



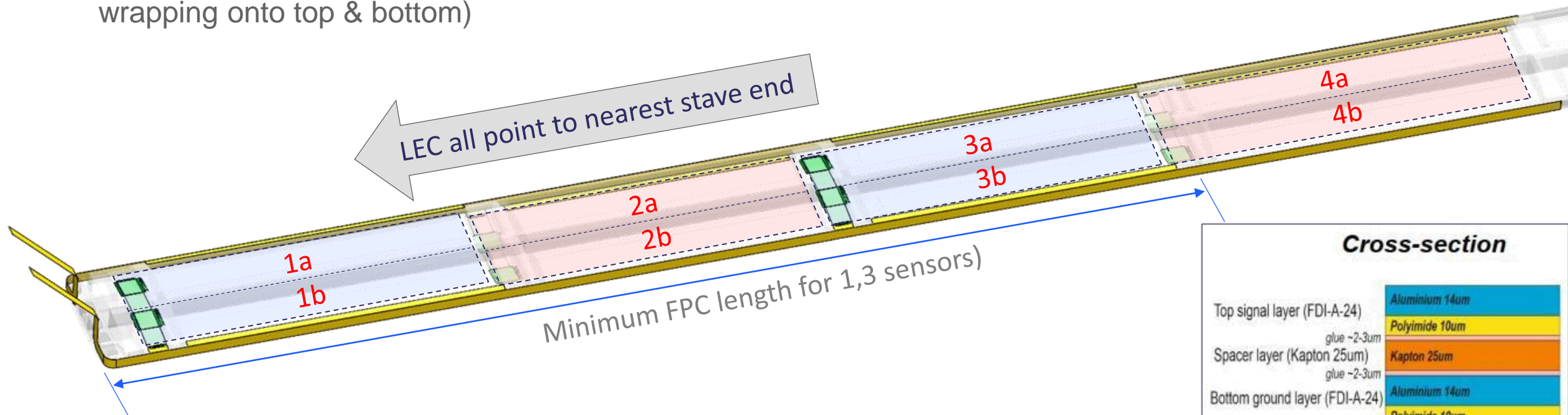
Science and
Technology
Facilities Council

Module Design & FPC Integration

Adam Huddart - Technology RAL

L4 FPC

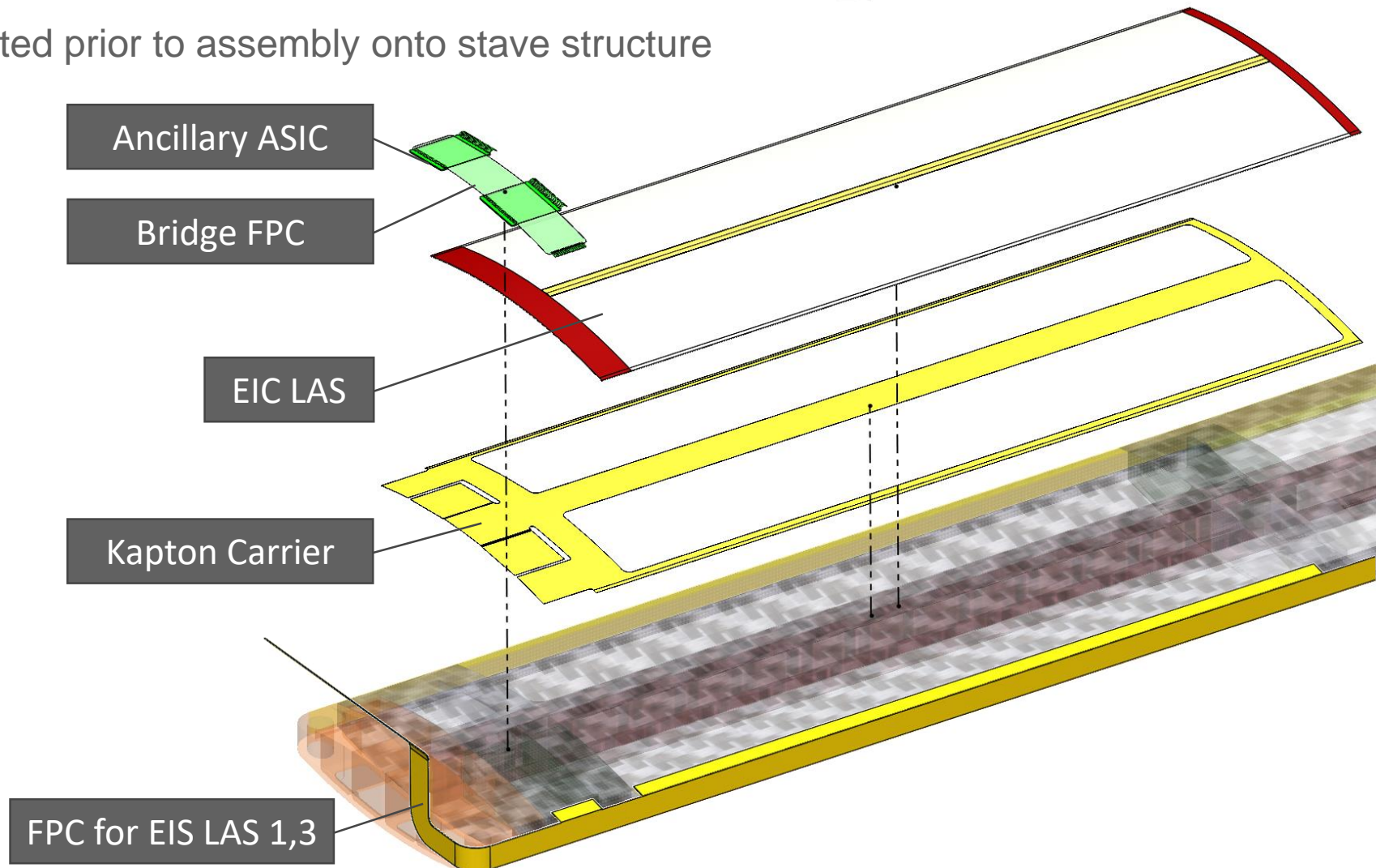
- 4 FPCs
 - Left Side 1a, 1b, 3a,3b Right Side 5a, 5b, 7a,7b
 - Left Side 2a, 2b, 4a, 4b Right Side 6a, 6b, 8a, 8b
- Provides short tabs for bonding FPC to the bridge/ASIC
- Provides full coverage of side spar of stave structure to complete the perimeter seal (reason for long tabs wrapping onto top & bottom)



