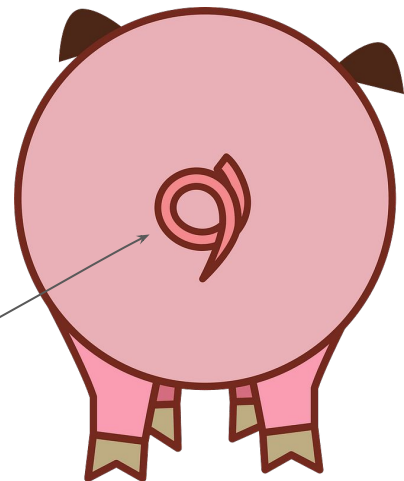
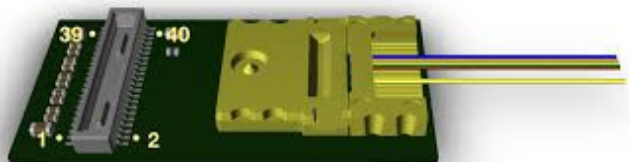
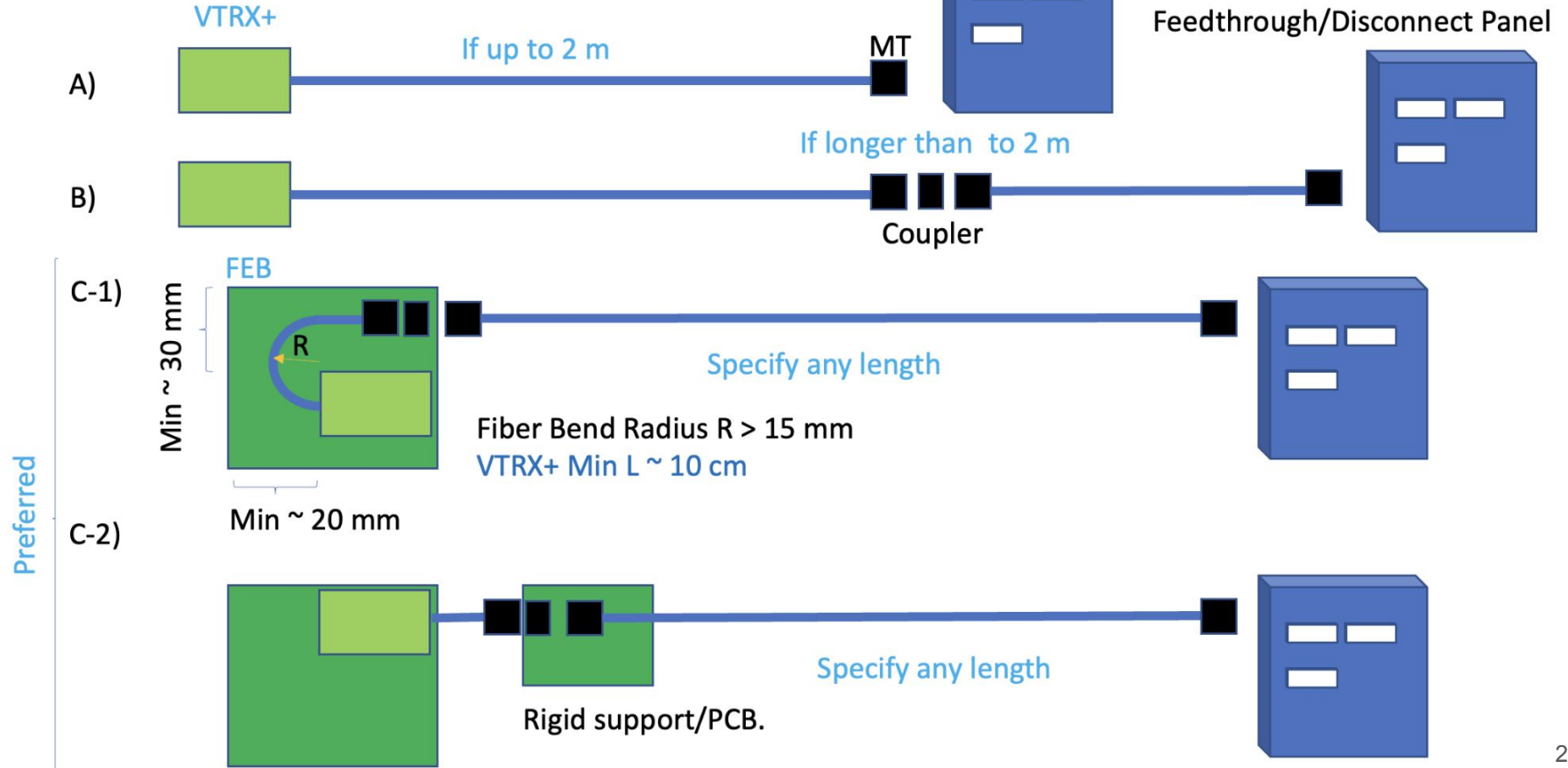


