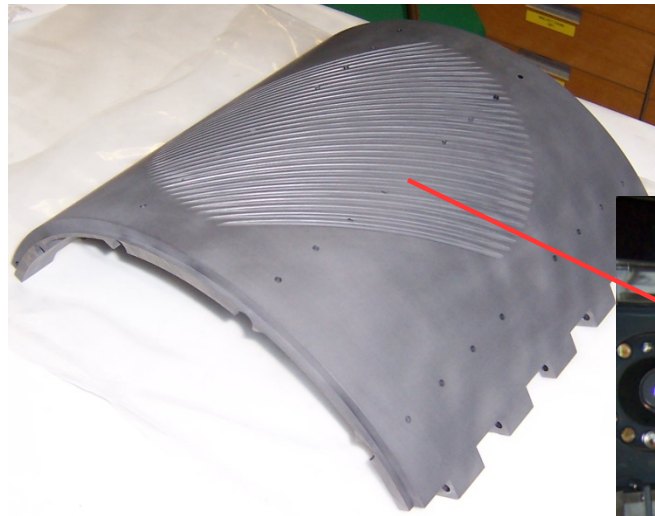
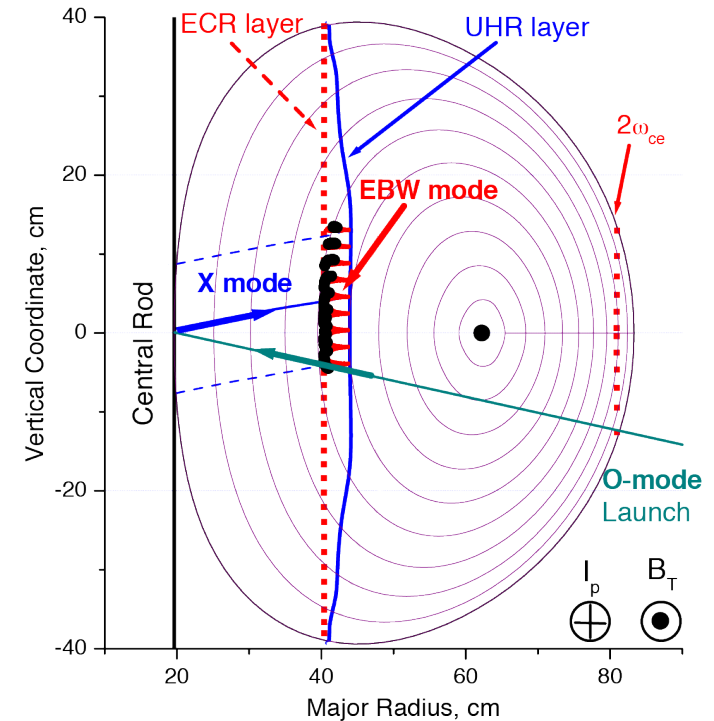
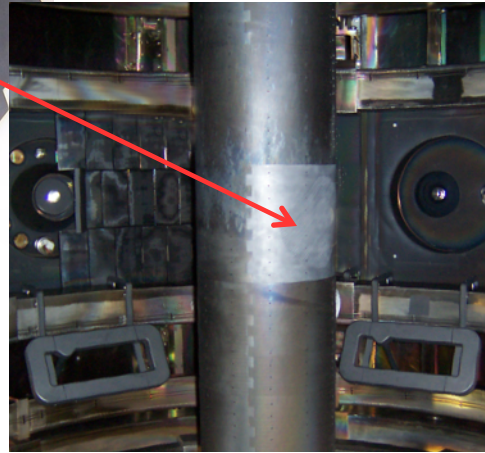


