

# OP-XMP-026: Bring HHFW online and raise power to 6MW

## Week of February 20 (nominally)

### Discharge setup:

- LSN, 600kA discharge at  $B_T = 4.5T$ , L-mode discharge in helium as for shot 112699
- Requirements for triangularity and elongation similar to those for shot 112699.
- Outer gap to antenna  $\sim 4cm$ . HHFW power from 0.2-0.4sec beginning at 20kW per transmitter. [1 source NB injected?; uses PF1B?]
- Gas fuelling program?
- HeGDC?

### Plan:

- During this half day conditioning run we will start with  $14m^{-1}$  phasing and after reaching sufficient power we will change to  $7m^{-1}$  and then  $3m^{-1}$  (if time permits)
- Checkout of HHFW system and pertinent diagnostics
- Measurement of gap RF signals - at 20 kW/source set signal attenuation for high power
- Push power up at  $14 m^{-1}$
- At elevated power vary phase to see effect on gap signals

### Experiment duration:

- 1/2 day

**XP Shot Planning Form**

Date:

<b>Author</b>	J. Hosea
<b>Title</b>	Bring HHFW online and raise power to 6 MW
<b>ET Group</b>	Wave-Particle ET
<b>Describe the shot(s) you require</b>	<p>Plasma current magnitude.  L-mode or H-mode?  With or without ELMs.  DN, LSN or USN?  Acceptable Elongation range if applicable  Acceptable Triangularity range if applicable  Does this shot use PF1B?</p> <p>LSN, 600kA discharge at <math>B_T = 4.5T</math>, 1 source NB injected?, L-mode discharge (that uses PF1B?). Requirements for triangularity and elongation similar to those for shot 112699. He gas. Outer gap to antenna <math>\sim 4cm</math>. HHFW power from 0.2-0.4sec beginning at 20kW per transmitter.</p>
<b>Describe fuelling requirements</b>	<p>Center stack gas pressure and injection time.  Out board gas injection requirements.  Supersonic gas injection requirements.</p> <p>Similar to fueling for shot 112699. He flow is stopped prior to application of HHFW (?)</p>
<b>Reference shot number</b>	That has conditions similar to the one you require 112699
<b>Glow discharge requirements</b>	<p>Is 5min HeGDC sufficient?</p> <p>Do we glow during this conditioning?</p>
<b>rtEFIT requirement</b>	<p>Do you require rtEFIT capability?  If so do you have a target shot number to use?  Are you willing to spend your XP time for rtEFIT development?</p> <p>Not required if gap can be maintained without it.</p>
<b>Any other special requirements for this shot?</b>	Should be programmed to be as stable as possible and as reproducible as possible.
<b>Any other useful information?</b>	During this half day conditioning run we will start with $14m^{-1}$ phasing and after reaching sufficient power we will change to $7m^{-1}$ and then $3m^{-1}$ (if time permits)

