

F16 – Sawtooth locking with fast modulated ECH/ECCD and using the RT system (S. Nowak, E. Alessi)

Effect of fast EC modulation inside and around $q=1$ for the sawtooth locking

Gy1 (400 kW $\Rightarrow$ 300 ms) & Gy4 (300 kW $\Rightarrow$ 500 ms) on Port 8 (RT system)

Pulse list

1) Zero at ~ 5.25 T

- 2) 5.25 T / 500 kA/ $n_e \sim 0.6 \cdot 10^{20} \text{ m}^{-3}$, Gy1 & Gy4 on-axis in ECH (ref. #34286) for 150 ms, 20 Hz / 80% d.c. and sweeping around $q=1$ for 150 ms
- 3) repeat 2) in co-ECCD
- 4) repeat 3) with 125 Hz / 50% d.c.
- 5) repeat 3) with 125 Hz / 40% d.c.
- 6) repeat 3) with 167 Hz / 50% d.c.
- 7) repeat 3) with 250 Hz / 50% d.c.

as 3) - 4) - 5) - 6) - 7) for 700 kA

- 8) repeat 2) 5.25 T / 700 kA/ $n_e \sim 0.6 \cdot 10^{20} \text{ m}^{-3}$, in co-ECCD
- 9) repeat 3) with 125 Hz / 50% d.c.
- 10) repeat 3) with 125 Hz / 40% d.c.
- 11) repeat 3) with 167 Hz / 50% d.c.
- 12) repeat 3) with 250 Hz / 50% d.c.

Requirements

n_{av} (10^{20} particles m^{-3})	0.6
$B_{min} - B_{max}$ (T)	5.25
$I_{min} - I_{max}$ (kA)	500 – 700
ECRH (kW)	700
LH (kW)	no
Pellet	no
Special requirements	no
Essential diagnostics	Electron density and temperature profiles D _s , Mirnov coils

Number of required good pulses 12