# The pig and the tail

the VTRx+ adventure and a tale of troubled connections



## VTRX+ Routing Options:



## VTRX+ Length Options:

Choose Total Length (cm)
5.5
7.7
10
12
15
20
21.5
25
30
32.5
35
40
49
50
65
84
100
200

□ **Total Length** is the length of the fiber pigtail plus the length of the VTRX+ PCB (2 cm) and the length of the MT fiber connector (1 cm):  $L = \text{fiber length} + 3 \text{ cm}$ .

Extra cost due to "sacrificial" fiber needed.

LLP Order = 5500

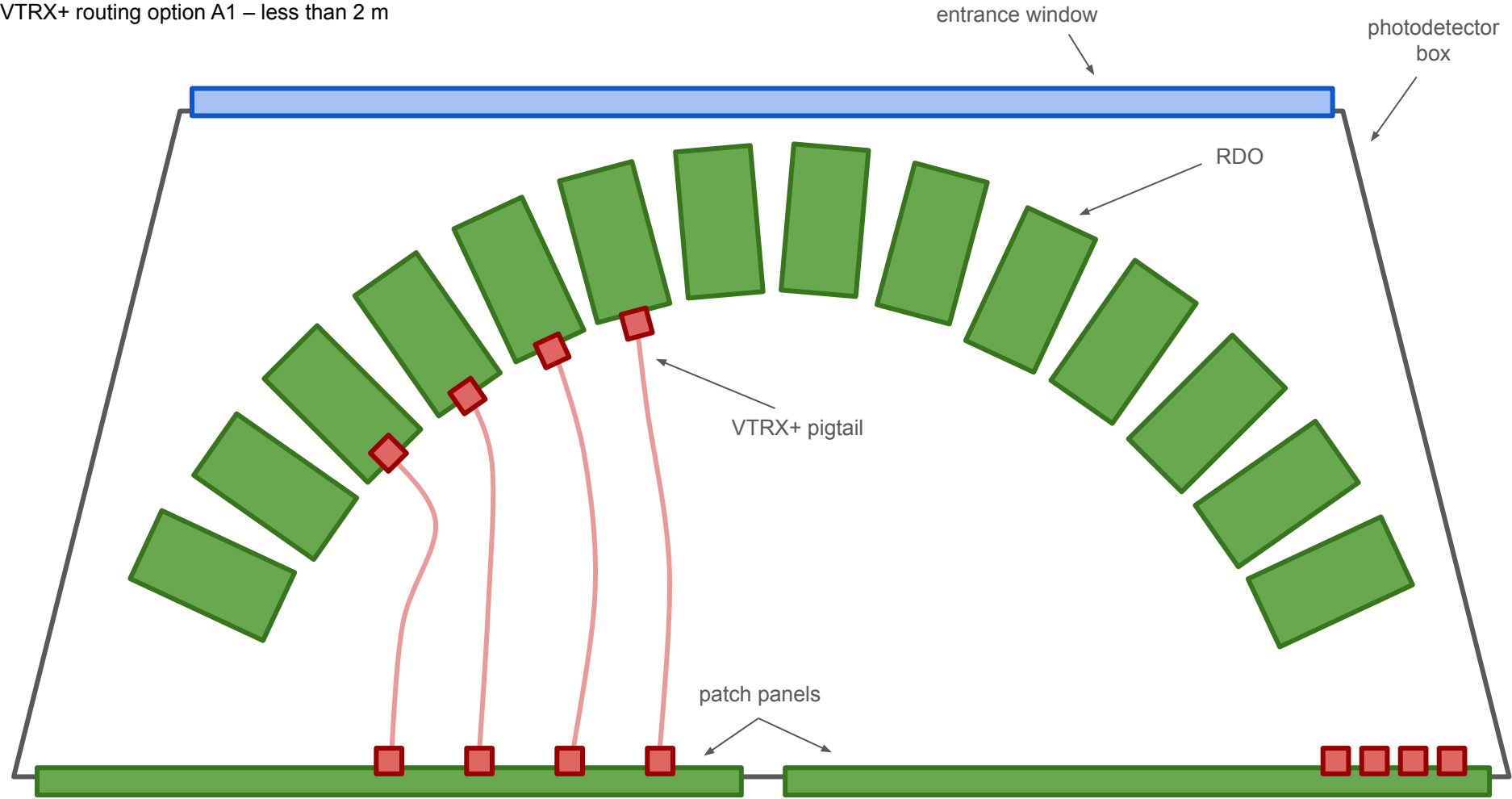
### Needed Quantities:

Sub-Detector	Qty	Total Length (cm)
SVT	1579	
MPGD EE	64	
MPGD HE	64	
MPGD IB	128	
MPGD OB uRwell	384	
TOF Disk	212	
TOF Barrel	288	
dRICH	1242	
pfRICH	68	
FF - B0 AC-LGAD	42	
FF - RP	32	
FF - OMD	18	
FB - Lumi PS	64	

Electron side Sub-Detector	Qty	Total Length (cm)
SVT	790	
MPGD EE	64	
MPGD IB	64	
TOF Barrel	144	
pfRICH	68	

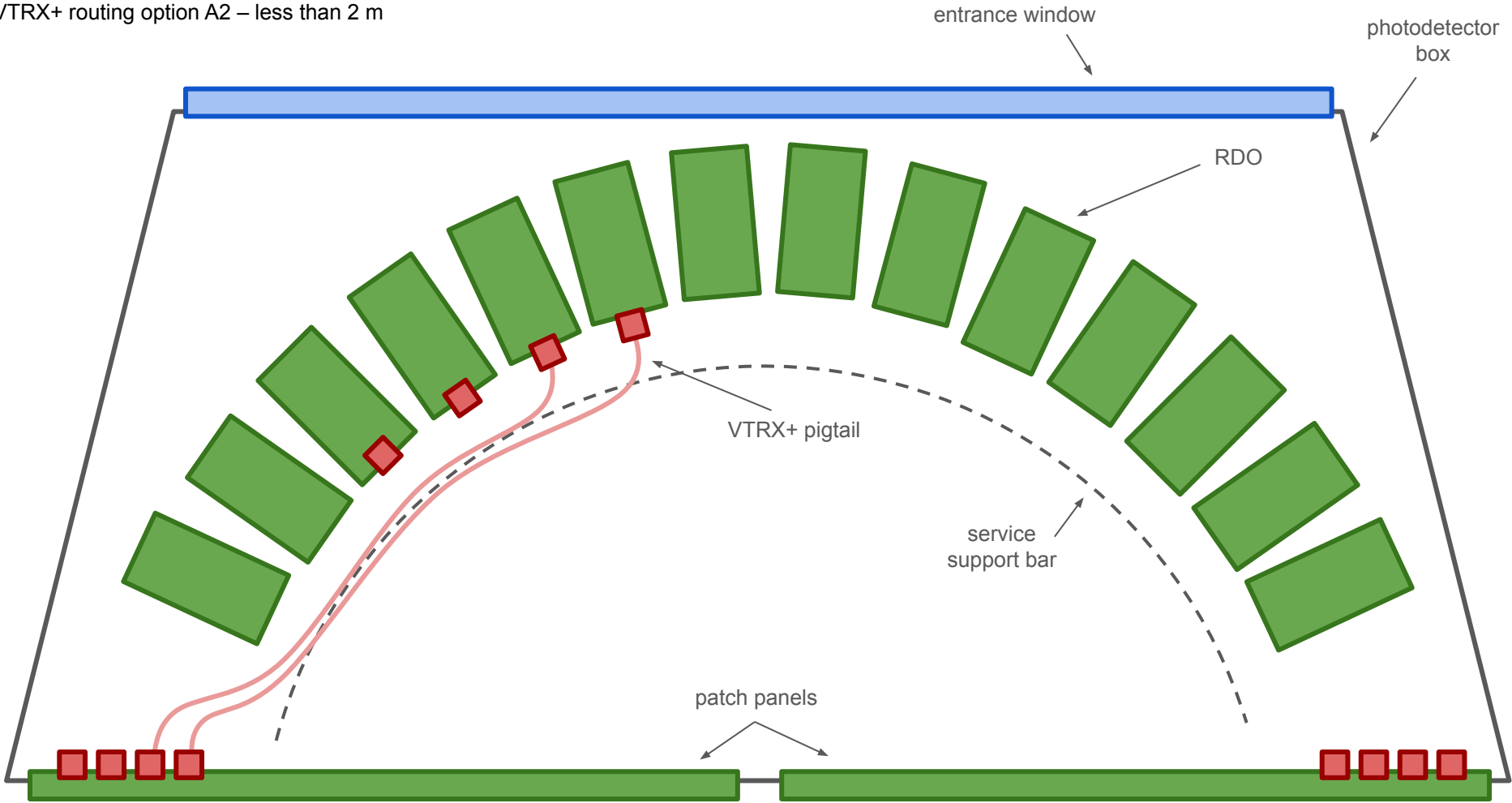
Hadron side Sub-Detector	Qty	Total Length (cm)
SVT	790	
MPGD HE	64	
MPGD IB	64	
MPGD uRwell	384	
TOF Disk	212	
TOF Barrel	144	

