AREAL- Phase 1

Progress & Status

B. Grigoryan

on behalf of AREAL team

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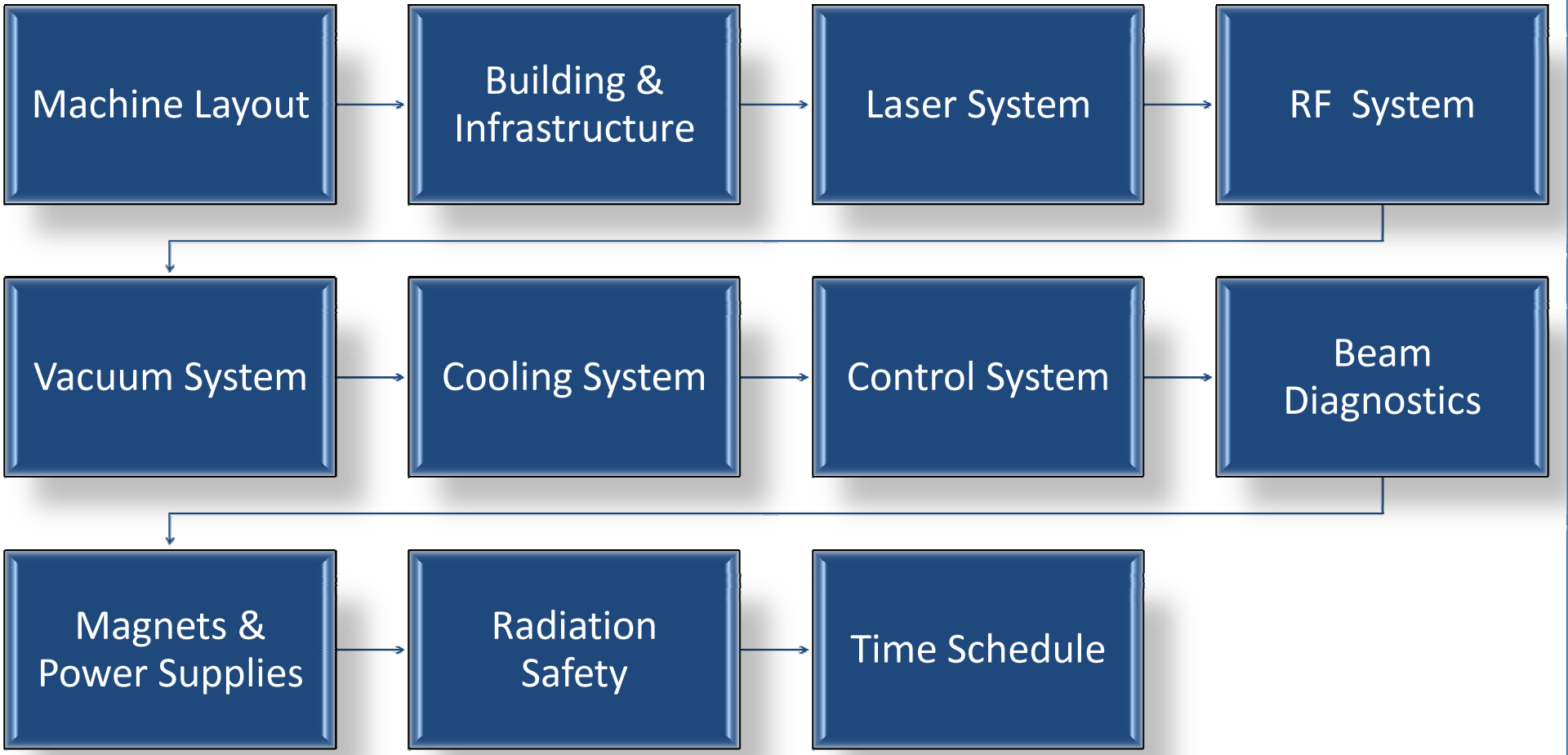
