Designing of full size Triple Gem based Super Chamber for CMS

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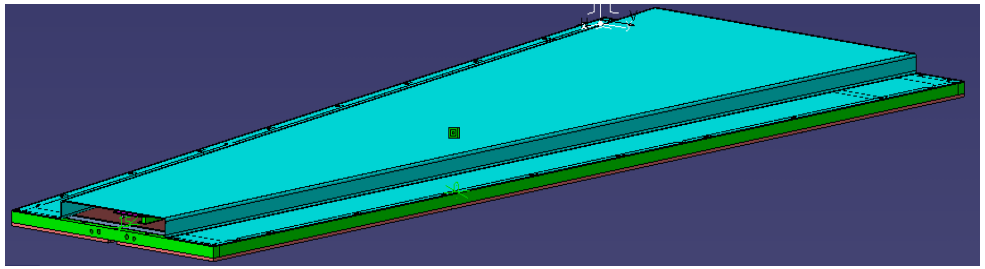
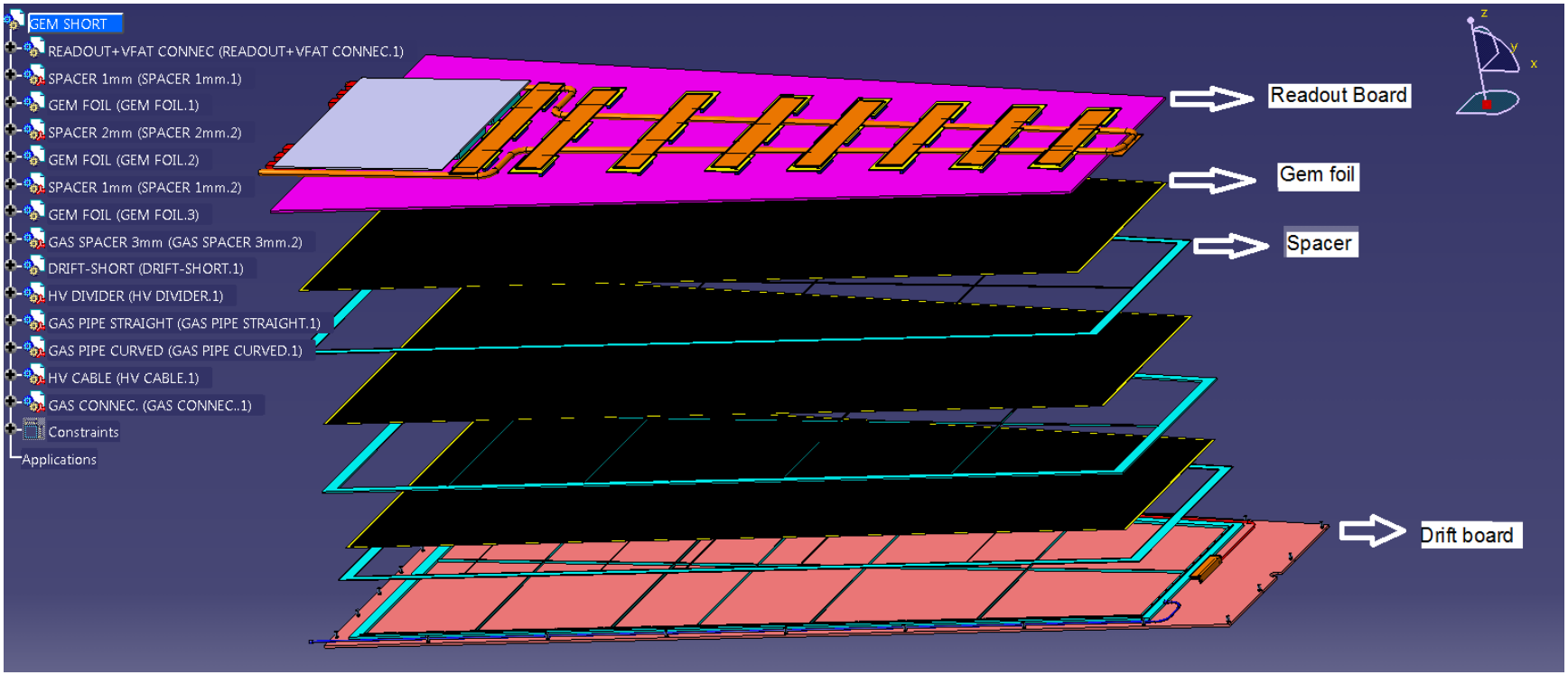
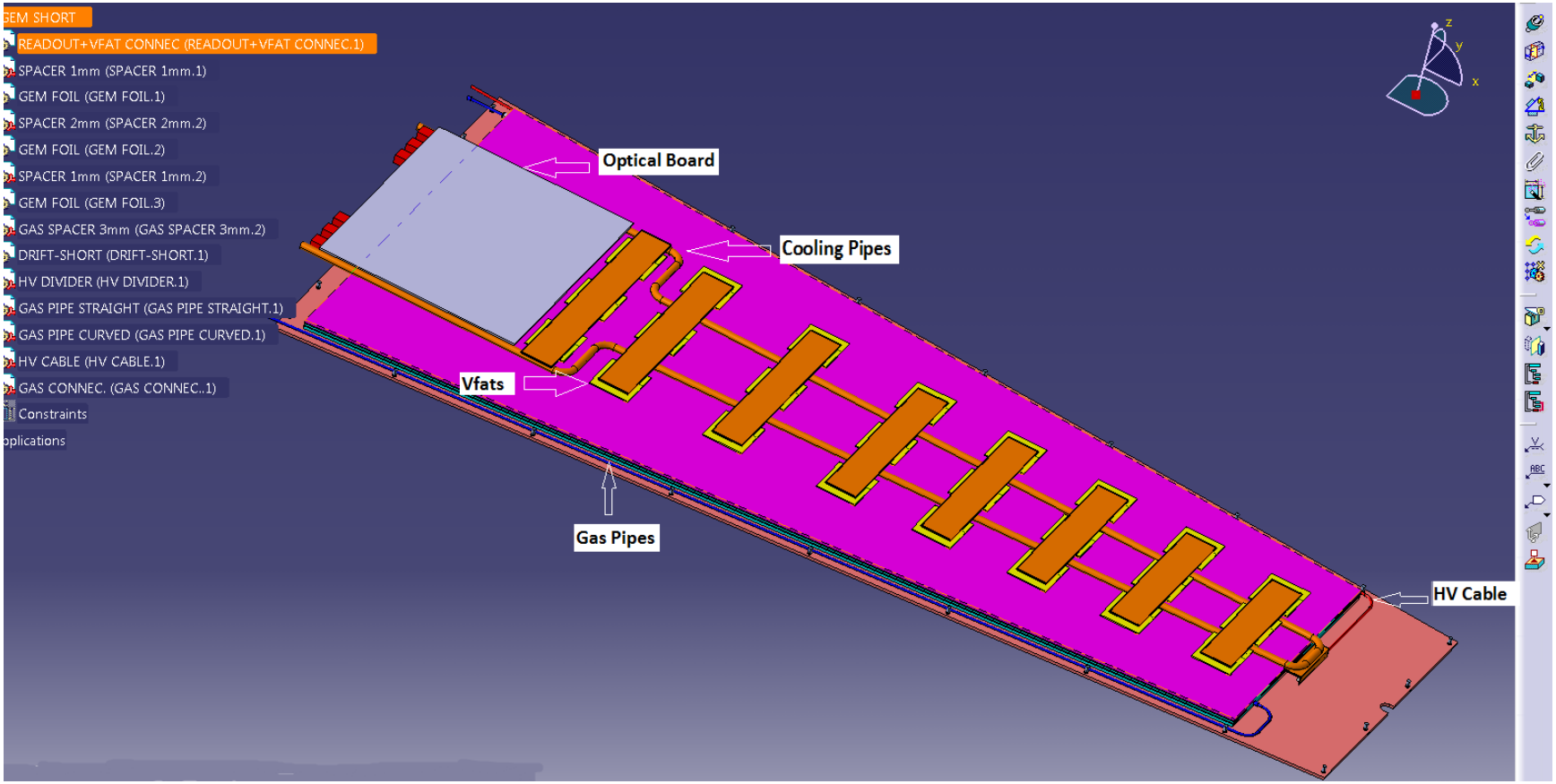


