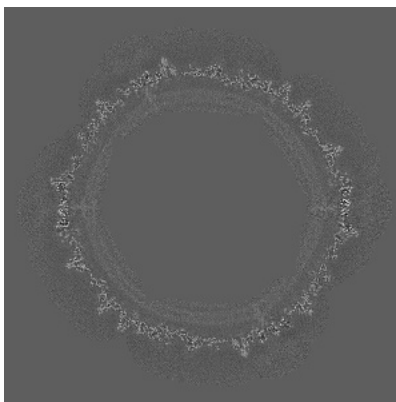
The images above show central slices of the map in three orthogonal directions.

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

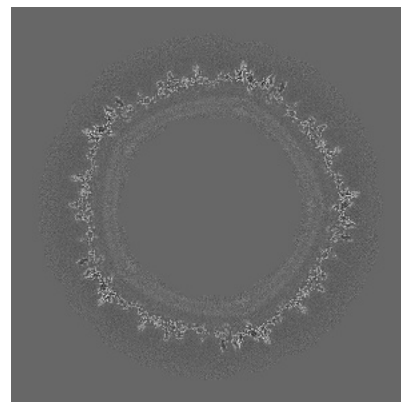
### 6.3.1 Primary map



X Index: 330

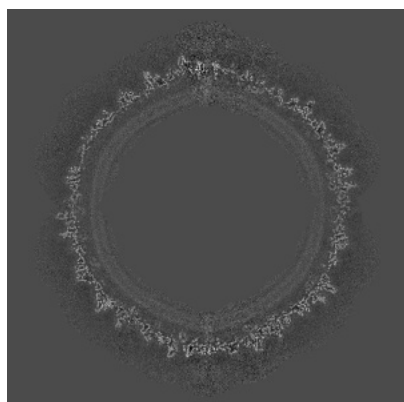


Y Index: 394

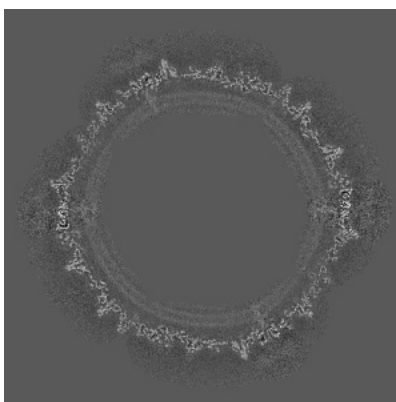


Z Index: 305

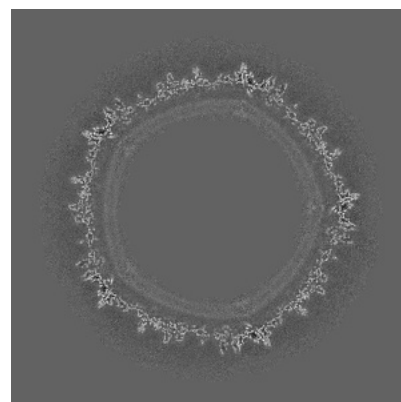
### 6.3.2 Raw map



X Index: 393



Y Index: 394



Z Index: 305

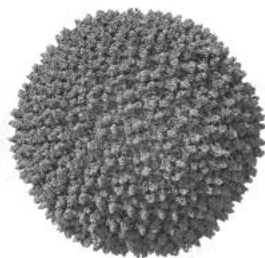
The images above show the largest variance slices of the map in three orthogonal directions.

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

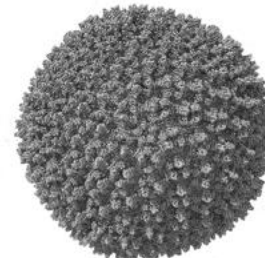
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 2.25. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

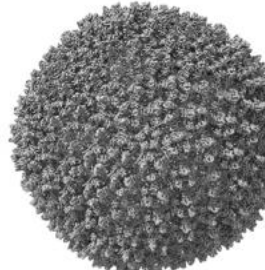
### 6.4.2 Raw map



X



Y



Z

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.

