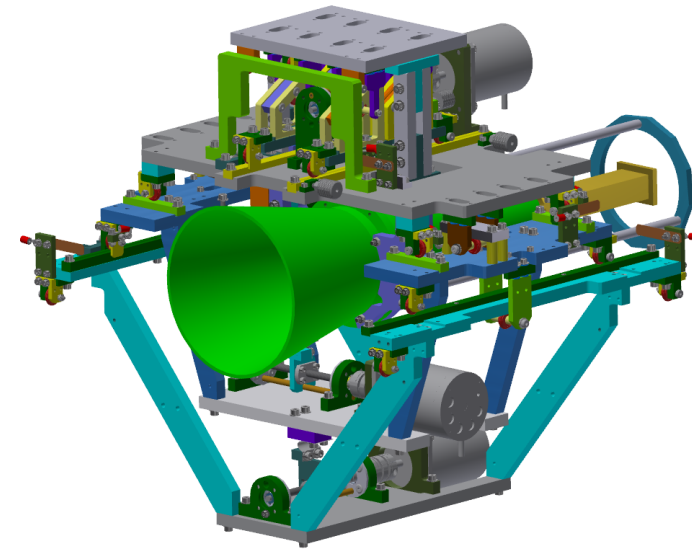
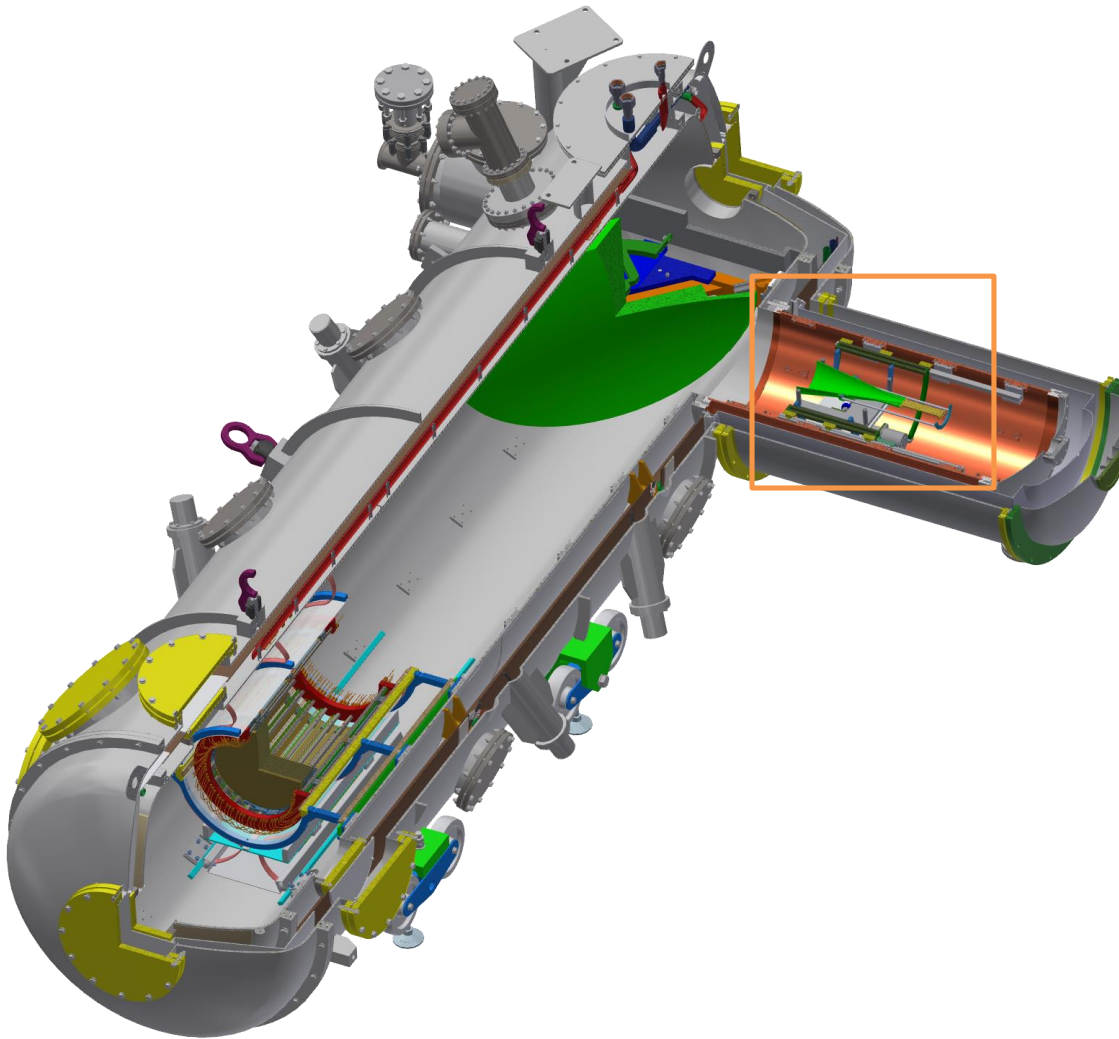


Horn Antenna Setup

Overview



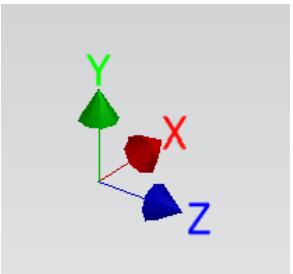
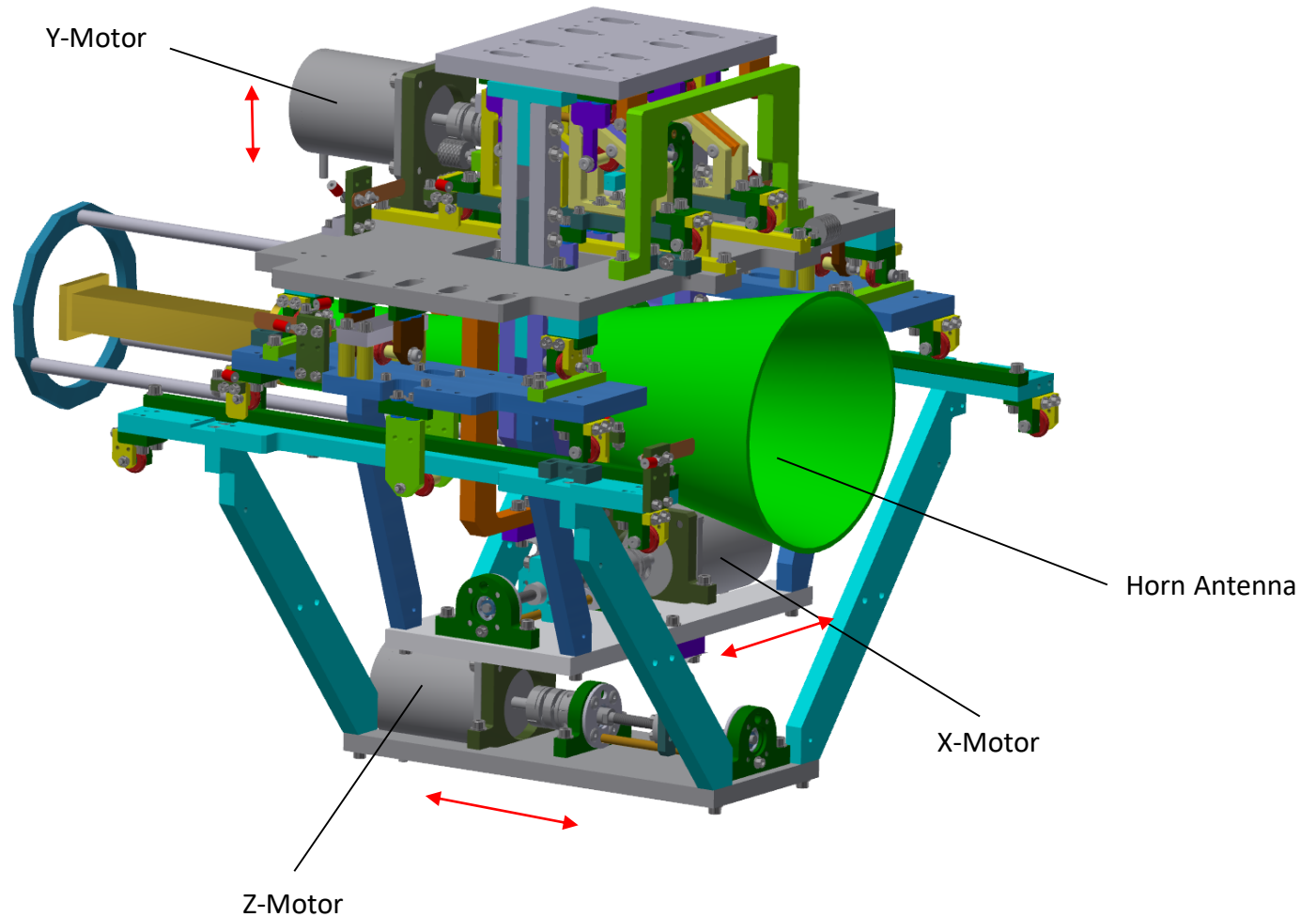
MADMAX Collaboration Meeting
Georg Obermüller
July 3rd 2025

