

# RF Operations: Commissioning the RF systems and antenna conditioning

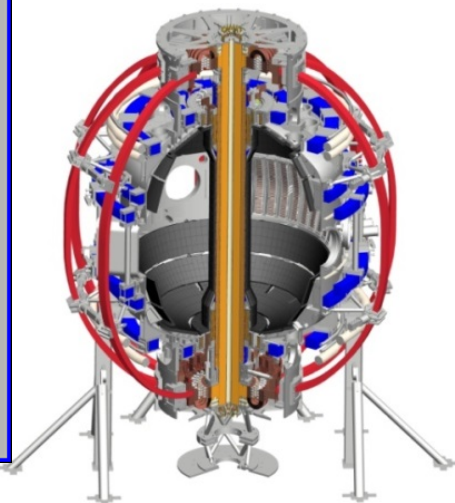
J. Hosea et al.

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**NSTX-U Pre-Forum Meeting 2**

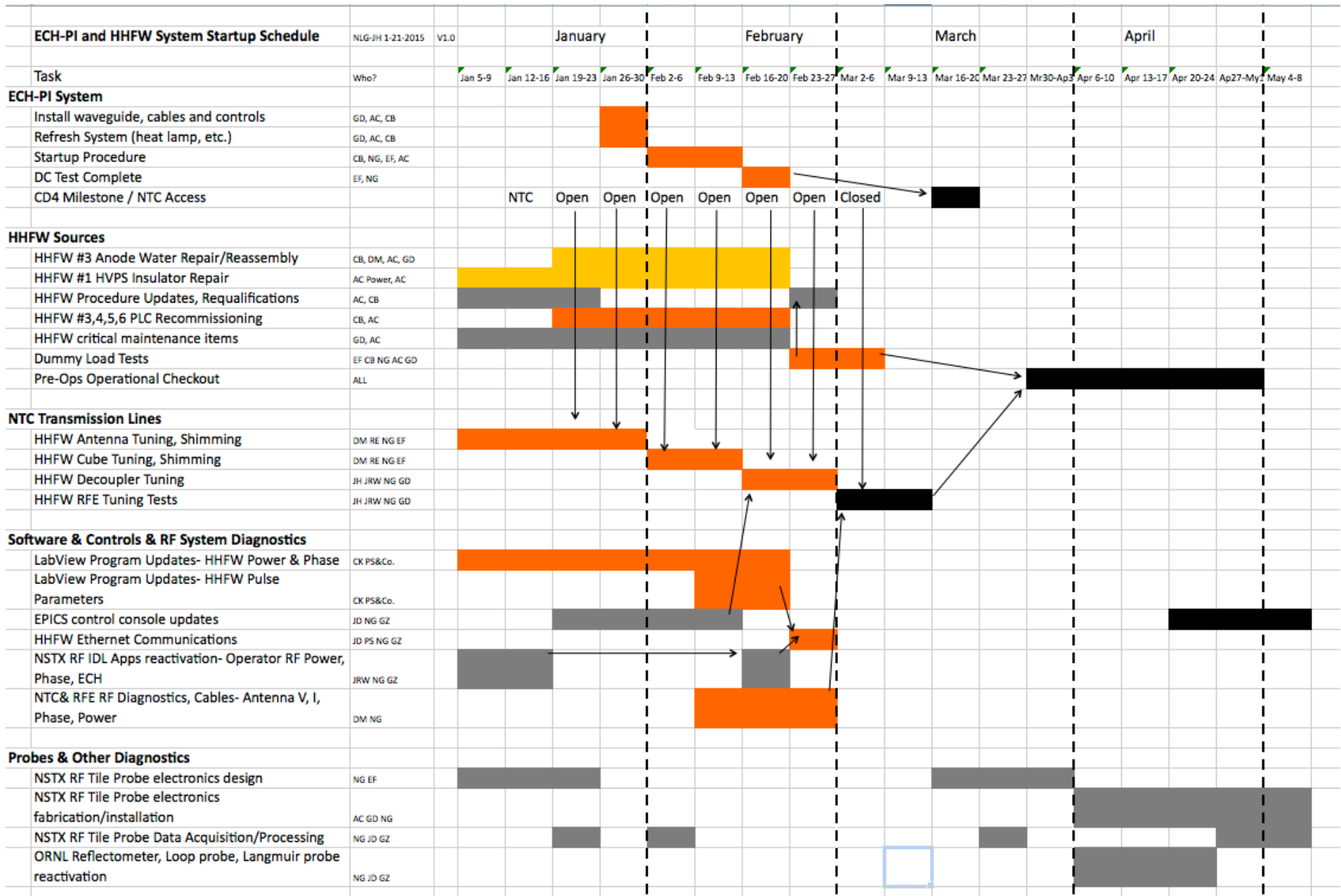
**January 28, 2015**

**PPPL**

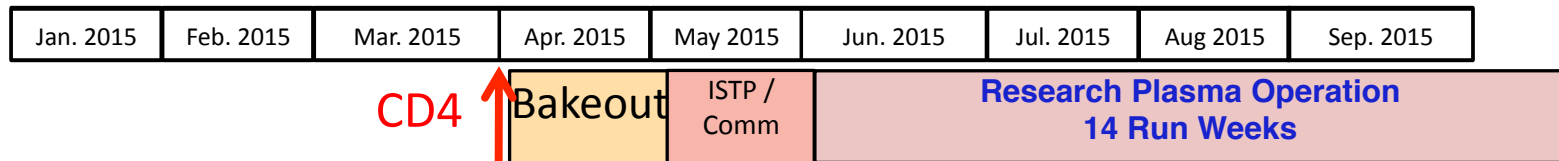


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# Overall RF system commissioning schedule for FY2015

