Atlas SCT Barrel Fibre Routing

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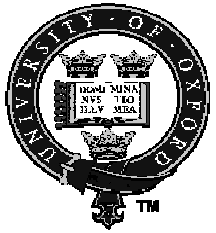


Factors

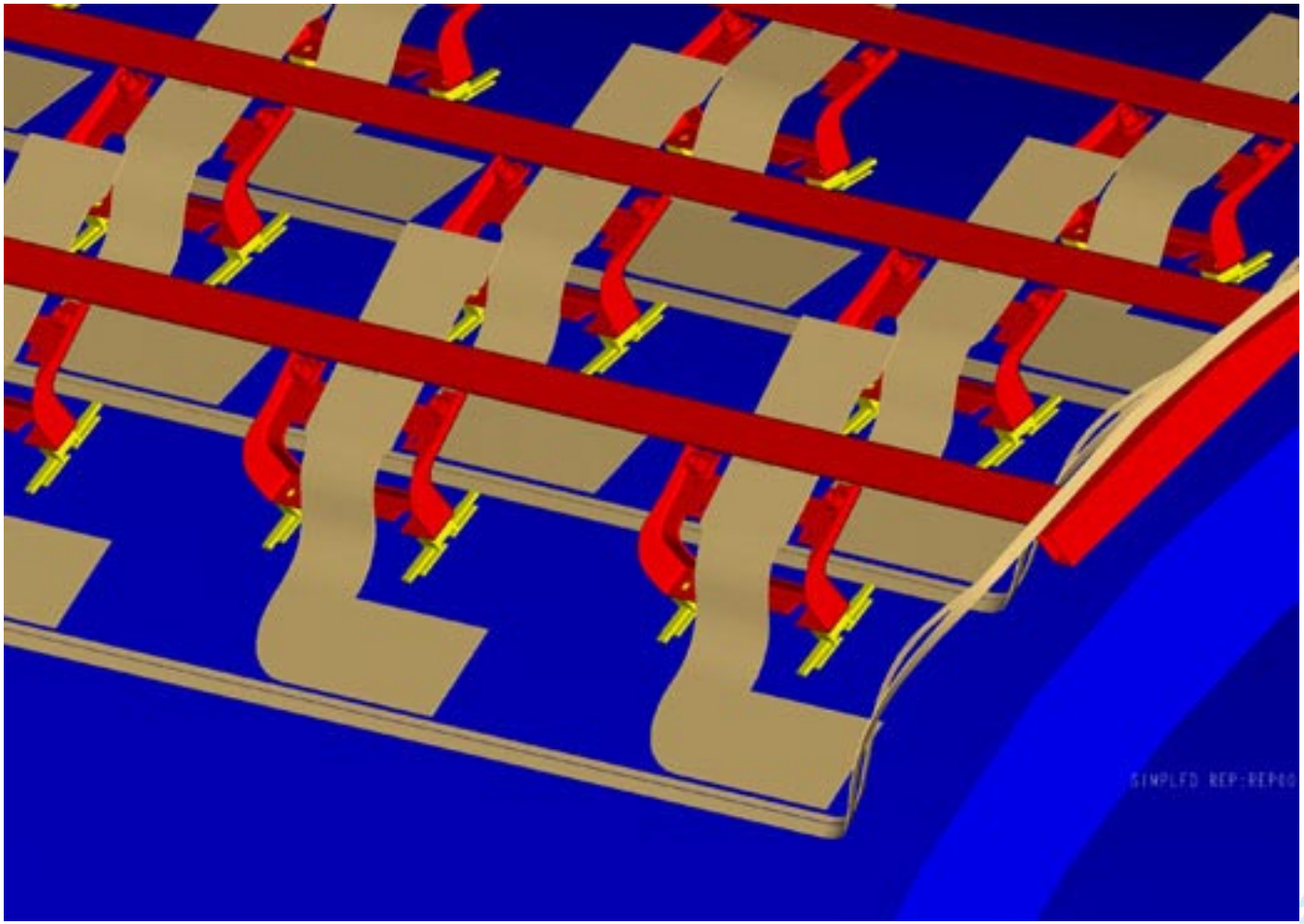
- **Space constraints**
  - *Volume available for patch panels along route*
- **Laser safety**
  - *Fibres /Cables to run in ducting*
- **Latency**
  - *Affects the maximum length*
  - *$n_i = 1.5 \rightarrow$ 25ns (1bc) $\approx$ 5m*
- **Installation**
  - *Exits with ϕ-symmetry easier*

Current Designs

- **Mechanical design effort divided into:**
  - ***On Barrel to thermal enclosure***
  - ***Thermal enclosure to counting room (includes PPB1 /2 /3?)***
- **Design from Atlas Integration team concentrated on shortest route**

INSTRUMENTATION Department

Barrel Harness



Future plans

- **Fibres exit radially in two bundles per quarter detector**
  - ***Check modularity matches cable modularity***
  - ***Check space available***
- **Prototyping**
  - ***On Barrel***
  - ***Barrel end***
  - ***Passage through thermal enclosure***
  - ***PPB1/PPB2***

Open questions

- **Number of Patch Panels**
  - ***Required vs. imposed***
  - ***Extra patch panel has disadvantages***
  - ***Greater fibre length***
    - *Introduces extra latency*
    - *Requires management*
  - ***One further connection***
    - *Increased cost*
- **Ribbon Protection**
  - ***PPB1 – PPB2***
    - *Awaiting manufacturer (Ericsson) proposal for oversleaving*
- **Cooling system (last week)**
- **Laser safety**
- **Routing**

Conclusions

- **Communication open between system designers and mechanical designers**
- **Promoting cross-awareness of *all* design issues**