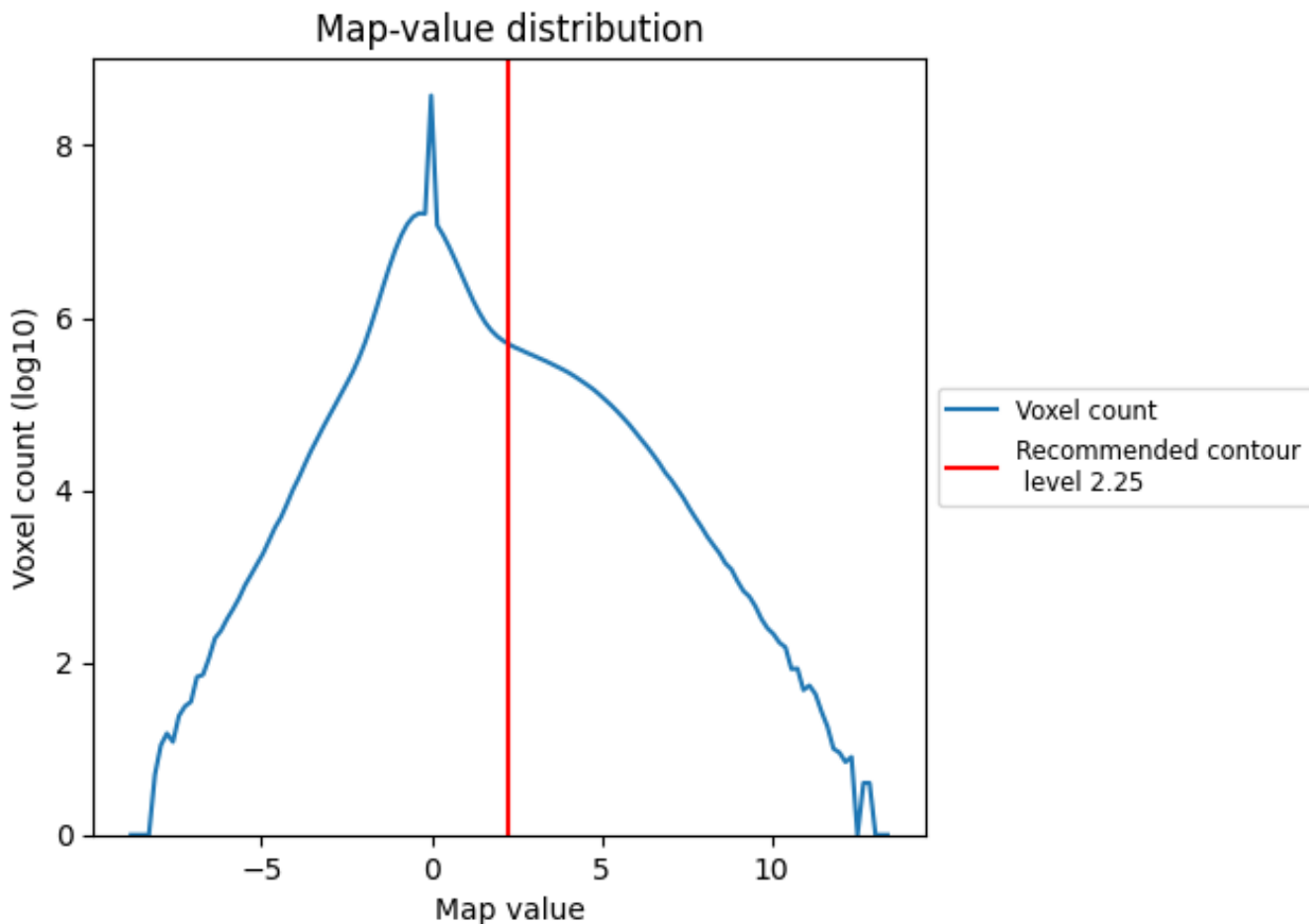
## 6.5 Mask visualisation [i](#)