Horn Antenna Setup

Structure

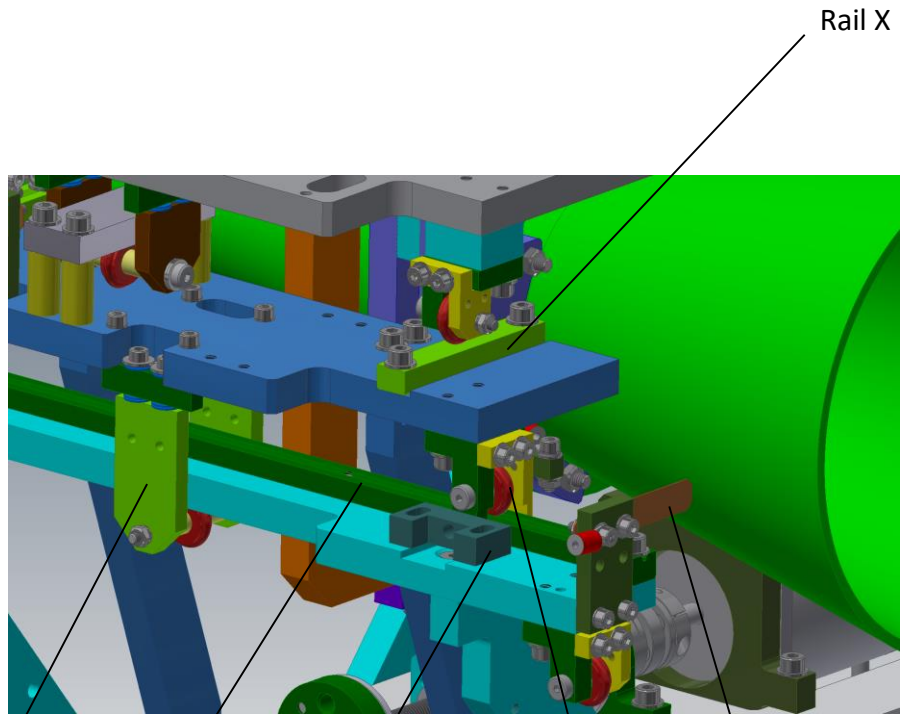
Step 3:

align antenna to
focussing mirror center by motors (X/Y/Z)
and by hand (tilt)



Horn Antenna Setup

Structure



Counter pressure
roller

Rail Z

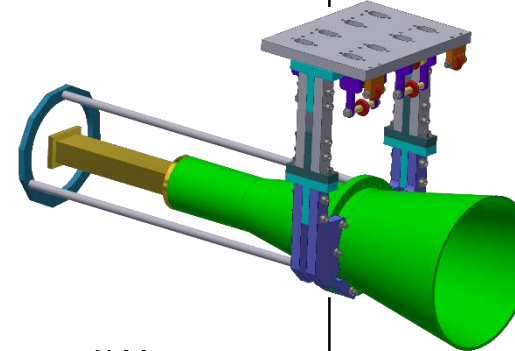
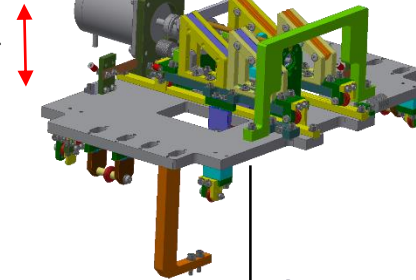
break

Roller unit

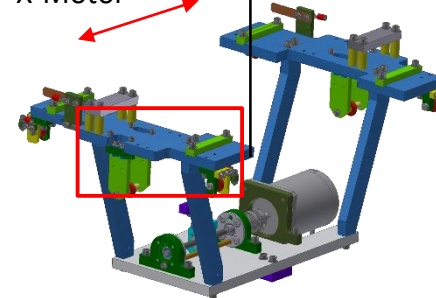
End switch

Rail X

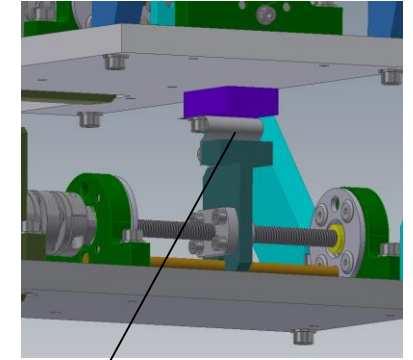
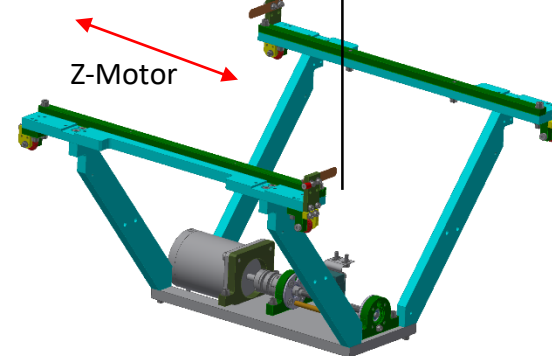
Y-Motor



