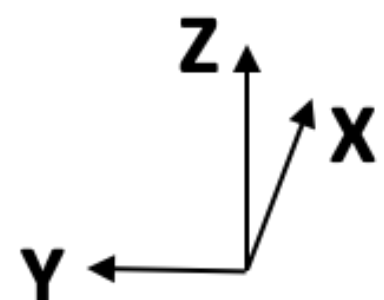
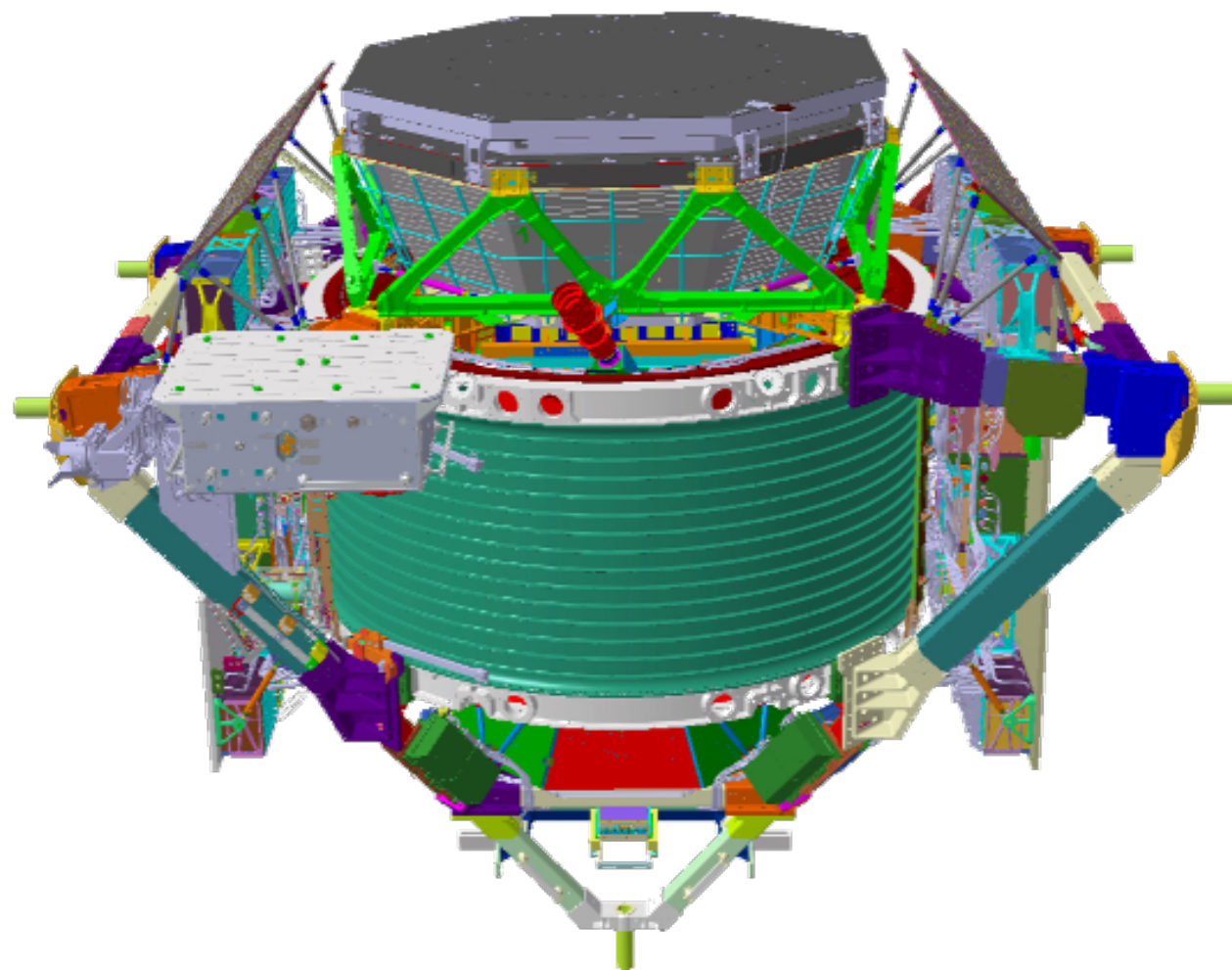


