


# Remarks on the assembly & test of a fully equipped cryomodule in SM18 SC Test Stand

P. Maesen

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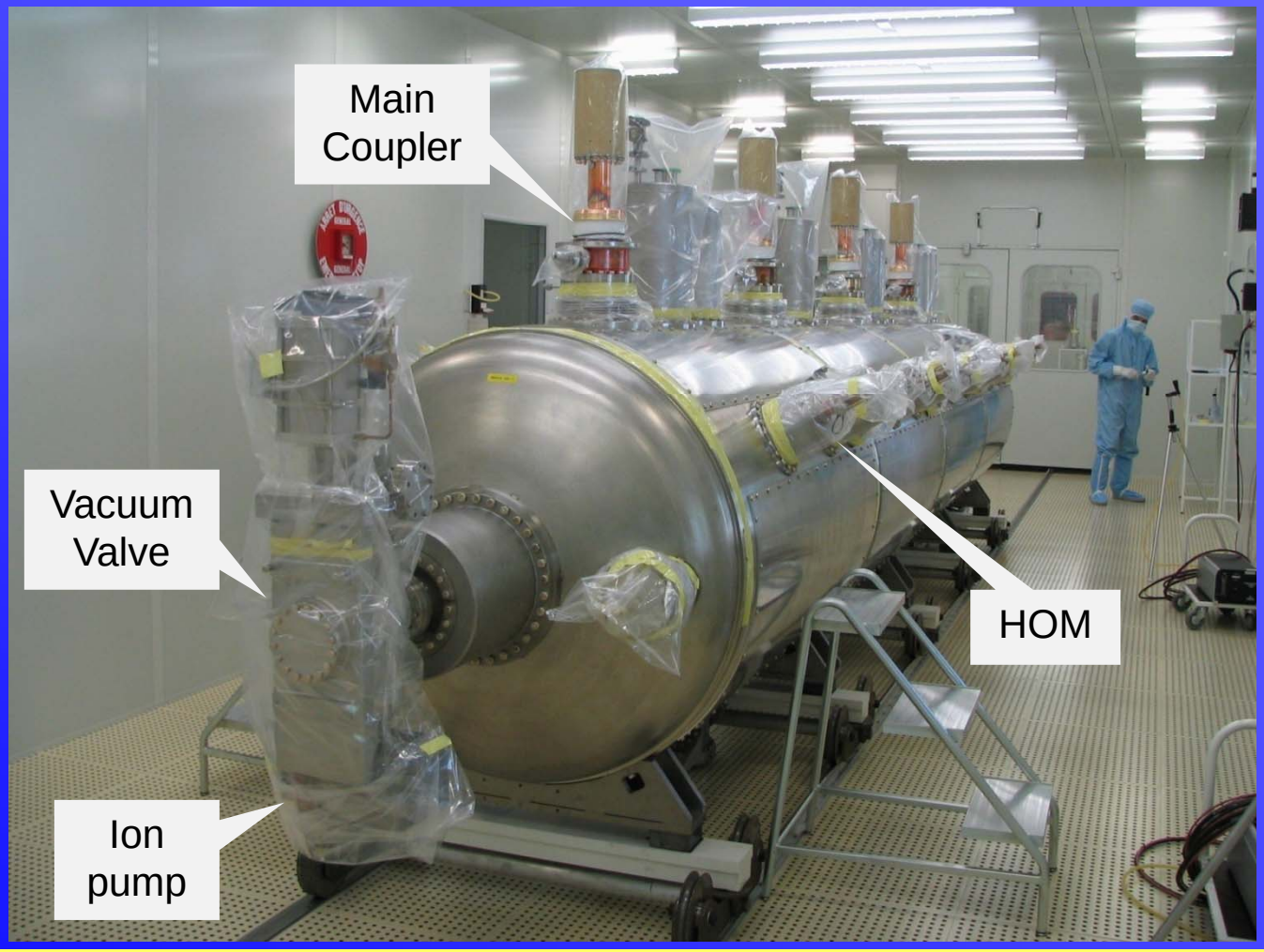
# SM18 Presentation

- 2 x 15 meters grey-white room with rail
- 1 canopy for pieces conditioning
- 2 horizontal radiation-safe bunkers
  - First one fed by 352 MHz 300kW cw klystron
  - Second one fed by 400 MHz 300kW cw klystron
  - But :
    - Demineralized water capacity a bit short for parallel operation
    - Not equipped for 2 Kelvin
    - Limited Cryogens availability

