

High level control requirements for Linac4 commissioning

preface

Specialists vs users : FESA-level responsibilities within individual WPs/groups (RF, BI etc), as distinguished from operational/analysis control room applications (OP/CO crew)

Stand-alone vs integrated : applications needed for commissioning-only purposes can be stand-alone solutions (or as first instance in limited number of cases). Operational use applications should be compatible with and integrated in present CO architectures → InCA? (for generic applications and interface to specific ones)

Priorities: time (more than relevance) weighted

Standard software

what	priority	resources	when	who
E-logbook	1	Extension of existing software (elogbook, LASER, PVSS etc), xx months??	01/2011	Existing..
Logger/archive				?
Alarms				LASER team?
Interlocks				?
Watchdog				?
Vacuum				VAC cntrl
Radiation monitoring				RAMSES team?

Beam instrumentation

System	What	Priority	Resources	Stand-alone?	When	Who
Wire scanners	Interlocks, movement, acquisition, display, simple sigma fit	1	Upgrade ISOLDE?	no	01/2011	L Jensen(FESA), Jose LSA (applic)
Emittance meter application	Slit/SEM grid movement, acquisition, emittance reconstruction	1	Existing, to be upgraded/maintained	Yes	01/2011	U Raich, maintenance?
Bunch shape monitor (Feshenko)	Interlocks, movement, acquisition, display	1	LabView provided, to be integrated/maintained	Yes, until final installation	01/2011	UR, LJ, JLSA
Halo monitor		1	Existing, need resp. for maintenance	Yes	01/2011	UR, K Hanke
BCTs	Acquisition, display, fixed display	1		No	01/2011	LJ, JLSA
BLMs	Acquisition, display, loss histogram	2		No	Mid 2012?	E B Holzer

Beam instrumentation (2)

System	What	Priority	Resources	Stand-alone?	When	Who
BPMs	Trajectory, orbit correction, fixed display, TOF	1		No	01/2011	LJ, L Soby, JLSA
TOF application	Energy from phase measurement, at FESA level?	1		No	01/2011	LJ, LSoby
Spectrometer	Input from Bfield, magnet cycling, quadrupoles, slit position; acquisition, display, sigma fit	1		Yes	01/2011	UR, LJ, JLSA
3 screens emittance	Acquisition, emittance reconstruction	2	Adapt Verena's application for transfer lines?	No	>2013	JLSA
LBE-LBS	Upgrade/extension of existing, re-use spectrometer applic?	2	Upgrade existing	no	>2013	UR, LJ, JLSA

Equipment control

System	What	Priority	Resources	Stand-alone?	When	Who
Chopper	Voltage + sequence control	1		no	01/2011	P Baudrenghien
RF	LLRF, synchro, timings, cavities settings and acquisition	1		no	06/2012	J Marques, PB
PSB injection septum/kickers	Settings, acquisition, alarms, waveforms... tbd	3		no	Mid 2013	?
Beam dumps	Monitoring/alarms	2		no	2012	?
Foil	Monitoring/alarms	3		No	2014	?
Source/LEBT/pre-chopper	Source application	1		no	01/2011	JLSA, PB

General purpose

System	What	Priority	Resources	Stand-alone?	When	Who
OASIS	Triggered waveform display	1	Extension of existing	No	01/2011	OASIS team
EqpViewer	RF signals, BCTs	1		No	01/2011	JLSA
Orbit viewer	Display orbit, compare to model predictions, difference bw original and new acquisitions	1		No	01/2011	JLSA
1D-2D scan application	Correlate any 2-3 signals (quad scans included)	1		No	01/2011	JLSA
Fixed display	Transmission, BLMs loss maps, injection screens? Tbd	2		no	2013	JLSA

Interfaces ++/RTUs

What	Priority	Resources	When	Who
“Fingerprint”: take snapshot of machine state, show deviation from reference and save in PATH/TRACE input file format	2		04/2011	JLSA
Orbit correction : acquire BPMs readings, use steering algorithm to find corrector strenghts to reduce beam offsets- YASP?	3		2012	YASP team, Marine?
Automated phase/amplitude longitudinal scans for setting RF points (calculating output phase and energy)	3		End 2012	JLSA
Online model application for transverse matching: acquire beam sizes at WS and compare to model predictions. Use iterative optimisation algorithm to solve for input Twiss parameters (input from live machine data and online model tracking- TRACE3D?)	3		End 2012	?
High level applications to control chopper sequences, synchronisation timings in PPM mode according to super-cycle specifications	4		2014	?

Establish:

- resources (who? how long: weeks, months?)
- roadmap

Any additions?