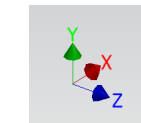
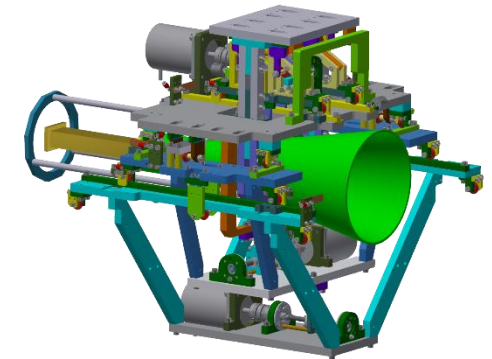
X-Motor



Z-Motor

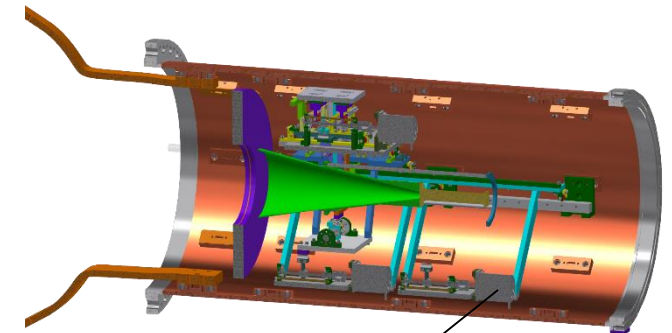
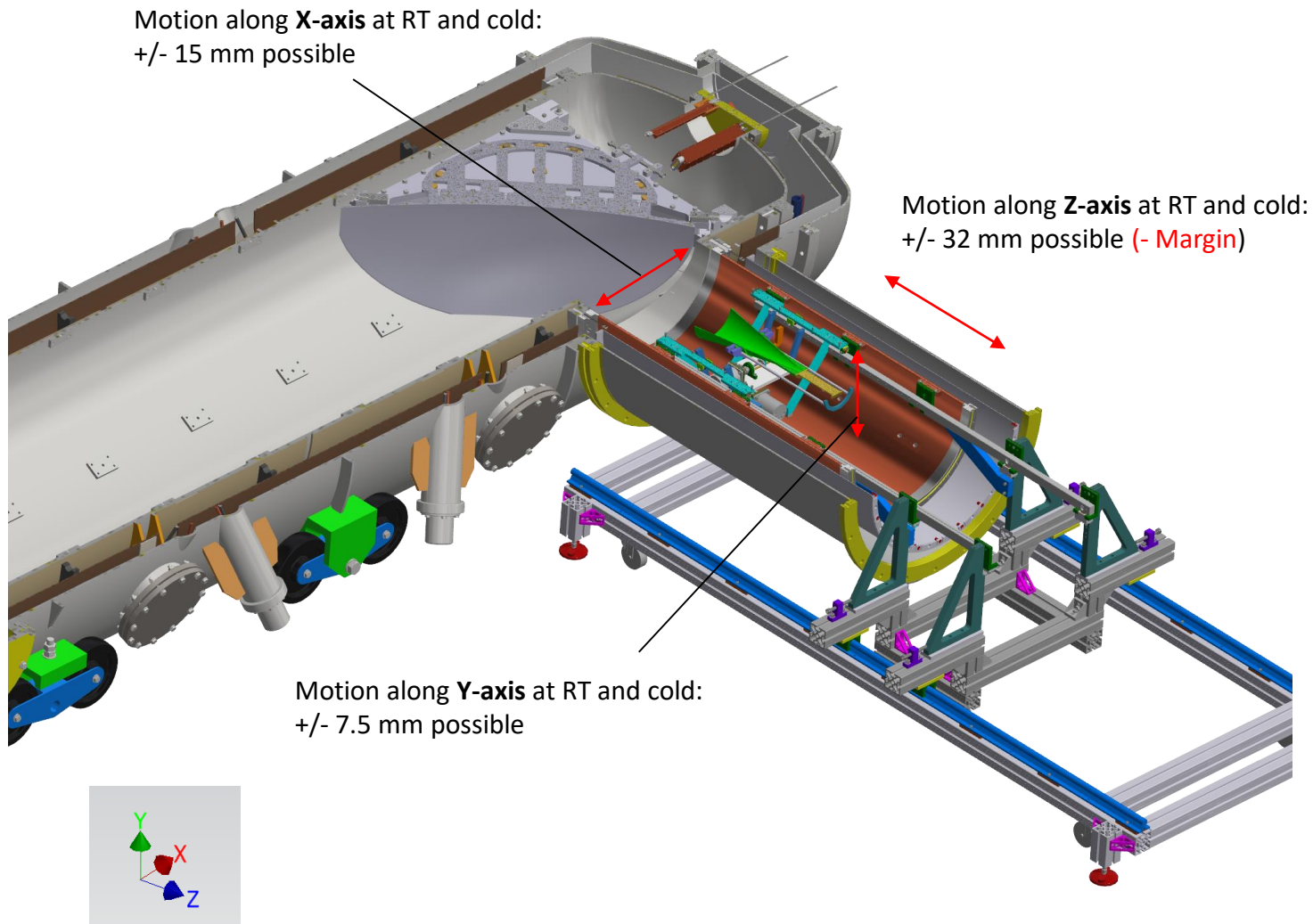


Levels connected by
metal strips



Horn Antenna Setup

Travel Ranges



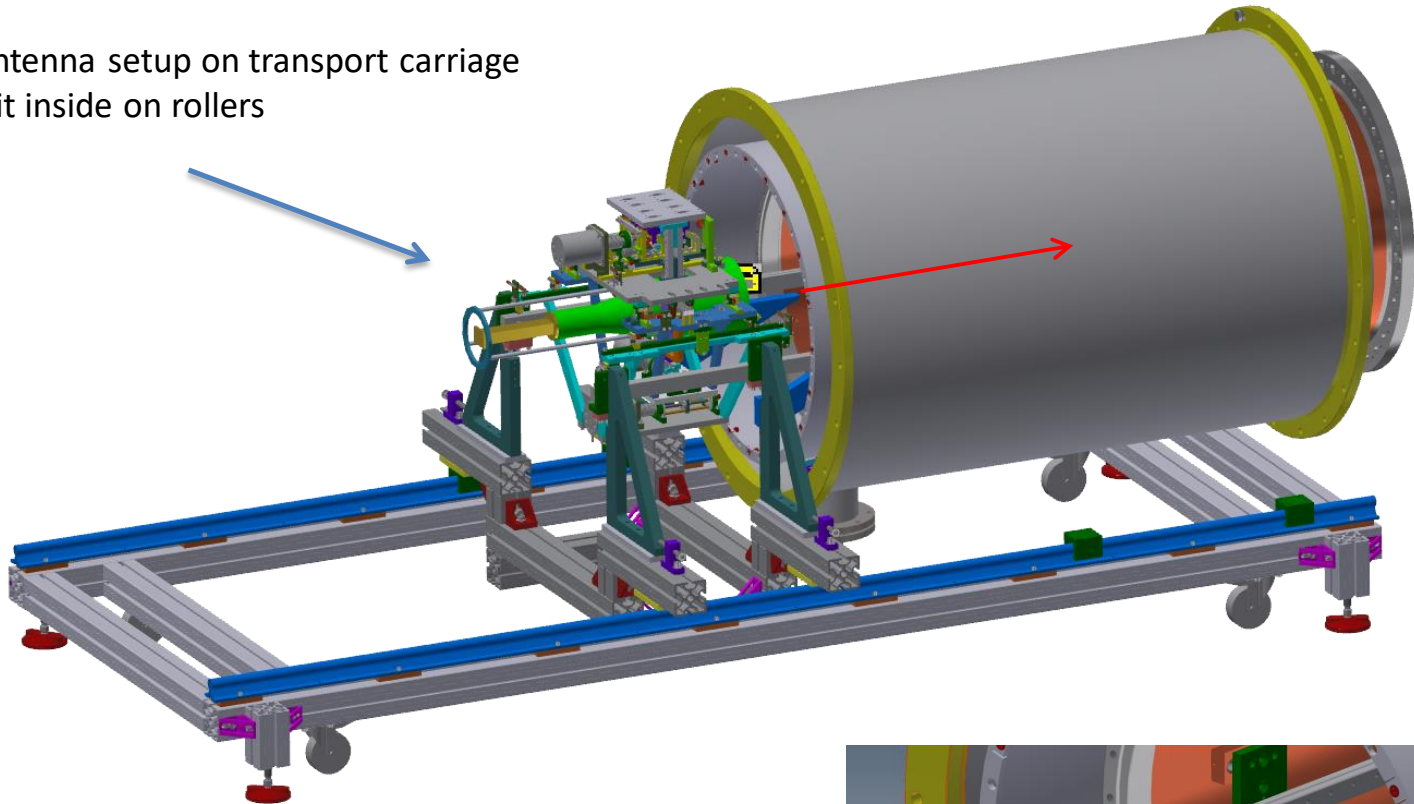
Future plans: expand Z-axis by another motor in front of the existing one