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

## 7 Map analysis [i](#)

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

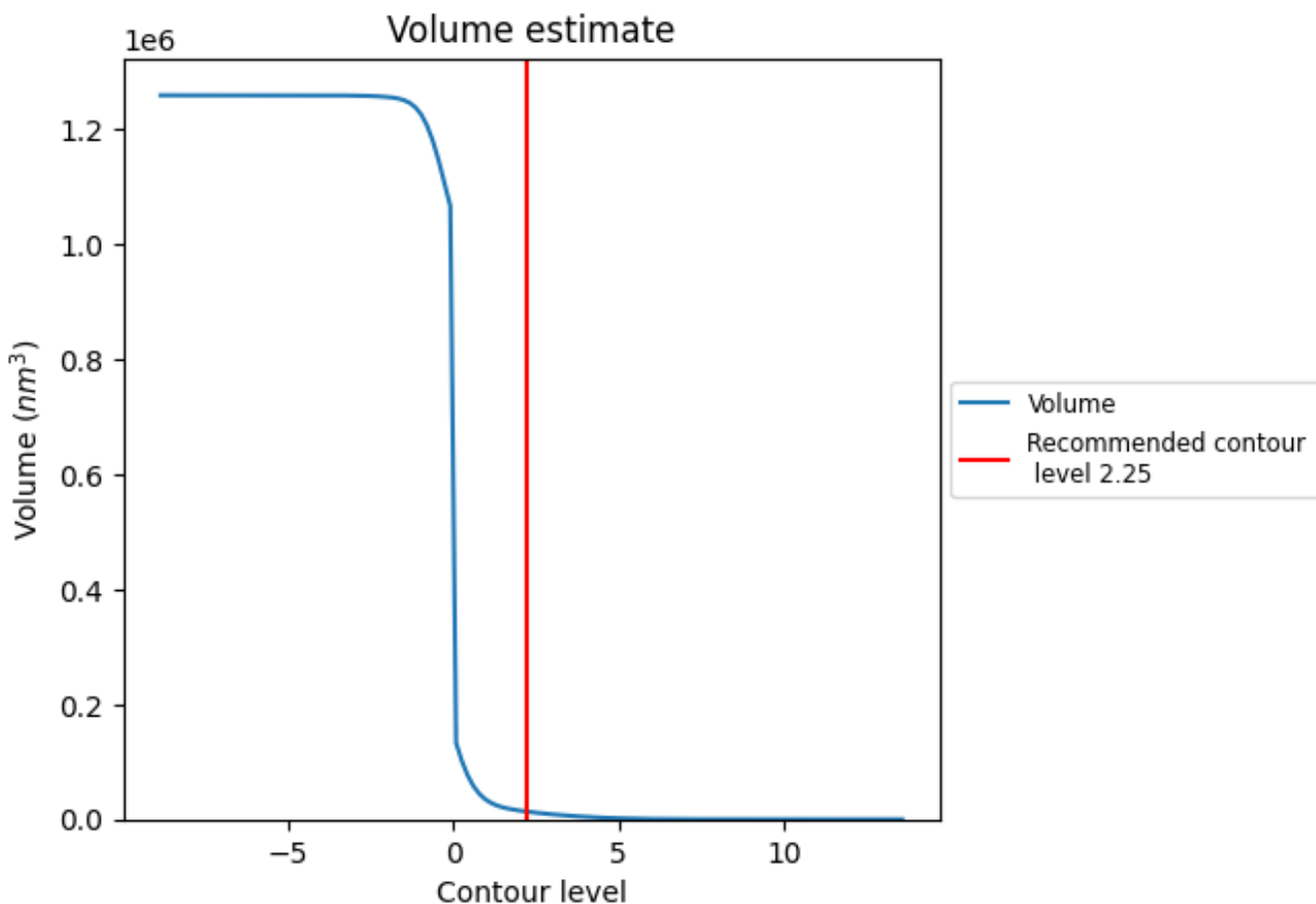
### 7.1 Map-value distribution [i](#)



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.