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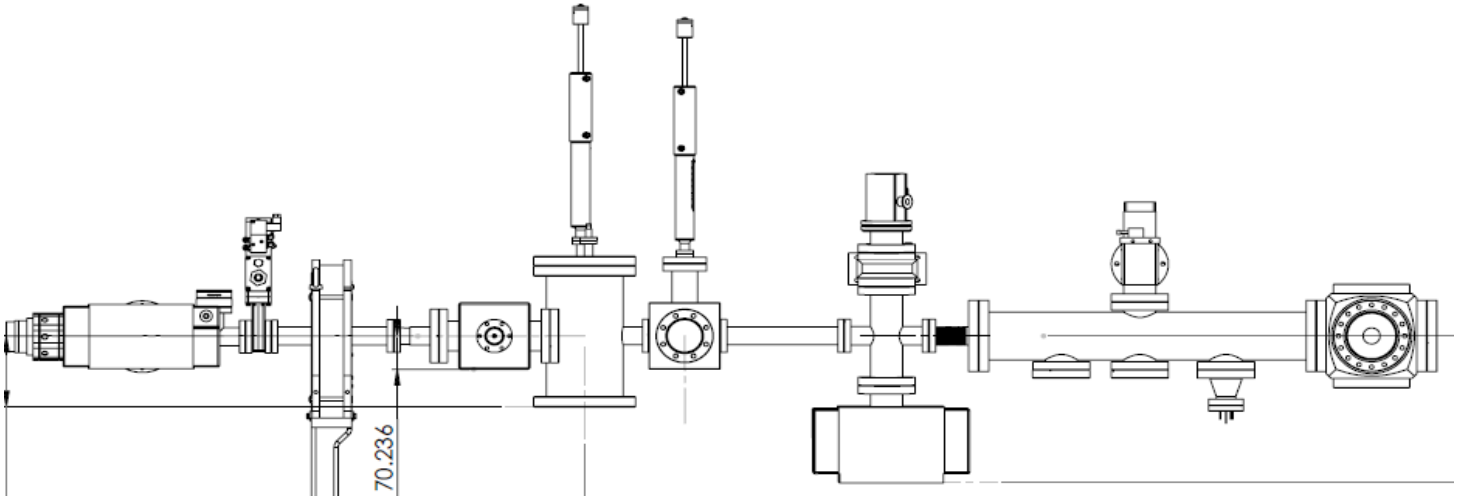
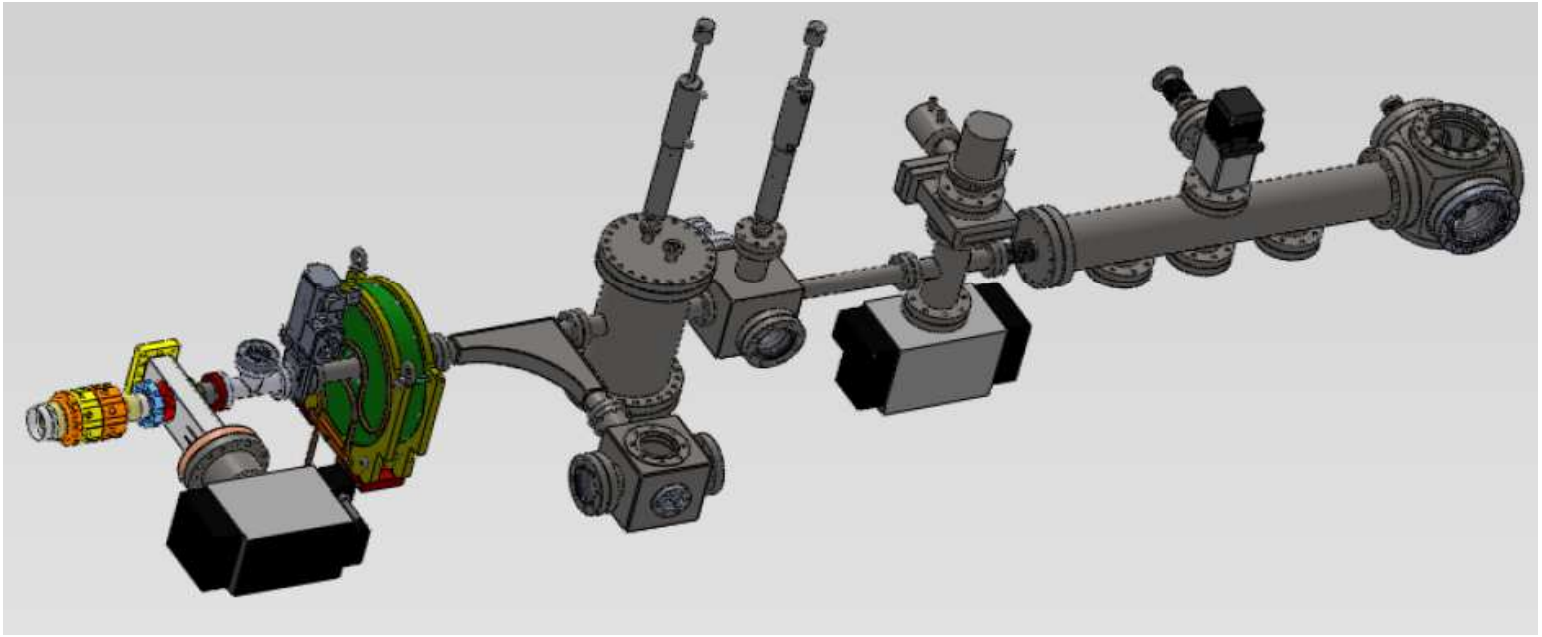
Machine Layout