# MAST: 28 GHz EBW start-up campaign in 2013 used new low-loss transmission line to achieve record plasma current

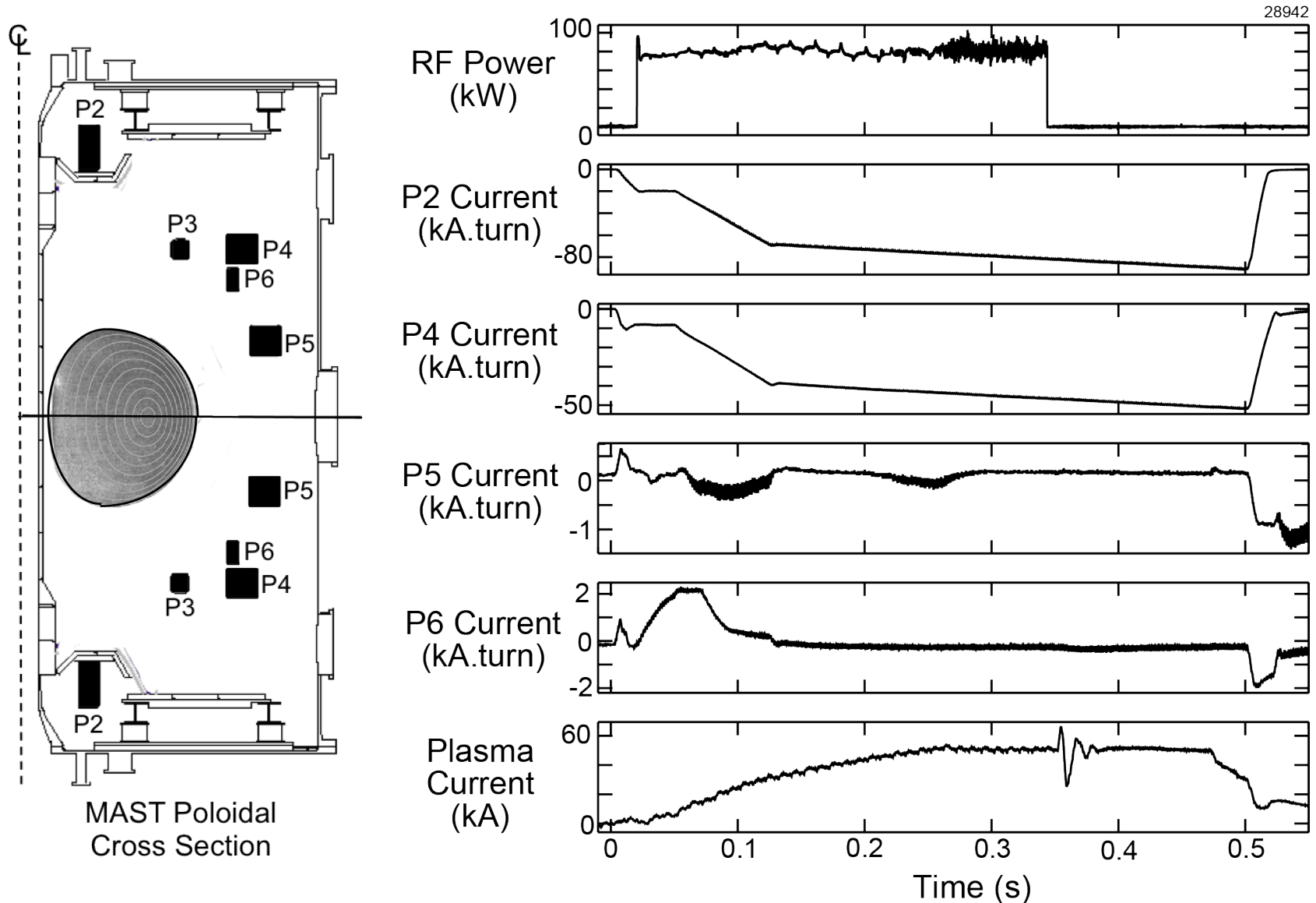


Grooved reflecting polarizer machined into center column in MAST



- 28 GHz O-mode weakly absorbed ( $< 2\%$ ) below  $n_e \sim 1 \times 10^{19} \text{ m}^{-3}$  cut off
- Polarizer on center column converts to X-Mode that then 100% converts to EBWs
- Previously achieved  $I_p \sim 33 \text{ kA}$  but arcs in waveguide limited RF power [Sept 2009]
- During two one-week EBW start-up campaigns in 2013 coupled 70-100 kW for 300-400 ms achieving  $I_p = 50\text{-}75 \text{ kA}$

# MAST: $I_p \sim 50$ kA achieved with 70-80 kW RF pulses; $I_p$ maintained at $\sim 50$ kA for 150-200 ms, well after RF turn-off



# MAST: Ramped P5 (radial field) during 400 ms, 70 kW RF pulse achieving $I_p \sim 75$ kA