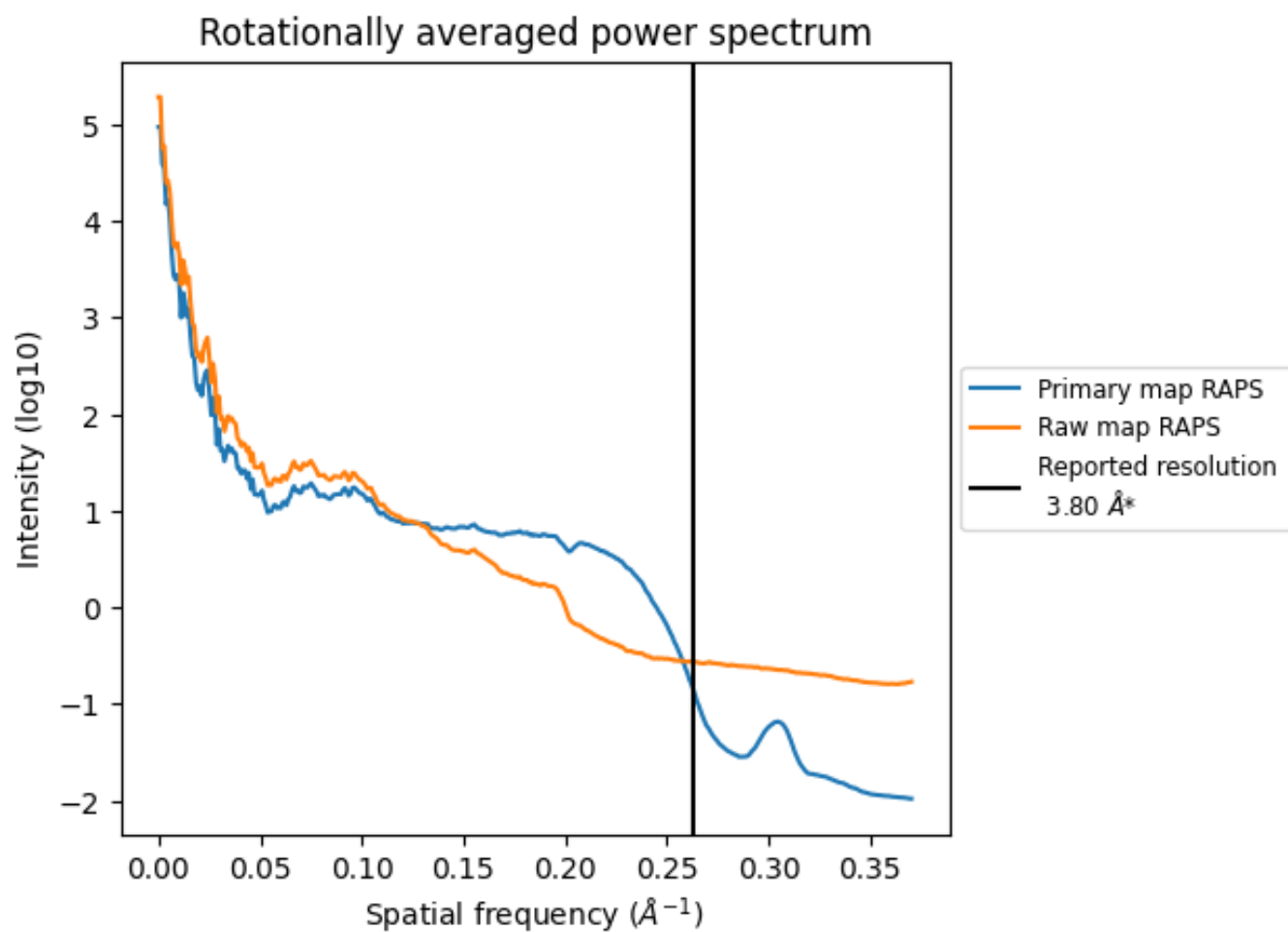
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is  $13318 \text{ nm}^3$ ; this corresponds to an approximate mass of 12031 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](#)

