

BDS Lattice Design : EDR plans

GWP03 Meeting

04/12/2007

- MPS collimators : specifications
 - 6mm radius in switchyard
- Beam switchyard
 - Coupling correction, emittance measurements, laser wire and polarimeter chicane
 - What is the acceptable time scale to study all the design issues discussed during 29th Nov GWP03 meeting?
 - Any other plans to work out different designs?
- Tune-up/fast extraction line
 - Is design okay (what changes required to change from +/-10% to -20% acceptance?)
 - Kicker, septa designs

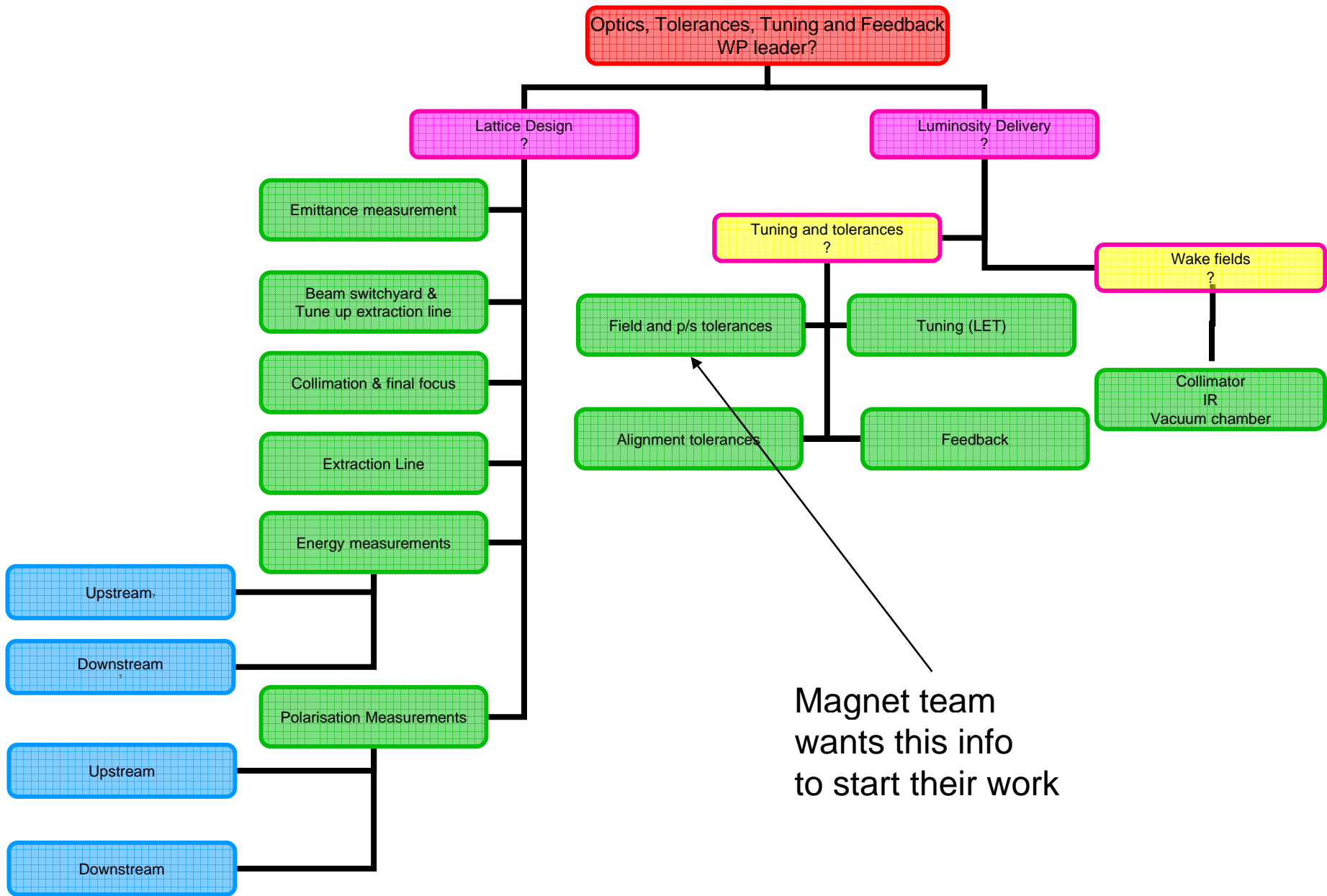
- Collimation and final focus
 - energy chicane outside the matching quadrupoles (may be better?)
 - Tuning of beam line for different L^* , beam parameters (Guidance on energy range from PM/EC etc)
 - Collimation depths
 - Collimation performance with full tracking
 - Effect of jitter amplification – analytical formulae vs tracking (PLACET, MERLIN)
 - Real estate for engineered designs of spoilers (taper angle etc)
 - Octupole tail folding
 - Effect of beam and machine errors

- Energy measurements
 - What kind of scanning required and how it will affect the beam after this chicane?
- Standardisation of magnets/power supplies
- Magnets on strings
- Keep the design for 1 TeV CM?

- Extraction line
 - Losses for new beam parameters
 - Include beam and lattice errors, solenoid, anti-DID and anti-solenoid
 - Downstream diagnostics (angle measurement)
 - Costing of downstream diagnostics and constraints on extraction line design
 - Savings in the extraction line cost without downstream diagnostics?

Lattice Design

- ❑ Document performance driven specs
- ❑ Study performance vs. optics length
- ❑ Study optics for magnet types standardization
- ❑ Study optics for aperture standardization
- ❑ Different L^* optics performance & tunability
- ❑ Study abnormal optics & MPS issues
- ❑ Study Z, 350, 1000 GeV CM performance
- ❑ Study High Lumi upgrade path



Lattice design plan till Sendai

- Decide whether or not the design can be upgraded to 1 TeV without changes in the tunnel?
- Maximum allowable emittance dilution for entire BDS @1 TeV?
- Decision about combining or not LW + polarimeter + MPS collimator
- Matching section for wide parameter range with optimised phase advances for better collimation?
- Minimum operable energy
- Magnet aperture standardization and magnets on strings