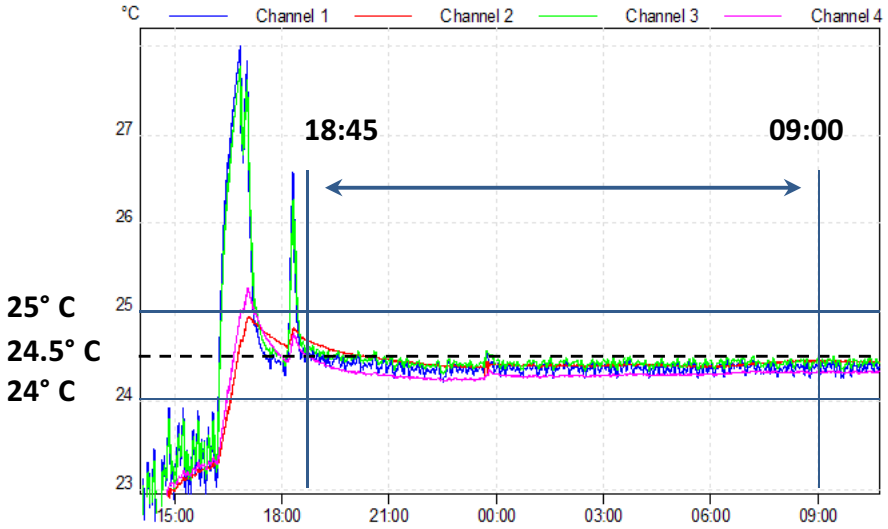
Building & Infrastructure

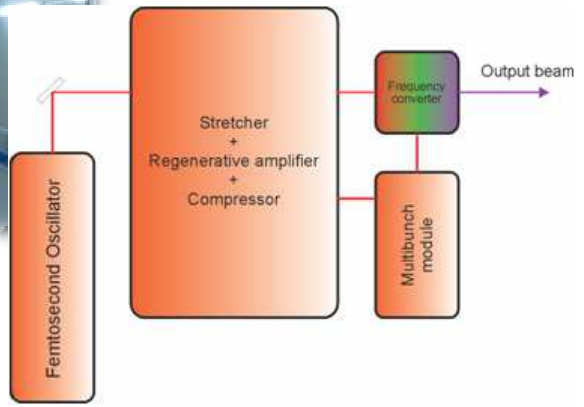
- All construction works are finished
- Thermal stabilization & ventilation system is finished
- Water, power, networking, communication is ready
- General mounting works in laboratories are finished

- Minor mounting work for machine sub-systems
- Marks and signs placement
- Furnishing the laboratories