Arrangement of Gem Foils



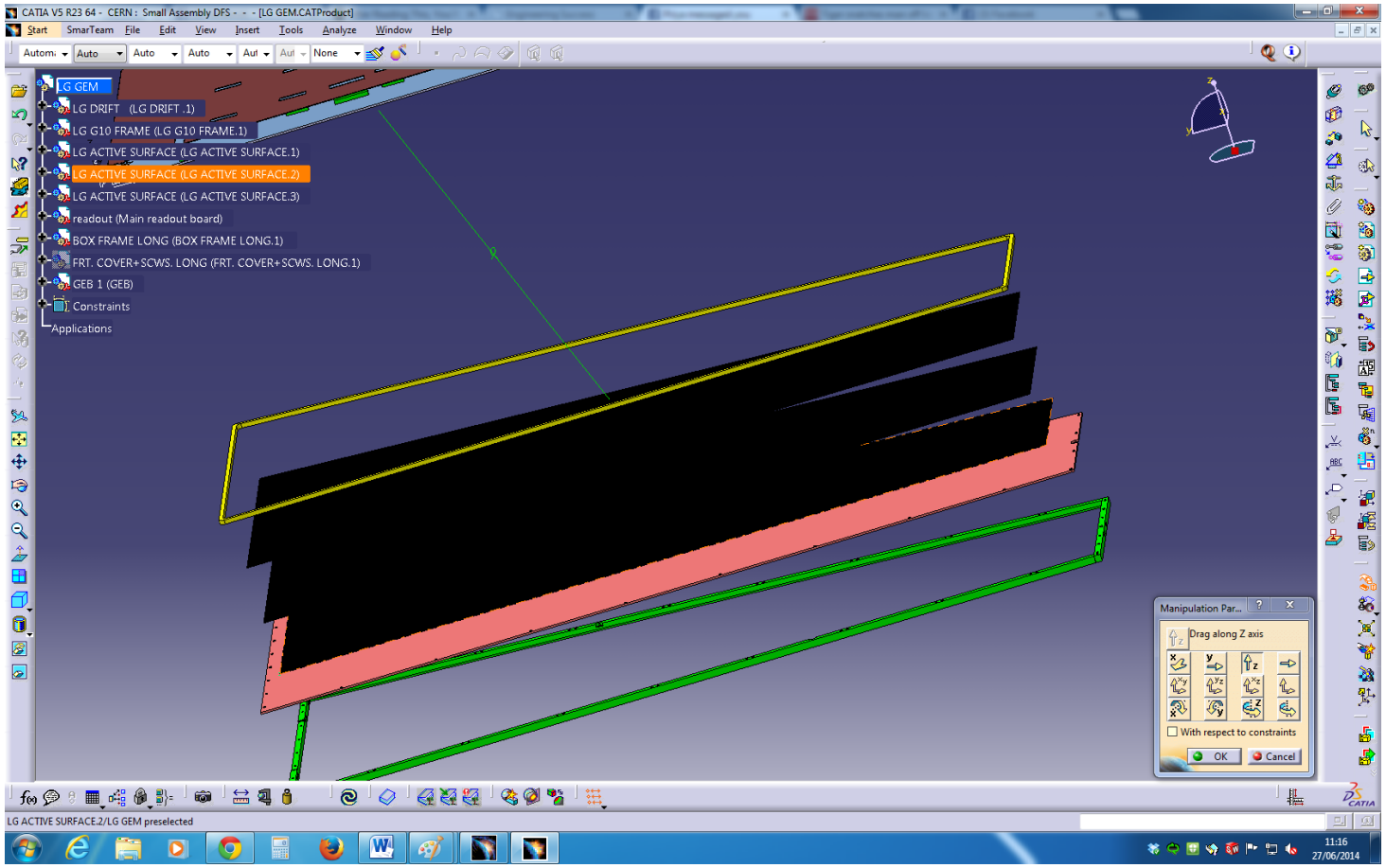
Modifications in Cooling Pipe and completed GEM prototype (Front cover and frame is removed for proper view)



Now after the completion of first model several changes were proposed because of various problems like wires handling problem, instability of readout, extra materials still in use etc.
So now we will discuss those changes.

NOTE: All the designs are made in CATIA Software (CATIA Version 5-6, release 2013 dassault systems)