10 x 10 mm Ancillary ASIC

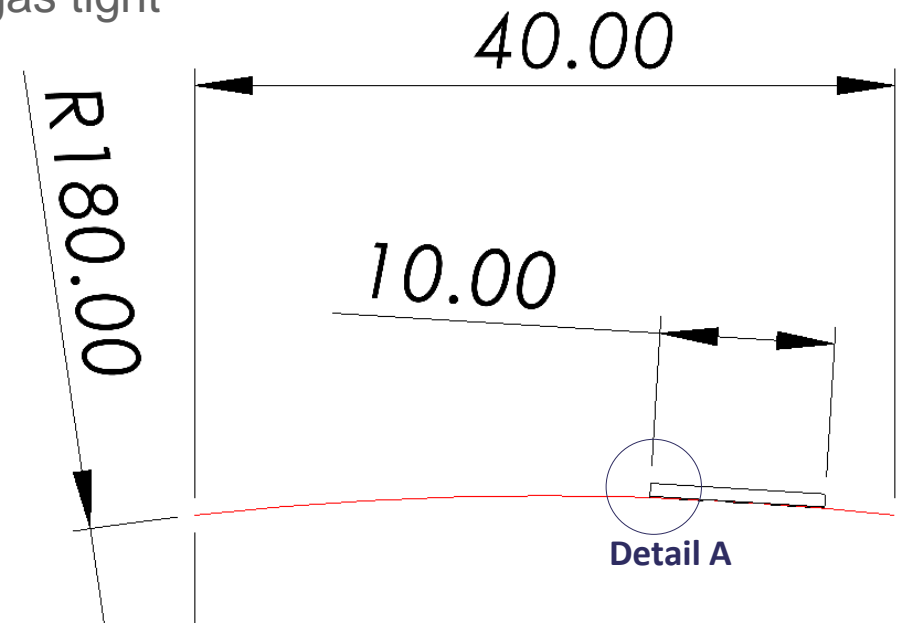
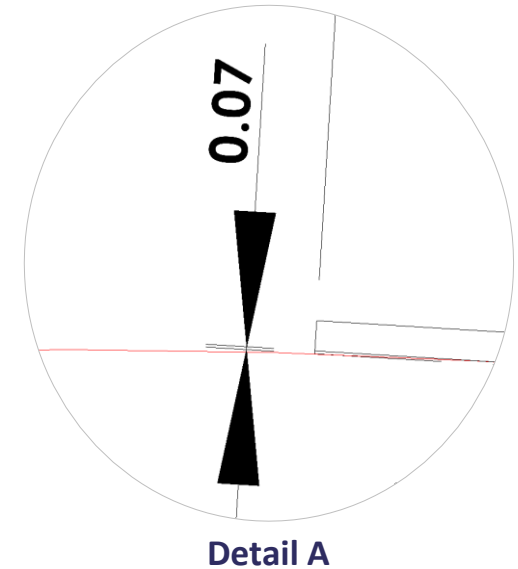
- **Common Module Assembly**

- Module can be built and tested prior to assembly onto stave structure
 - Carrier
 - EIC LAS
 - Bridge FPC
 - Ancillary ASIC