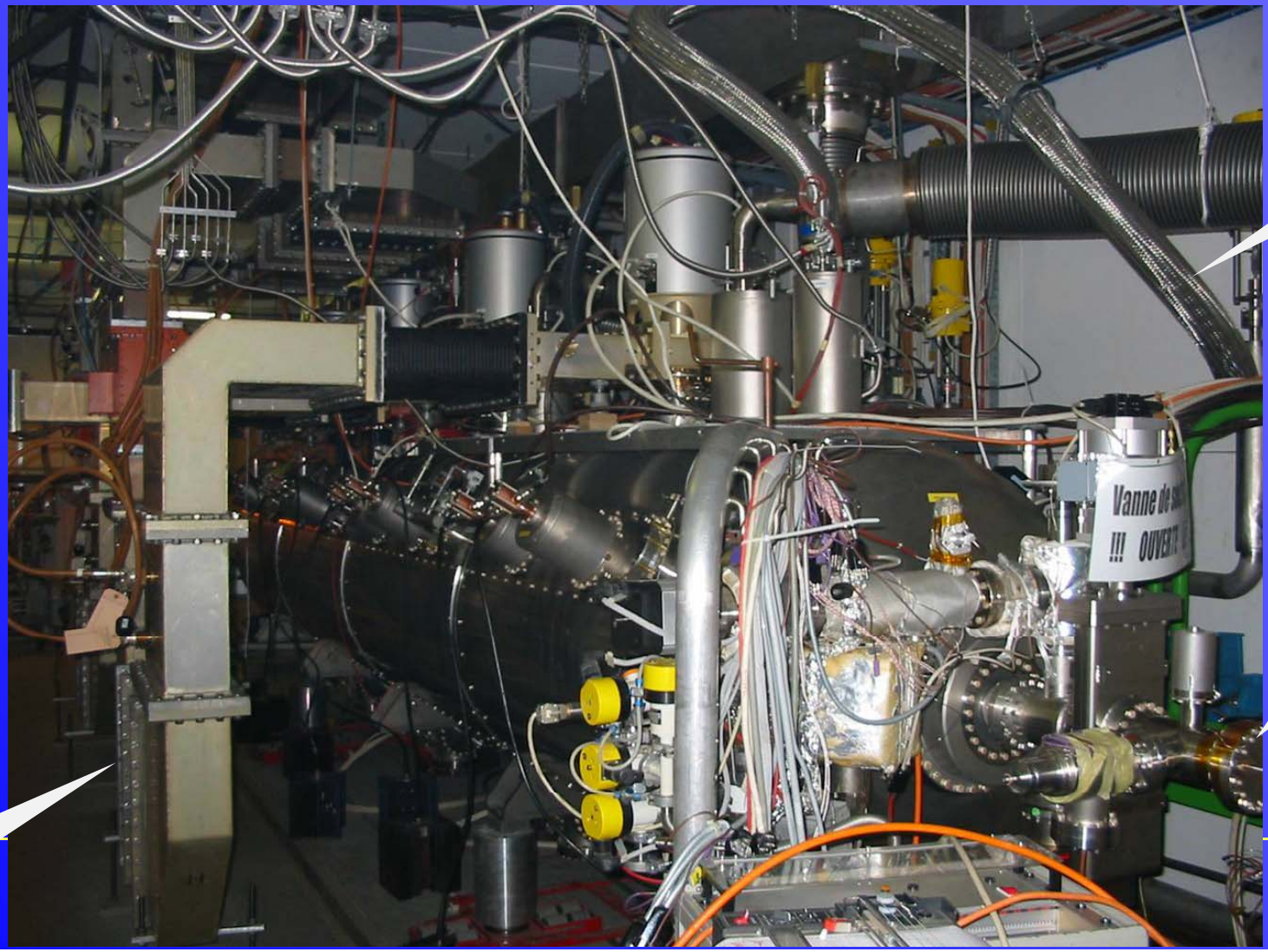
# Assembly in clean room

- 30 meters long in 2 x 15 meters Class 1000 then 10



# Horizontal Bunkers

- Transfer of modules to radiation safe bunker
- Connections with cryogenic lines, RF, controls, e- stoppers



