

PS Complex Controls Renovation

S Baird AB/ABP

ATC/ABOC Days: Session 3

21-23 Jan 2008

Introduction

● Aim

- Renovation of PS Complex controls to the AB/CO standard, compatible with the LHC – FESA, INCA (LSA-bis)

● Responsibilities

- Simon Baird – Co-ordination
- Stephane Deghaye – Application SW
- Claude-Henri Sicard – Front-ends (HW & SW)
- Hermann Schmickler (and his successor) – Providing resources (i.e. manpower and money)

● Must be done in close collaboration with equipment groups

- What do the equipment groups have planned 2008-2011?

AB/BI

- **All new hardware uses FESA**
 - But BI equipment needs a lot of specialised application programs...
- **PS tune measurement – new BBQ**
 - Test in 2008 (expert application exists?)
- **Wire scanners – new electronics**
 - Validation in 2008, installation 2009
- **PS Orbit measurement – new system installed for 2008 start-up (parallel)**
 - Test new application mid-2008

AB/BI

- **Fast BCT's – new electronics test at PSB**
 - Replace old system in 2009
 - Used by PSB Watchdog
- **PS 6-turn transformer: to be replaced by 1000 turn device (expert use only)**
- **BLM's nothing planned before 2010**
- **LEIR ionization profile monitor?**
- **REX-ISOLDE, SEM-GRIDS, Experimental areas?**

AB/PO

- **Continue to use 1553 communication (>5 years)**
 - CO is preparing a new PC-based 1553 controller
- **From 2009 (main changes starting in 2010):**
 - FGC3* for all renovation and LINAC4.
 - FGC3 integration into OASIS
 - Commercial RS-422 system for DC power converters
 - FESA for FGC3? (to be discussed)
- **Renovation of interlocks needs to be coordinated with AB/CO and AT/MEL**

* Function Generator Controller

AB/ATB

- **Control of movable devices**
 - Slits, stoppers, dumps etc...
- **“PLC with motor controllers” solution**
 - Ethernet CO communication with a FESA gateway (supplied by ATB)
 - Generic Controls (knobs, in/out etc.)

AB/BT

- Use CO/PO “1553” standard
- Septa
 - Movement – G64, but this is not ppm and local adjustment is possible
 - Possible FESA implementation in 2009/10 for PS electrostatic septa?
- Kickers
 - MTE will use FESA
 - PSB distributor, extraction/recombination kickers and slow bumpers – FESA in 2009?
 - PS KFA 71-70 – FESA in 2010? Other kickers 2011?
 - LEIR, AD, ISOLDE?

AB/RF

- **New PS transverse damper ready for 2008 start-up using FESA**
- **PS & PSB digital beam control and feedback – pilot project for 2010**
- **Cavity control – G64/1553 “for several years”**
- **PS “RF 200 MHz matrix”**
 - Replaced by GFAs
 - New application for 2008 start-up (Using existing “PS equipment module”)
- **LINAC2 & 3: common PLC front-ends “could move to FESA”**

Conclusions

- **There will not be an overnight PS Controls “big bang”, but there is plenty to do already in 2008**
- **CO (Stephane & Claude-Henri) will evaluate**
 - Implications for CO of the work proposed by equipment groups
 - Estimate if CO can meet these demands?
- **Interaction with Equipment Groups to produce a realistic planning**
- **This may mean...**
 - Changing Equipment Group priorities?
 - Reducing Controls effort in other areas?