✔ Expecting to finish all before August 15, 2013

Laser System



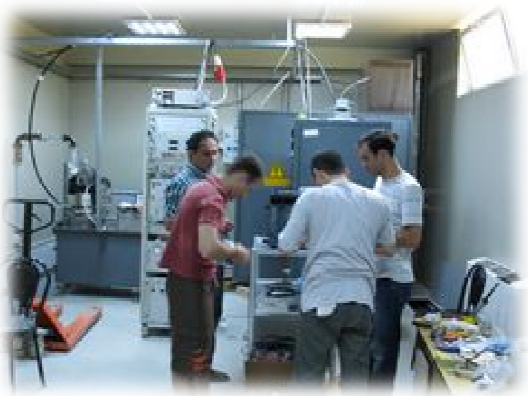


- Room and infrastructure is ready
- Optical table is mounted and pre-aligned
- Optics and optical mechanics is ready
- Preliminary optical path assembled, ready for measurements

- Some remaining accessories to buy
- Set-up and acceptance check upon laser arrival
- Final set-up and ready for operation

✔ Expecting to finish all before September 10, 2013

RF System



- Infrastructure, cabling, power, etc. are ready
- RF System equipment is complete and mounted in place
- LLRF, MO, pre-amplifiers, klystron and other components are tested
- Modulators are ready
- Final assembly at operating locations is finished

- Waiting for RF pre-amplifier to be repaired
- Minor work on digitizing analog interlocks
- Final test of entire system
- Full power RF with LLRF and high power conditioning

✓ Expecting to finish all before August 22, 2013

Vacuum System

- 100 % of machine components for vacuum system are procured
- 98% of components are tested for HV
- Dipole Vacuum chamber is ready
- Assembly of components in tunnel is started

- Gun cathode backplane pump out system is in progress
- Gun mirror holder fabrication and test for vacuum in progress
- Final assembly of entire linac

✓ Expectingto finish all before August 15, 2013

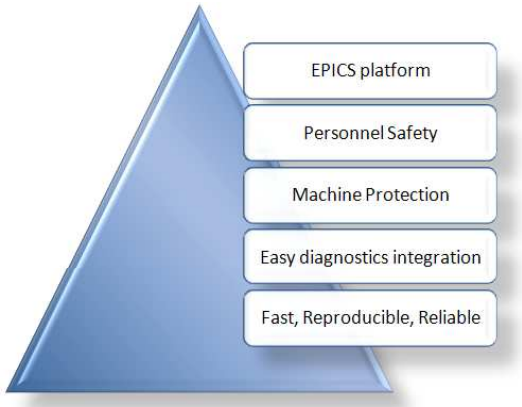
Cooling System

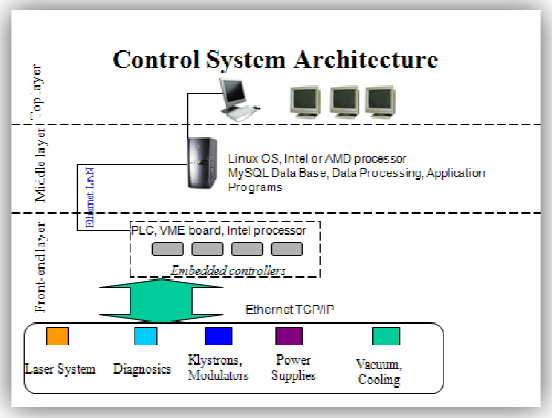
- Klystron cooling system is ready and functioning
- Design of other components cooling is finished
- Required components for other systems procured

- Improvement on klystron cooling system for better reproducibility of temperature.
- Assembly of gun cooling,
- Assembly of solenoid magnet cooling
- Test and final assembly of entire system

✓ Expecting to finish all before September 20, 2013

Control System



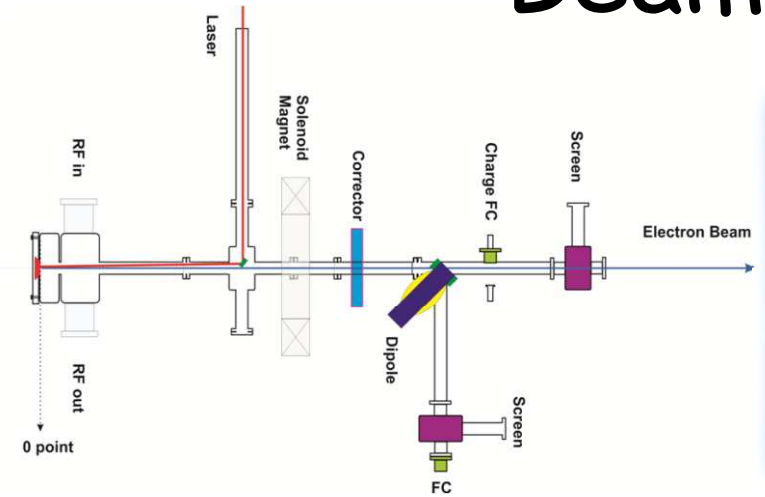


- Vacuum standalone control is ready
- Control system global architecture is ready
- Machine component device I/O list is ready

