LIU-PSB Working Group Meeting (15/08/2013)

# BLM FOR THE INJECTORS PROJECT
# CABLING NON-CONFORMITIES

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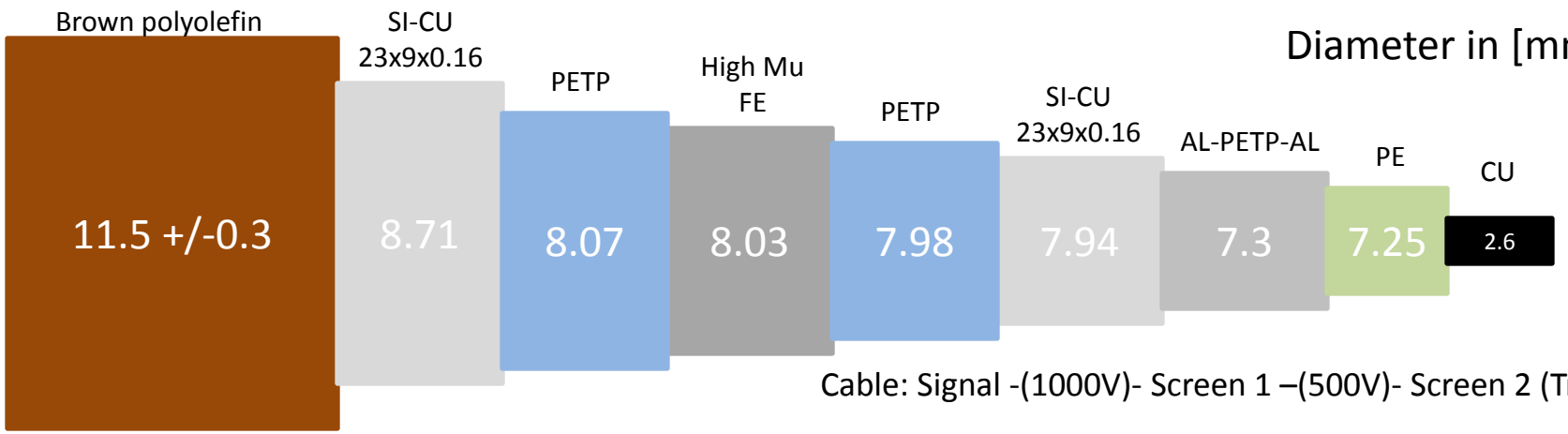
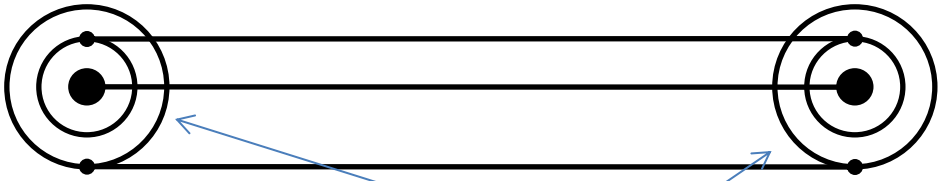
# CKB50: Coaxial cable

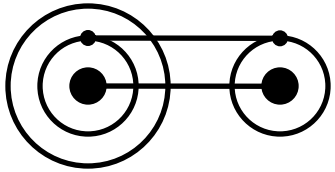



Diameter in [mm]

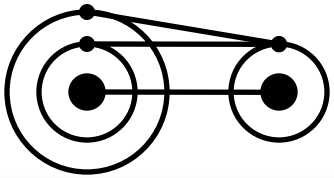
Cable: Signal -(1000V)- Screen 1 –(500V)- Screen 2 (Triaxial)