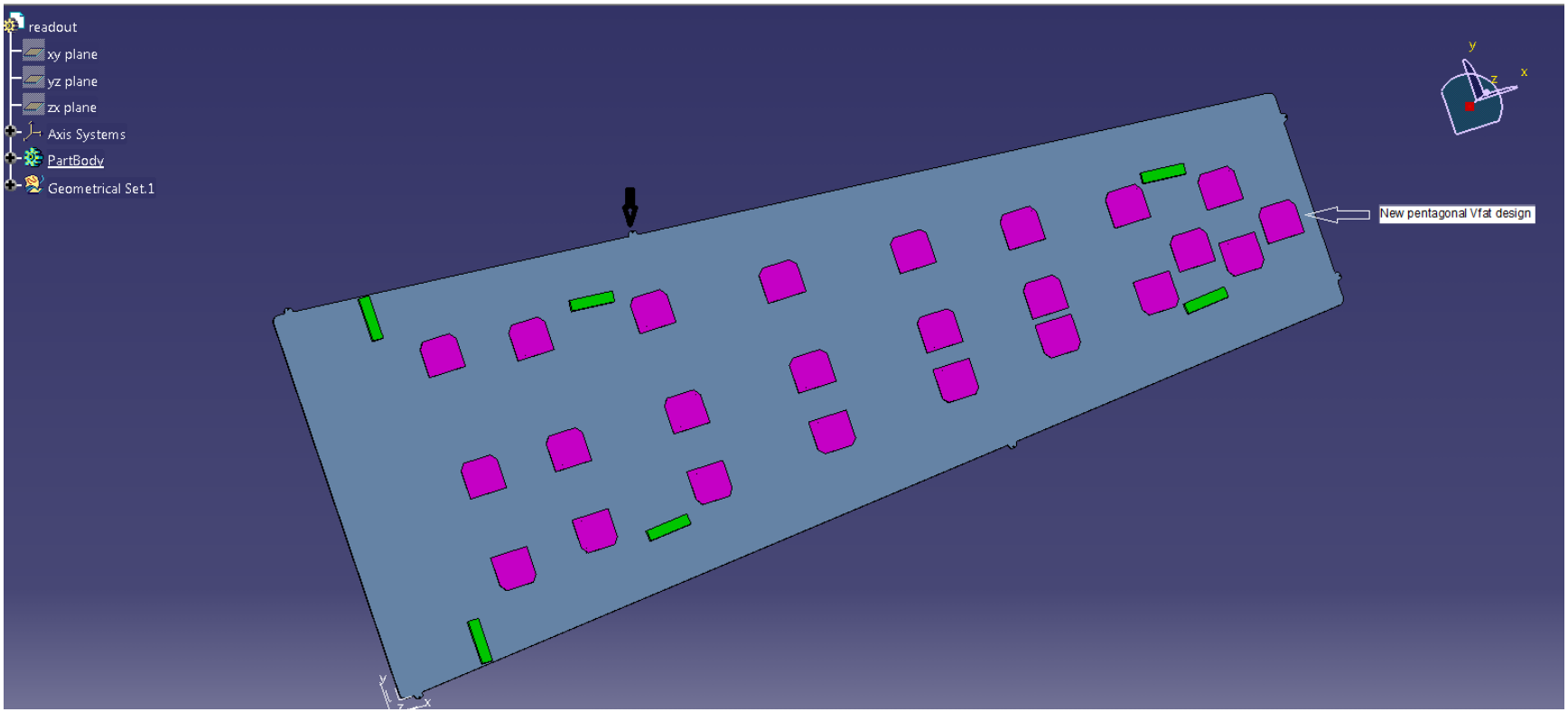
Removal of Spacers and addition of GEM frame(yellow)



