US Schedule and Resources

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FNAL

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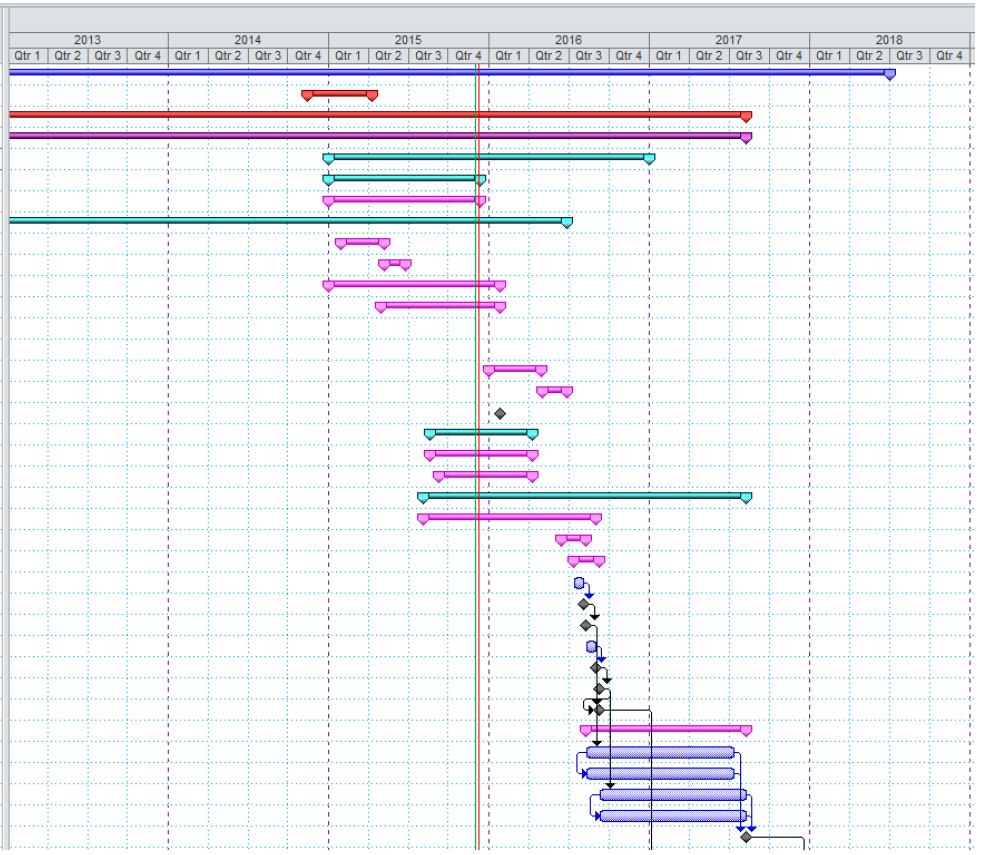
Cooling Demo US Deliverables

- LiH central absorber
  - Delivered and at RAL
- LiH secondary absorbers (2)
  - Will be procured by STFC with coordination help from US
    - Reduces “noise” hits from RF emission in Fiber Trackers
- RF Modules (2)
  - Completion of Test program in MTA on Single-Cavity Test System
    - Production coupler tests
  - Cavities, Tuner system, RF power couplers and vacuum vessels
  - “Primary” RF module vacuum system
- Partial Return Yoke extension

Deliverables: Status overview

- RF vacuum modules
  - Out for fabrication
    - Keller Technology – built prototype
    - Due (both) first week of December
- Derun reported on the details of the RF module fabrication
- Terry has reported on the status of the RF module vacuum system
- Partial Return Yoke extension out for fabrication
  - Steel in US
  - Fabrication complete ~ mid November, 2015

