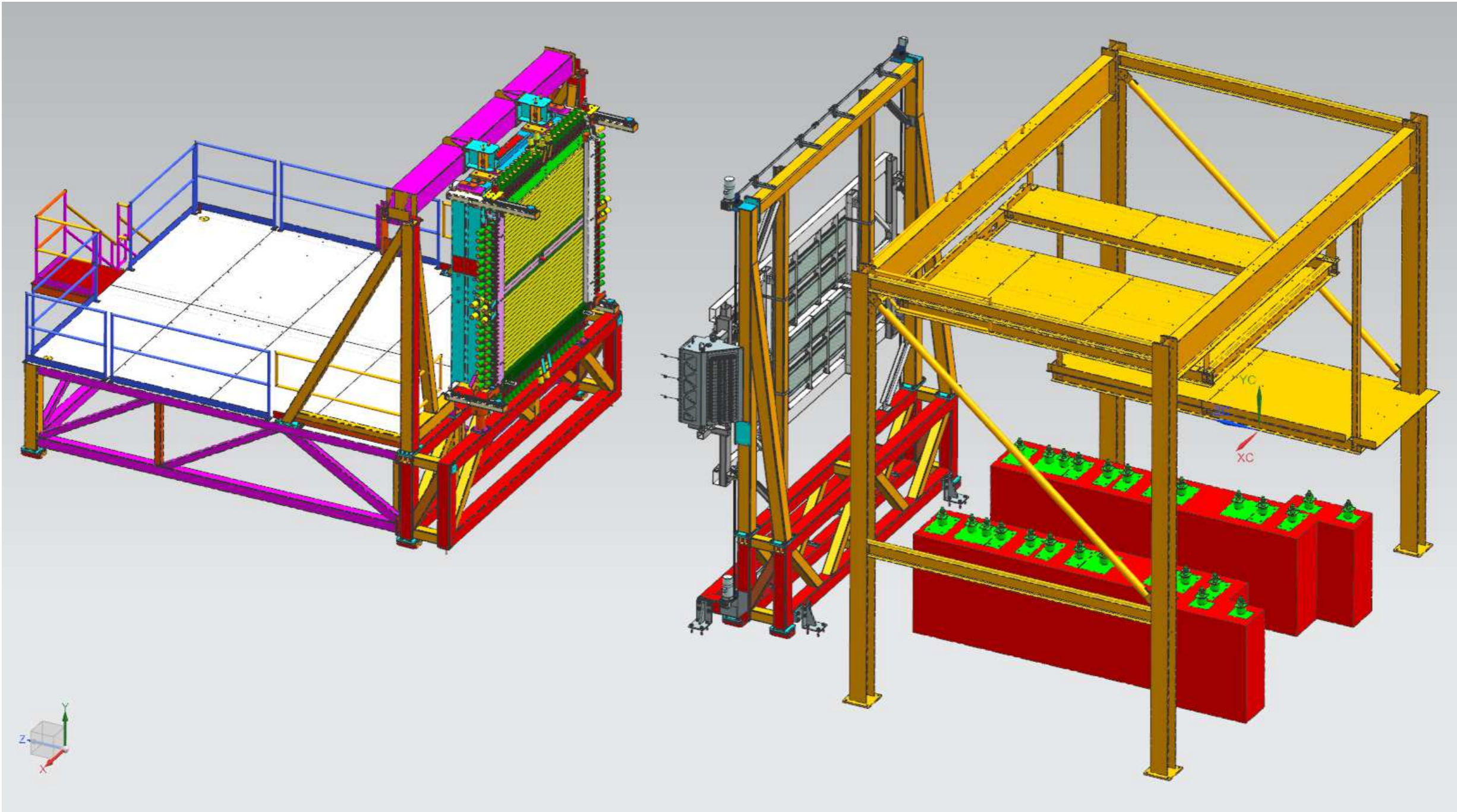


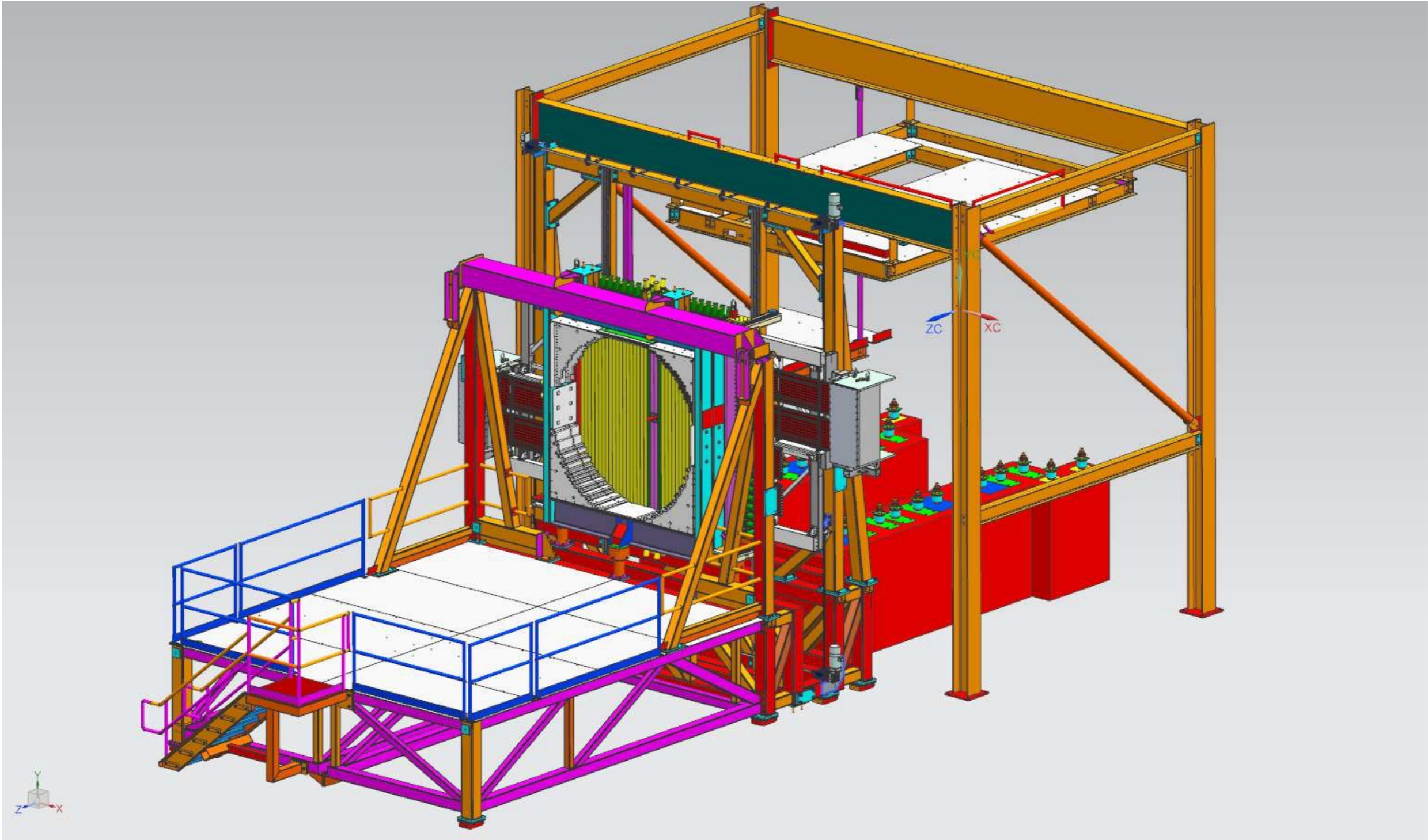
DIRC controls

June 22, 2017