- Diagnostic system local control
- Timing system
- Global interlock system and personnel safety
- Implementation of local systems to global control

✔ Expecting to finish all before September 30, 2013

Beam Diagnostics

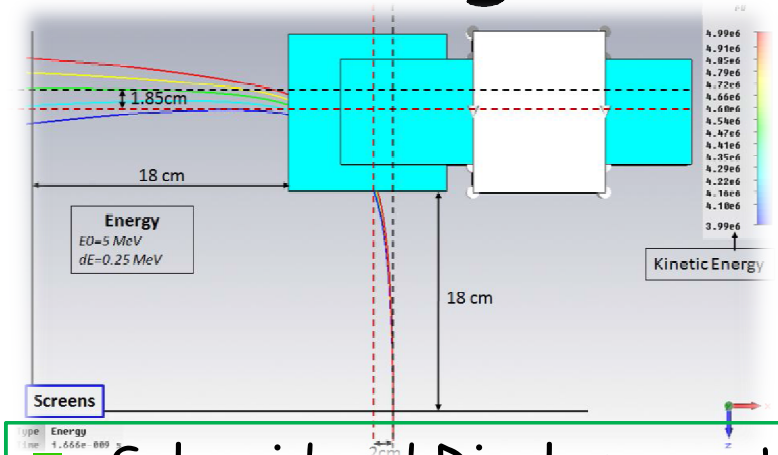


- Nominal setup of diagnostics for Phase 1 is ready
- Diagnostics components ready
- Vacuum components for diagnostics ready
- 95% of required equipment is procured
- Vacuum test of components is done

- Assembly of components in progress
- Electronics for diagnostic devices in progress
- Procurement of remaining items in progress
- Control system for diagnostics in progress
- Final assembly of machine

✔ Expecting to finish all before September 25, 2013

Magnets & Power Supplies

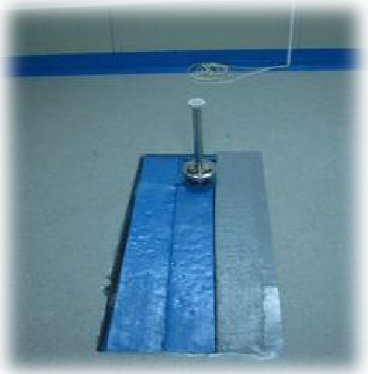


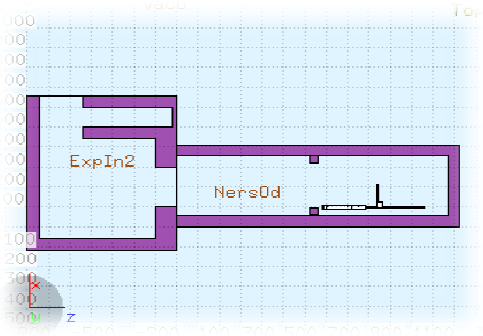
- Solenoid and Dipole magnets are ready
- Power supplies ordered for fabrication
- Magnetic measurement bench ready

- Power supply fabrication in progress
- Expecting magnetic measurements for all magnets
- Corrector magnets and power supplies design in progress
- Final assembly on machine