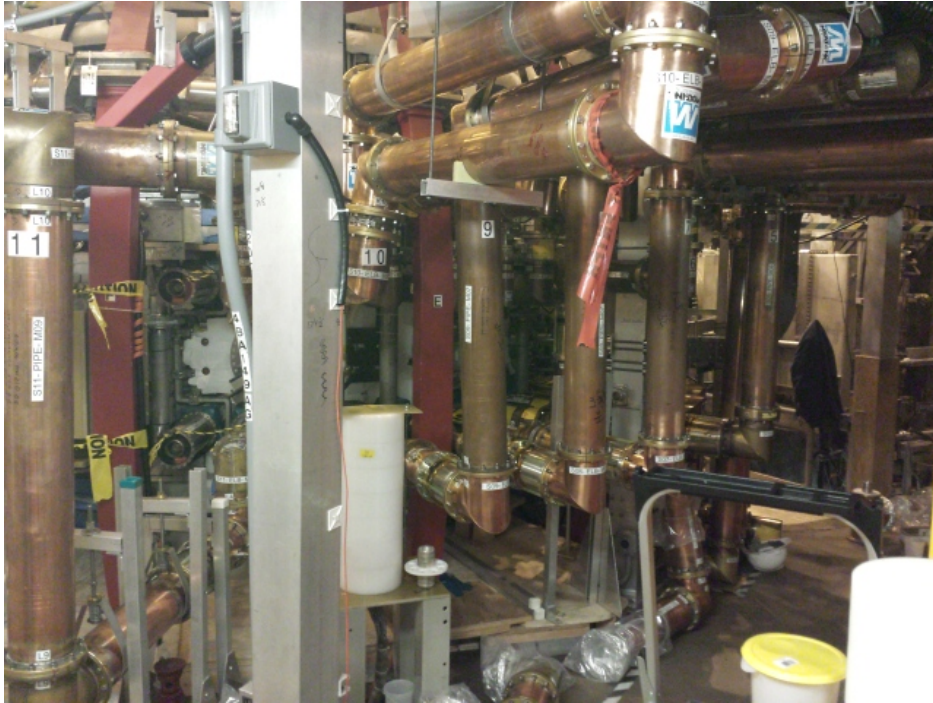


# HHFW system commissioning schedule for FY2015

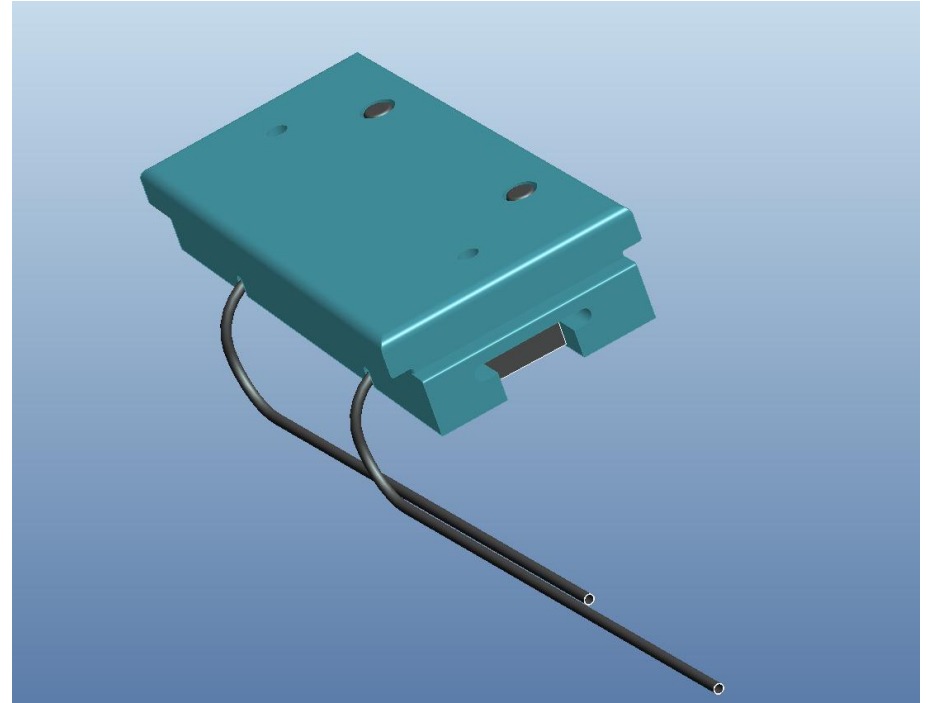


- **Complete transmission and matching hookups:**
  - Jan Finish loops
  - Feb Hookup to loops, set decouplers,
  - Mar Match vacuum from RFE
- **Complete source assembly and testing**
  - Feb - Mar Complete source assembly and test into dummy load
  - March Labview updates for power/phase, EPICs system control
- **NSTX-U TC & RFE diagnostics re-commissioning**
  - Feb - March Into MDSplus
- **Prepare diagnostics for supporting HHFW studies**
  - May Complete coaxial Langmuir probe electronic hookups and connections to central computer (MDS plus)
  - May IR camera commissioning
  - May ORNL Reflectometer, probe, etc. reactivation
  - May RF probes at Bay J installation, hookup, commissioning

# Transmission line and RF probe elements



Resonant loop connections to top/bottom antenna element feeds



Coax connected Langmuir probes at Bay J top and bottom  
– Two probes per tile in rows 2, 3, and 4

# Antenna conditioning schedule for FY2015

Jan. 2015	Feb. 2015	Mar. 2015	Apr. 2015	May 2015	Jun. 2015	Jul. 2015	Aug 2015	Sep. 2015
			CD4 ↑ Bakeout	ISTP / Comm	Research Plasma Operation 14 Run Weeks			

- **Conditioning of antenna**

- **May - June Vacuum conditioning**

- ✧ Condition to maximum voltage after Boronization
    - ✧ Condition to maximum voltage after adding Lithium

- **June - July Plasma conditioning**

- ✧ Plasma condition to maximum power with RF only
    - ✧ Plasma condition with RF + NB
      - NB1
      - NB2
      - NB1 + NB2
      - Determine antenna voltage limit
      - Set acceptable antenna/separatrix gap for each NB configuration