VTRX+ routing option A1 – less than 2 m



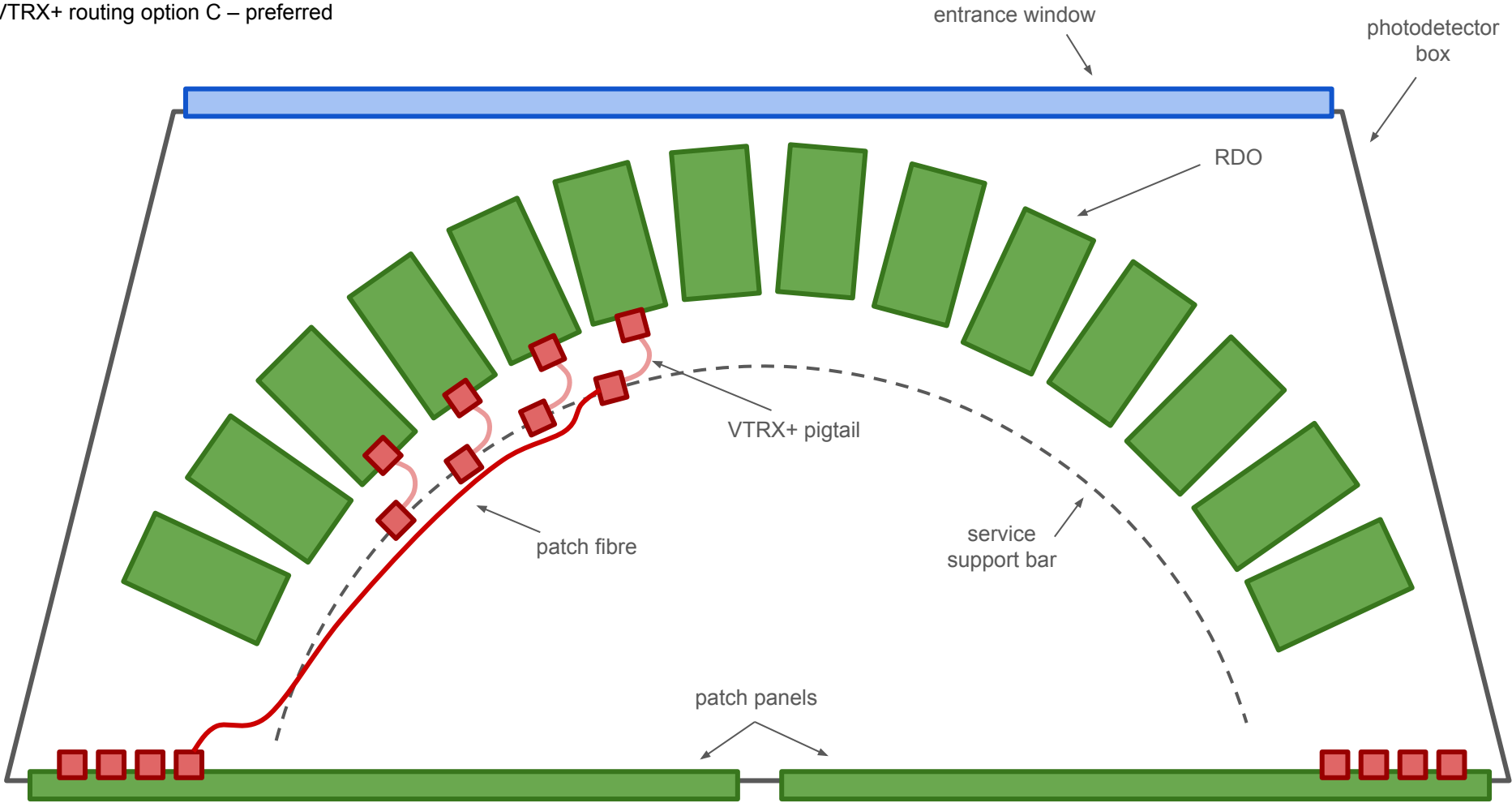
VTRX+ pigtail fibre directly connected to patch panel – this solution is dangerous, when opening the box we might pull the pigtail and break the VTRx+