**Connector male**: (receptacles)
-Signal
-Isolation (1000V)
-Screen 1
-Isolation (500V)
-Screen 2
(Triaxial)



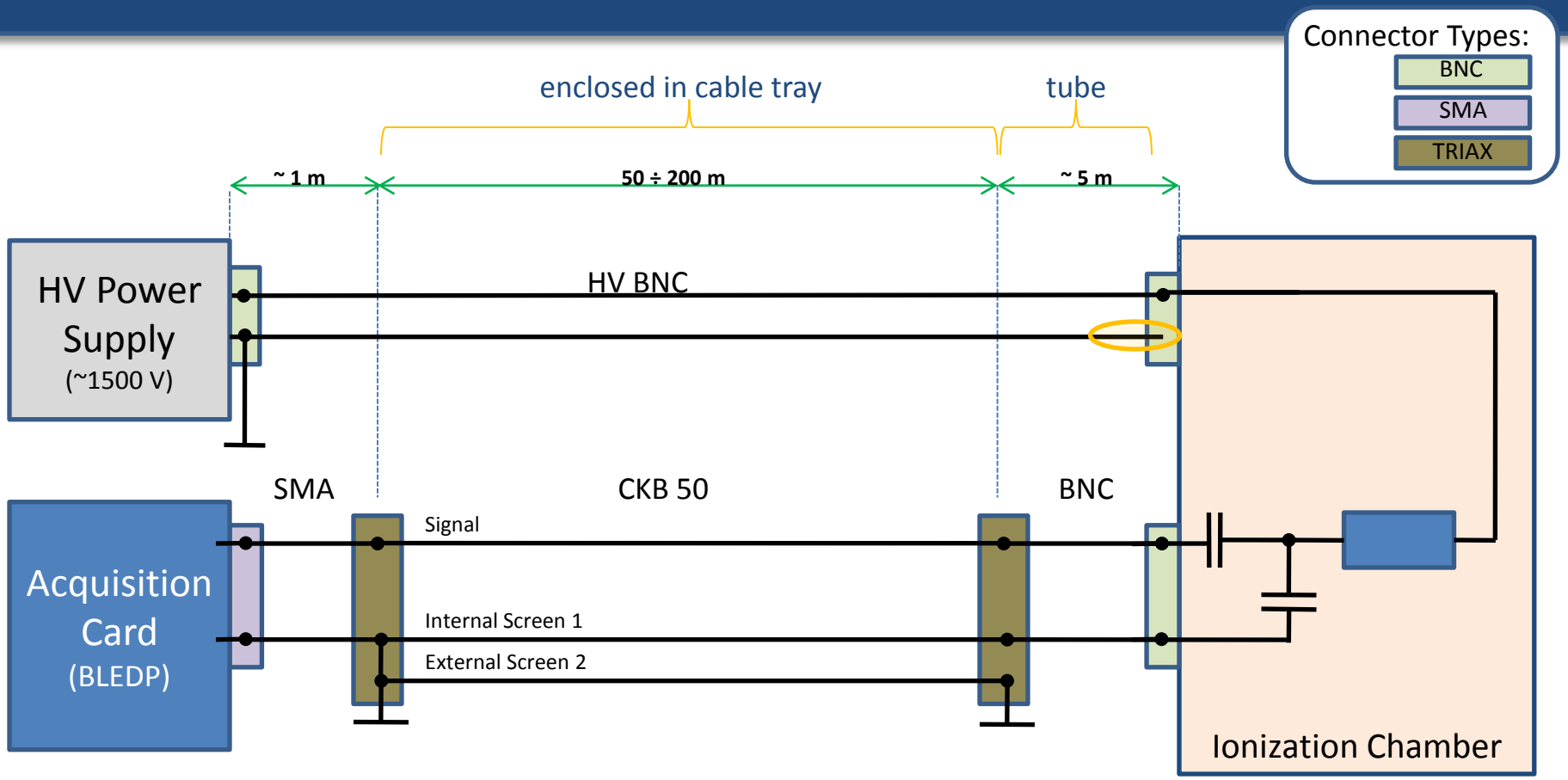
1. Adapter: BNC or SMA
Signal - Screen 1 (coaxial)



2. Adapter: BNC / SMA / N-type
Signal - Screen 1 & Screen 2(coaxial)

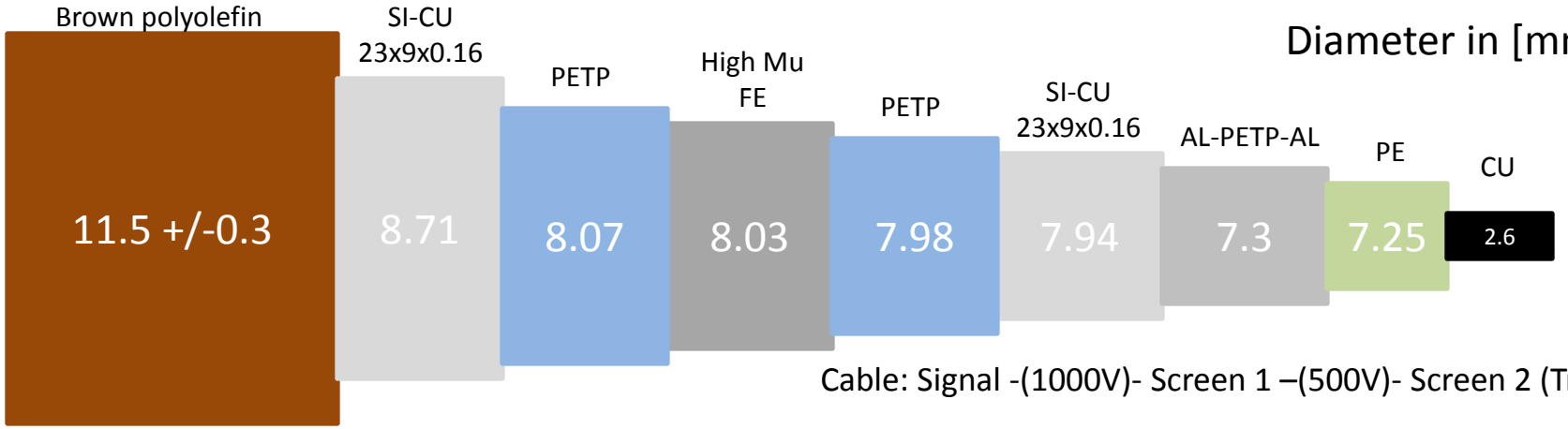
**Connector female: (cable)**
-Signal
-Isolation (1000V)
-Screen 1
-Isolation (500V)
-Screen 2
(Triaxial)