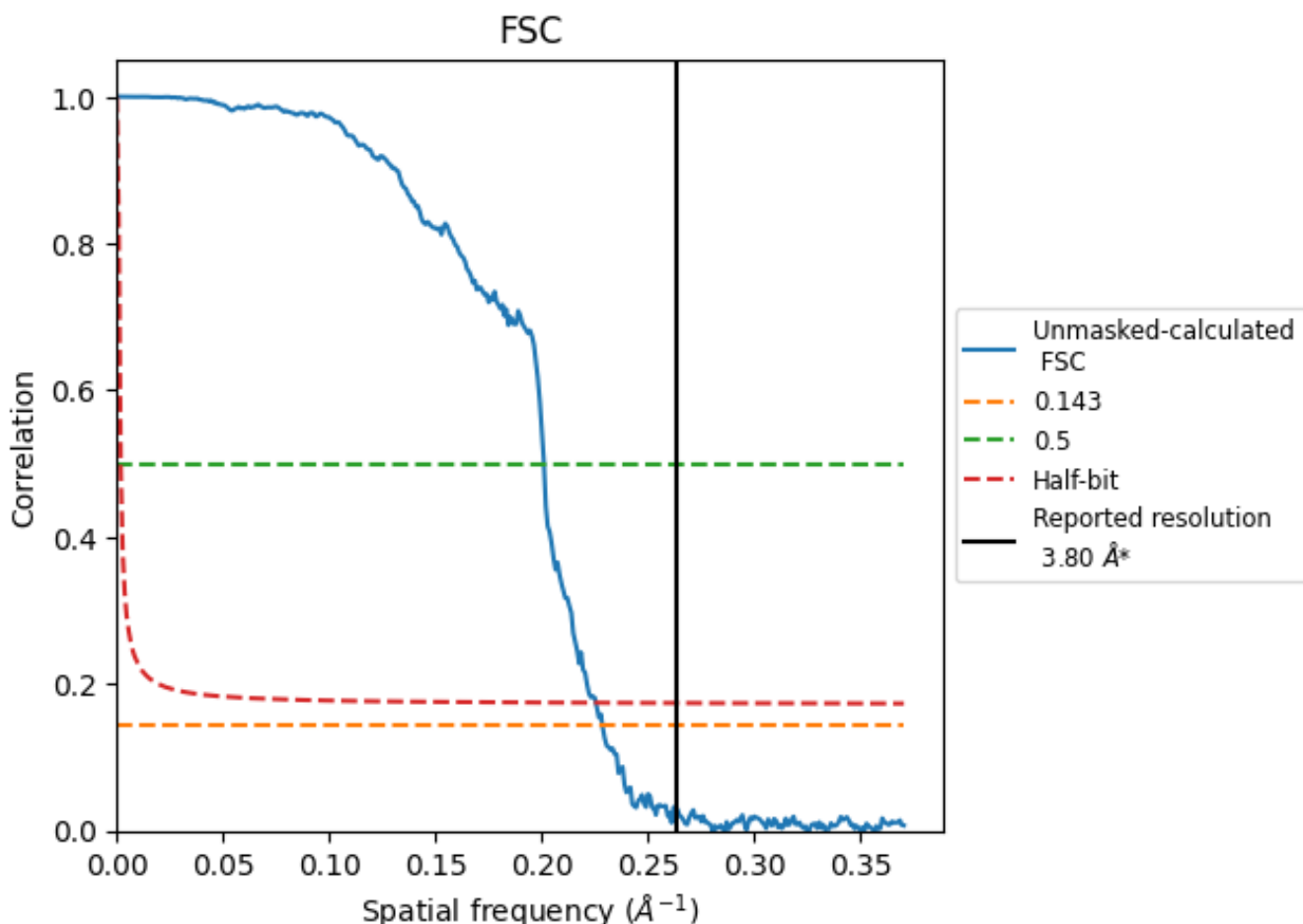


\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 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 0.263  $\text{\AA}^{-1}$