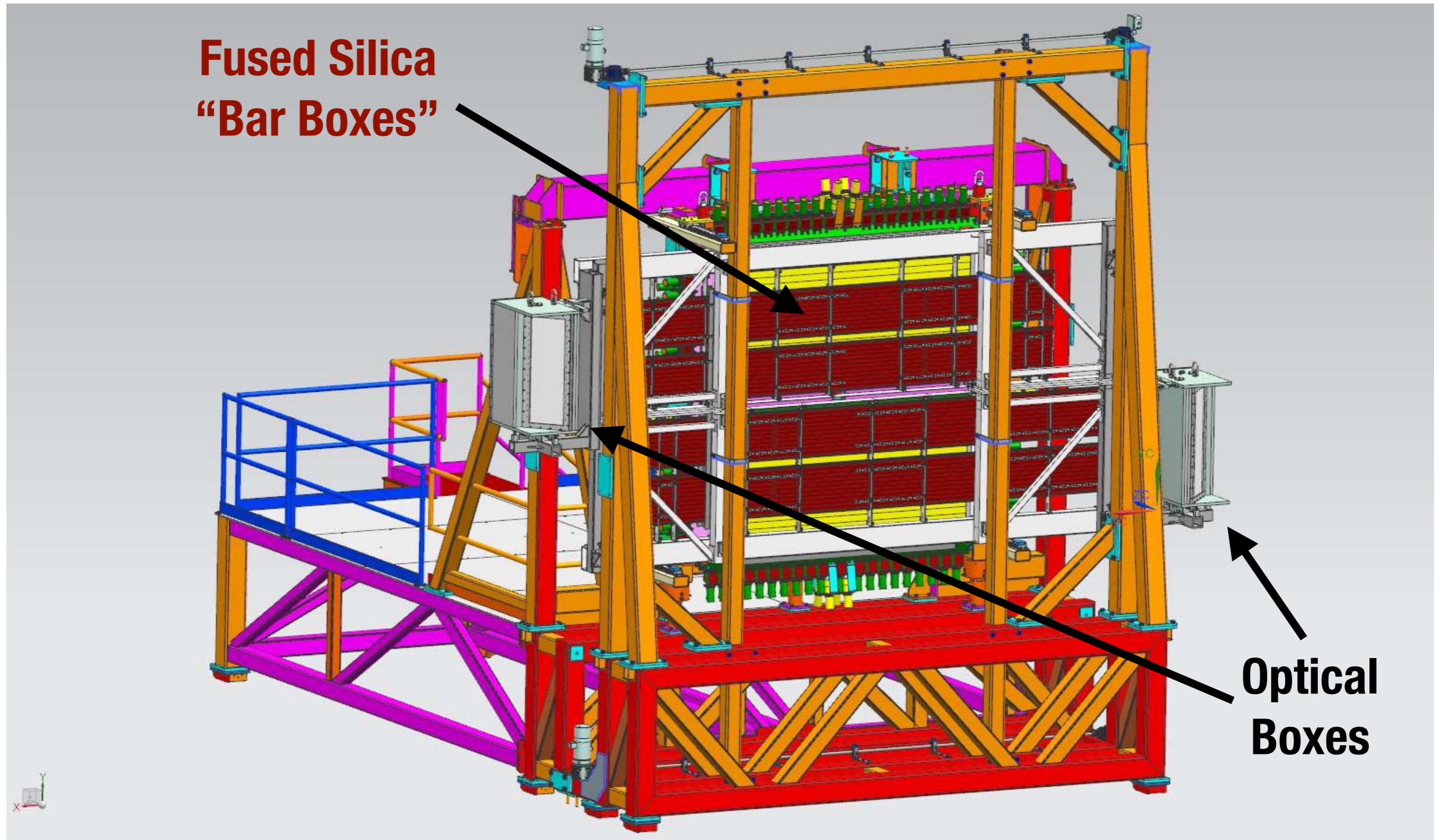
DIRC Overview



DIRC Overview



DIRC Overview



Relevant DIRC Components