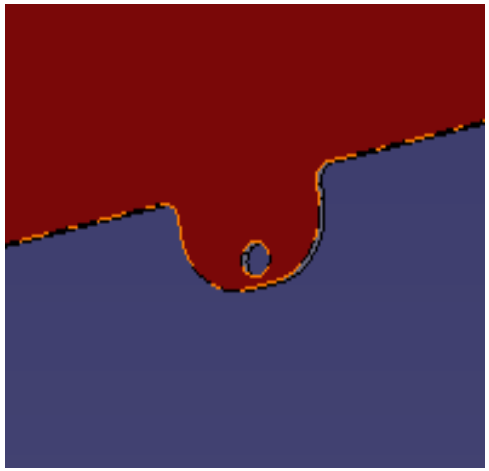
Major changes in Readout

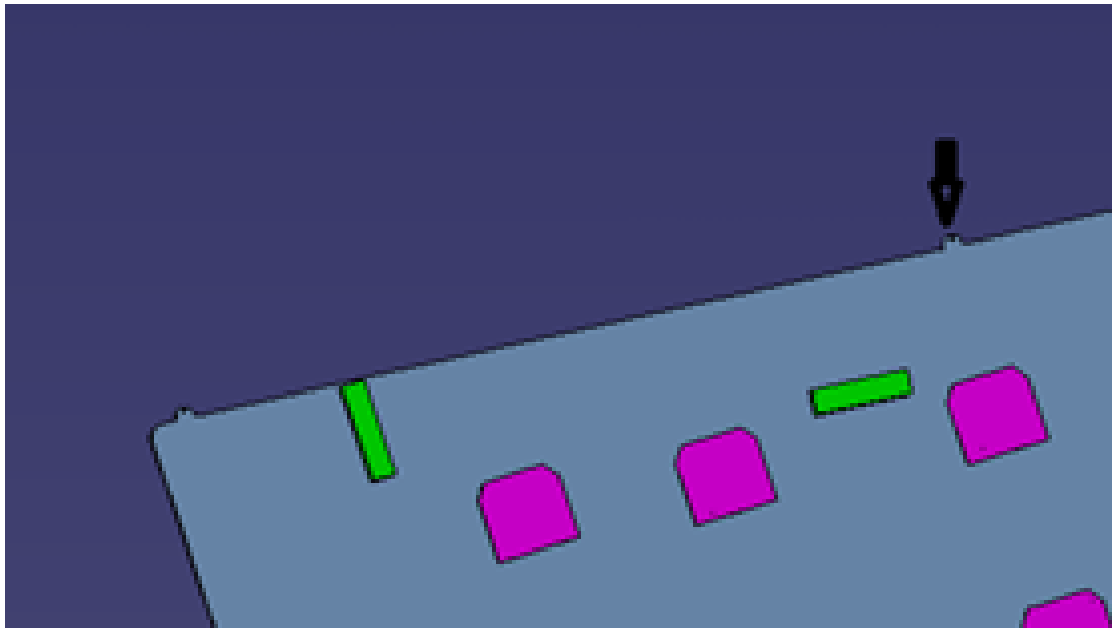
- Various changes were proposed for readout and its parts.
- Design of Vfats changed from rectangle to pentagon
- Readout design slightly changed to be easily attached to outer frame.
- Arrangement of Vfats changed on the Readout.
- In next two slides the pictures will clear the doubts.

New Vfats design and arrangement



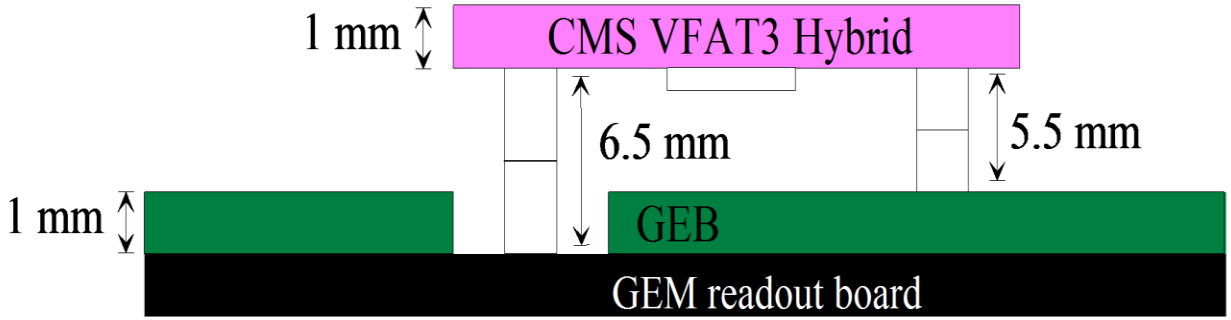
Introduction of Flanges(helps in attaching it to outer frame)





