

PITZ Run Coordination Meeting

03.05.2012

Week 17

- I. Finish thermal emittance measurements (const. BSA method) → ~4..5 shifts
- II. Conditioning for the max peak rf power (starting with 50us RF pulse duration, no FB, 2..3h w/o trip); during the conditioning – adjust the laser temporal profile to the f-t of ~21ps FWHM
- III. Long term tests (last settings SP=38, RF ->750us, 650pulses)

Long – term gun stability tests, preliminary results:

- The laser pulse train is improved, including 1nC@ILT=58%
- Short (2 shifts) RF conditioning did not improved the status. Last 3 shifts → 11trips! (2Xtripple,2Xdoube,5xPMT, 1xVacuum, 1xModulator/Klystron)
- ???electron beam induced ILs? → additional tests (RF only)

Week 17	Mon Apr-23	Tue Apr-24	Wed Apr-25	Thu Apr-26	Fri Apr-27	Sat Apr-28	Sun Apr-29
Morn. 7:00 to 15:30		Khojoyan Kalantaryan	Khojoyan Kalantaryan	Khojoyan Kalantaryan RC	Khojoyan Kalantaryan	Gross Ivanenko	Gross Ivanenko
Late 15:00 to 23:30	Isaev	Isaev Li	Isaev Li	Isaev Li	Isaev Li	Isaev Li	Isaev Li
Night 23:00 to 7:30	Krasnikov Melkumyan	Krasnikov Melkumyan	Otevrel Melkumyan	Otevrel Melkumyan	Otevrel Melkumyan	Otevrel Melkumyan	Otevrel Melkumyan

thermal emittance measurements

Conditioning

Long – term gun stability tests

Tasks for week 19

1. RF1 probably needs conditioning
2. Gun long-term tests (RF only?)
3. Trajectory studies for best beam shape (emittance) , E-beam size at various screens (asymmetry investigations)
4. Emittance measurements 1nC: BSA=1.2mm; gun SP phase 0;-6deg (then BSA=1.6 ?) - now with correct solenoid polarity
5. HEDA2 commissioning?
6. AOM tests?
7. Momentum measurements (gun, booster) – phase scans in LEDA/HEDA for various power levels

Week 19	Mon May-07	Tue May-08	Wed May-09	Thu May-10	Fri May-11	Sat May-12	Sun May-13
Morn. 7:00 to 15:30	RF1 commissioning RF2 long-term tests	Gross Marchetti	AOM tests			Khojoyan Marchetti	Khojoyan Marchetti
Late 15:00 to 23:30		Vashchenko Shapovalov	emittance				Vashchenko Kafas
Night 23:00 to 7:30		HEDA2 commissioning			Malyutin	Malyutin	Malyutin
	Kusoljariyakul	Momentum measurements			Kusoljariyakul	Kusoljariyakul	Kusoljariyakul

#	Prio	item	measurements	coordinator	remarks	Status
1		Min emittance for 0.02; 0.1; 0.25;1;2 and 3nC (new)	Slit scan at EMSY1, optimization BSA, gun phase, Imain	MK, GV	Laser flat-top ~22ps	
1a		Min emittance for various charge optimizing also the laser pulse length	Slit scan at EMSY1, optimization laser pulse length and BSA, gun phase, Imain	MK, GV	Laser pulse length variation = outer loop	
2		Emittance vs. booster gradient	Slit scan at EMSY1	GV	Check low gradient predictions from BDS	
3	+	E-beam temporal profiles with TDS	For different bunch charges, BSAs, laser profiles	DM	TDS has to be commissioned	
4	+	Emission studies	Schottky scans for various BSAs, LT, (+short Gaussian laser pulses?)	MK, BM, JL, M.Rehders ?	Benchmarking for simulations	2 data sets taken
5		Gun and booster stability check	RF and beam based measurements of the phase and amplitude stability	Igl	Resonance accurate check, methods for the amplitude stability ?	
6		Emittance vs. laser rt	Emittance optimization at EMSY1	MG, MKh		
7		Emittance vs. temporal Gaussian laser	Emittance optimization at EMSY1	MG, MKh		
8		E-beam trajectory studies	For the symmetric e-beam and best emittance	MO	?BPMs to be re-commissioned (MK)	
9		Emittance at Ecath=45MV/m	Emittance optimization at EMSY1	GV, Igl		
10	+/-	Emittance along the beam line and tomography	Emittance at EMSY1-3 + cross-check with tomo	GeK, BM, JL	Tomography module re-commissioning (week 3, +GA)	
11		Laser and solenoid BBA	Methodic for XFEL	MK	Solenoid hysteresis!	
12		Slice emittance with HEDA1	Systematic comparison of slit and quad scans for various charges	YeI		
13		Slice emittance with TDS	Commissioning and first measurements	DM, BM		
14	+/-	Longitudinal phase space with TDS	LPS measurements with TDS+HEDA2	DM, KeK		
15		Longitudinal phase space in LOW (HIGH1) section	LPS measurements with aerogel in the LOW (HIG1) section + streak readout	MM	Streak beam line alignment before (MM+MG)	
16	+	Slice emittance with HEDA2	Using DISP3.Scr2	KeK		
17		Cathode studies	QE, QE maps	MO, RM		done
18		AOM tests	With e-beam	MG		First tests
19		Long bunch train operation	Stability and reliability long term check			2,5 tests