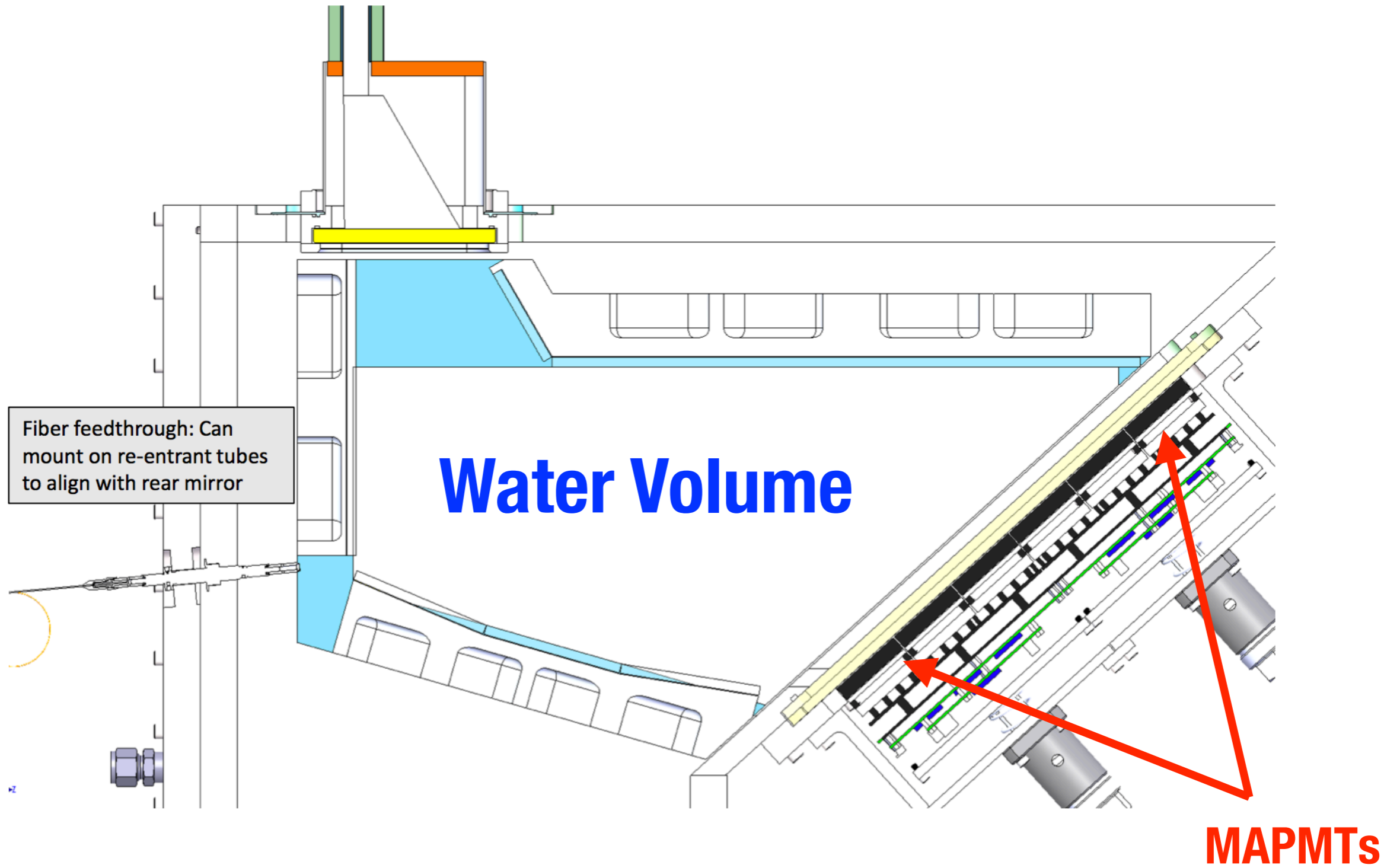
* **Optical Boxes**

- * Cherenkov photons detected by 64 channel Multi-anode PMTs (MAPMTs): 216 total
- * Volume filled with distilled water under constant circulation
- * All crates, HV, etc. located on FCAL platform

