Barrel TOF project status

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on behalf of the SciTil group

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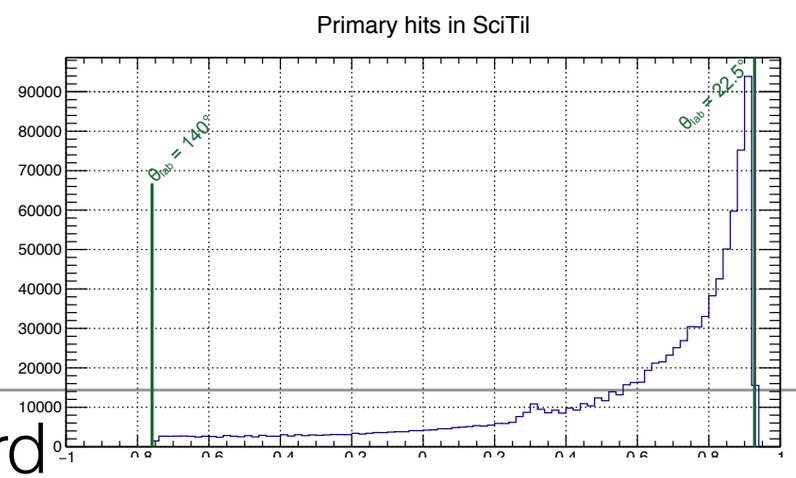
Barrel-TOF Design