✔ Expecting to finish all before September 10, 2013

Radiation Safety



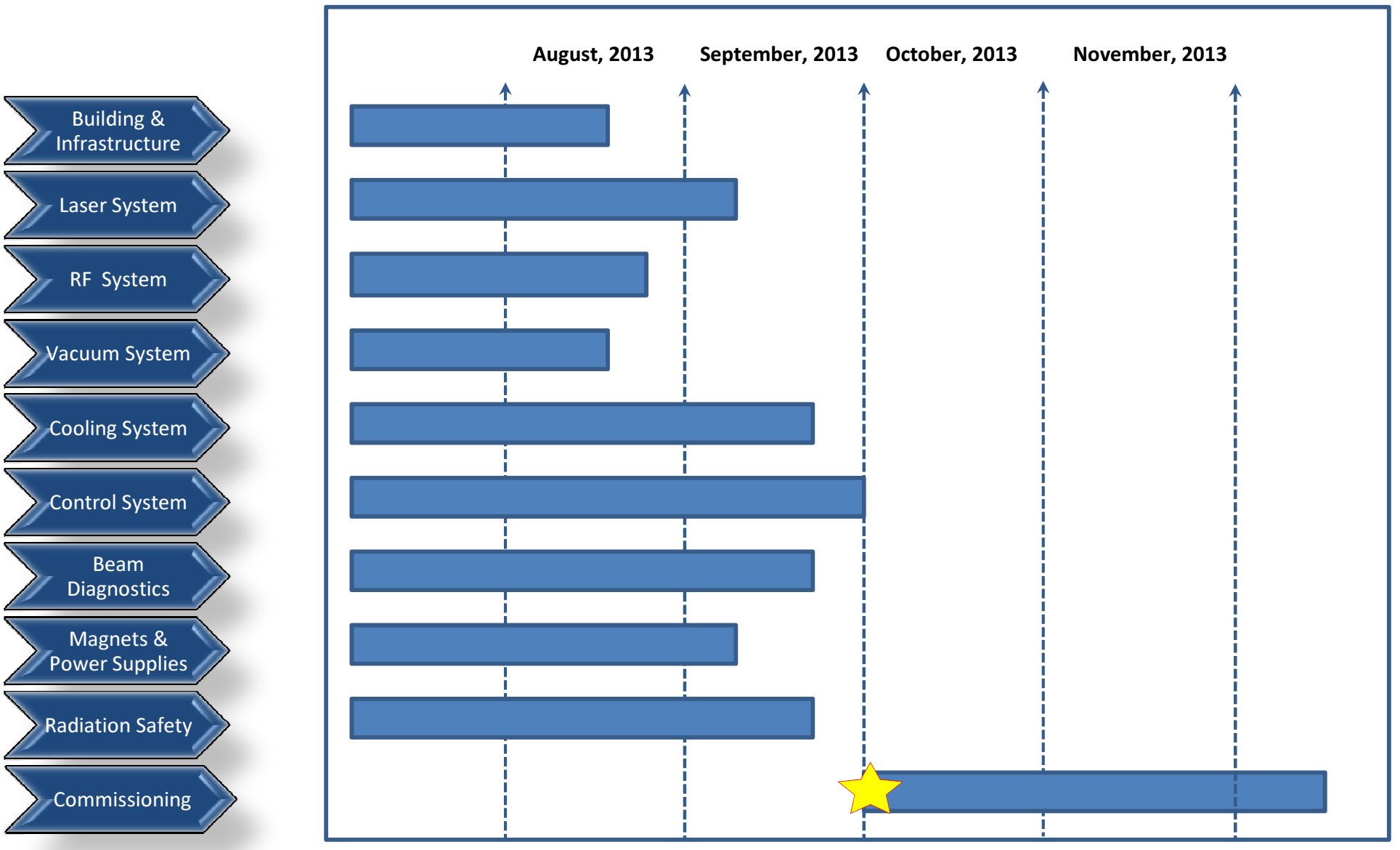


- Calculations of radiation level for both operation modes arefinished
- Radiation Safety equipment is procured
- Personnel safety concept is ready
- Tunnel, laser room, RF room radiation safety is provided

- Personnel safety interlock system integration in global control system in progress
- Mounting and assembly of safety equipment in progress
- Final assembly and test of radiation safety alarms and interlocks

✔ Expecting to finish all before September 20, 2013

Time Schedule



Summary

- More than 95% of machine components are at CANDLE
- Assembly of systems in parallel with alignment work is started
- Most of the tests (Vacuum, RF, MO, etc.) are finished
- All the general components procurement is finished

Many thanks to all members and friends of AREAL !!!

A bit more work to do to complete (“kick”) the goal

- Remaining items are expected to arrive before August
- Assembly and test of arriving equipment has to be done.
- Finishing all the minor works and be ready for commissioning