VTRX+ routing option A2 – less than 2 m



better arrangement of cables / fibres with service support bar towards periphery (easy/safe box opening) – not good to have variable VTRx+ lengths (to be decided now)

VTRX+ routing option C – preferred



keep VTRx+ pigtail short and use commercial patch-cord fibres (length can be tailored later) to reach patch panel

# (probably) The nicest option

everything "contained" within the RDO volume  
VTRx+ positioned horizontally  
with the MT connector at the edge of the board

fibre length = 2.5 cm  
total length = 5.5 cm

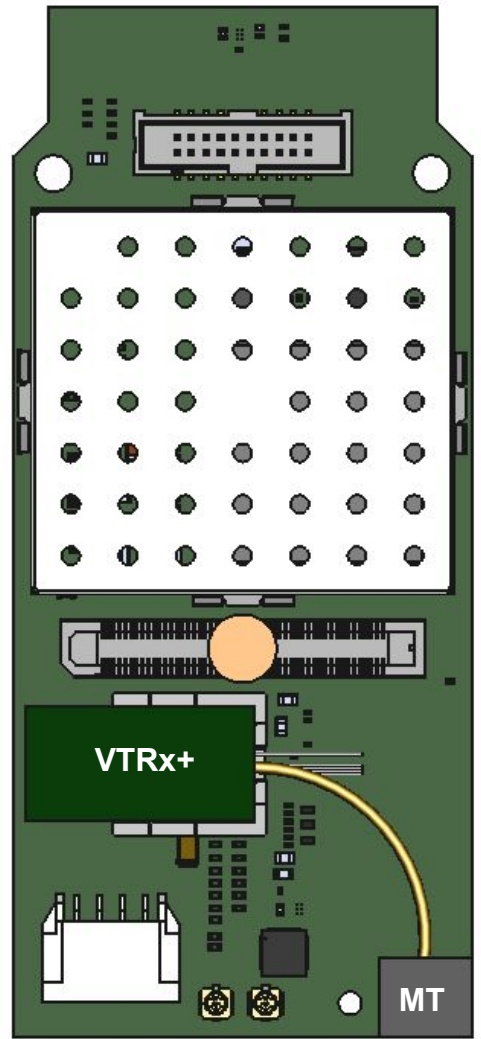
VTRX+ Length Options:

Choose Total Length (cm)	
	5.5
	7.7

Total Length is the length of the fib (cm) and the length of the MT fiber

Extra cost due to "sacrificial" fiber needed.

does this mean "no" or just "a bit more expensive" ?



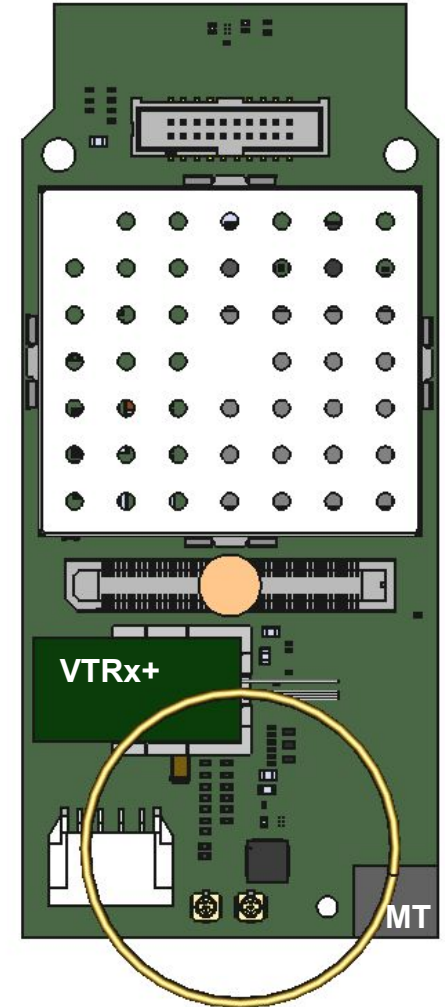
# The curly option

if 5.5 cm is too short  
make an extra 360 loop = 95 cm

fibre length = 12 cm  
total length = 15 cm

not nice to have the fibre like this  
going close to other connectors  
and going out of the RDO PCB

also I am not sure that it will be simple to  
connect the MT-fibre-connector to a patch-chord  
if the MT is bound to the RDO board