L0 quarter plane vibration test

Preliminary fixture design and shaker description

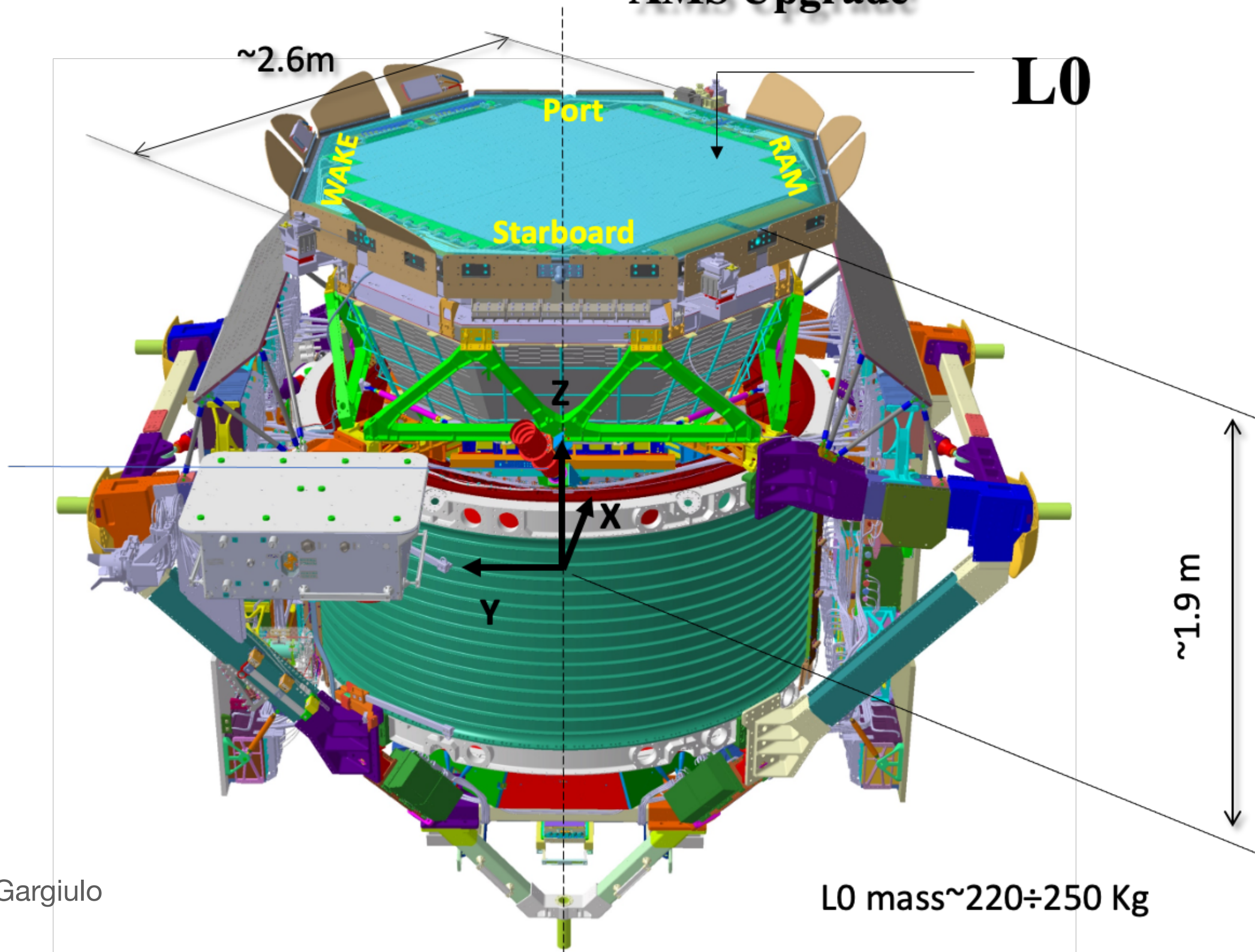
AMS-2.2 - Layer 0 overview

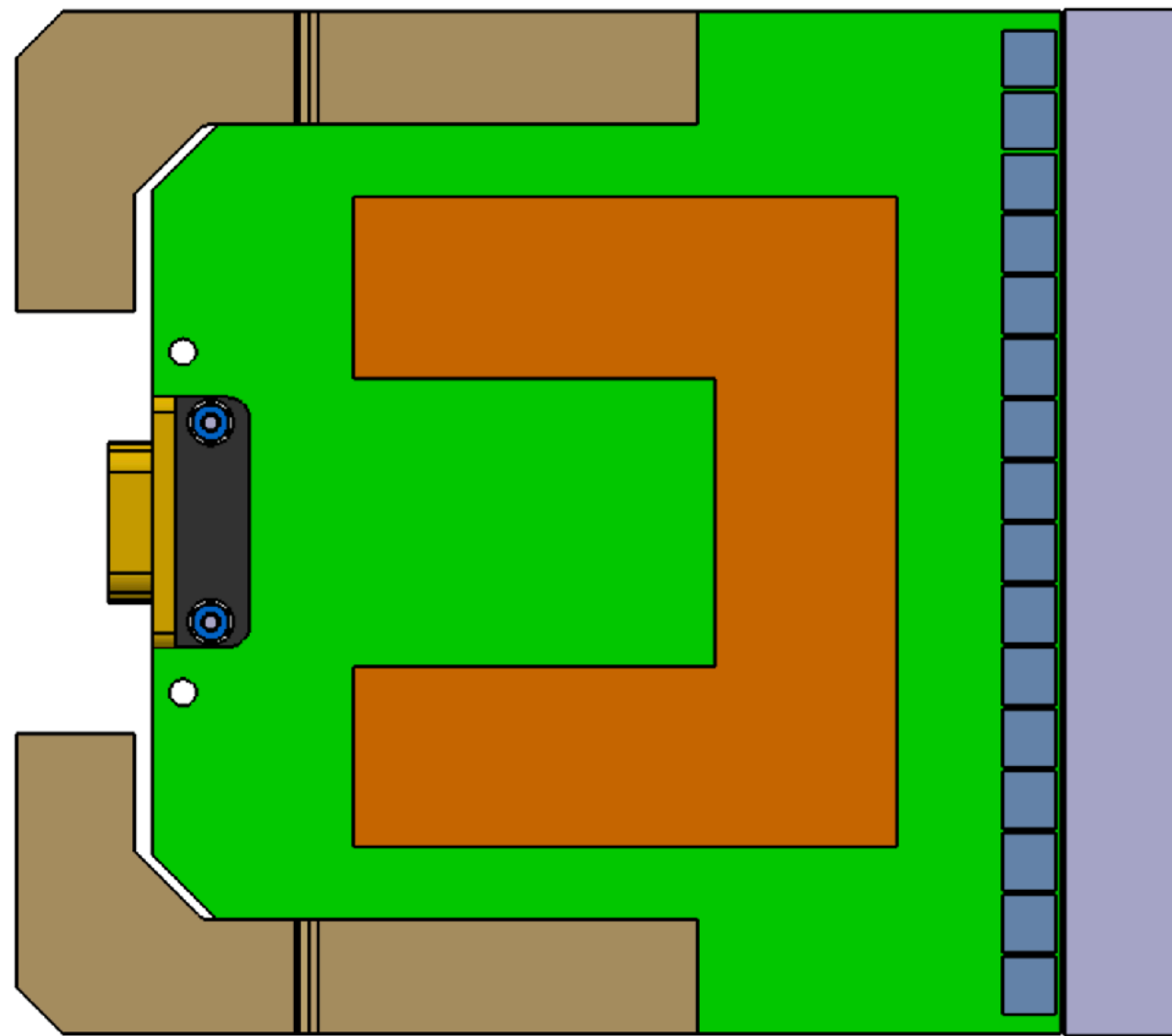
AMS-02 present layout



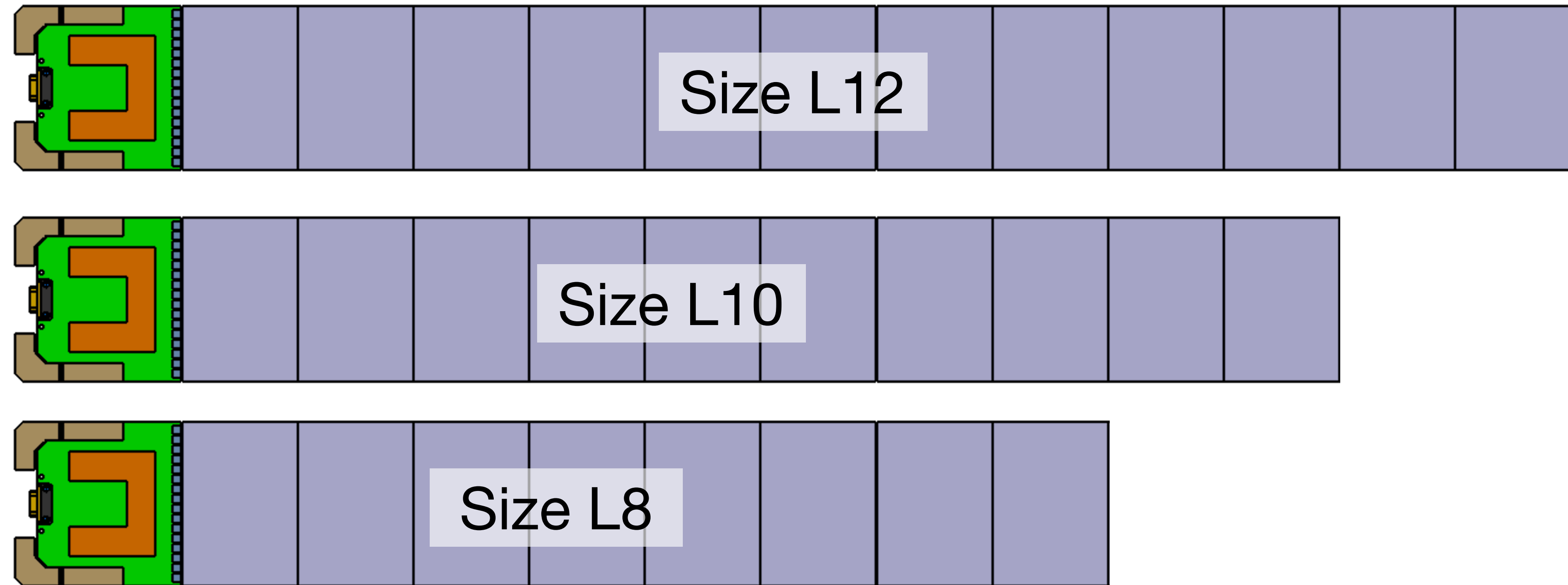
From C.Gargiulo

AMS Upgrade



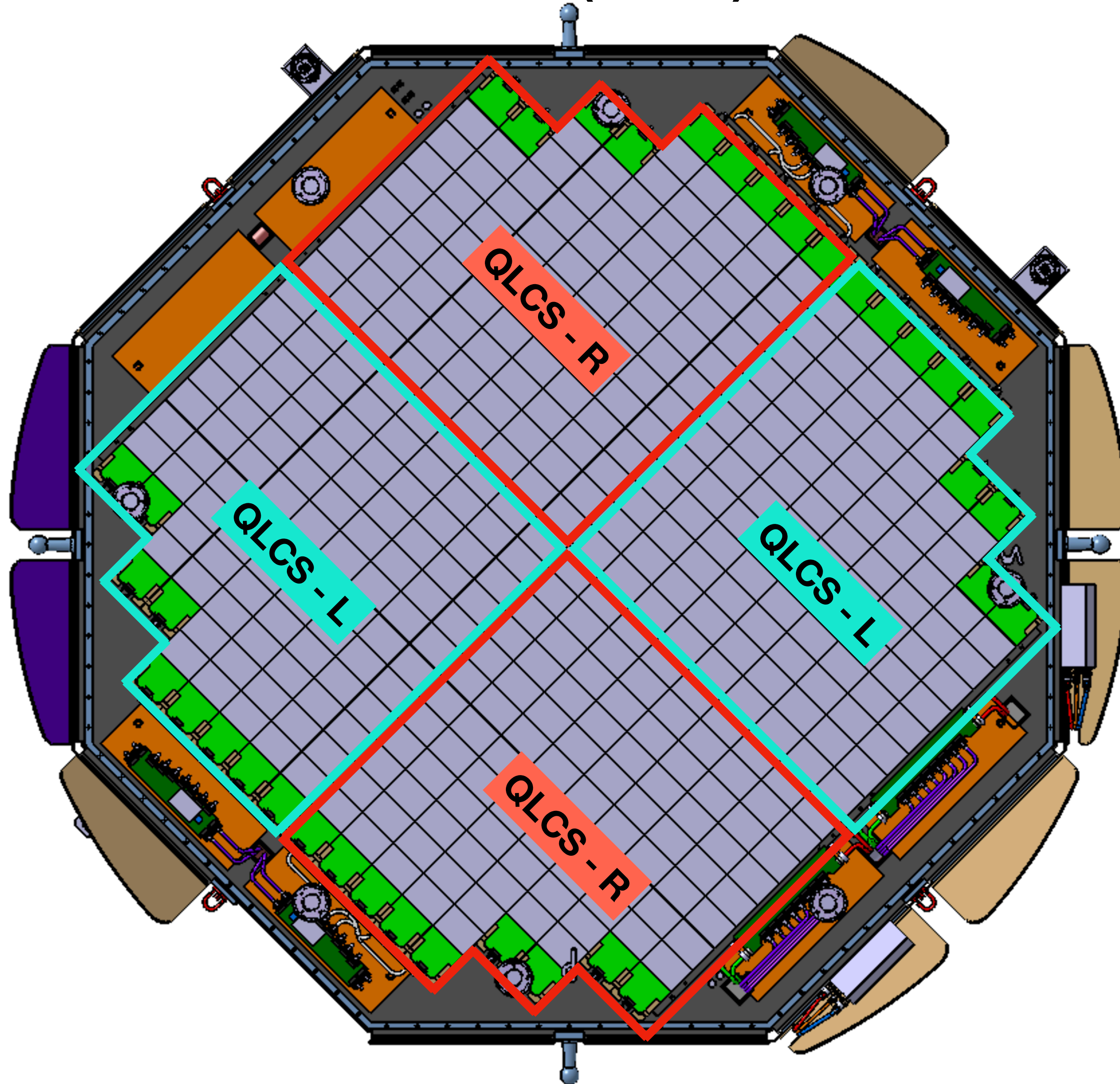


Ladder front end electronics (LEF)

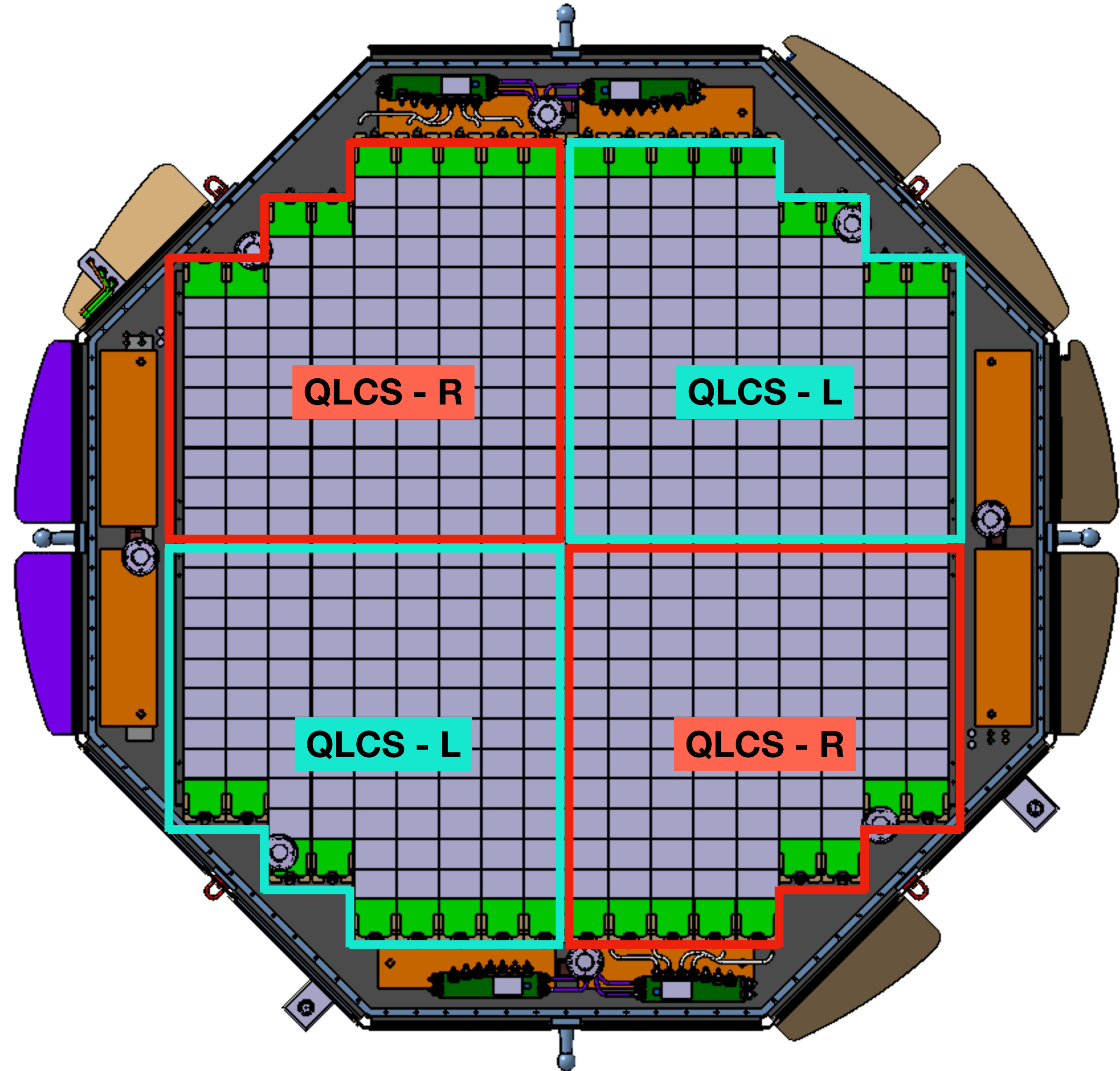


Ladder integration on 4/4 plane

U-Plane (Zenith)