Task Name	Start	Finish	Duration
MICE Construction	Mon 10/3/11	Fri 3/30/18	1628 d
MICE Final Step Baseline Design	Thu 8/14/14	Wed 1/7/15	97 d
MICE RF Design, Fabrication and Testing	Mon 10/3/11	Mon 5/8/17	1404 d
MICE RF Design, Fabrication and Testing - Roll-Up	Mon 10/3/11	Mon 5/8/17	1404 d
MICE Engineering Oversight	Wed 10/1/14	Fri 9/30/16	503 d
MICE RF System Component Design	Wed 10/1/14	Thu 9/10/15	237 d
RF Vacuum Vessel Design	Wed 10/1/14	Thu 9/10/15	237 d
MICE RF Cavity Fabrication (Production)	Mon 10/3/11	Fri 3/25/16	1123 d
201 MHz Cavity Body Preparation (Production)	Thu 10/30/14	Wed 2/4/15	63 d
201 MHz Cavity Electro-polished (Production)	Thu 2/5/15	Tue 3/24/15	34 d
201 MHz Actuator Fabrication (Production Units)	Wed 10/1/14	Mon 10/26/15	269 d
201 MHz Coupler Fabrication (Production Units)	Wed 1/28/15	Mon 10/26/15	190 d
201 MHz Ceramic RF Window (Production)	Mon 10/3/11	Mon 10/3/11	1 d
201 MHz Be Cavity Iris Window (Production)	Mon 10/3/11	Mon 10/3/11	1 d
Additional MICE Beamline Bellows for Final Step	Thu 10/1/15	Fri 1/29/16	80 d
Additional MICE Beamline Bellows for Final Step Shipped to the UK	Mon 2/1/16	Fri 3/25/16	40 d
L4 - [Complete] - All RF Parts (Except Couplers) for RF Modules Ready	Mon 10/26/15	Mon 10/26/15	0 d
MICE RF Vacuum Vessel Fabrication	Thu 5/21/15	Fri 1/8/16	158 d
RF Vacuum Vessel Fabrication	Thu 5/21/15	Fri 1/8/16	158 d
RF Vacuum System Assembly & Test	Wed 6/10/15	Fri 1/8/16	145 d
RF Module#1 & RF Module#2 Assembly	Mon 5/4/15	Mon 5/8/17	506 d
RF Module#1 & RF Module#2 Integration	Mon 5/4/15	Tue 5/31/16	271 d
RF Module#1 & RF Module#2 Preparation for Shipment to RAL	Tue 3/15/16	Mon 5/9/16	40 d
RF Module#1 & RF Module#2 Shipping to RAL	Tue 4/12/16	Tue 6/7/16	40 d
RF for RF Module#1 Shipment to UK (LBNL - M&S) (Air Shipment)	Tue 4/12/16	Mon 5/2/16	15 d
L4 - [Ready] - RF Module#1 Shipment to UK (Air Shipment)	Mon 5/2/16	Mon 5/2/16	0 d
L4 - [Required] - RF Module#1 Shipment to UK (Air Shipment)	Mon 5/9/16	Mon 5/9/16	0 d
RF for RF Module#2 Shipment to UK (LBNL - M&S) (Air Shipment)	Tue 5/10/16	Tue 5/31/16	15 d
L4 - [Ready] - RF Module#2 Shipment to UK (Air Shipment)	Tue 5/31/16	Tue 5/31/16	0 d
L4 - [Required] - RF Module#2 Shipment to UK (Air Shipment)	Tue 6/7/16	Tue 6/7/16	0 d
L4 - [US Deliverable] - MICE RF Module#1 & RF Module#2 Arrives in UK (L3)	Tue 6/7/16	Tue 6/7/16	0 d
RF Module#1 & RF Module#2 Installation & Commissioning at RAL	Tue 5/10/16	Mon 5/8/17	250 d
RF Module#1 Installation & Commissioning at RAL (LBNL - Resources)	Tue 5/10/16	Mon 4/10/17	230 d
RF Module#1 Installation & Commissioning at RAL (LBNL - M&S)	Tue 5/10/16	Mon 4/10/17	230 d
RF Module#2 Installation & Commissioning at RAL (LBNL - Resources)	Wed 6/8/16	Mon 5/8/17	230 d
RF Module#2 Installation & Commissioning at RAL (LBNL - M&S)	Wed 6/8/16	Mon 5/8/17	230 d
L4 - [US Commissioning Complete(UK)] - RF Module#1 & RF Module#2 Installation & Commissioning at	Mon 5/8/17	Mon 5/8/17	0 d



Key Dates

TASK	DATE
RF Module vacuum vessels delivered to LBNL	December 2015
First RF module arrives at RAL	May 2016
Second RF module arrives at RAL	June 2016
Partial Return Yoke extension arrives at RAL	January 2016

Personnel on RF

Name	Institution	Approx. MICE/MTA %	Activities
Technicians (RF Module)	LBNL	150%	RF Module
Pierrick Hanlet	IIT	25%	Control System
Alan Bross	FNAL	50%	Construction Mgmt, Exp. Support
Terry Anderson	FNAL	90%	RF Module Vacuum, MTA Support
Milorad Popovic	FNAL	80%	Exp. Support, RF Module
Mark Palmer	FNAL	20%	Construction Mgmt, Exp. Support
Tim Loew	LBNL	50%	RF Module
Tianhuan Luo	LBNL	50%	RF Module, MTA Support
Yagmur Torun	IIT	50%	RF Module, MTA Support
Daniel Bowring	FNAL	50%	RF Module, MTA Support
Katsuya Yonehara	FNAL	40%	MTA Support
Alfred Moretti	FNAL	40%	RF Module, MTA Support
Dave Peterson	FNAL	35%	RF System, MTA Support
Derun Li	LBNL	25%	RF Module
Richard Krull	FNAL	10%	Project Controls
Ralph Pasquinelli	FNAL	20%	RF Module
Peter Garbincius	FNAL	15%	Project Mgmt

Total ~ 12 FTE RF effort up to delivery @ RAL

~1 additional year of effort for install & commissioning.
➔
~10 FTE total (includes exp. support)

All personnel Identified except for Fermilab Postdoc (TBN'd)

Risk Table

All Risks Retired

RISK	STATUS
Additional magnetic issues found with design and surface treatment of MICE 201 MHz Couplers.	Retired. Tests in the MTA with the SCTS indicate no issues operating in B field.
RF Module #1 & #2 Integration Issues at RAL.	Retired. SCTS assembly and test successful
RF x-ray emission from cavity effects performance of fiber tracker	Retired. Tests in the MTA with the SCTS show that radiation levels at MICE gradient (& above) present no problem for the trackers ➔ Data Quality