

# **Preliminary Design Report, extended version: Electrical interfaces**

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## Chapter 5

### Electrical interfaces

#### 5.1 Overview and specifications

FPC concepts for IB, OB, disks; FPC technology; tab bonding, wire bonding technologies; specifications.

#### 5.2 FPC design

Stack up, traces, impedance matching, material budget, etc.

#### 5.3 Technology selection

FPC vendors and vendor qualification strategy.

- RPE LTU (I.Tymchuk) (300 - 500 words)
- Omni Circuits (Z.Ye) (300 - 500 words)
- Q-Flex (J.Renck) (300 - 500 words)
- CERN (?) (300 - 500 words)

#### 5.4 FPC production and QC

Explain production plans and QC steps

- IB:  
3 Individual 2 layer FPCs per for L0,L1,L2;

- OB:  
FPCs for modules  
FPCs for staves
- Disks

#### 5.5 Prototype studies

Description of available prototypes, testing plans and results

- IB:  
(describe DUT, describe test setup, describe results) (500 - 1000 words)  
Tests with OB M-FPC; (Trst)  
OB M-FPC interconnection tests; (Trst)
- OB:  
(describe DUT, describe test setup, describe results) (500 - 1000 words)  
Tests with Low TRL OB L4 prototype1 (M-FPC, B-FPC, M-FPC plus B-FPC) from LTU; (Daresbury)  
Experience with Q-Flex manufacturing of B-FPC;(LANL)
- Disks:  
(describe DUT, describe test setup, describe results) (500 - 1000 words)  
Transmission lines from Omni; (LBNL)