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.38	4.98	4.43

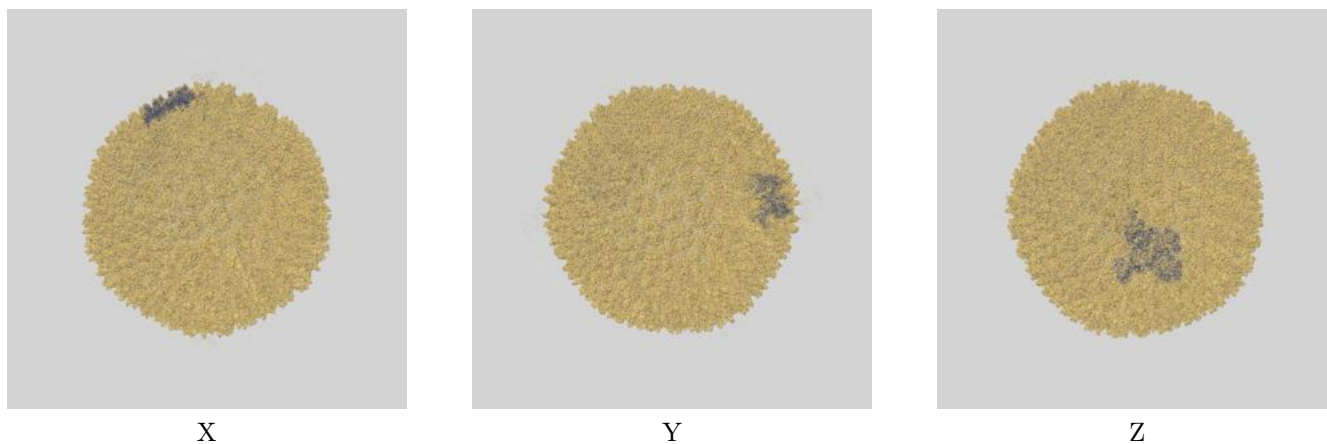
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.38 differs from the reported value 3.8 by more than 10 %

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

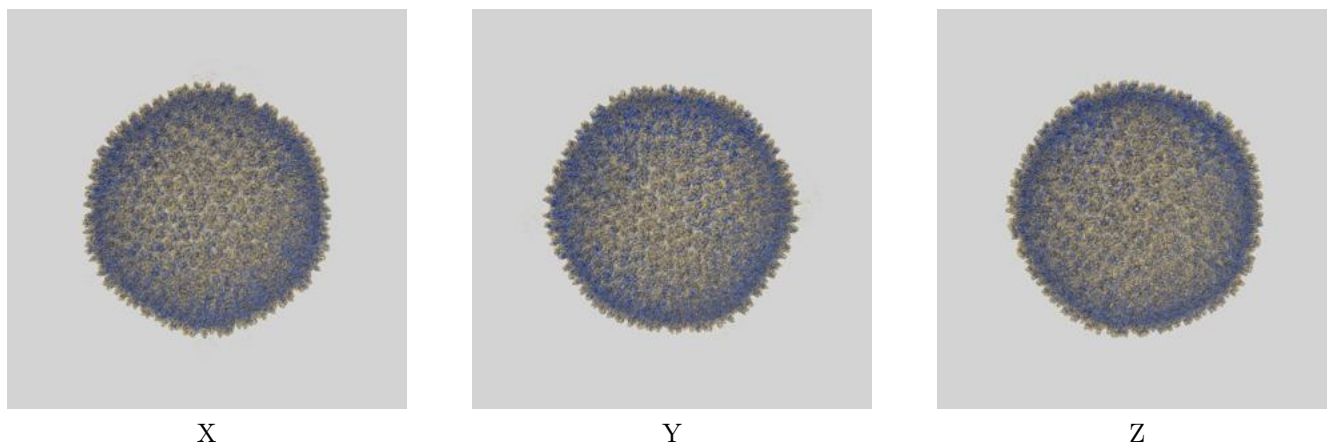
This section contains information regarding the fit between EMDB map EMD-4633 and PDB model 6QT9. Per-residue inclusion information can be found in section 3 on page 7.