# Vacuum connection & leak detection

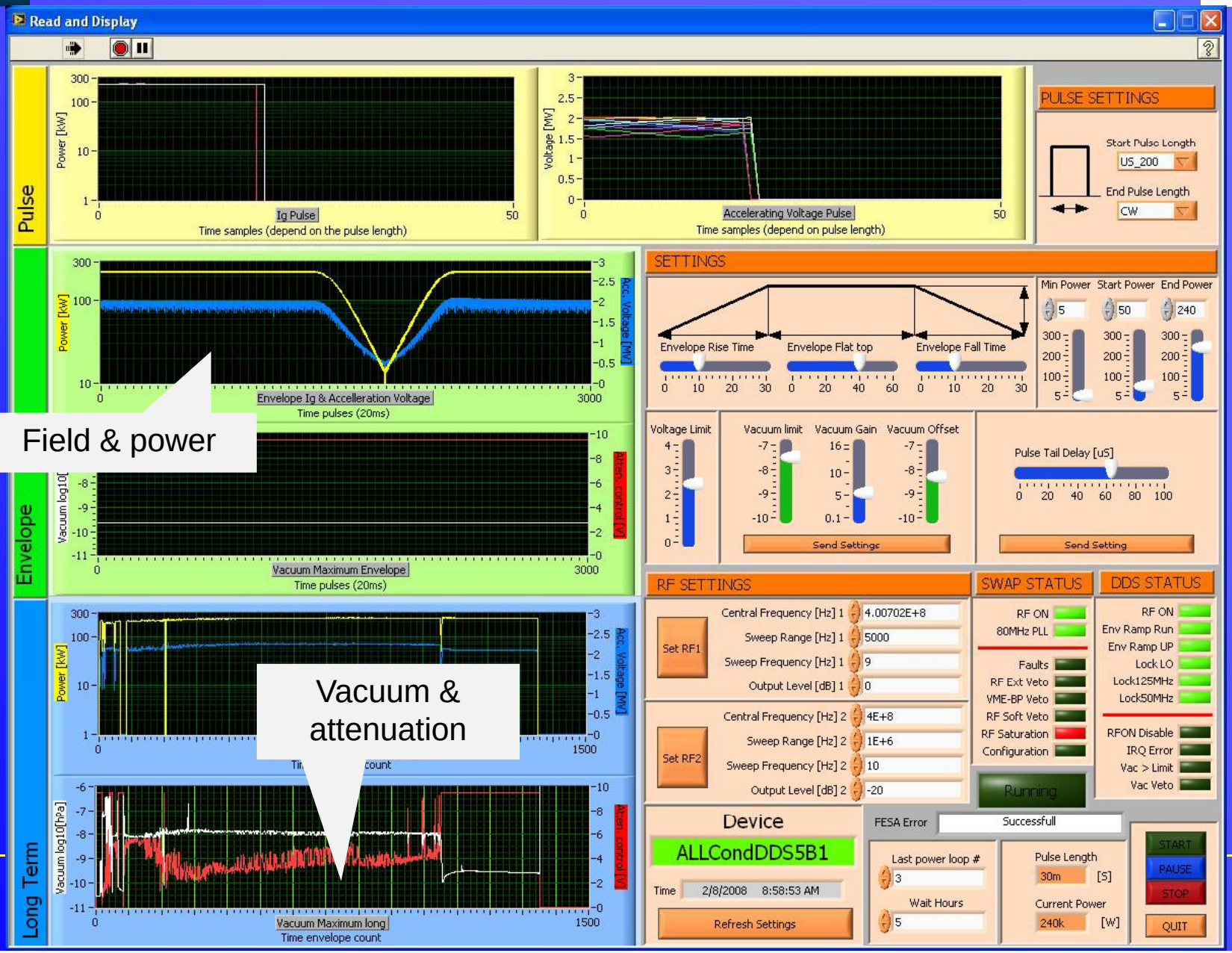
- As for the vertical test great care for the vacuum manipulations is mandatory !
  - Low speed oil free pumping system
  - Each operation in clean room followed by pumping and leak detection
  - Penning gauge near coupler

# Low power measurements

- Loaded Q, tuning range, HOMs measurements
- Antenna calibration

- And before power feeding
- Dedicated Interlocks installation & full check
  - Main couplers very sensible !
  - Remember : in case of ceramic break down, pollution of the whole module to be dismantled !
  - Fast RF shut off with vacuum increase, arc detection, He pressure raise, RP alarm, RF zone access etc.

# Conditioning up to max field



# Plan for Future

- 400 MHz test stand must be kept in good shape for the LHC life time !
- The 352 MHz cw will be modified into pulse mode for Linac 4 purpose
- Needed 700 MHz pulsed klystron (as documented in FP7 proposal Dec2007 ), it should operate in parallel feeding one of the bunker -> to be discussed
- Challenge for up to date field performance