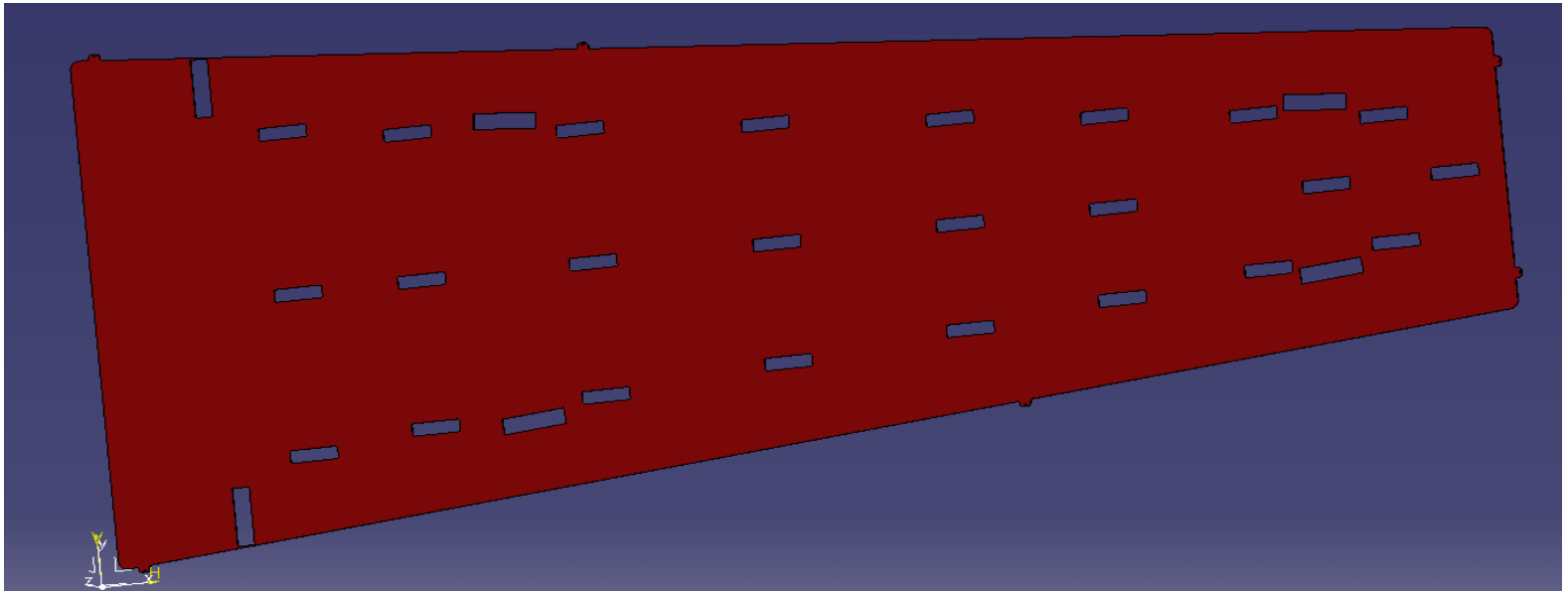
Introduction of GEB

- The new unit called geb is included in the design.
- It was specially designed to remove a large amount of cables that were emerging out in previous designs.
- It is present in contact with readoutwith same outer dimensions.