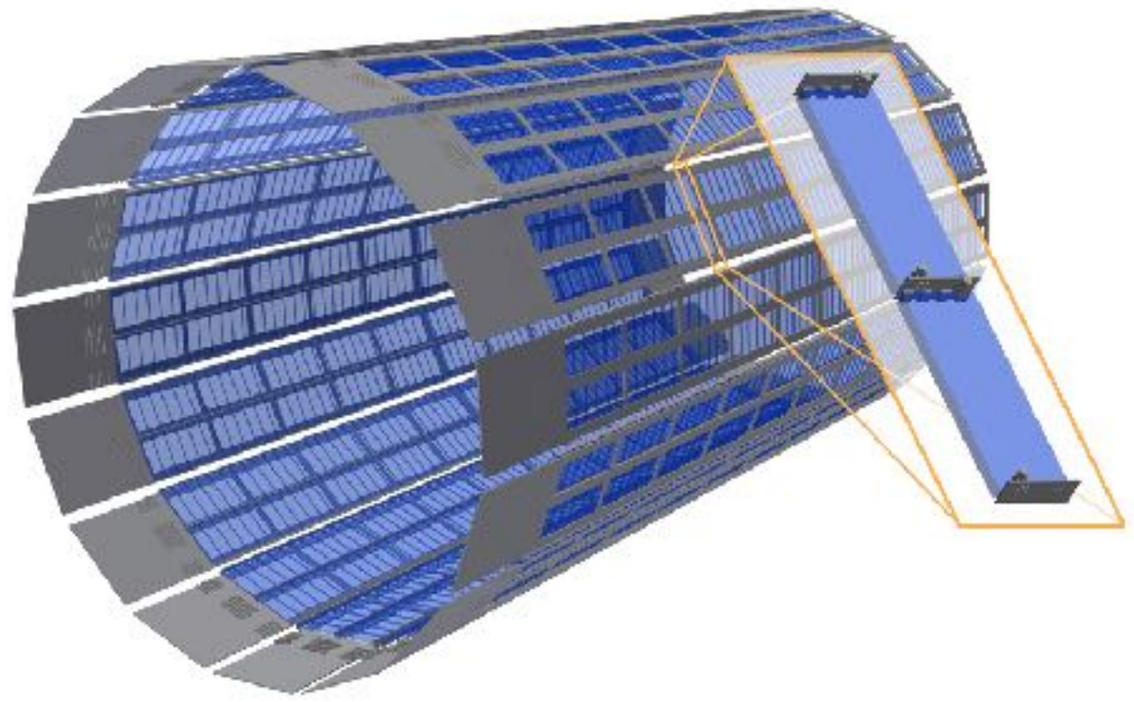


Simple, cable-less design => railboard

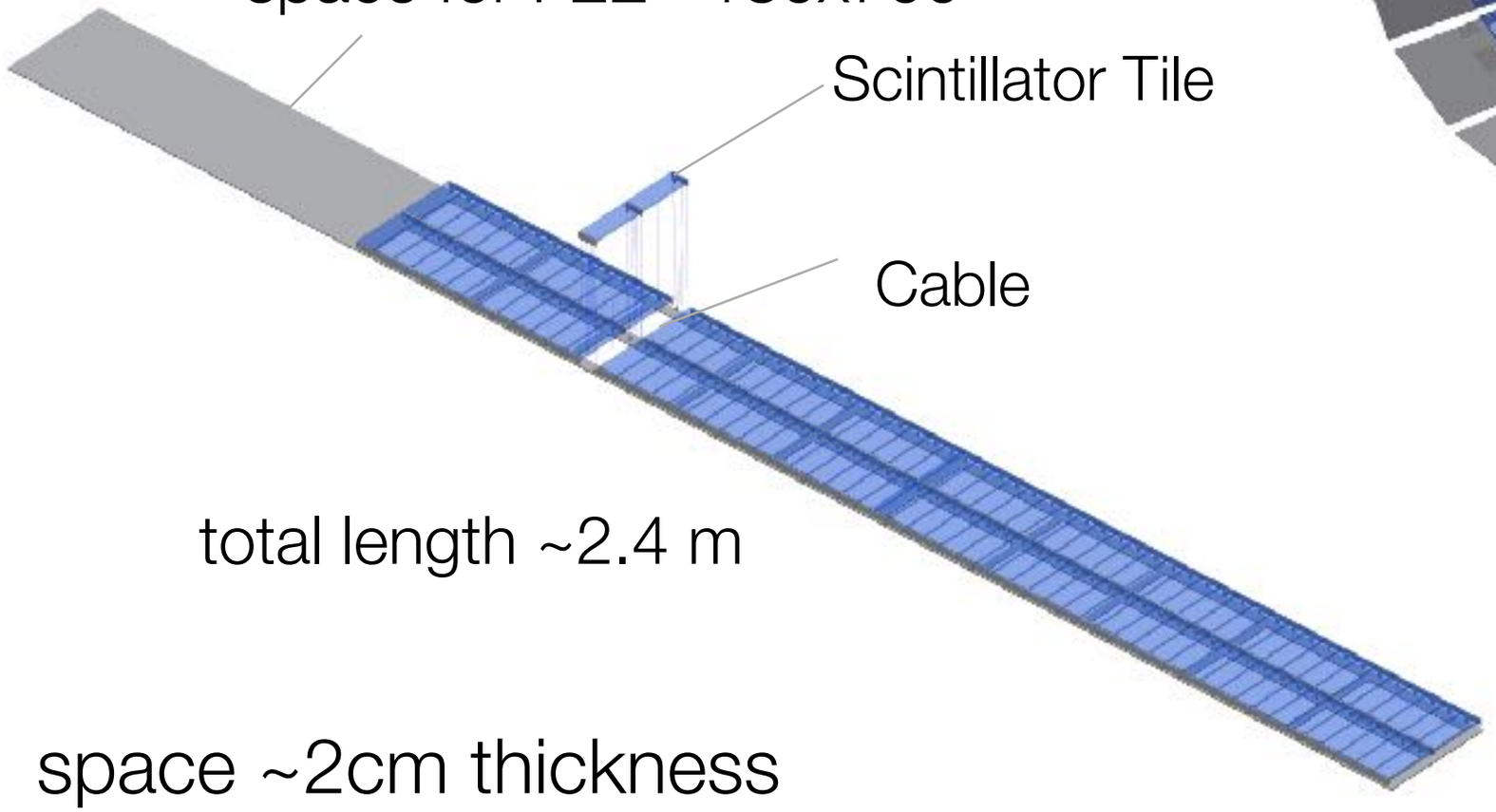
16 Super modules

240 ch. /SM

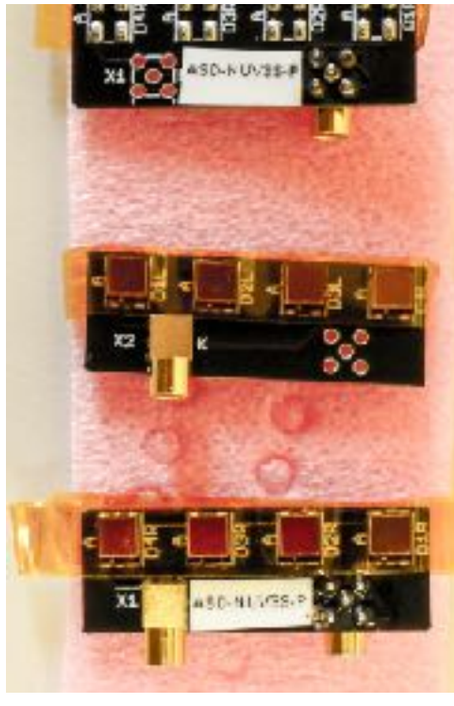
max. 40 kHz /ch.