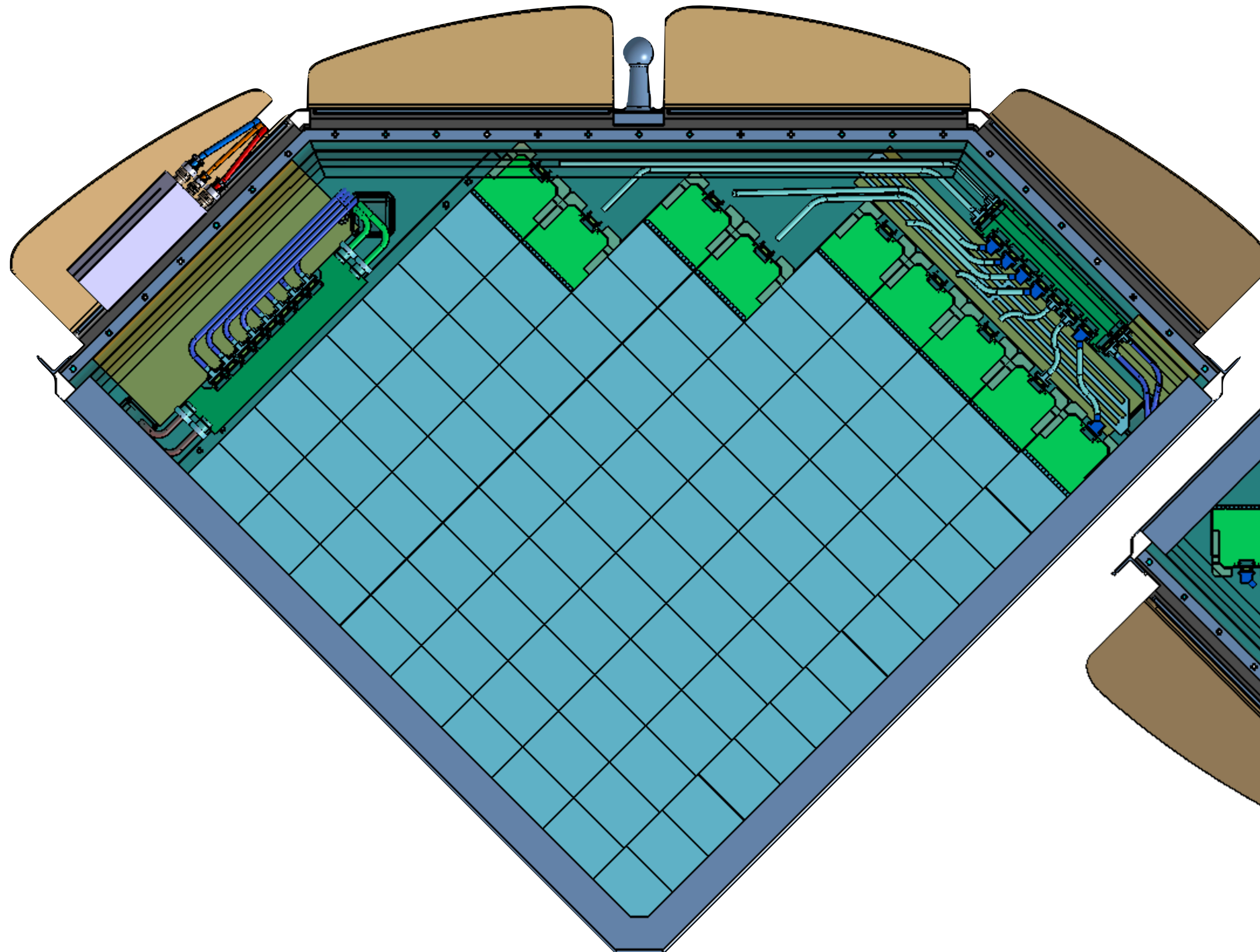


Y-Plane (Nadir)

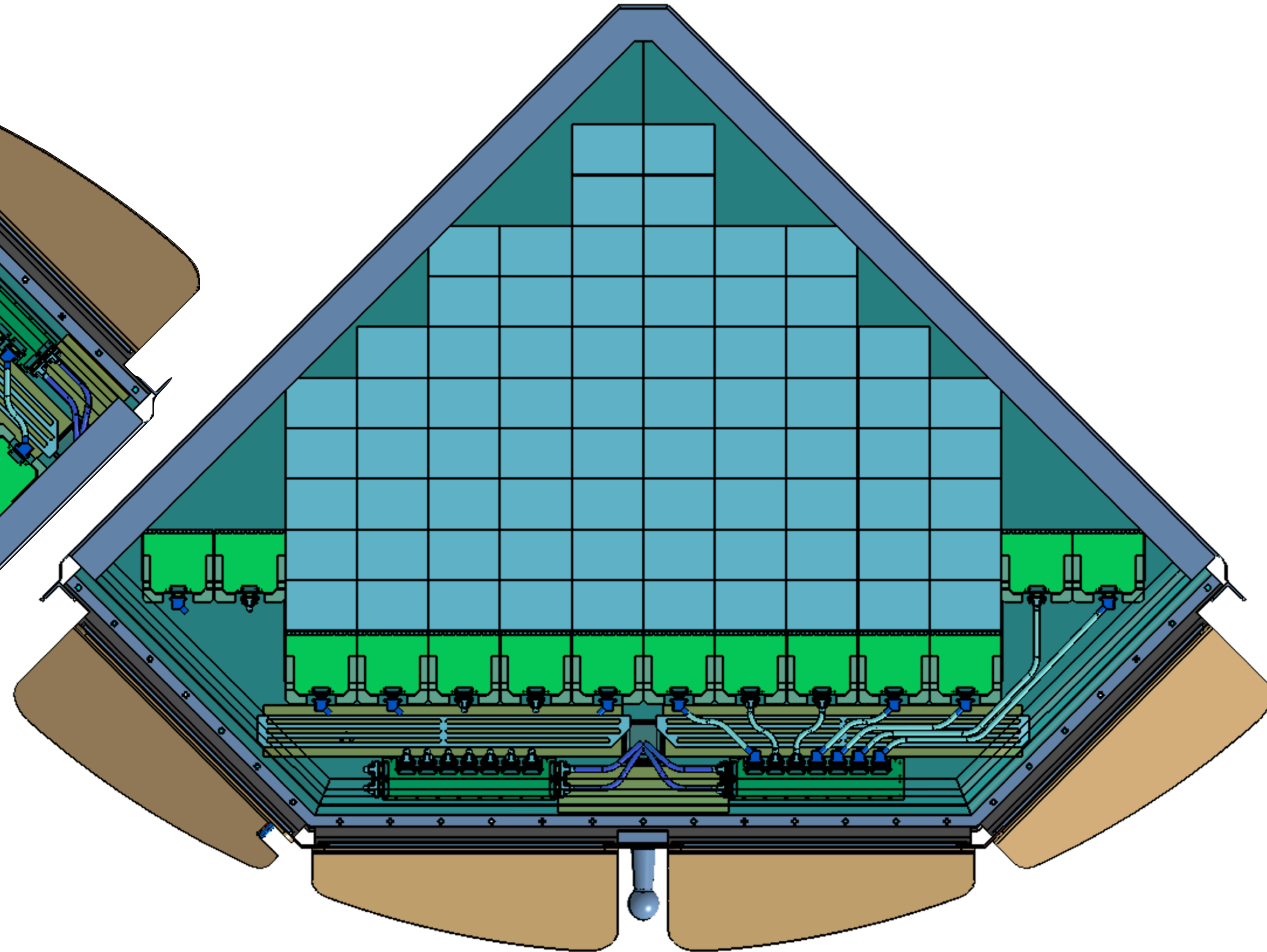


AMS-2.2 - Layer 0 quarter plane

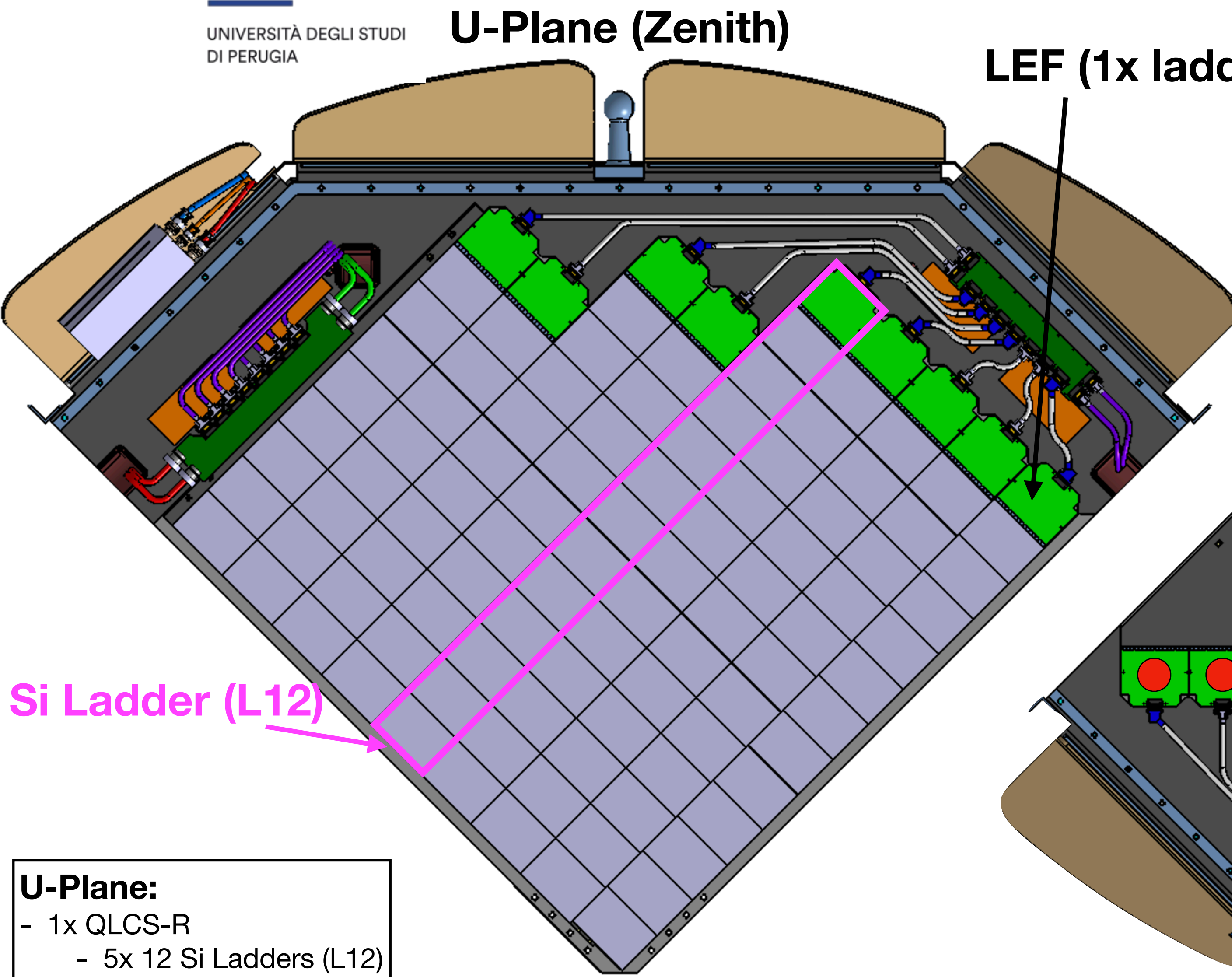
U-Plane (Zenith)



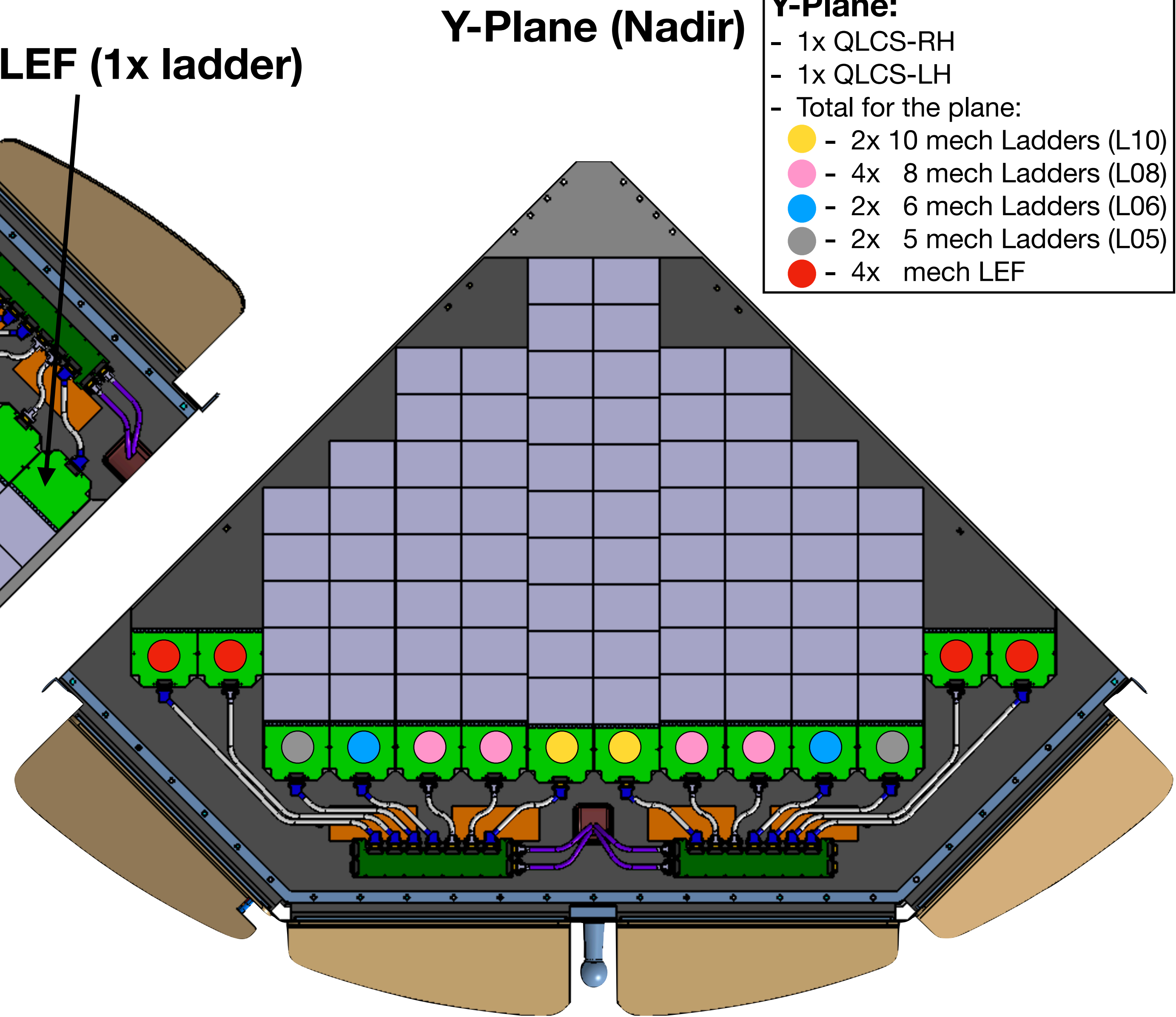
Y-Plane (Nadir)