# Cabling Diagram



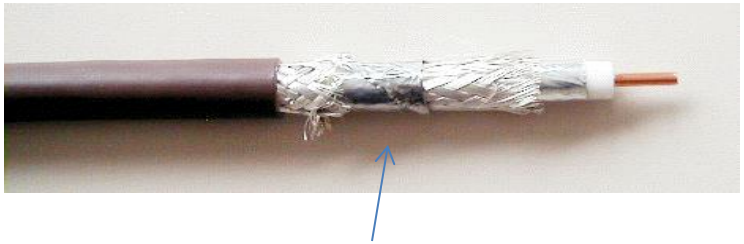

- Screen of HV BNC is open on the IC side to assure there is **no ground loop**.
- Internal screen to **shield low frequency** noise (GND only on electronics side, IC is floating).
- External screen to **shield high frequency** noise.

# CKB50: non-conformity

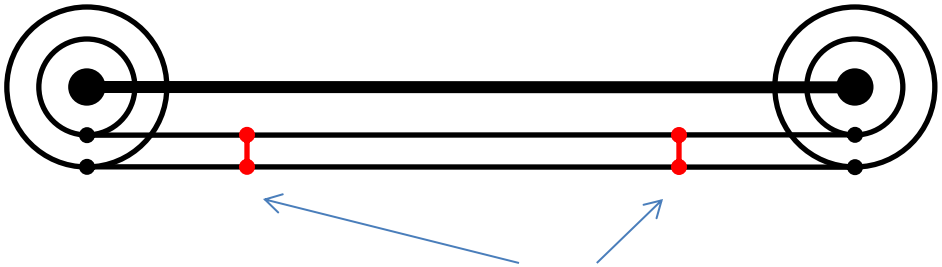



Diameter in [mm]

Cable: Signal -(1000V)- Screen 1 –(500V)- Screen 2 (Triaxial)