Horn Antenna Setup

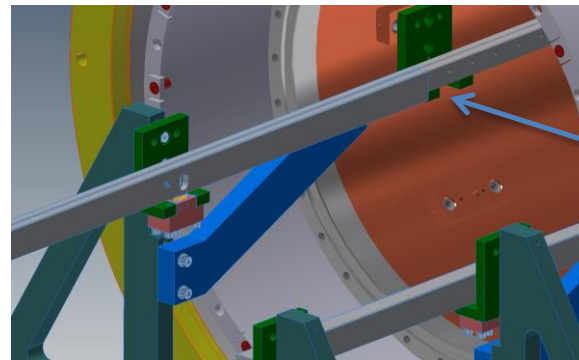
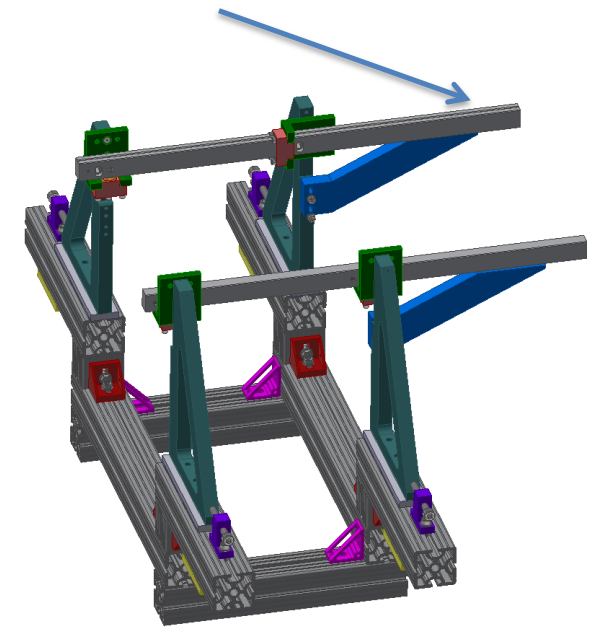
alignment

Step 1: Insertion

put antenna setup on transport carriage
push it inside on rollers



Adjustable Rail extensions to inner vessel

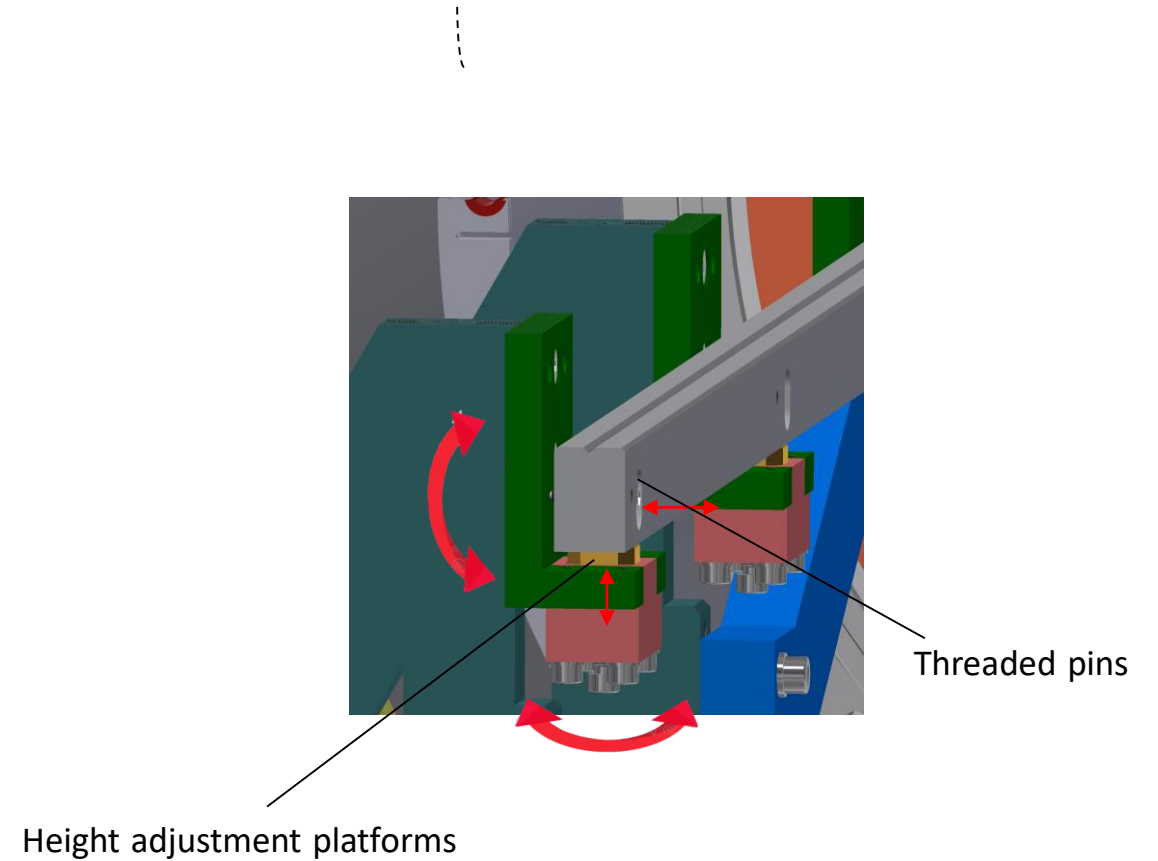
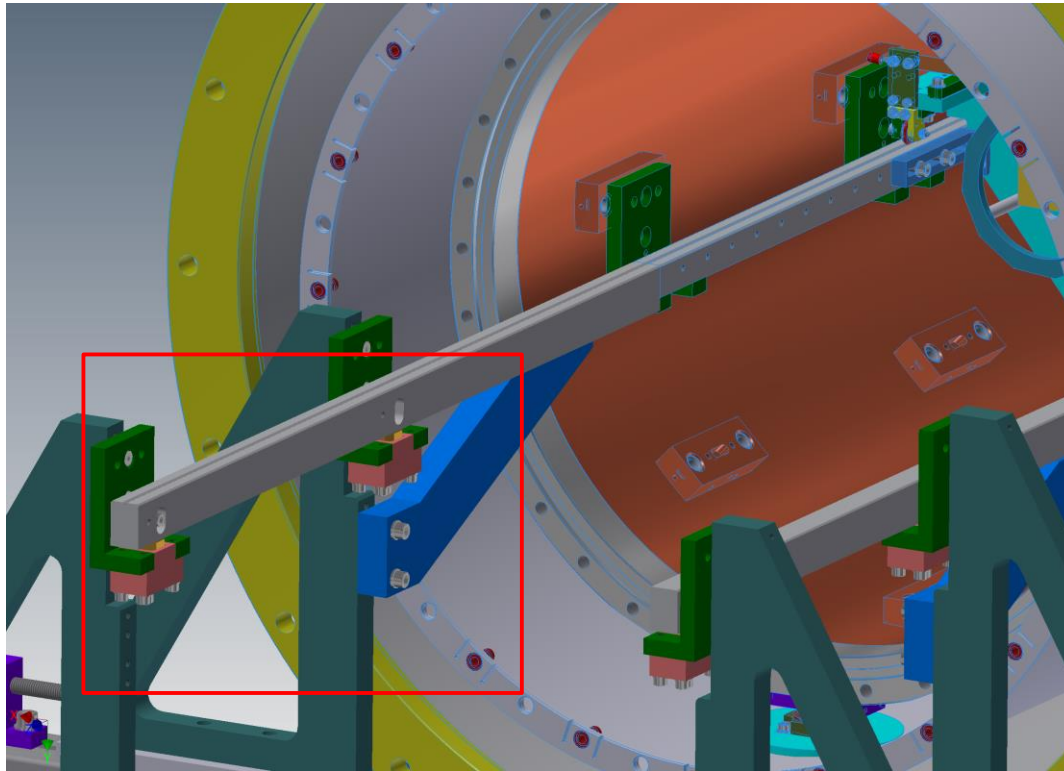


