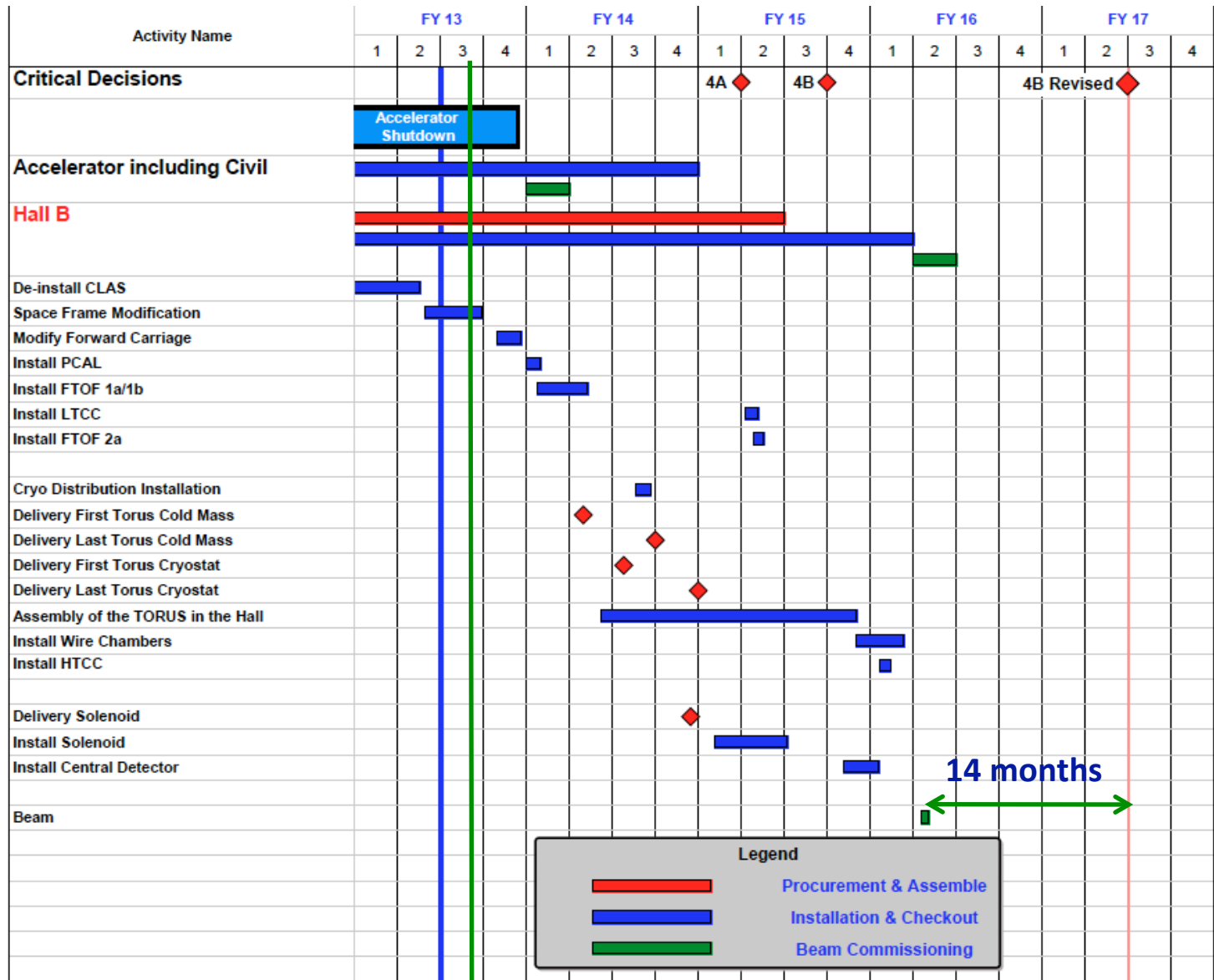


RICH CONSTRUCTION & OPERATION PLANS

Contalbrigo Marco
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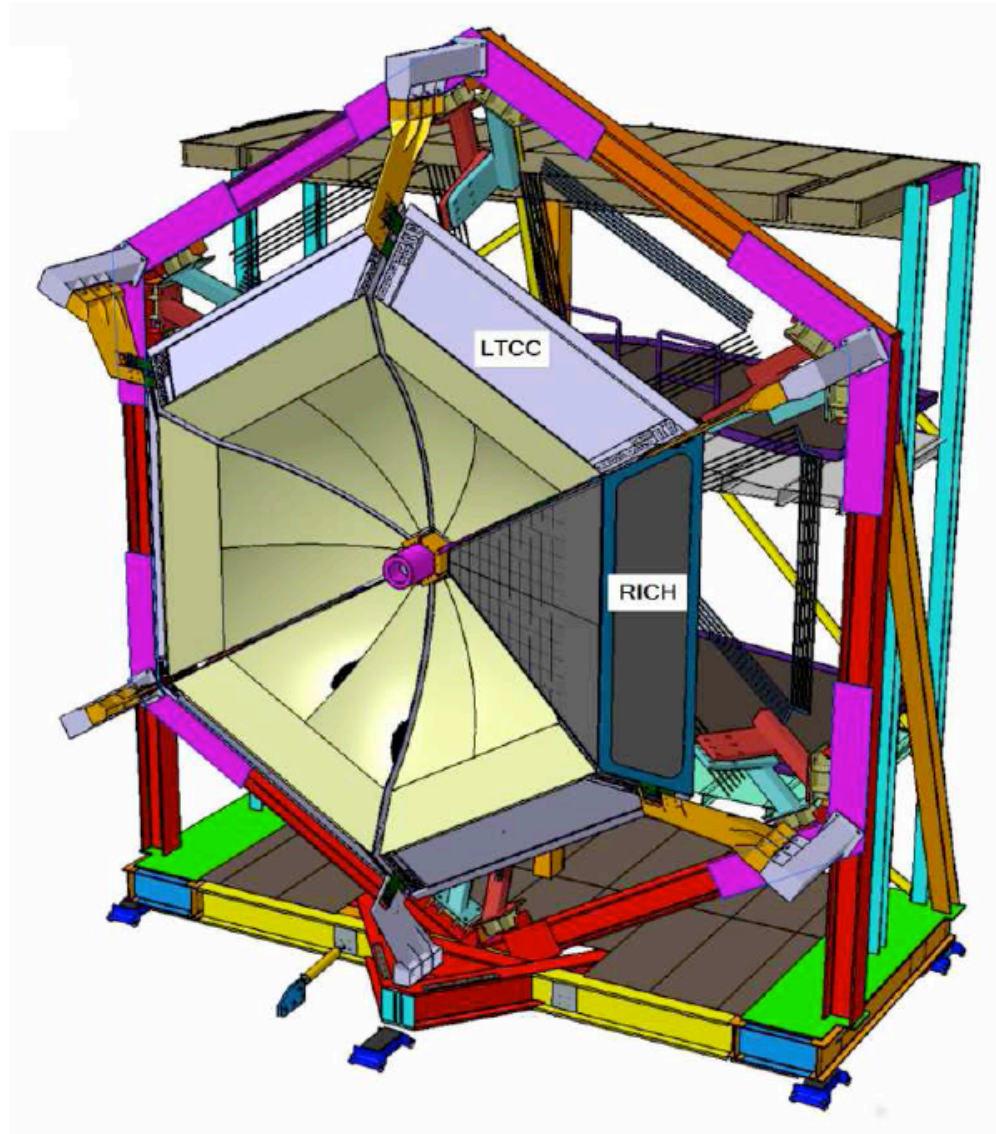
Rich Technical Review, 27th June 2013

Hall B Upgrade Baseline Schedule



RICH Project Goal

1st sector ready for physics run in 2016



1st RICH Sector Time Schedule

TASK	2013 1 st h	2013 2 nd h	2014 1 st h	2014 2 nd h	2015 1 st h	2015 2 nd h	2016 1 st h	Institutions
Prototype test	X	X						ALL
Simulations & recon. software	X	X	X	X	X			DU+INFN+ANL +UCONN
TDR	X	X						ALL
Procurement and test aerogel		X	X	X	X	X	X	INFN+JLAB
R&D electronics	X	X	X	X				INFN+JLAB
Procurement & test electronics			X	X	X	X		INFN+JLAB+UTFSM
Procurement & test MA-PMTs		X	X	X	X	X		JLAB+INFN+GU+MIP
Mechanics			X	X	X	X		INFN+JLAB
R&D Mirrors	X	X	X					INFN+JLAB
Mirrors				X	X	X	X	INFN+JLAB
Services (gas system, slow control, ..)			X	X	X	X		
RICH assembly						X	X	ALL

Commissioning & Calibration

Use Electron Signals for comission and calibration:

- Mimic pion signal (almost saturated at 4-5 GeV/c)
- Alignment (i.e. with drift-chambers and among mirrors)
- Aerogel refractive index map
- Mirror aberration corrections
- Tune of the patter-recognition and reconstruction algorithms
- Efficiency and mis-identification probability

Use meson and hyperon decays to validate RICH performances:

- K_S for pions
- ϕ for kaons
- Λ for protons

Use no-track events:

- Dark counts
- Pedestal calibration & Common noise subtraction

Operation

Gas system:

- ◆ Dry atmosphere for the hydrophilic aerogel preservation

Slow Control:

- ◆ HV and LV power supply monitor
- ◆ RICH stability monitor (i.e. on pedestals, occupancy, basic signals like high-energy electrons)

Computer farm:

- ◆ Off-line event reconstruction

Conclusions

Interference with CLAS12:

- ◆ Designed to fit into the LTCC clearance
- ◆ No impact on the downstream detector performances

RICH Operation:

- ◆ Use physics triggers for commissioning and calibration
- ◆ Use well-known maximum-likelihood methods to reconstruct the not-trivial Cherenkov signal pattern

Project Schedule:

- ◆ 2 ½ years is a challenging time
anyway feasible within the 14 months contingency