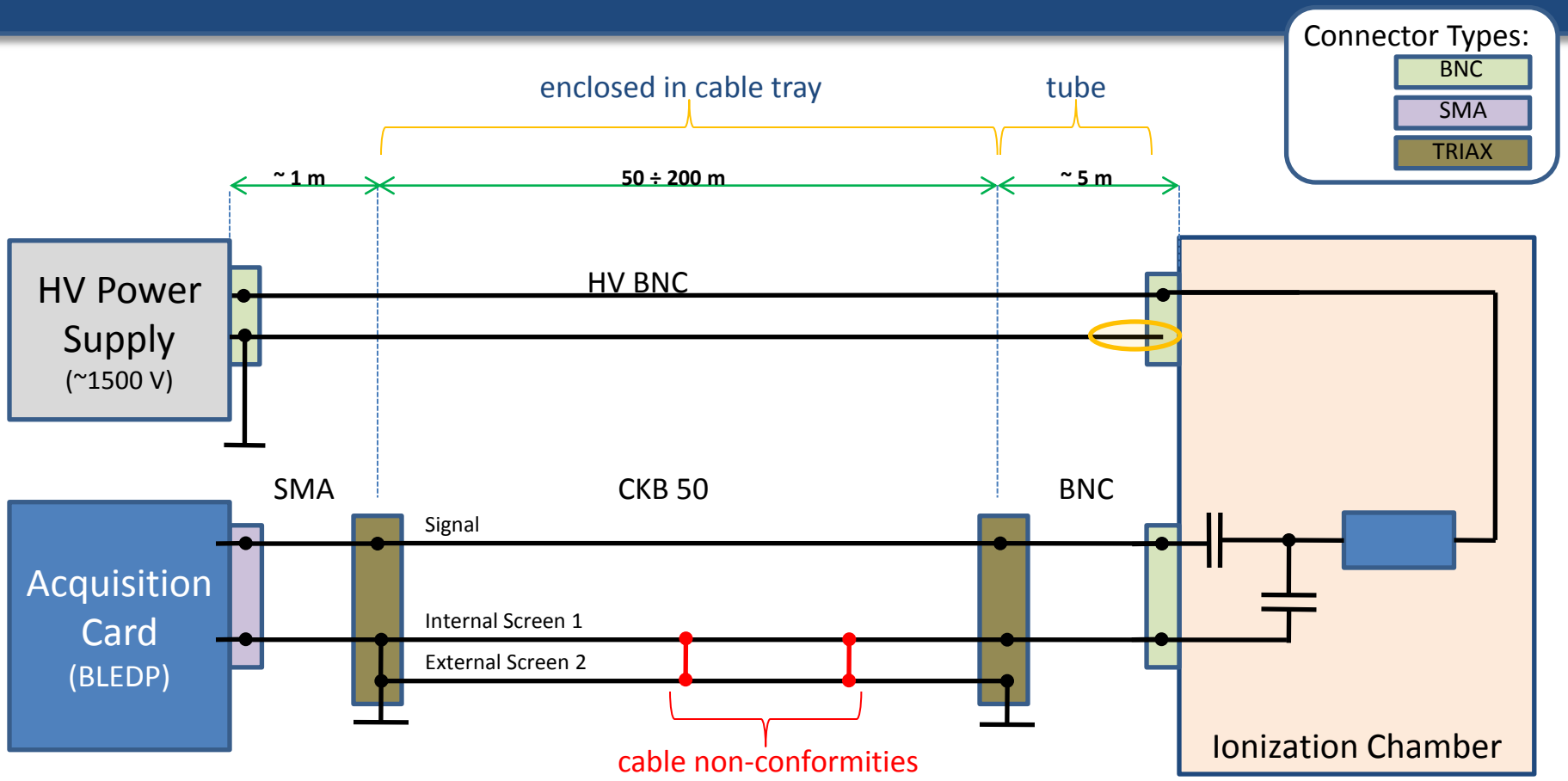


- Isolation between the two shields not optimal.
- Added additional steps for the connector assembly to avoid leaks.



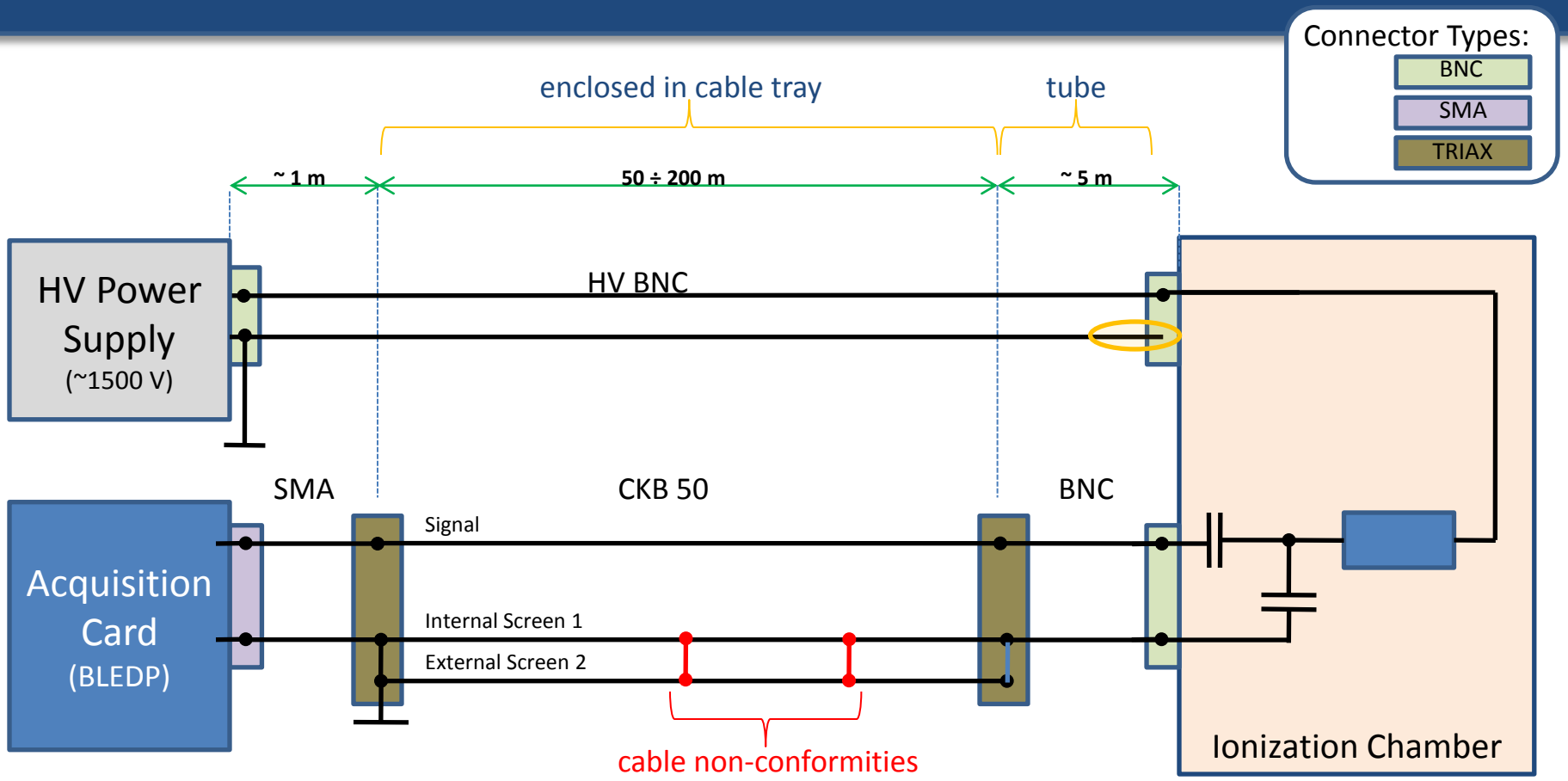
- At random positions discovered shorts between the two shields.
- Not possible to be used with Triaxial functionality.