Docking the rails

Horn Antenna Setup

alignment

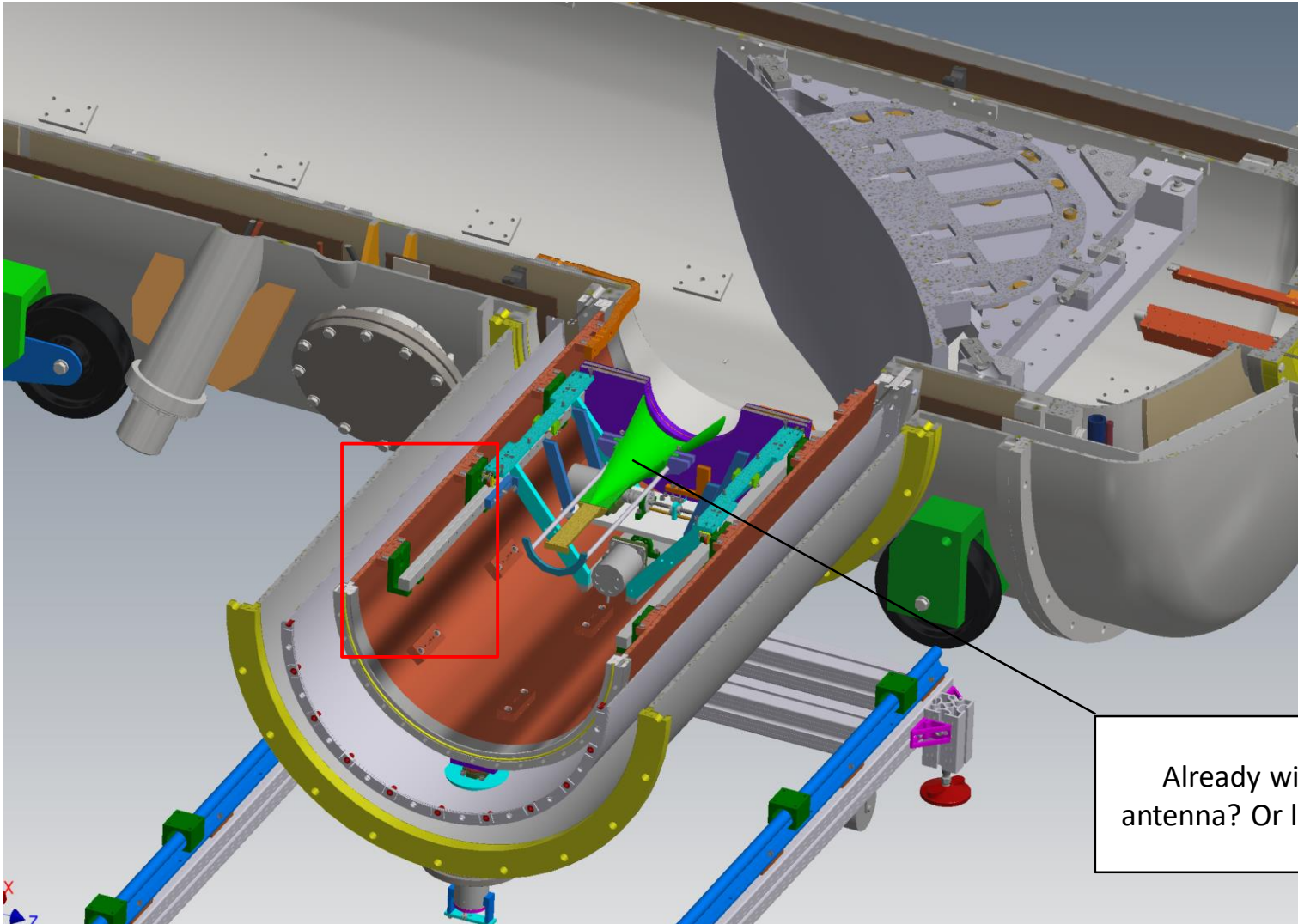
Align tilt of extension rail at RT by hand



