x>1 and EMC Effect (XEM2) Run Plan

October 27, 2022

1 Target Boiling Studies - Part I

TURN ALL SHMS HODOSCOPE CHANNELS BACK ON
TURN ALL SHMS HODOSCOPE CHANNELS BACK ON
TURN ALL SHMS HODOSCOPE CHANNELS BACK ON

- This study requires stable high current. It will be postponed if high current beam is unavailable at the moment.
- **DAQ:** Single Arm
- **SHMS/HMS Trigger:** PS2 (ELREAL)/PS2 (ELREAL)
- **SHMS Settings:** -4.0 GeV & 20°
- **HMS Settings:** -4.0 GeV & 20°
- Adjust the prescales (SHMS PS2 and HMS PS2) to keep the rates below 3 kHz. All the other prescales should be set to **-1**.
- The goal number of events is 50K-100K for each target at every current.

1.1 Boiling studies - LD2 target

- Move target to LD2 and take one run with each current setting.

Table 1: Boiling Studies - LD2 Target

Target	***I*** **(μA)**	**est. time**	**Done ?**
LD2	60 μA	10 min	
LD2	40 μA	10 min	
LD2	30 μA	10 min	
LD2	20 μA	10 min	
LD2	10 μA	10 min	

1.2 Boiling studies - LH2 target

- Move target to LH2 and take one run with **each current setting**.

Table 2: Boiling Studies - LH2 Target

Target	***I*** (μA)	**est. time**	**Done ?**
LH2	60 μA	10 min	
LH2	40 μA	10 min	
LH2	30 μA	10 min	
LH2	20 μA	10 min	
LH2	10 μA	10 min	

1.3 Boiling Studies - Al dummy target

- Move target to Al dummy and take one run with each current setting.

Table 3: Boiling Studies - Al dummy target

Target	***I*** (μA)	**est. time**	**Done ?**
dummy	40 μA	10 min	
dummy	30 μA	10 min	
dummy	20 μA	10 min	
dummy	10 μA	10 min	

1.4 Boiling studies - Beryllium target

- Move target to Beryllium and take one run with each current setting.

Table 4: Boiling Studies - Beryllium Target

Target	***I*** (μA)	**est. time**	**Done ?**
Beryllium	60 μA	10 min	
Beryllium	40 μA	10 min	
Beryllium	30 μA	10 min	
Beryllium	20 μA	10 min	
Beryllium	10 μA	10 min	

1.5 Boiling studies - Carbon target

- Move target to Carbon and take one run with each current setting.

Total estimated time for section 1.5 including the momentum and target changes: **7 hrs** with 100% efficiency.

Table 5: Boiling Studies - Carbon Target

Target	***I*** **(μA)**	**est. time**	**Done ?**
Carbon	60 μA	10 min	
Carbon	40 μA	10 min	
Carbon	30 μA	10 min	
Carbon	20 μA	10 min	
Carbon	10 μA	10 min	