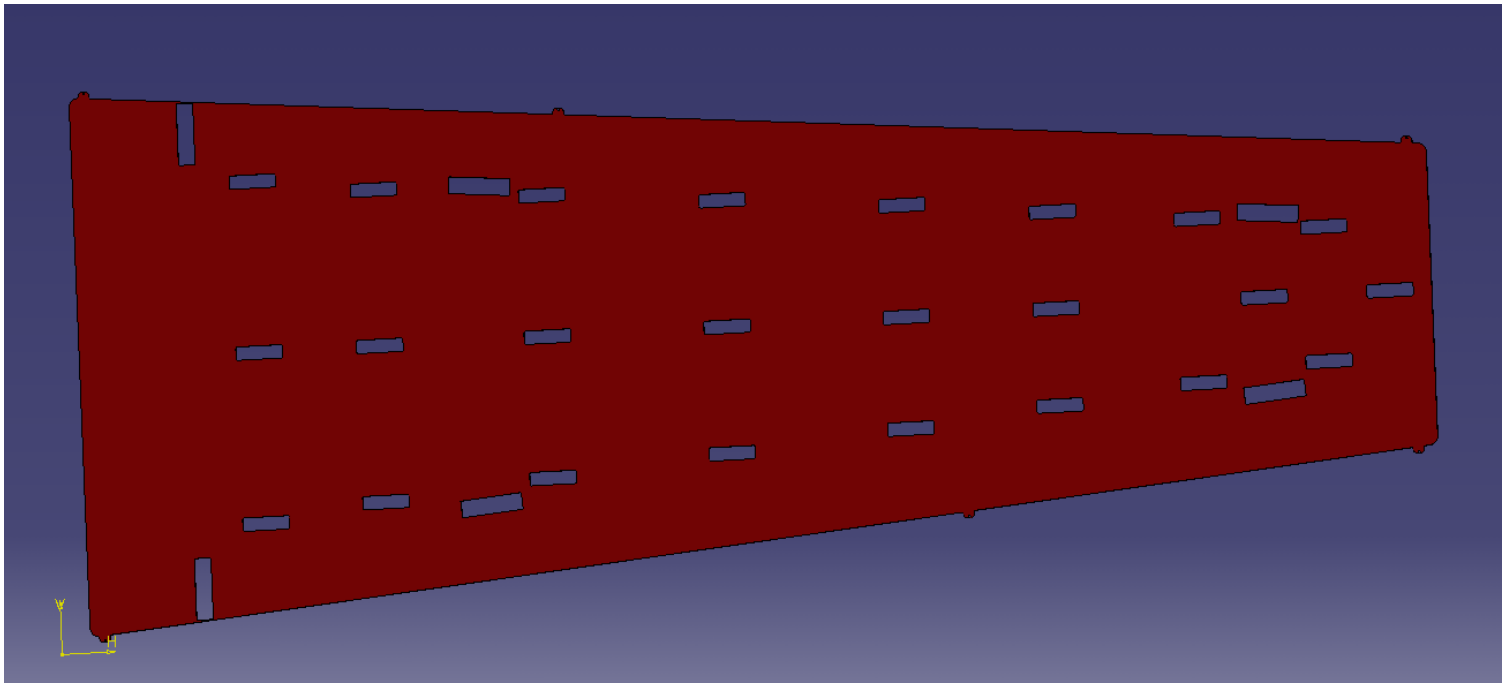
GEB

- It contains holes on its surface in accordance with the connectors of vfats which will be attached to both geb and readout.



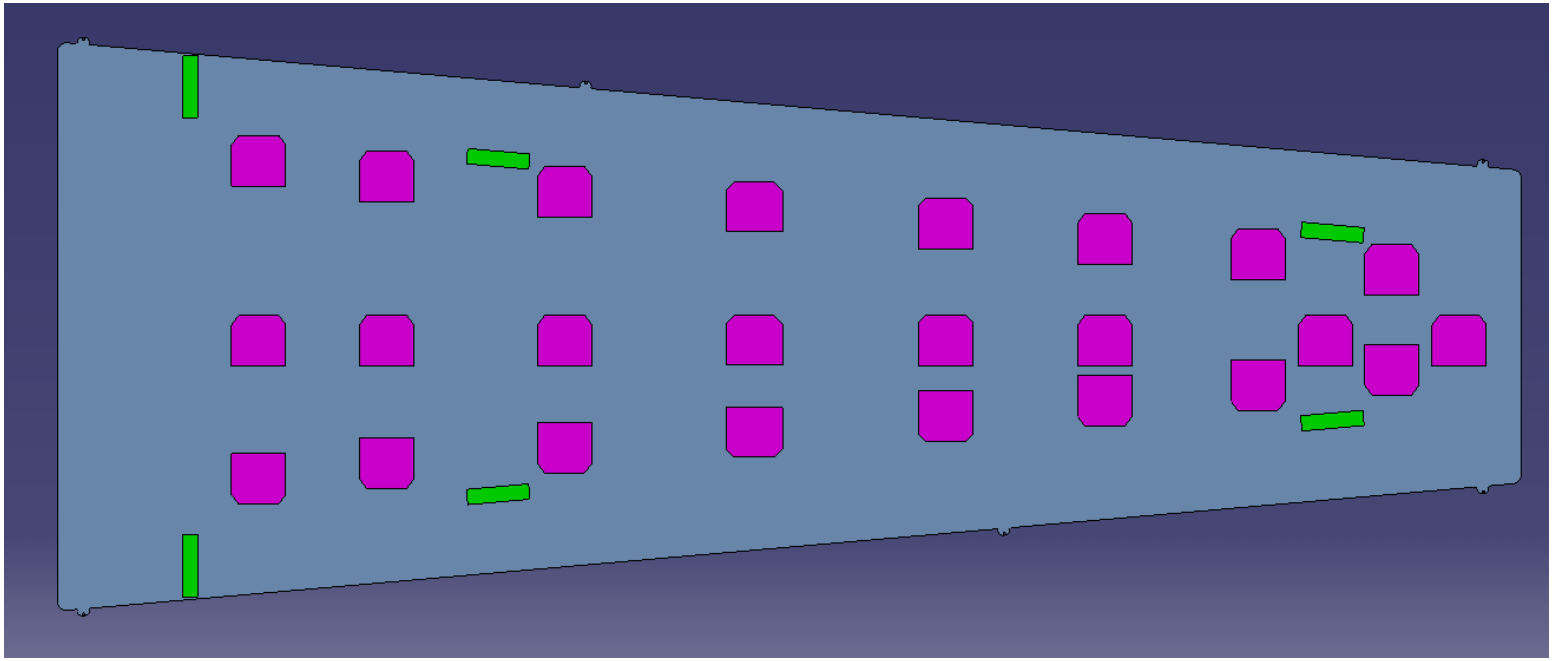
Further Modifications in GEB

- Position of flanges changed. Two of them moved to the sides.
- Length of the GEB decreased by 24 mm.