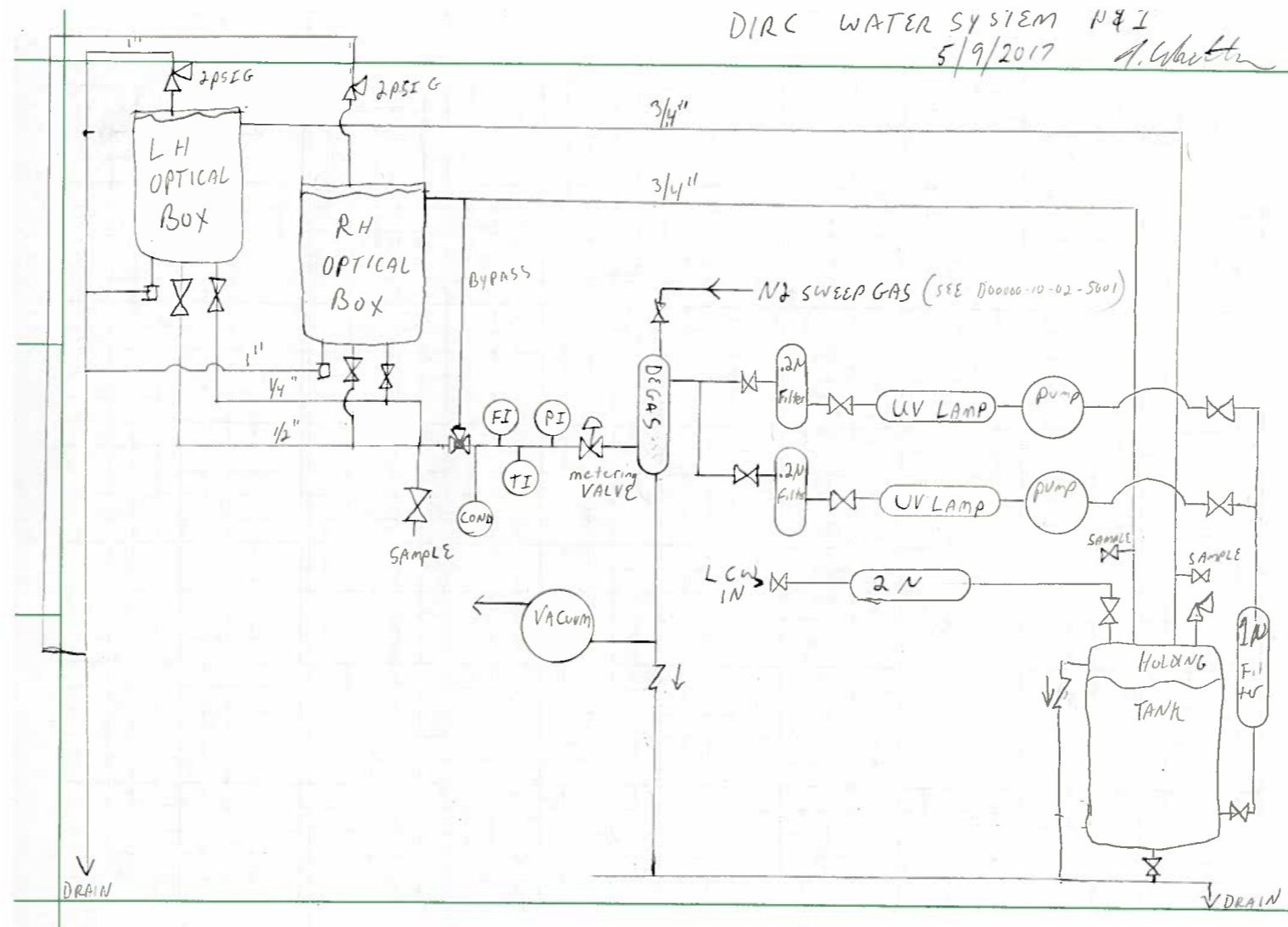
* **Fused Silica “Bar Boxes”**

- * Under continuous flow of dry (boil-off) N₂

Optical box



Controls: water system

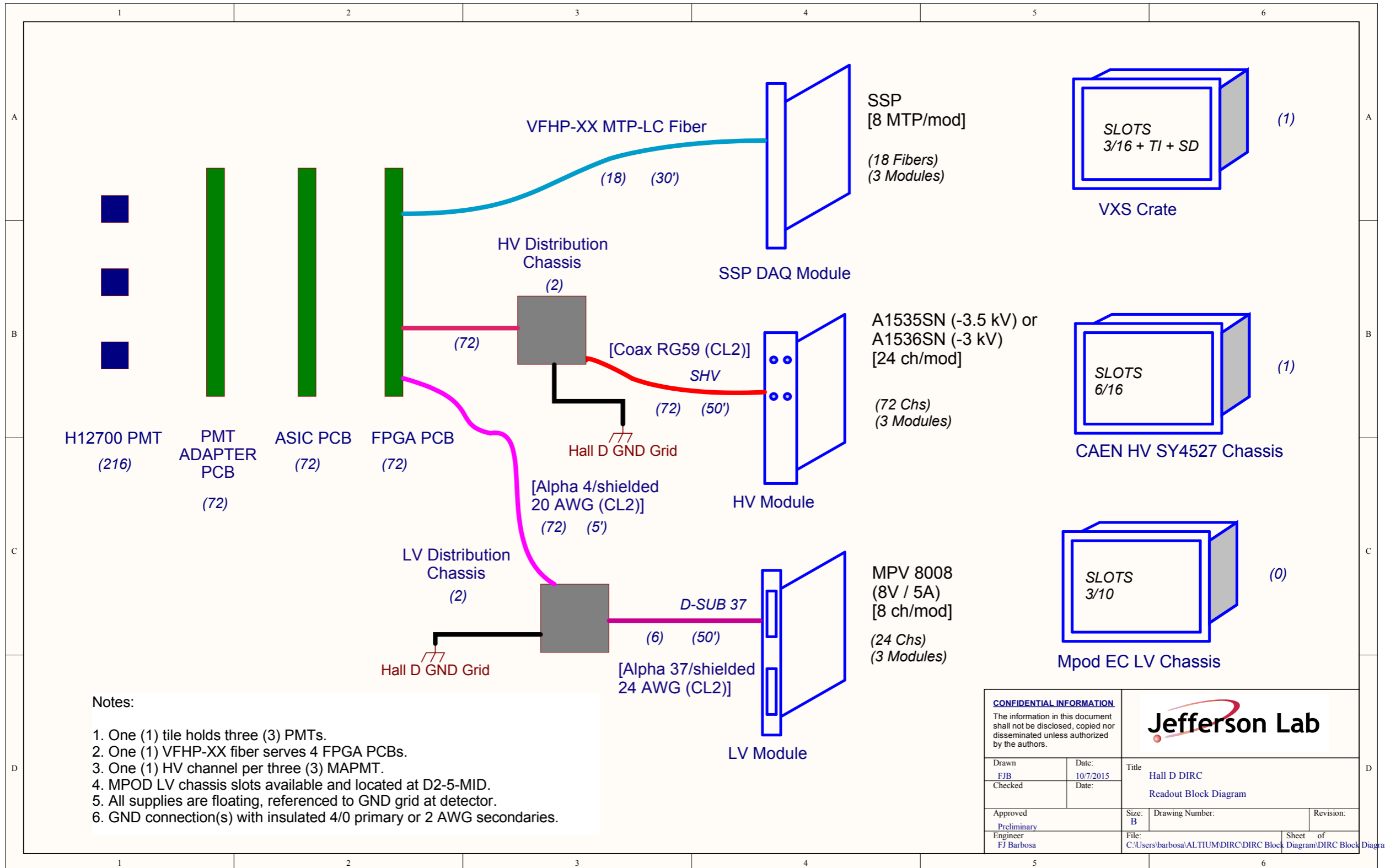


- * Water quality: conductivity (1), pH (1), and temp. (2)
- * Water flow indicator (2)
- * All signals: -4 - 20 mA

Controls: nitrogen system

- * Dry N₂ system (boil-off from dewar)
 - * Individual flow rates need for each “bar box”
 - * Flow indicator (4)
 - * Pressure indicator (4)
 - * Possible: humidity sensors on N₂ output lines (4)

Controls: MAPMTs



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Drawn: FJB	Date: 10/7/2015	Title: Hall D DIRC Readout Block Diagram	
Checked:	Date:	Size: B	Drawing Number:
Approved: Preliminary	Engineer: FJ Barbosa	Revision:	Sheet of
File: C:\Users\barbosa\ALTUM\DIRC\DIRC Block Diagram\DIRC Block Diagram		Revision:	

Controls: MAPMTs

- * Weiner crates and MPOD LV
- * CAEN HV modules (new model, see Fernando)
 - * 72 channels: supply to groups of 3 MAPMTs
 - * Interlocked with optical box access panel
- * Temperature sensor in optical box near MAPMTs
 - * 1 for each optical box (2 total)
- * Scalers: Integrated signal for each MAPMT?