### 9.1 Map-model overlays

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

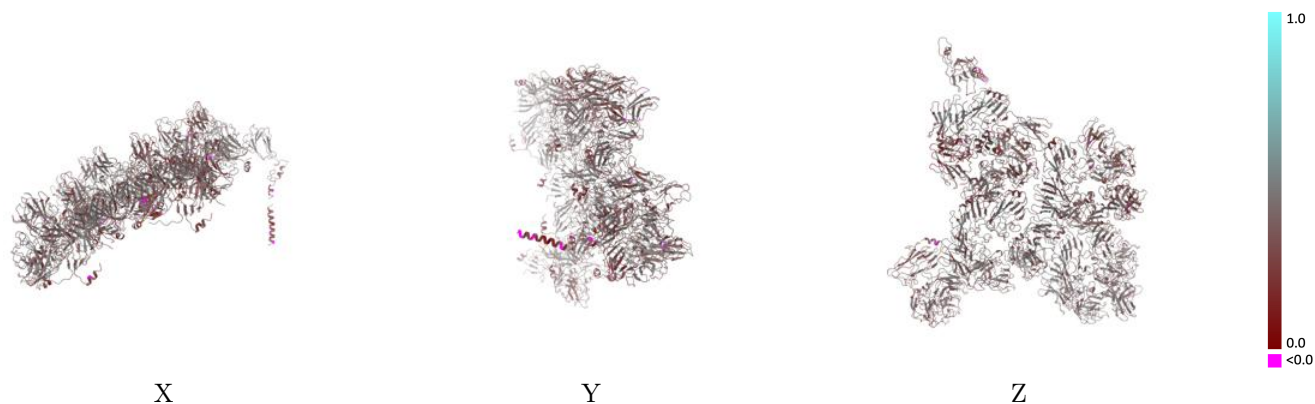


#### 9.1.2 Map-model assembly overlay [i](#)



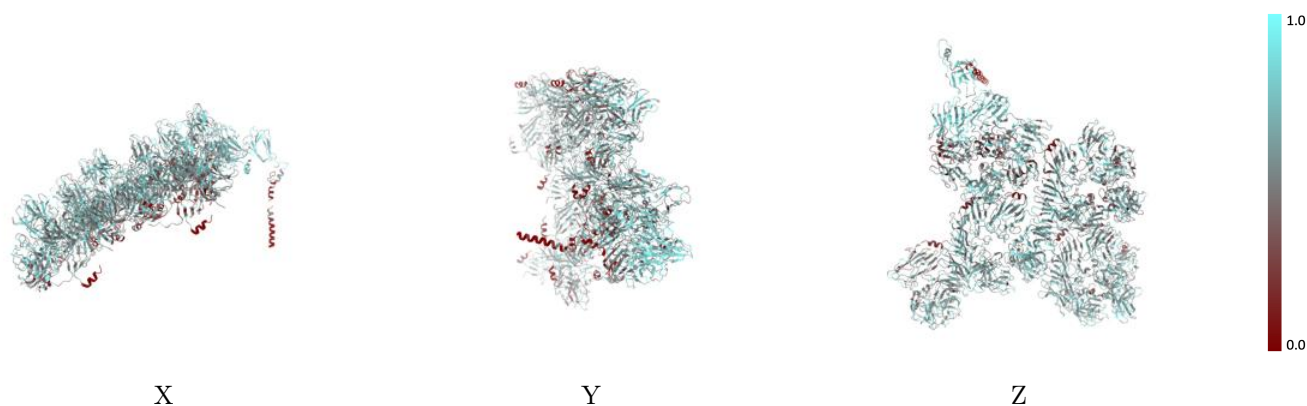
The images above show the 3D surface view of the map at the recommended contour level 2.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