AMS-2.2 - Layer 0 quarter plane



- U-Plane:**
- 1x QLCS-R
 - 5x 12 Si Ladders (L12)
 - 2x 10 Si Ladders (L10)
 - 2x 8 Si Ladders (L08)

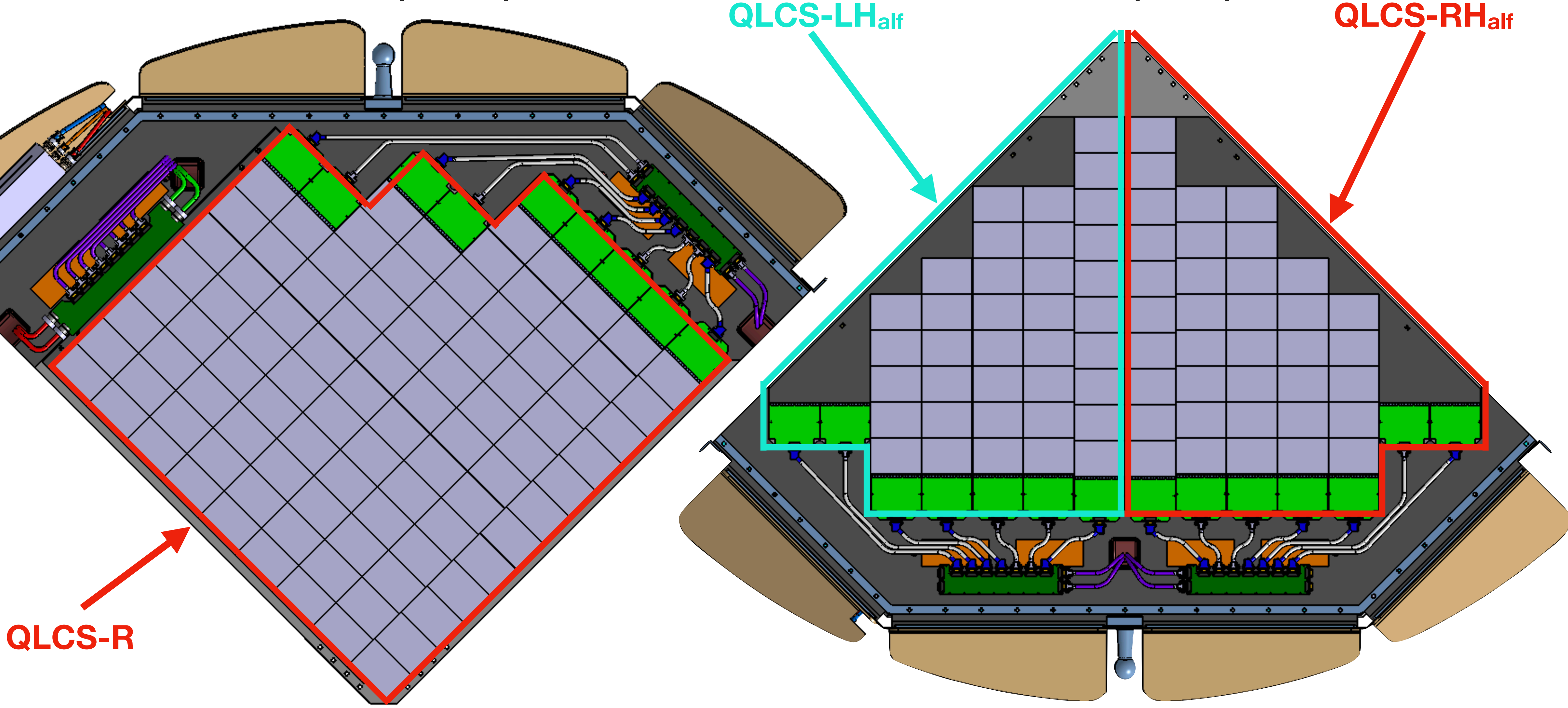


- Y-Plane:**
- 1x QLCS-RH
 - 1x QLCS-LH
 - Total for the plane:
 - - 2x 10 mech Ladders (L10)
 - - 4x 8 mech Ladders (L08)
 - - 2x 6 mech Ladders (L06)
 - - 2x 5 mech Ladders (L05)
 - - 4x mech LEF

AMS-2.2 - Layer 0 quarter plane

U-Plane (Zenith)

Y-Plane (Nadir)



AMS-2.2 - Layer 0 quarter plane

U-Plane (Zenith)

DC/DC converter

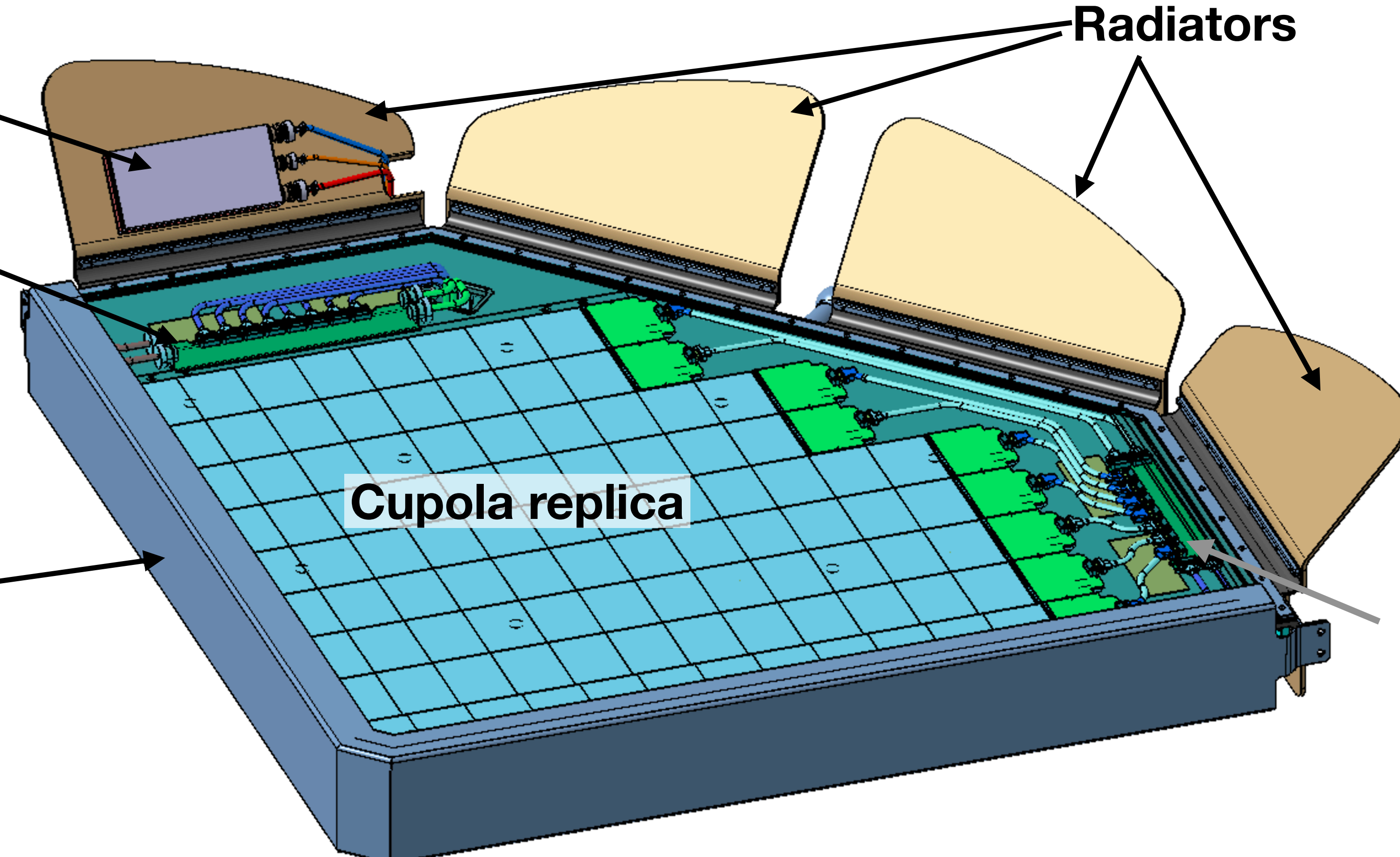
LINJ

Cupola
side structure

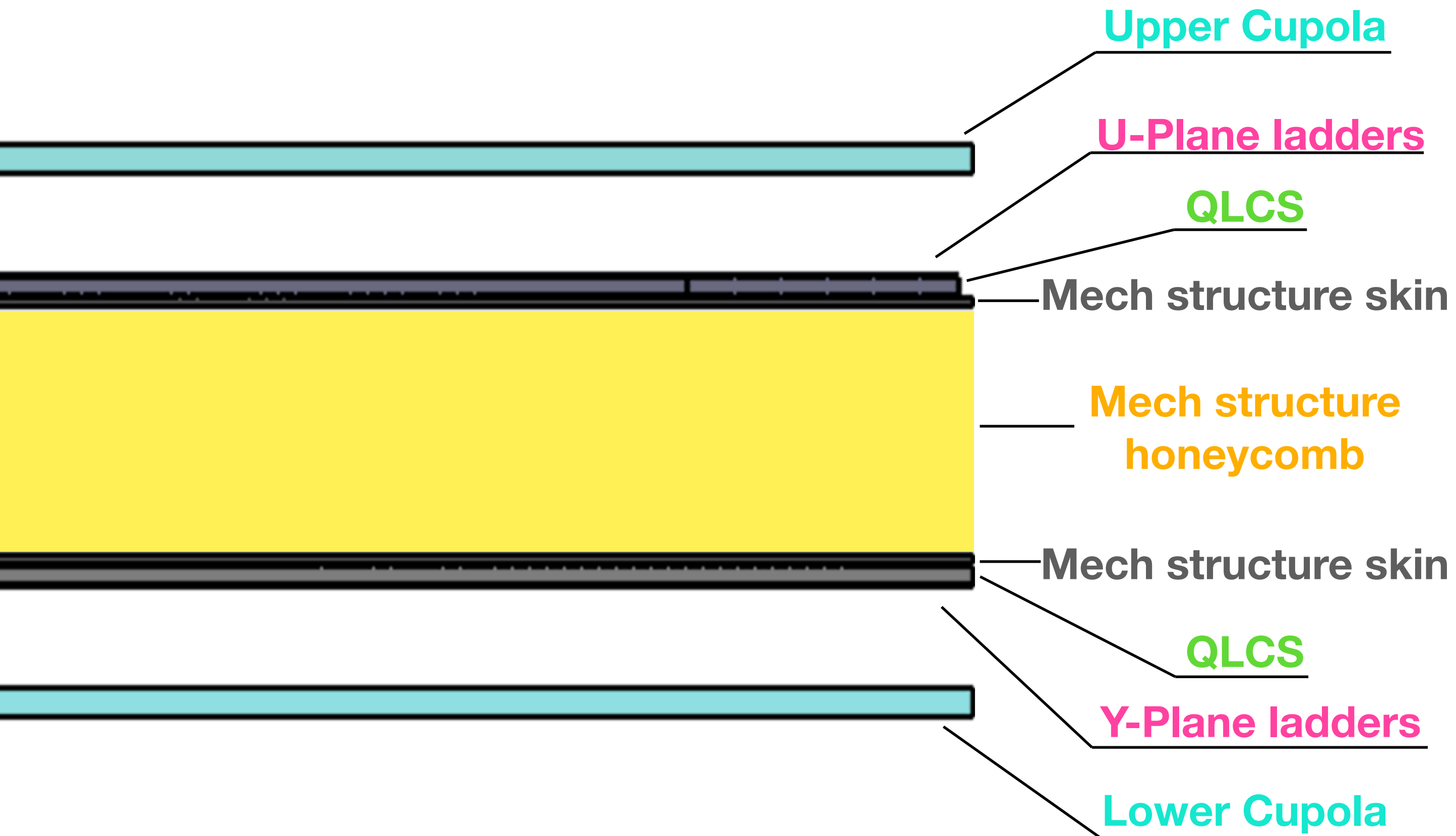
Cupola replica

Radiators

LINF



AMS-2.2 - Layer 0 quarter plane



Cupolas*:

- Top skin: K13D2U/EX1515, 0.2 mm
- Core: Hexcel CRIII-3/16-5056-.001-3.1, 8.0 mm
- Bottom skin: K13D2U/EX1515, 0.2 mm

QLCSs:

- Top skin: M55J/EX1515, 0.3 mm
- Core: CF Honeycomb, 5.0 mm
- Bottom skin: M55J/EX1515, 0.3 mm

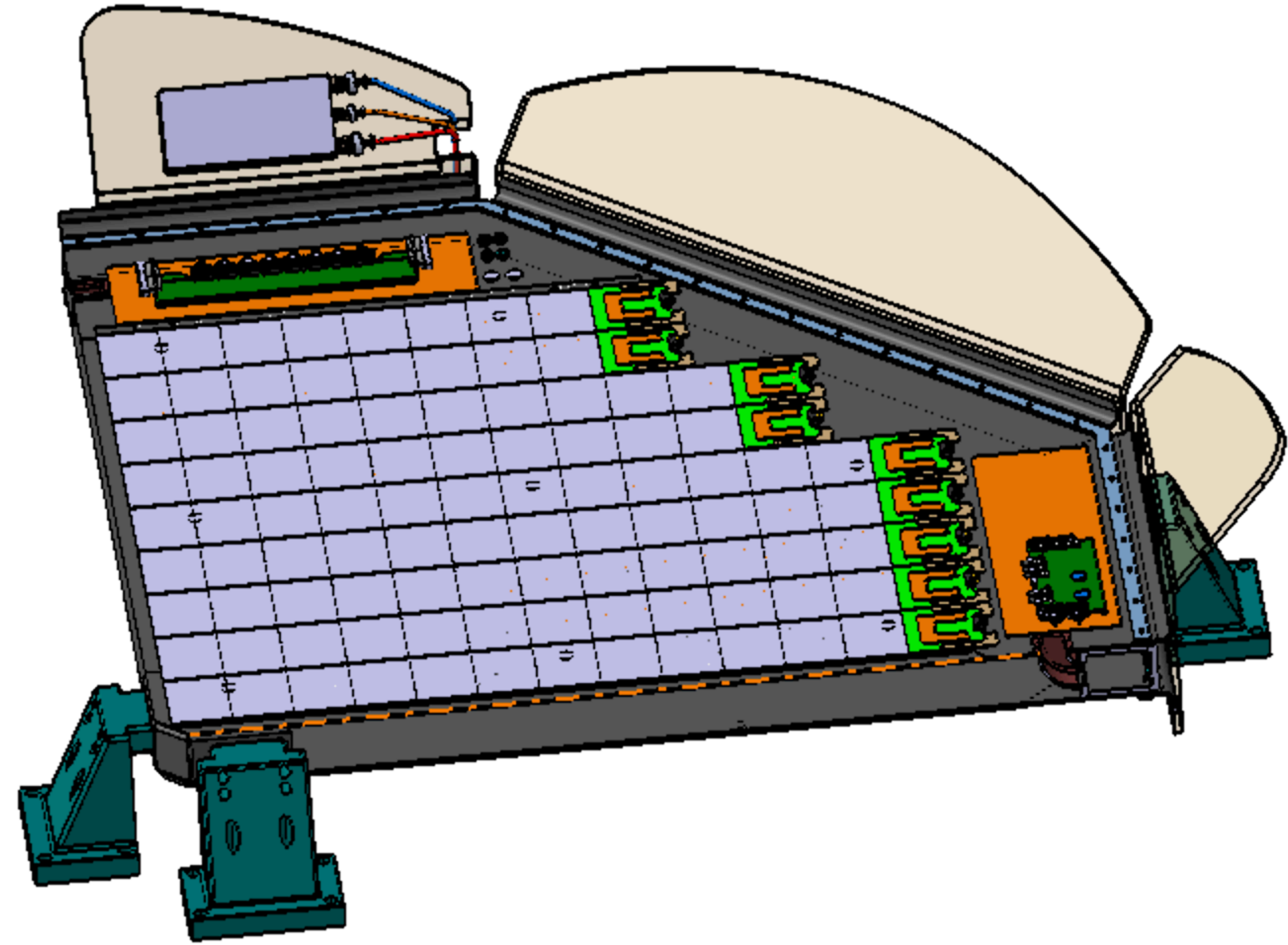
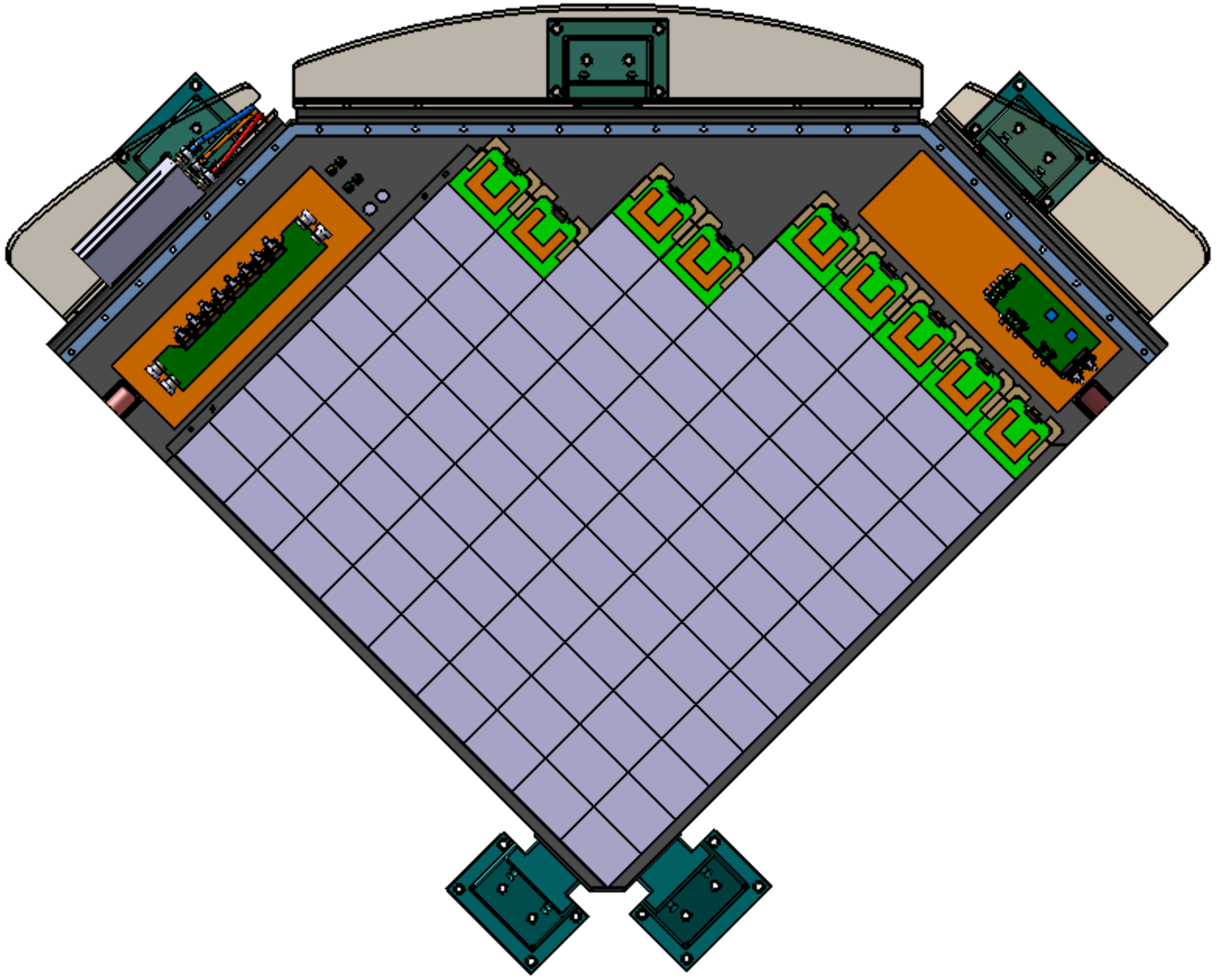
Mech structure*:

- Top skin: M55J/EX1515, 2.5 mm
- Core: CF Honeycomb, 70.0 mm
- Bottom skin: M55J/EX1515, 2.5 mm