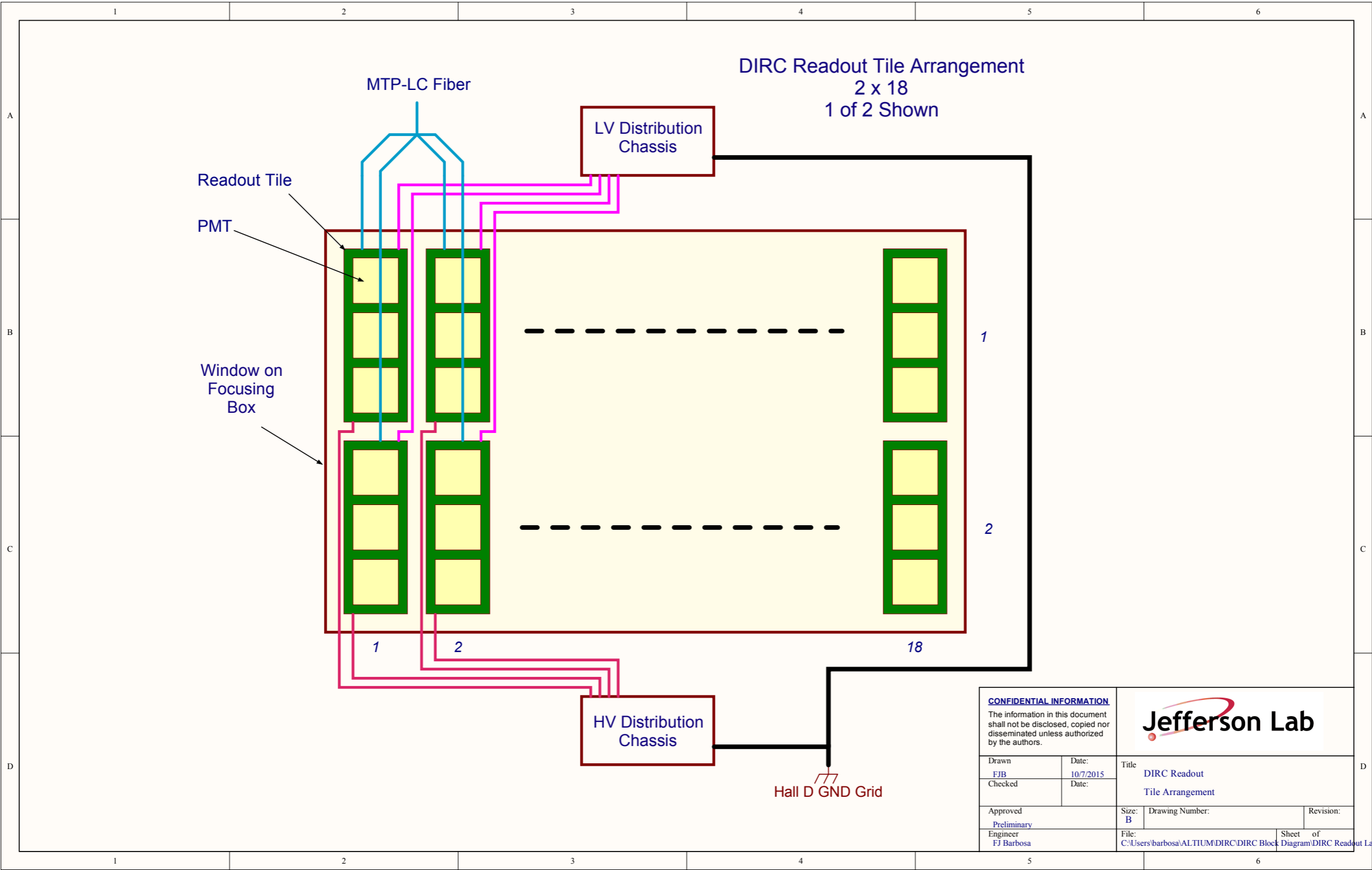
Calibration system

- * System under development: not ready to discuss details of controls requirements
- * Low intensity LED/Laser input to optical box through optical fiber ports
 - * Currently under investigation
- * Control LED/Laser and pulser frequency
 - * Possibly complementary to FCAL system already in use on forward platform

GUI ideas

- * LV/HV controls
- * Display of environmental sensors
 - * Water and N₂ gas system
- * Scalers

Controls: MAPMTs



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Drawn FJB	Date: 10/7/2015	Title DIRC Readout Tile Arrangement	
Checked	Date:	Size: B	Drawing Number:
Approved Preliminary Engineer FJ Barbosa		Revision:	File: C:\Users\barbosa\ALTUM\DIRC\DIRC Block Diagram\DIRC Readout Layo