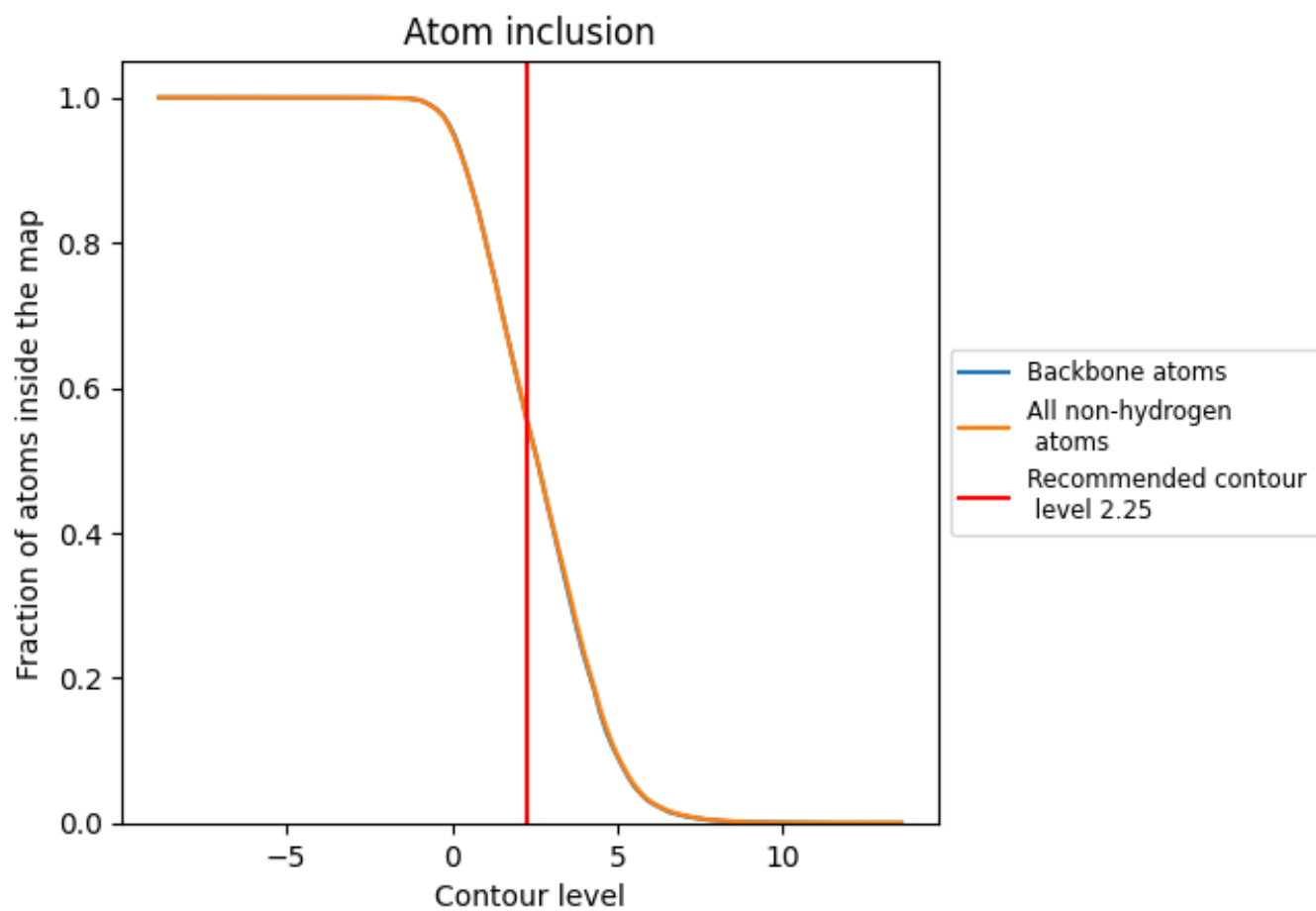
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (2.25).































































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 56% of all backbone atoms, 56% 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 (2.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5588	 0.3800
A	 0.5952	 0.3660
C	 0.5333	 0.3500
D	 0.6159	 0.4040
E	 0.5751	 0.3740
F	 0.6133	 0.4040
G	 0.5849	 0.3680
H	 0.6539	 0.3800
I	 0.5977	 0.3820
J	 0.6139	 0.3860
K	 0.6423	 0.4100
L	 0.6162	 0.3890
M	 0.5693	 0.3790
W	 0.3741	 0.3780
X	 0.1000	 0.1830
Y	 0.6316	 0.3840
a	 0.4785	 0.3400
b	 0.5469	 0.3920
c	 0.5477	 0.3970
d	 0.5800	 0.3850
e	 0.5562	 0.3910
f	 0.5292	 0.3760
g	 0.5540	 0.3830
h	 0.6689	 0.4000
i	 0.5062	 0.3770
j	 0.4954	 0.3320
k	 0.5692	 0.3910
l	 0.5516	 0.3950
m	 0.4577	 0.3520
n	 0.5492	 0.3770
o	 0.5338	 0.3770