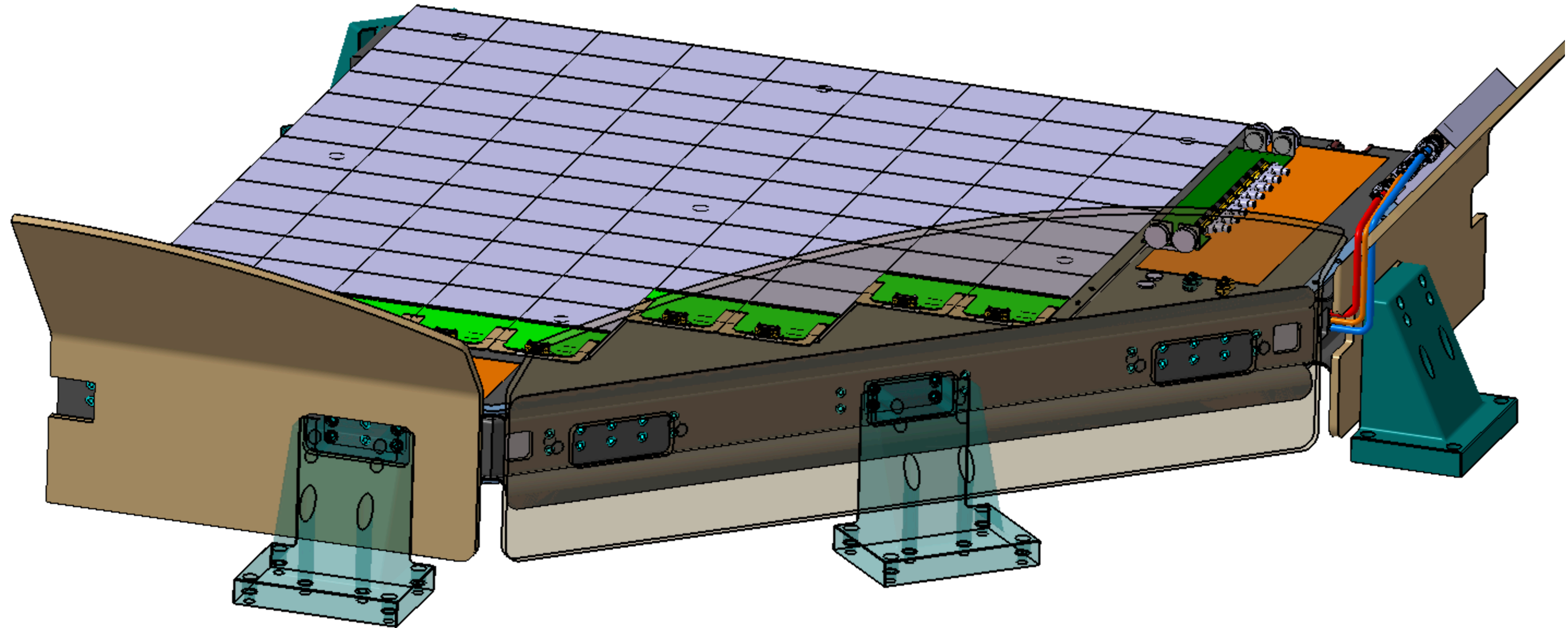
* From Corrado's presentations

Quarter plane fully constrained fixation

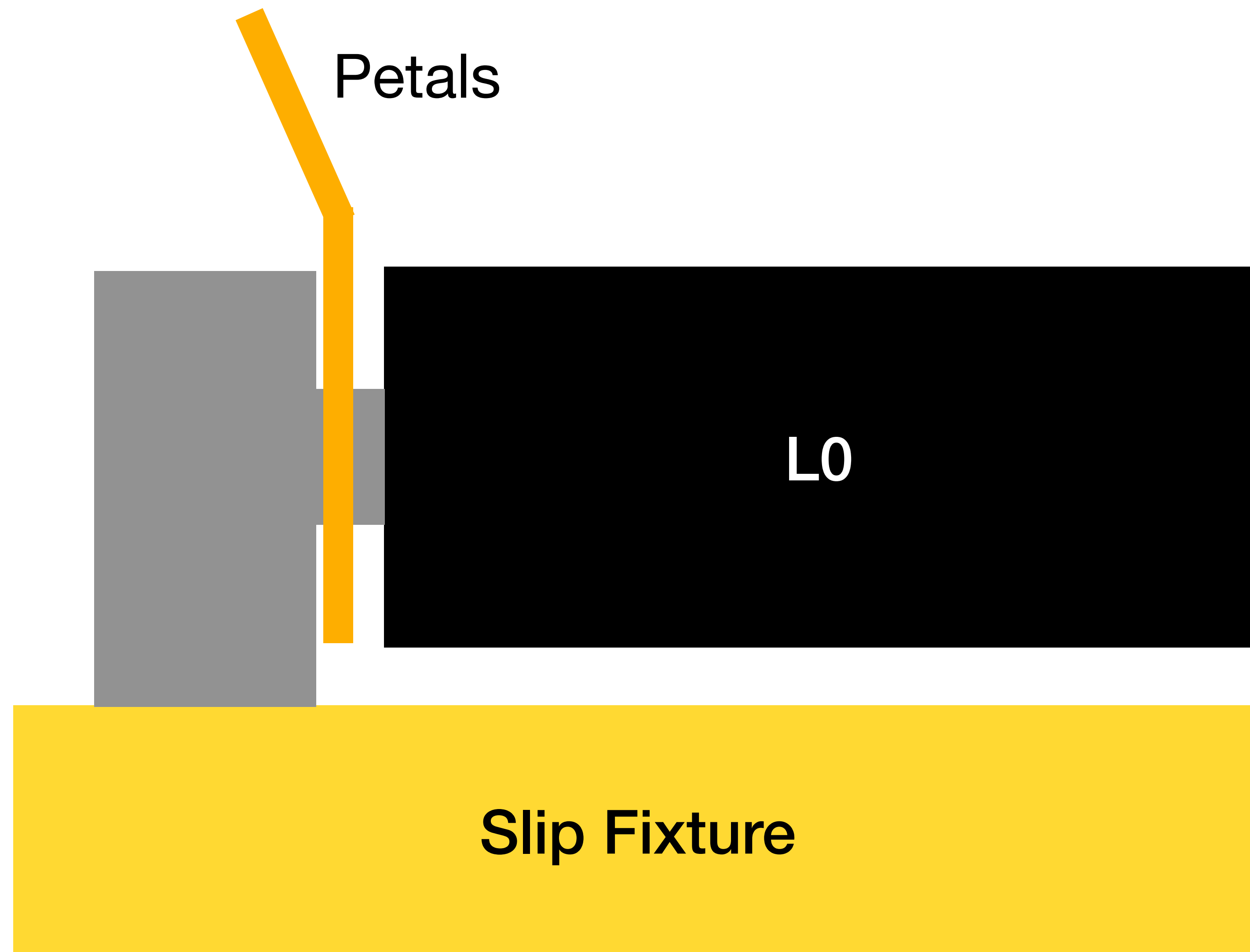
- Quarter plane mass: ~ 100 kg



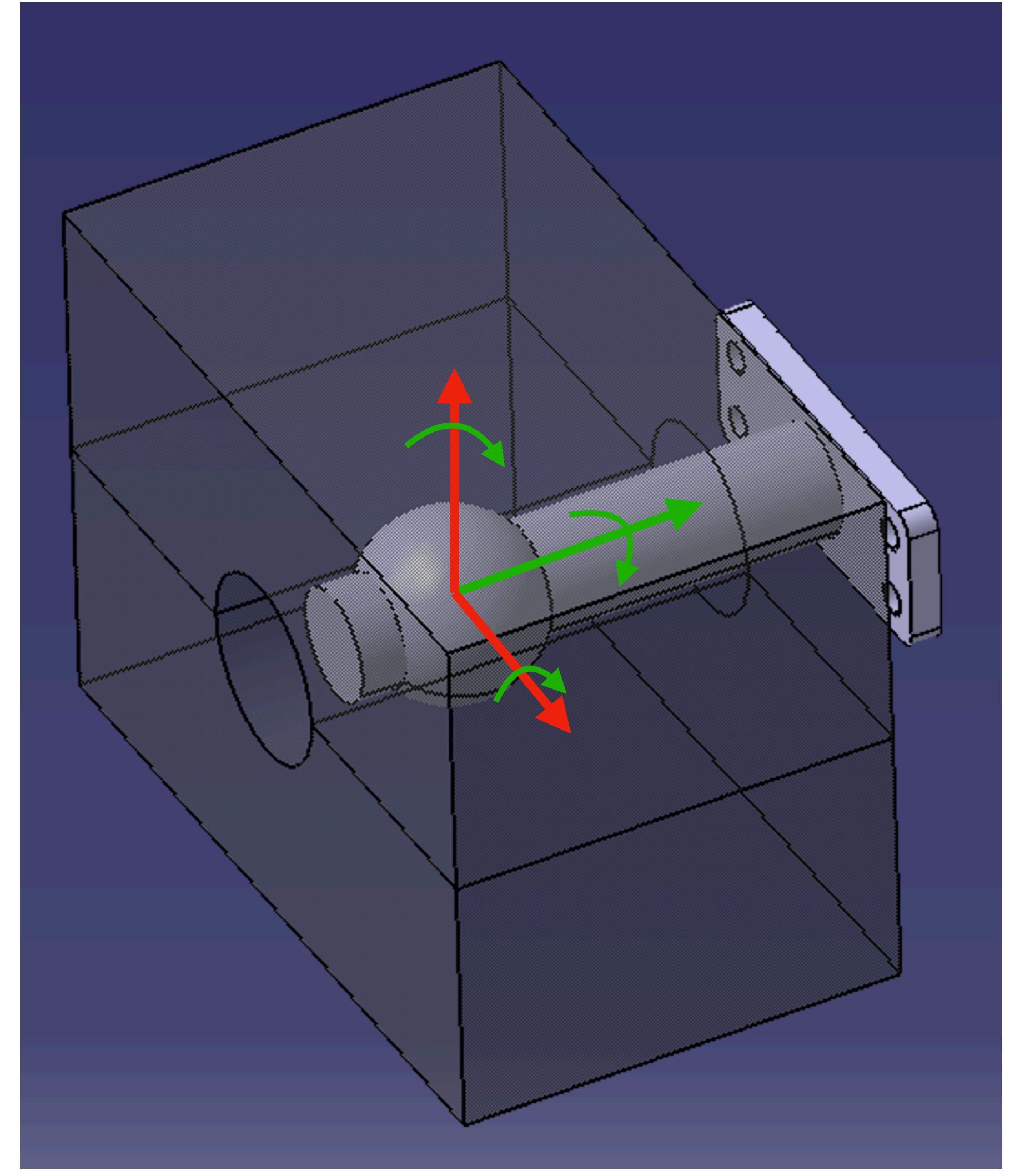
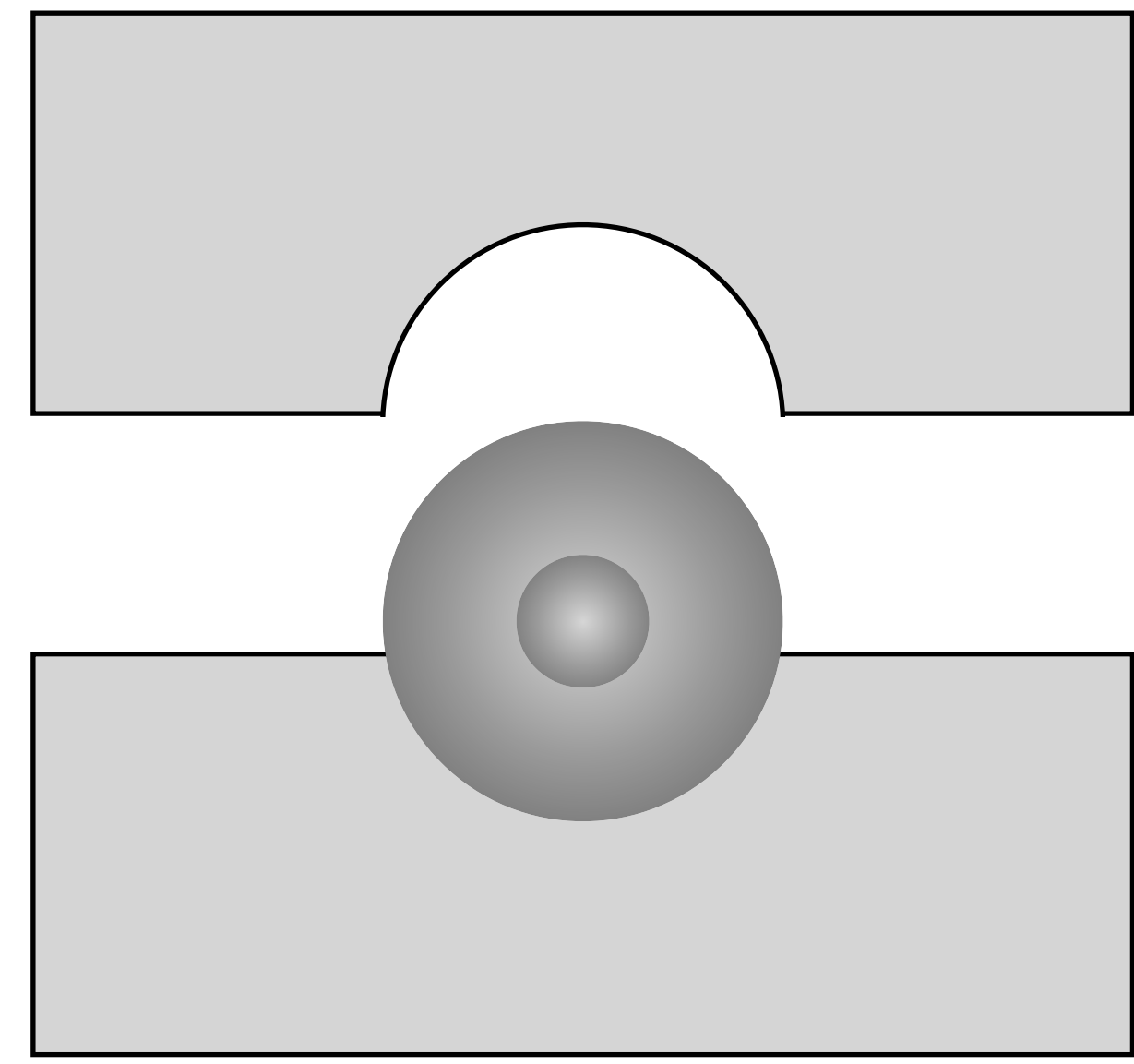
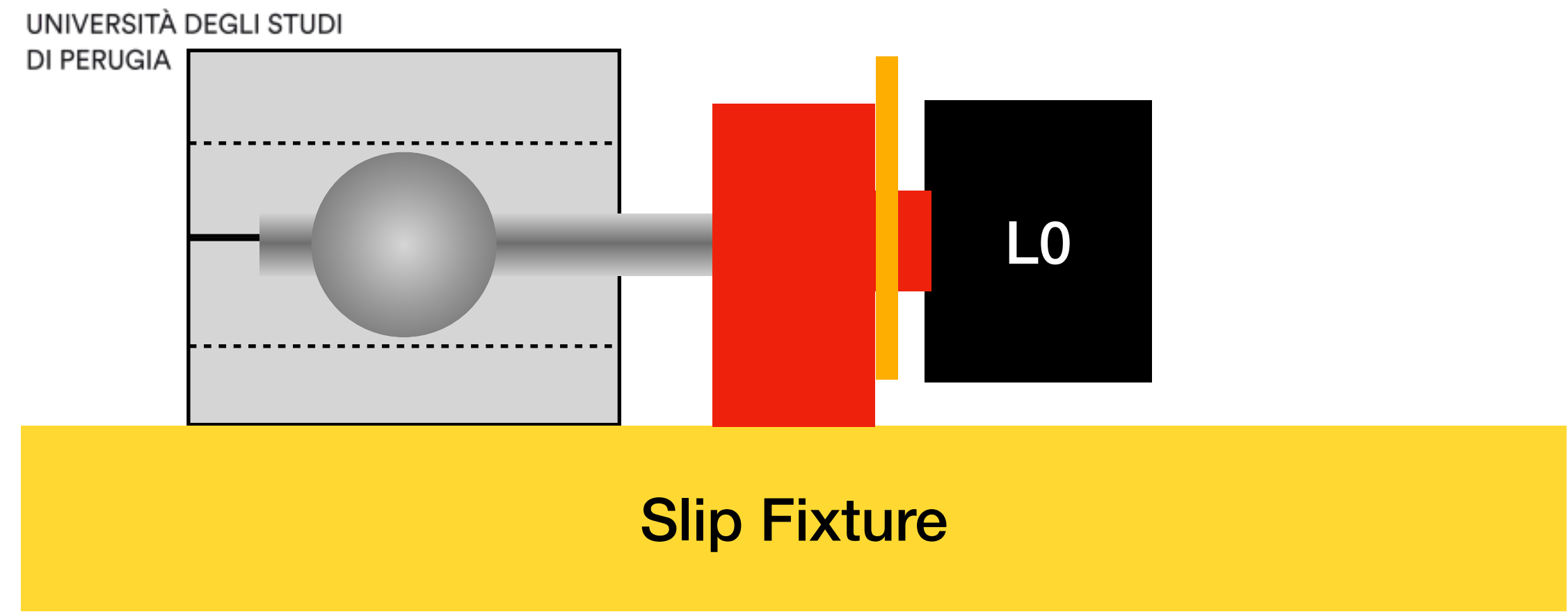
Quarter plane fully constrained fixation