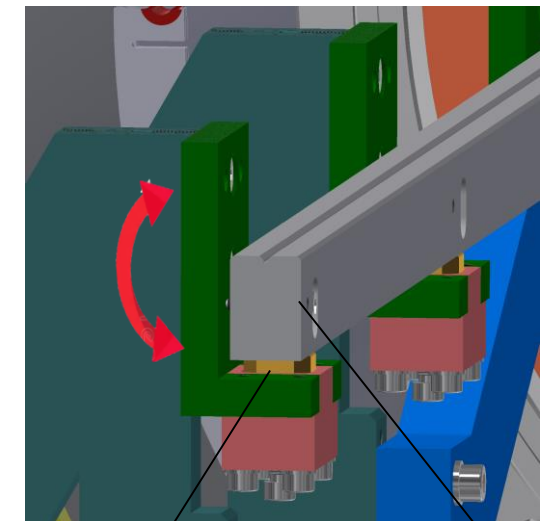
Horn Antenna Setup

alignment

Align tilt of cryostat rail at RT by hand



Vertical tilt at RT



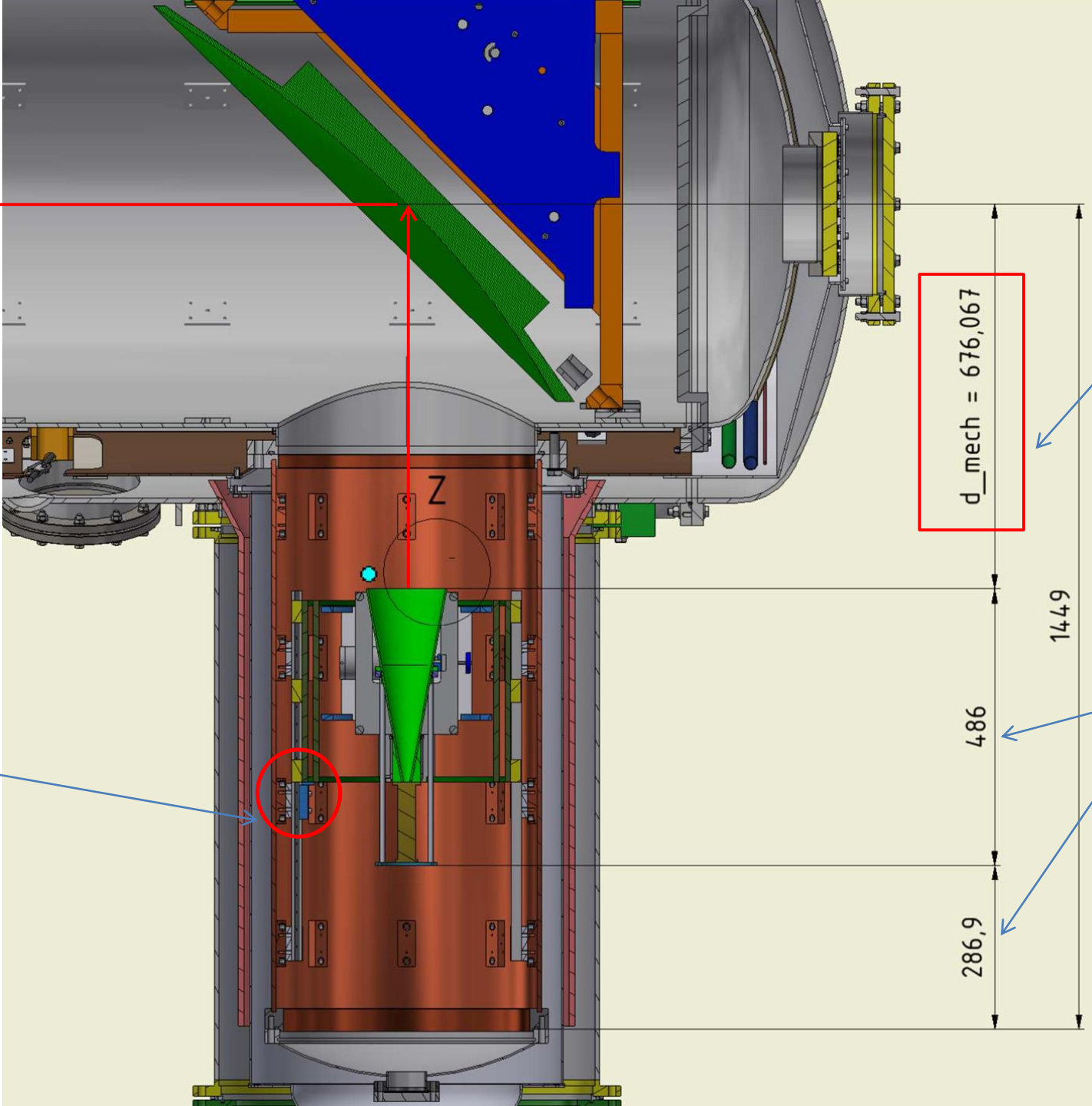
Horizontal tilt:
platforms

Horizontal tilt:
Threaded pins

Booster



stopper



$d_{\text{mech}} = 676,067$

1449

486

286,9

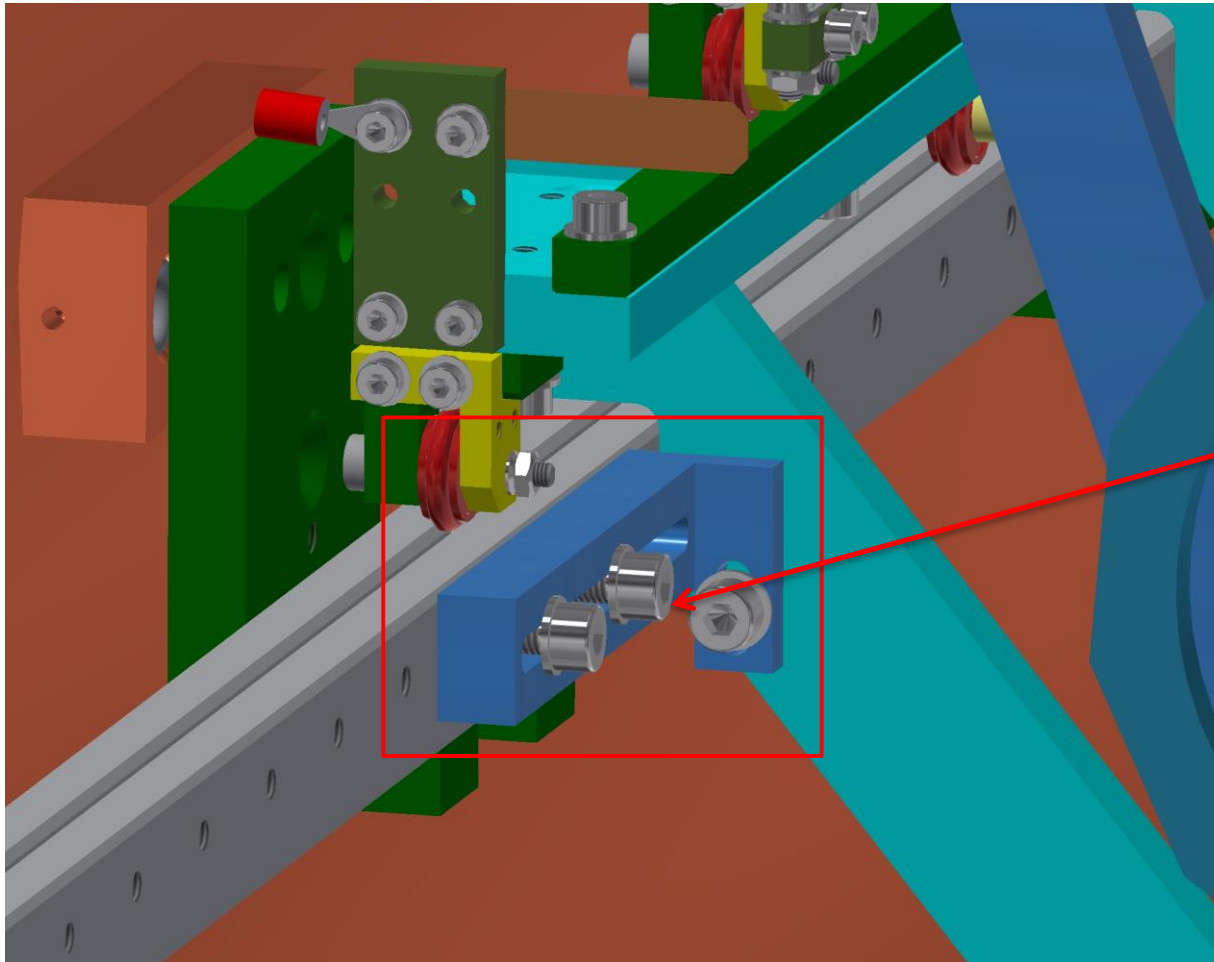
Initial position for 22 GHz, named „d_mech“, has to be found: measure distance from RC flange to end of antenna