space for FEE ~180x700



total length ~2.4 m



space ~2cm thickness

no space for existing/commercial boards, probably

Status

- R&D slowed down due to financial and political situation of PANDA in Vienna

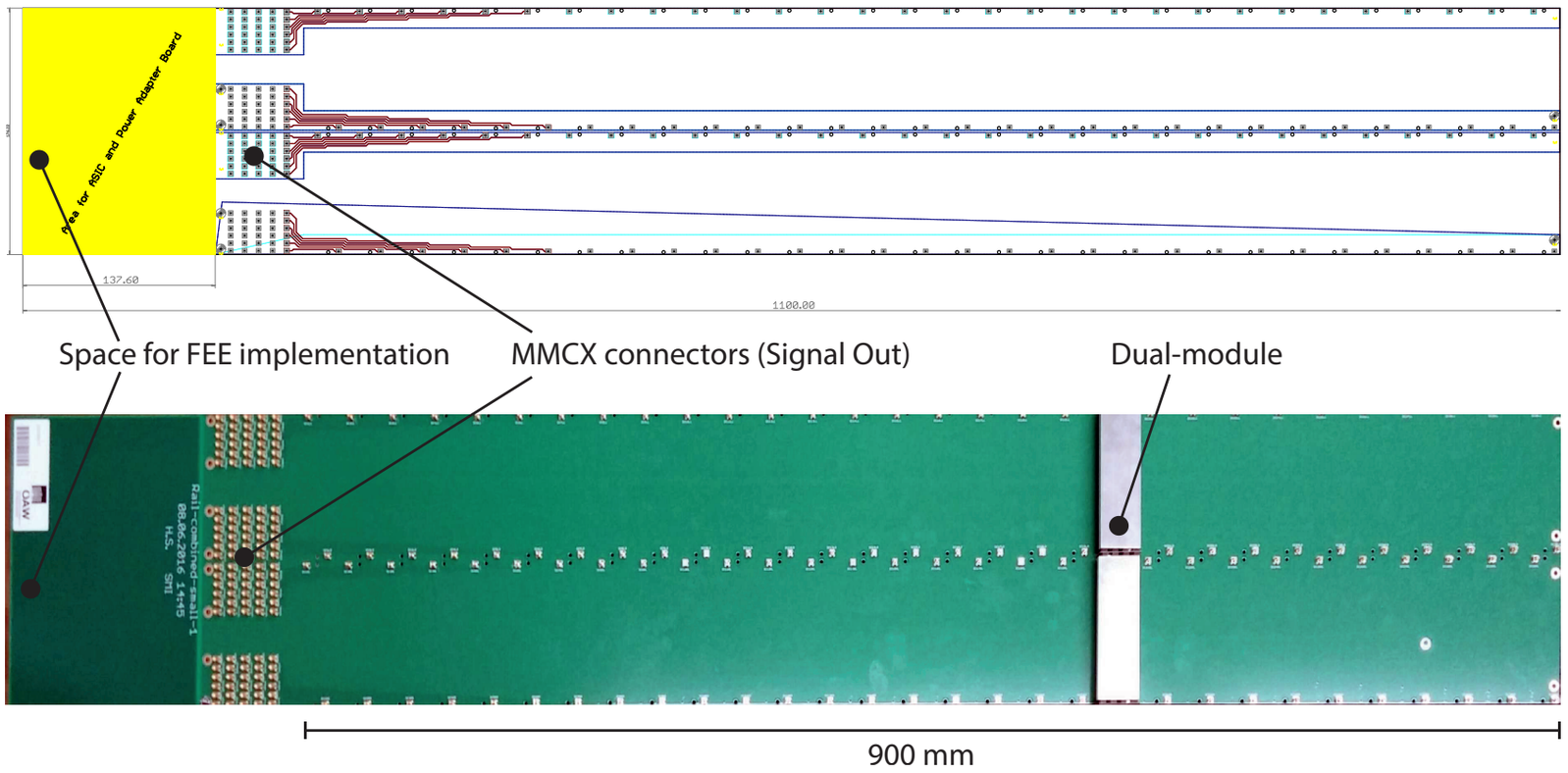
- Manpower
  - 1 PhD (S. Zimmermann), 1 Master (W. Nalti), KS
  - 1 Engineer (~0.2 FTE?)
  - 1 PD??