Possible fixation QP/Shaker



Possible fixation L0/Shaker Fixture



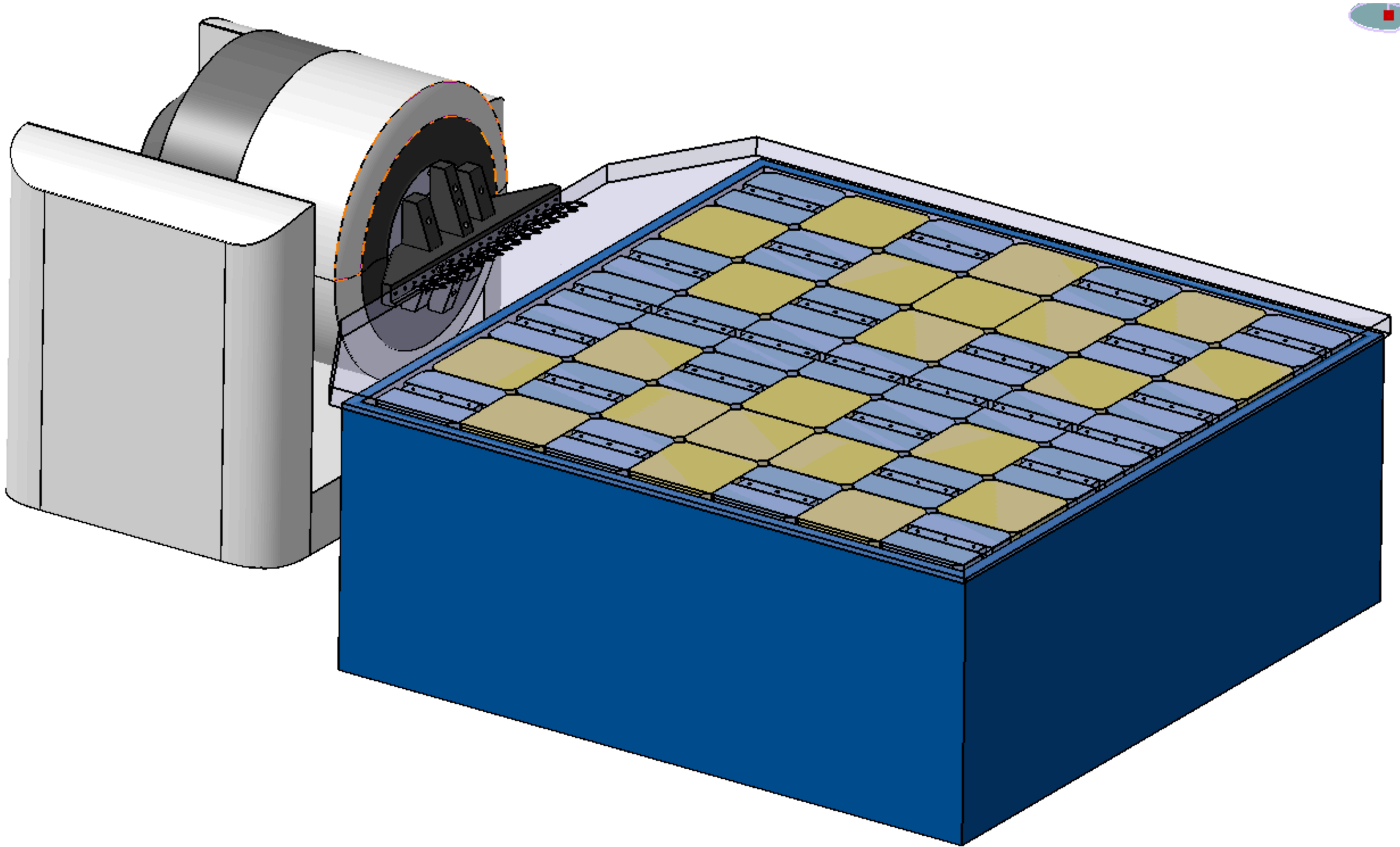
Electrodynamical shaker - TIRA

Table 2.1: Shaker operative parameters

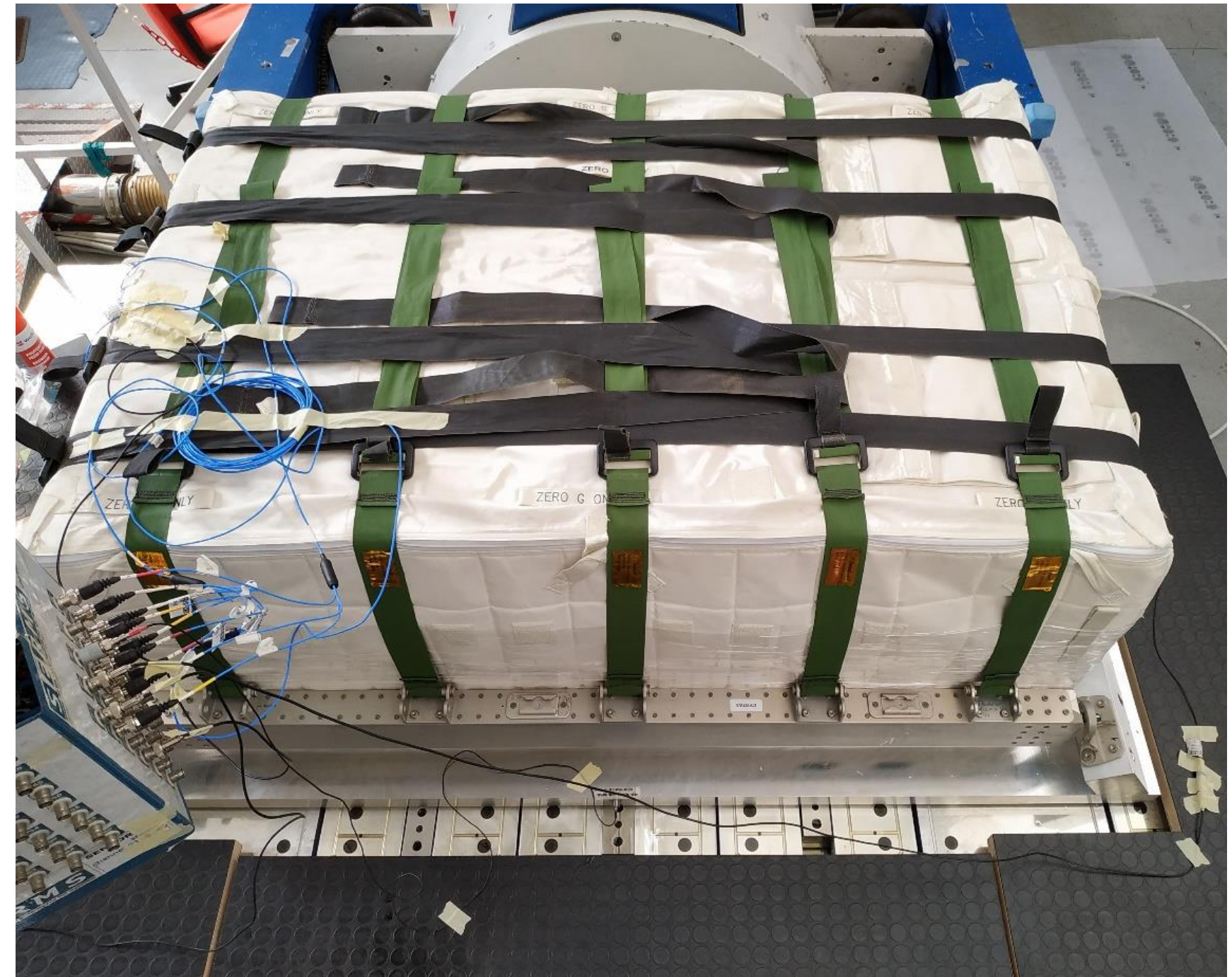
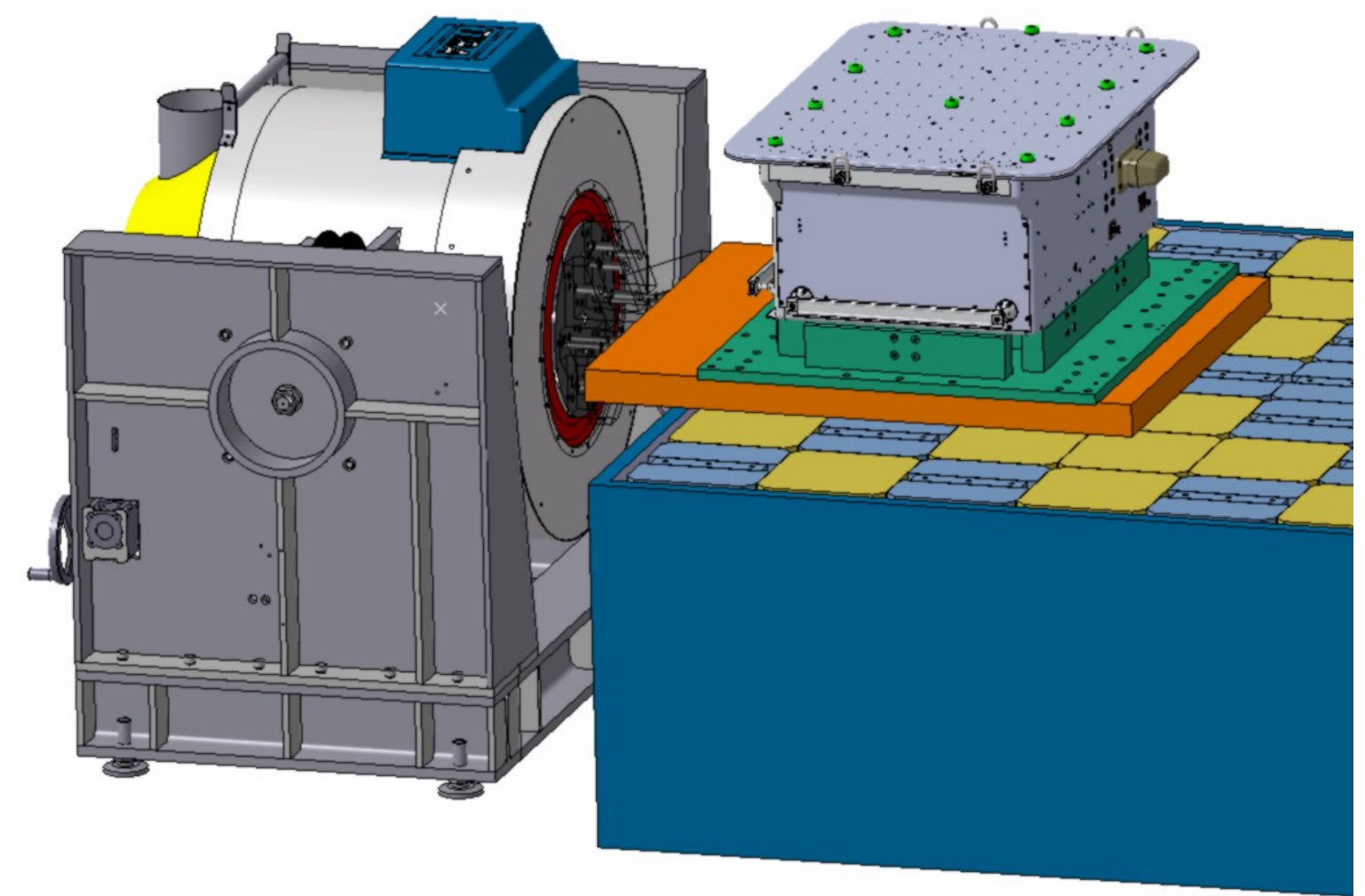
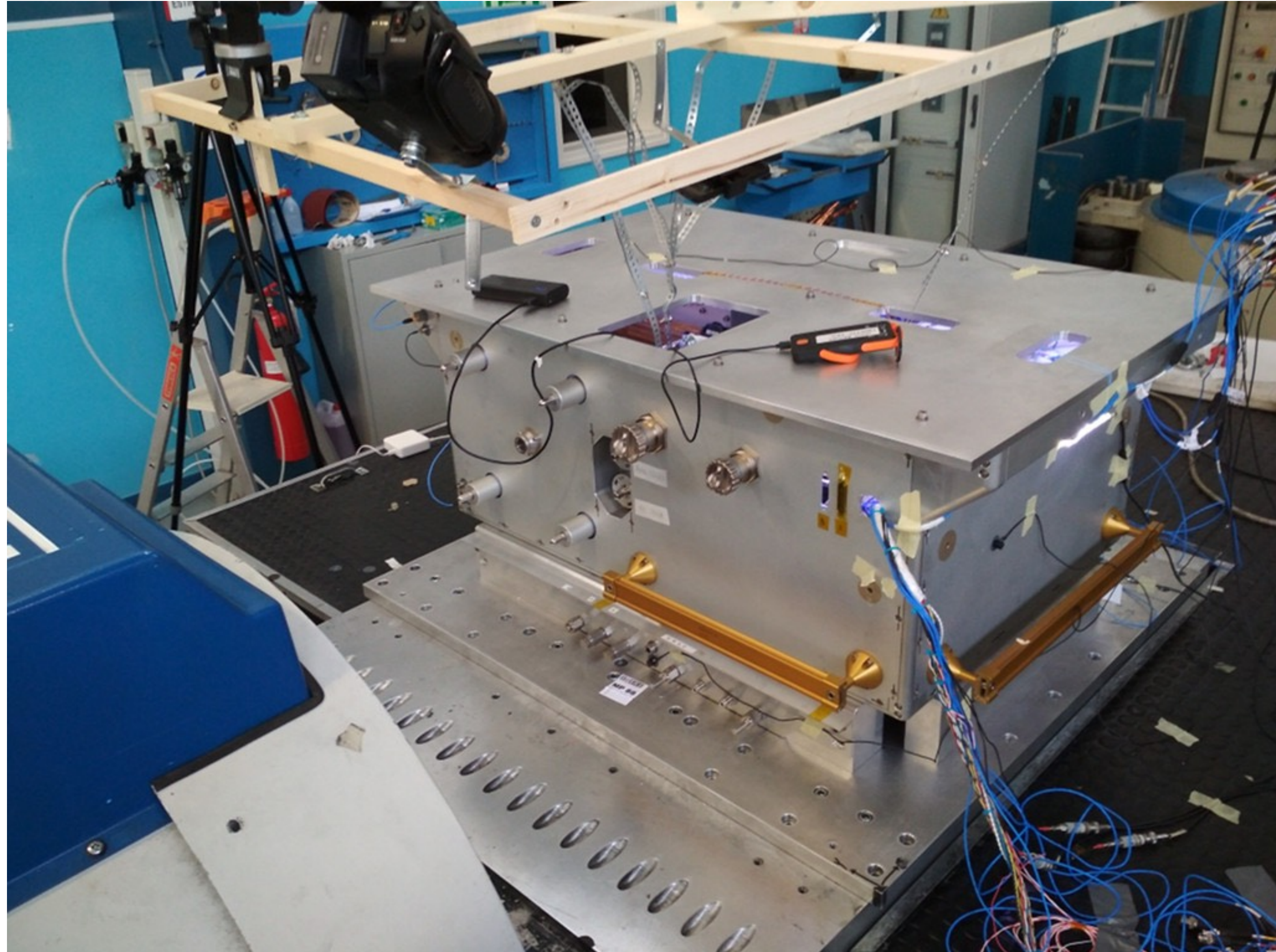
Frequency range:	5 Hz - 2000 Hz
Maximum force (sine):	45 kN
Maximum force (random):	135 kN
Maximum displacement:	50.8 mm (pk-pk)
Maximum velocity:	2 m/s
Maximum acceleration:	100 g



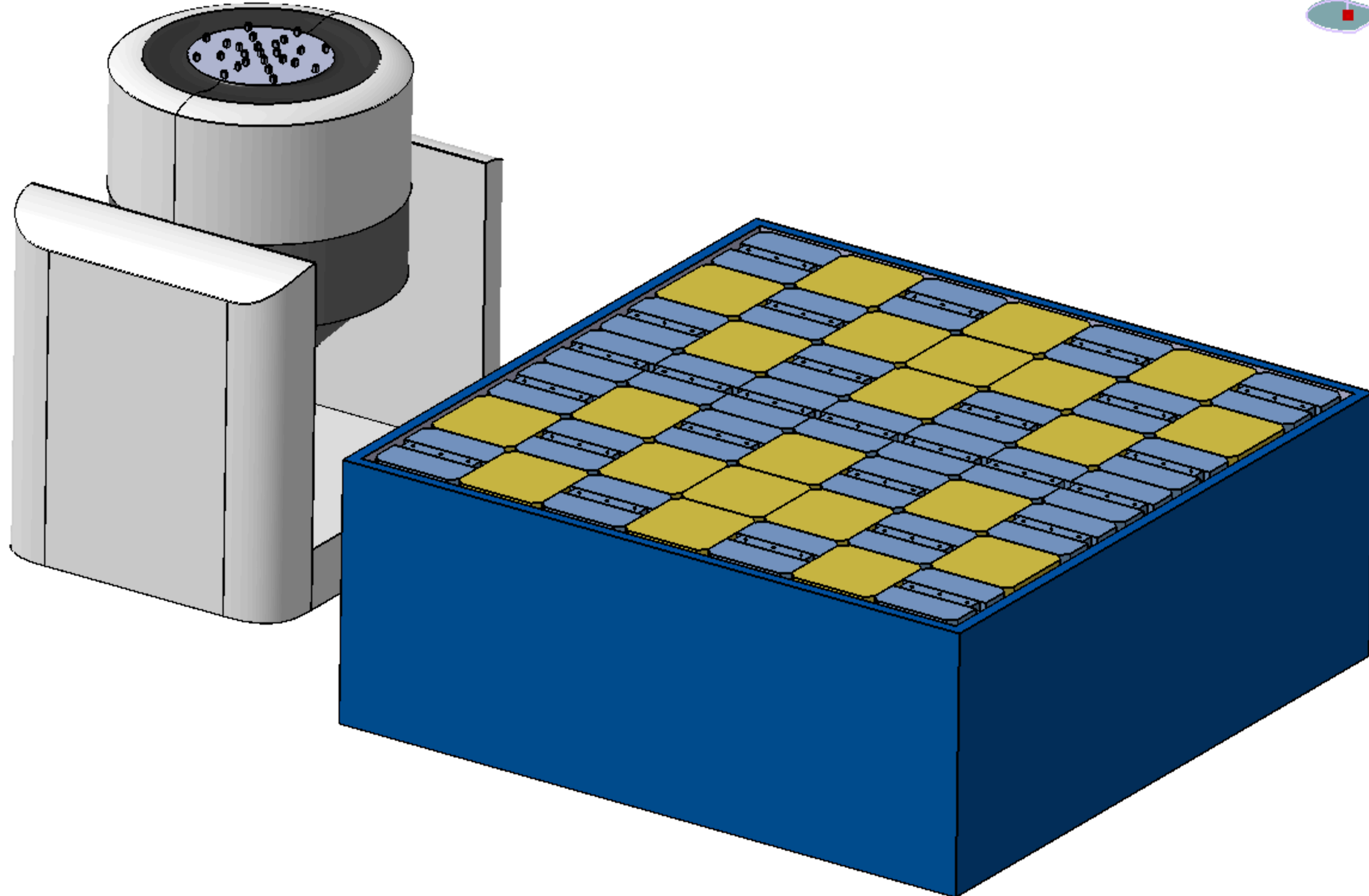
Shaker - Horizontal configuration



Shaker - Horizontal configuration



Shaker - Vertical configuration



Shaker - Vertical configuration



Space X - User manual requirements

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Random profile - Vertical Loads

Frequency [Hz]	Level [g ² /Hz]	Level +3dB [g ² /Hz]
20	0.02	0.04
40	0.02	0.04
60	0.05	0.10
200	0.05	0.10
250	0.08	0.16
450	0.08	0.16
750	0.01	0.02
2000	0.01	0.02
Overall grms:	7.01	9.90
Duration: 60 s		

Random profile - Horizontal Loads

Frequency [Hz]	Level [g ² /Hz]	Level +3dB [g ² /Hz]
20	0.02	0.04
40	0.02	0.04
60	0.05	0.10
200	0.05	0.10
300	0.08	0.16
2000	0.01	0.02
Overall grms:	5.88	8.31
Duration: 60 s per axis		

Pyroshock profile

Frequency [Hz]	JEM-EF Payload (Input to Payload) Shock MPE [G-Peak, Q=10]	JEM-EF Payload Shock MPE + 3dB [G-Peak, Q=10]
100	80	113
2500	2000	2825
10000	2000	2825