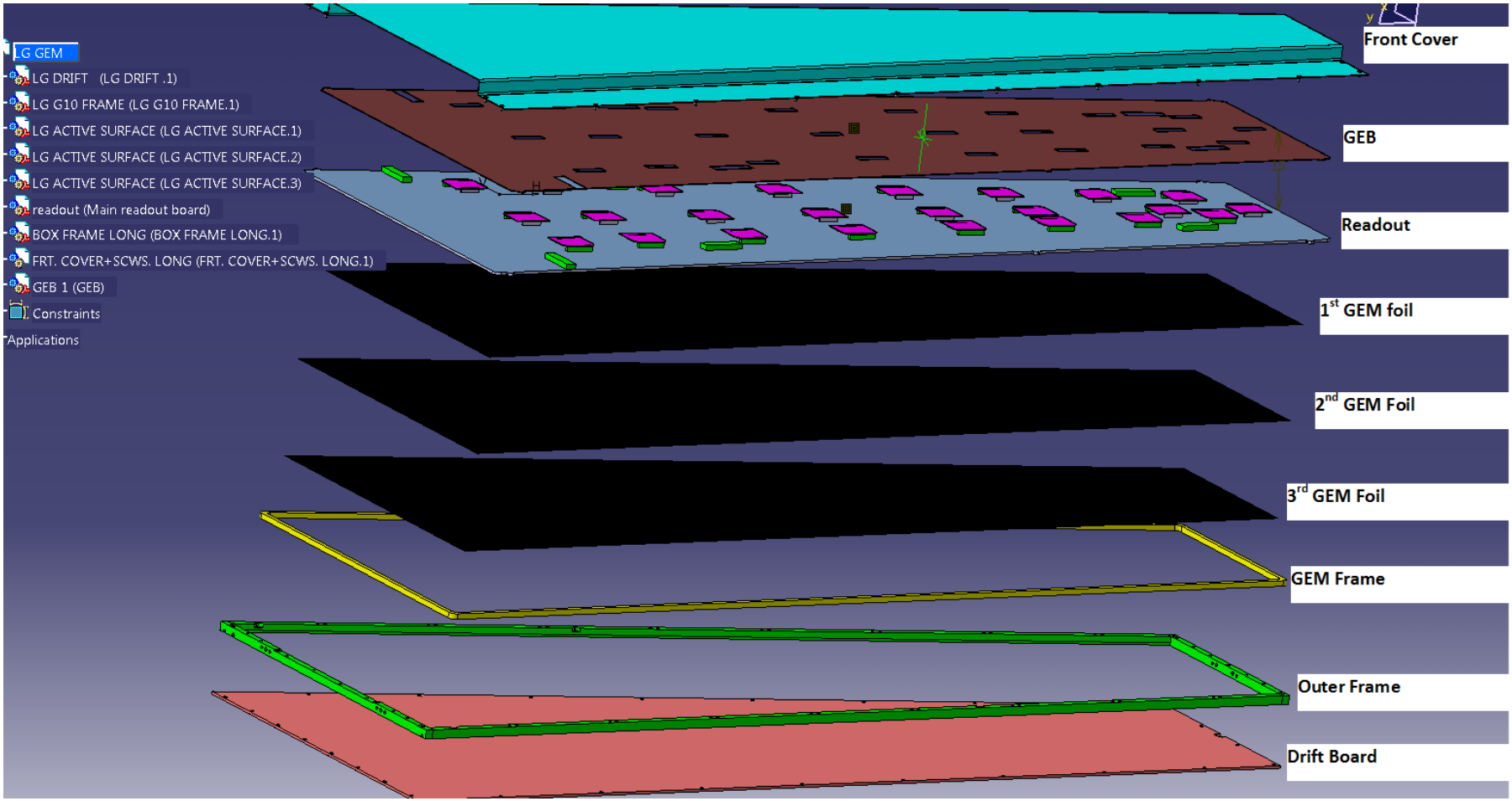


Readout and outer frame changes

- Position of flanges changed in readout, even though the number is kept same. Dimensions of Readout is same.
- Accordingly the outer frame is changed for the new flanges.



Exploded View of the model



Further proposed changes

- Due to the changes in vfats and its arrangement, cooling pipes position and optical board is currently under discussion
- It will be changed if required else it will be placed in the same way as previous.