subtasks
for the first full-scale prototype

- design of low-loss, low-xtalk microstripline (nearly done? S. Zimmermann)
- large PCB supplier (underway, S. Zimmermann)
- TOFPET2 ASIC (underway, S. Zimmermann)
- calibration system with LED (underway, W. Nalti)
- temperature monitor (nearly done, B. Temper)
- slow control (ASIC, LED, temperature sensors)
- interface to PANDA (SODANET, Data Concentrator)
- integration

Large PCB (railboard) production issue - problem

- half length (1200mm) exists. was not really a problem.
- the same company
- a new version, after 3,5 months it finally arrived.



Prototype2


SC20XRRT2
SC5XRRT4
SC24XRRT2
SC30XRRT5
SC29XRRT2
SC24XRRT5
SC15XRRT2
SC30XRRT1
SC29XRRT5
SC20XRRT2
SC24XRRT4
SC30XRRT4
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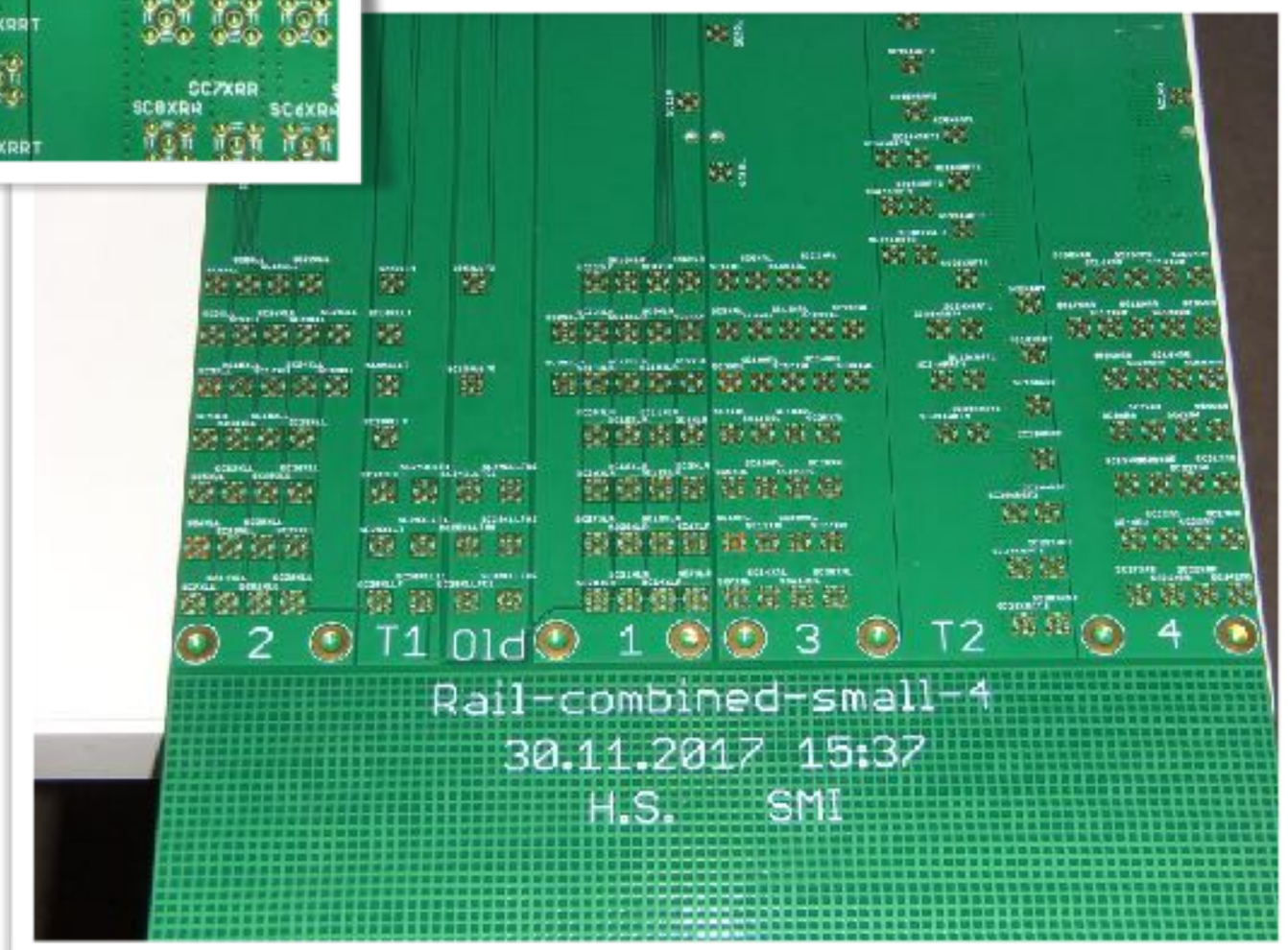
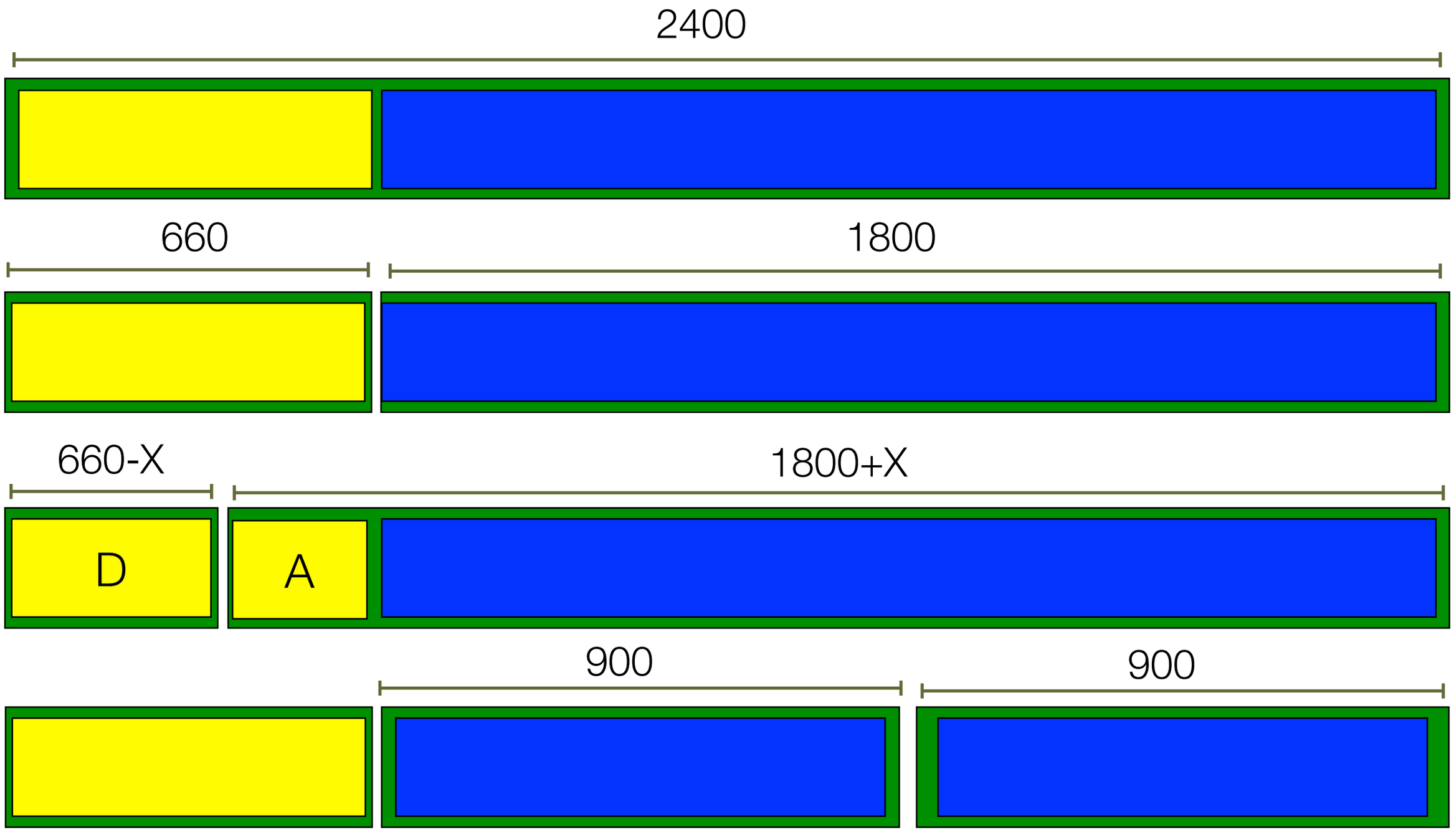
SC20XRRT
SC7XRR
SC8XRR
SC6XRR