# Cabling Non-Conformities




- Internal and External screen are shorted in multiple and random places.
- Non-conformity (most probable) due to thin insulator.

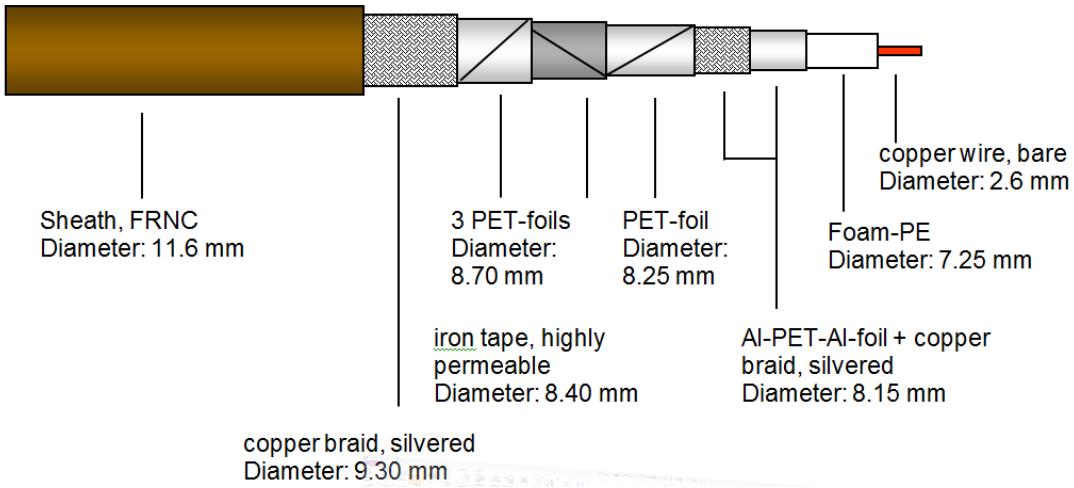
# Alternative Cabling Configuration




- Connect both shields together on both sides
- Leave the ground on the detector side floating
- Configuration will be very similar like in LHC system.

# Meeting with manufacturer

- On the first meeting agreed:
  - Modification of the specifications




  - Two more PET-foils over the magnetic screen.
    - No problems mounting the connector.
    - The electrical properties will not change.
  - Manufacturer to run a trial until end of September
  - We will test the sample and release the cable until mid-October
  - If all ok, manufacture about 6km until end of November
  - Re-installation to begin mid-January.

# Next steps

- Next week, meet with manufacturer on financial matters.
  - Costs of the new production
  - Handling of the stock already at CERN
- Decide if we continue with the installation or remove all and wait for the new production.
  - Currently the issue affects 32 detectors
  - During LS2, 80 additional will need to be installed.