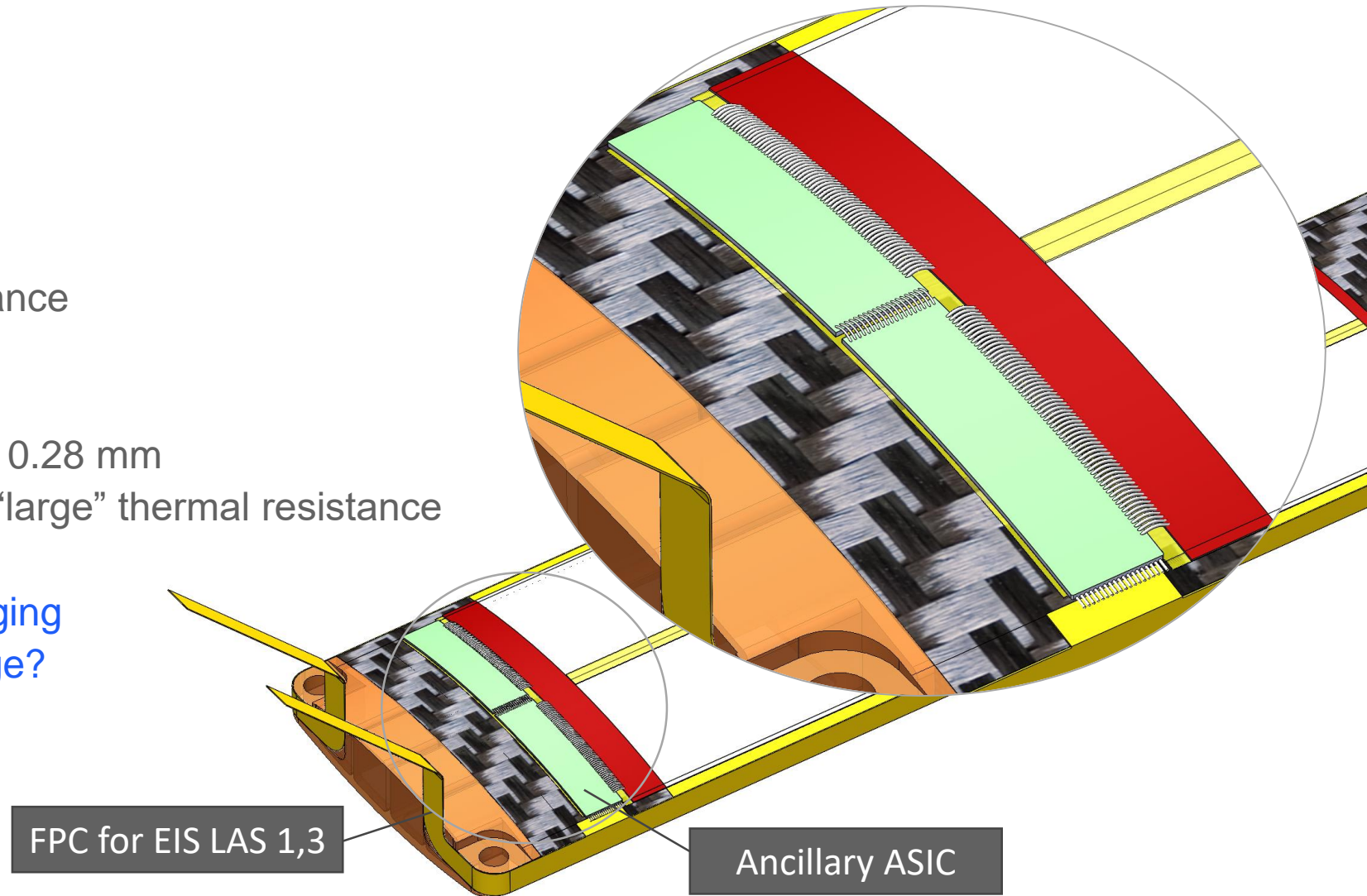
10 x 10 mm Ancillary ASIC

- **Curvature Considerations**
- Need good thermal contact between stave structure and ASIC
- Assuming the ASIC is flat, approx. 70 micron fill thickness is required
 - Could be achieved with thermally conductive adhesives or post machining of the 100 micron carbon laminate
 - Latter is risky but would give best thermal solution. Kapton would provide sealing surface as laminate would likely no longer be gas tight



5 x 20 (or even 5x40) mm Ancillary ASIC?

- Moving to 5 x 20 ASIC removes the need for the bridge FPC, eliminates at least 1 bonding location
 - Carrier
 - EIC LAS
 - ~~Bridge FPC~~
 - Ancillary ASIC
- Potentially better thermal performance
- Curvature is more of an issue
 - Without curvature gap to fill is 0.28 mm
 - Flat mounting would cause a “large” thermal resistance
- Thoughts/consideration with changing form factor and removing the bridge?
- Can we bend the ASIC?





Science and
Technology
Facilities Council

The background features a large blue triangle pointing downwards, which is partially obscured by a series of overlapping, stylized blue lines that create a sense of depth and movement. The overall color scheme is orange and blue.

Questions?