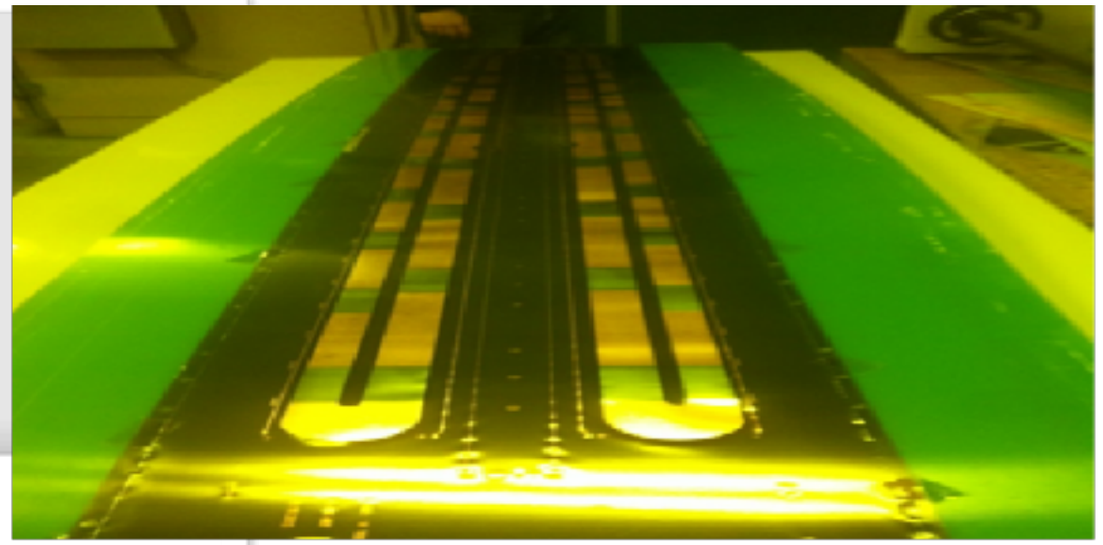

2
T1 Old
1
3
T2
4
Rail-combined-small-4
30.11.2017 15:37
H.S. SMI

Large PCB (railboard) production issue - solution, fallback options



production at CERN?

CERN | EP-DT
Detector Technologies



About Us | Activities | EP-DT Safety | Infrastructure | Documents

ACTIVITIES

Services
Infrastructure for Experiments
B-field mapping
Detector cooling service
Gas Systems

Micro-Pattern Technologies

Contact Person

Our Expertise

- 50 years' experience in PCB technology.
- 10 years' experience in vacuum coating deposition. The main field of application is the production of low mass circuits based on thick aluminium PVD layers ranging from 10 to 30 microns. The need is constantly growing for inner tracker detectors, where radiation length is a critical parameter.
- Large experience in wet etching chemistry for metals and polymers (polyimide, epoxy, aluminium, copper, lead, silver, gold, NbTi, etc...).
- During the last 10 years we have substantially developed knowledge on gas radiation detectors physics, in particular in crucial technology aspects of micro-pattern gas detectors. For instance, MPT has developed a method to protect Micromegas detectors against sparks.
- Electrostatic simulation knowledge. Compsol simulation software supports the development and optimisation of devices.
- Strong connections with the PCB industry, facilitating outsourcing and initiating technology transfers to industry.
- Quality assurance (ISO qualifications) and quality control (IPC standards) needed for professional PCB productions. Support to CERN users when establishing outsourcing contracts.

Data Concentrator (DC)

- FEE/DAQ workshop at GSI (28.5.2018-30.5.2018)
- BTOF data rate is small compared to EMC, STT, MVD.
  - 16/n optical fibres
  - (maybe possible to parasite to other system?)

Others

- 1 2-years PD position in Vienna (B-TOF FEE development)
  - has been canceled.
  - fighting internally to get this post.

Summary

- R&D continues ..
- “subtasks” converging.
  - full length railboard, production at CERN?
- Should get serious with TOFPET2 readout and integration
- collaboration with P̄ANDA End-Cap DIRC group on TOFPET2
- 1 PD position, hopefully

Backup