References

length of whole antenna distance from antenna to flange of RC

Horn Antenna Setup

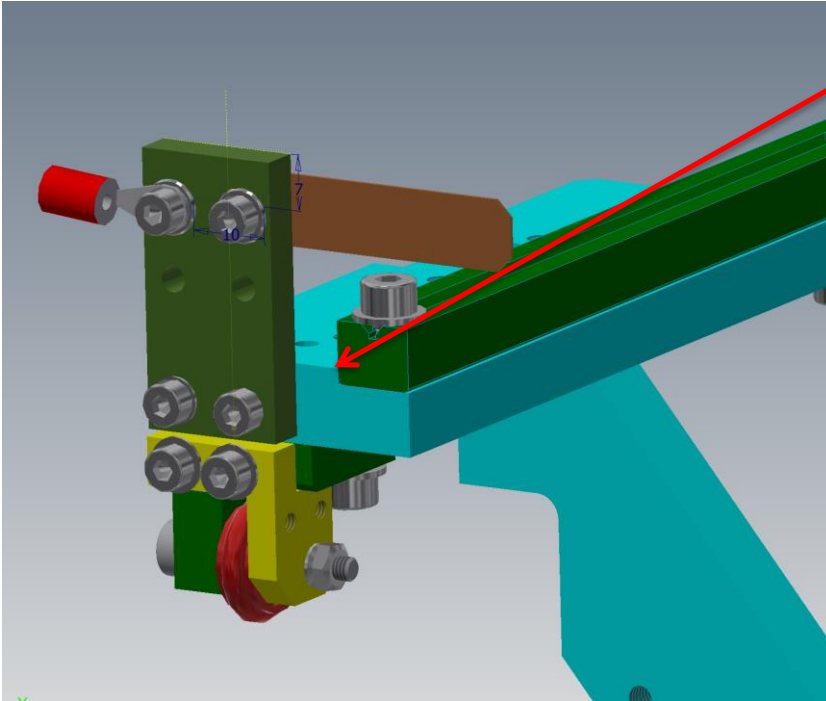
alignment



lock position of antenna setup by stopper
piece (attached to rails)

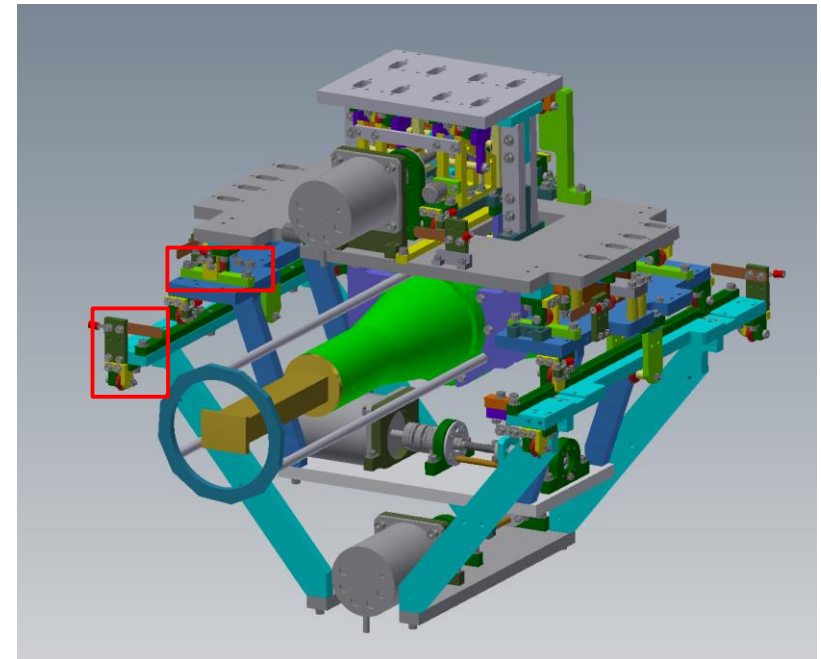
Horn Antenna Setup

alignment



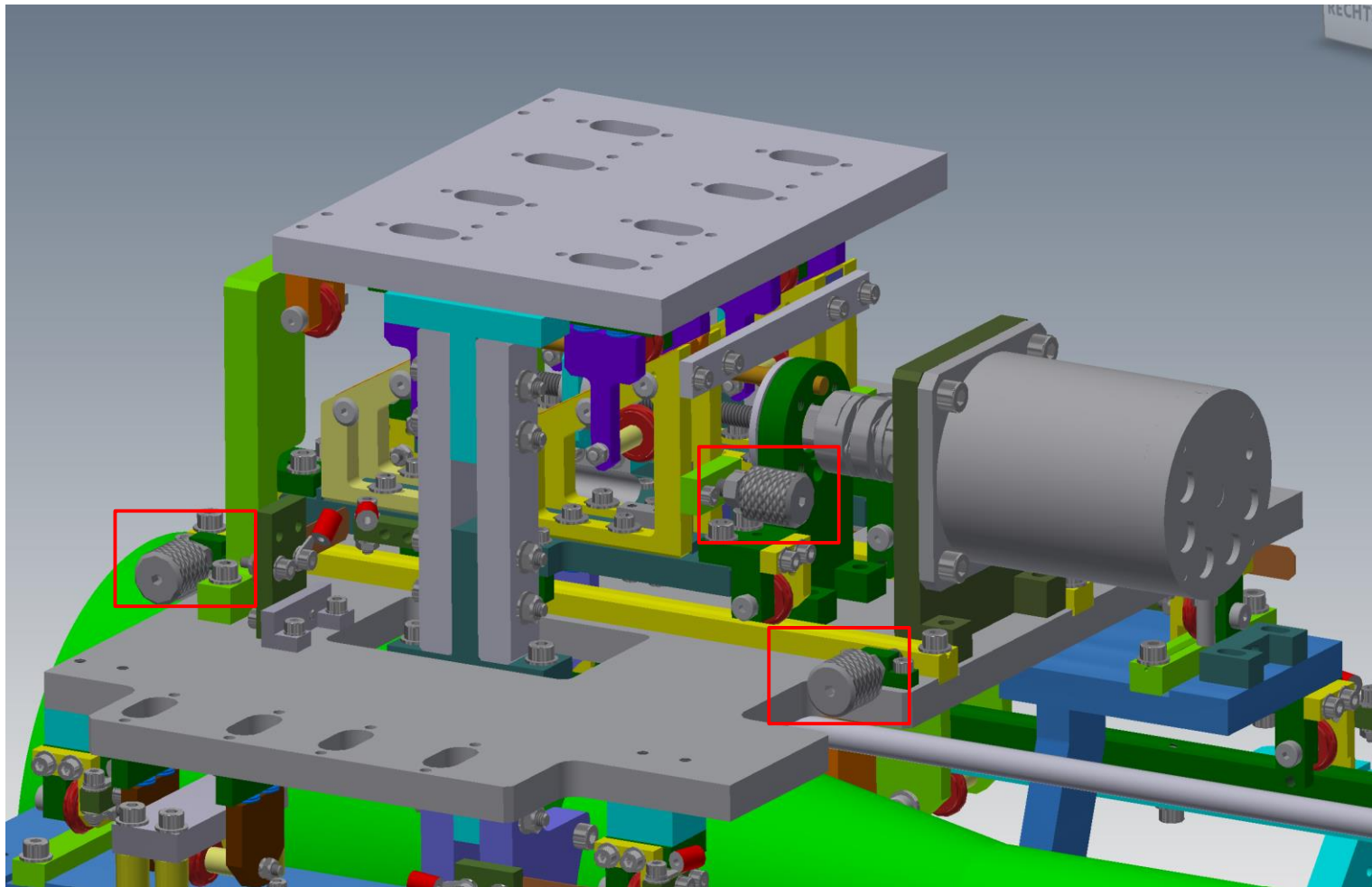
Align horizontal tilt of Z- and X-Axis at RT by hand:

- defined edge to touch for rails
- slotted hole



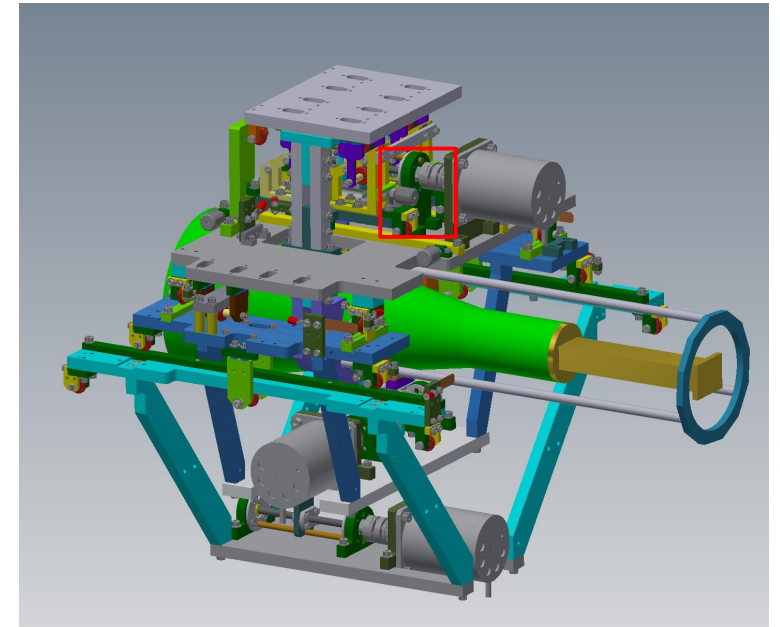
Horn Antenna Setup

alignment



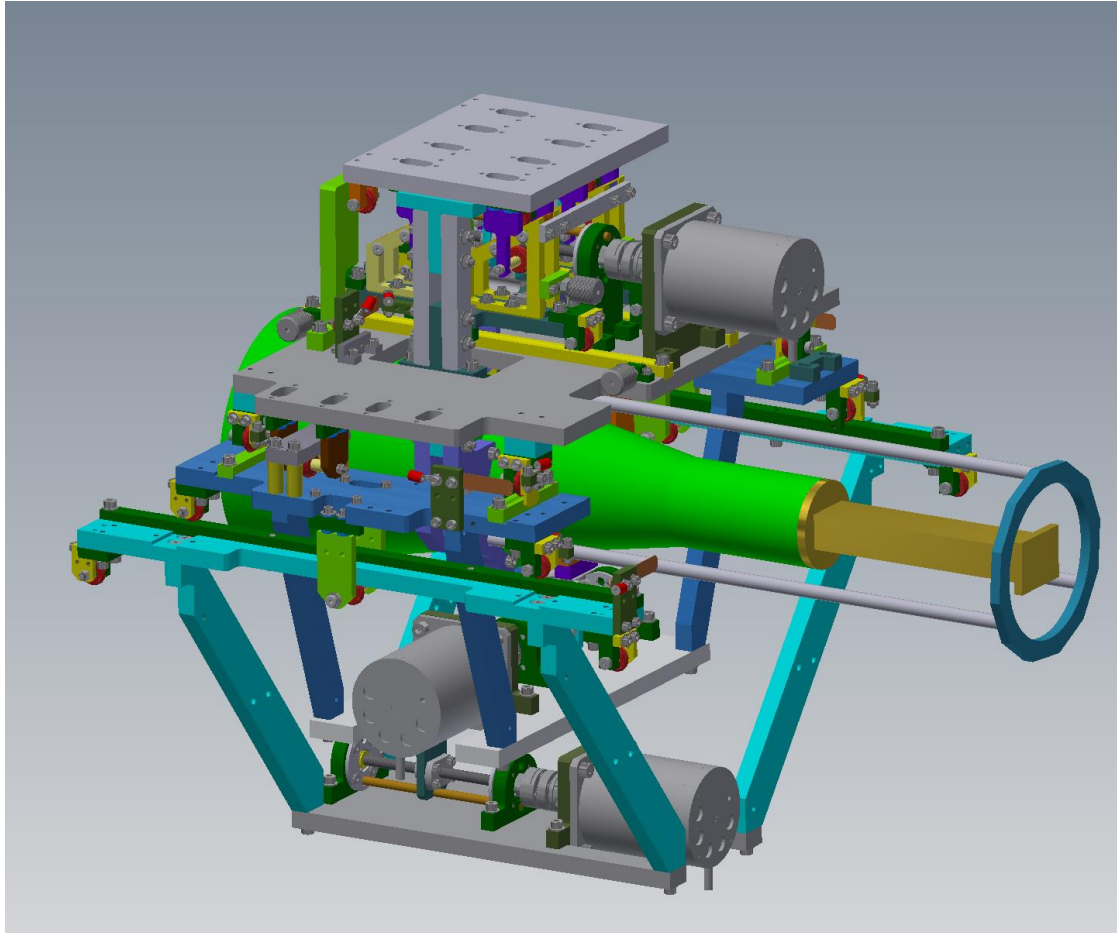
Align horizontal & vertical tilt of Y-axis
at RT by hand:

- defined edge to touch
- Adjusting screws



Horn Antenna Setup

alignment



Production Status:

- all mechanical parts in the workshops
- all purchase parts ordered

Horn Antenna Setup

absorber