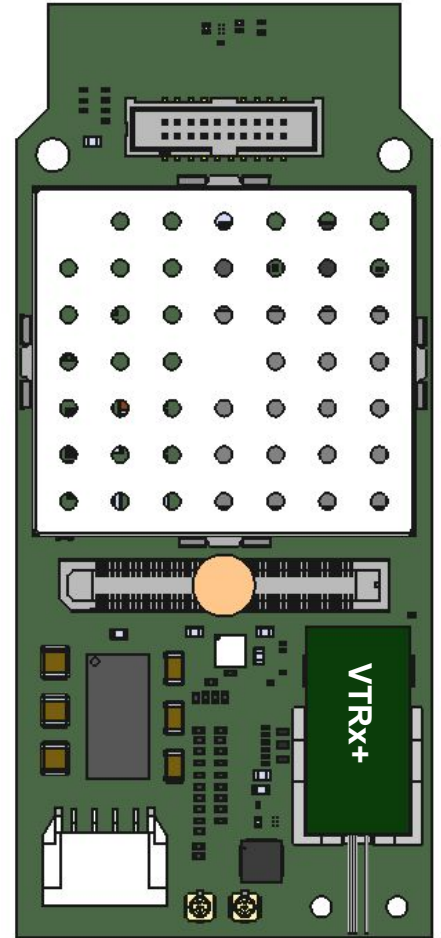




# The original option

do the connection between the VTRx+ pigtail  
MT connector to the patch cord somewhere else

better if there is something to support  
→ the service support bar

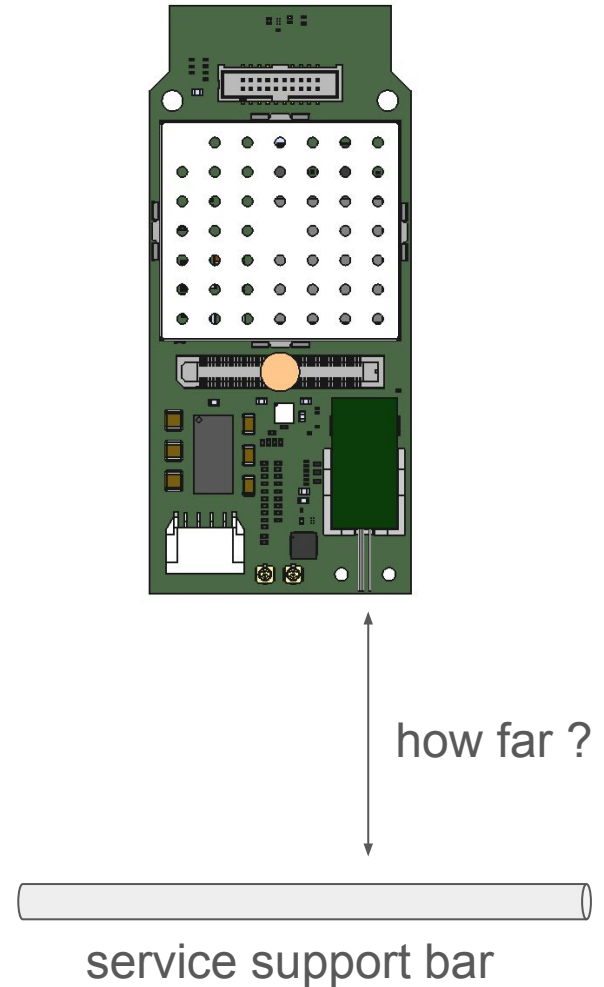


# The service bar option

do the connection between the VTRx+ pigtail  
MT connector to the patch cord somewhere else

better if there is something to support  
→ the service support bar

where is the service support bar ?  
we don't even know if it will exist  
but I think we need something like this  
otherwise we will have a jungle of cables



# The service bar option

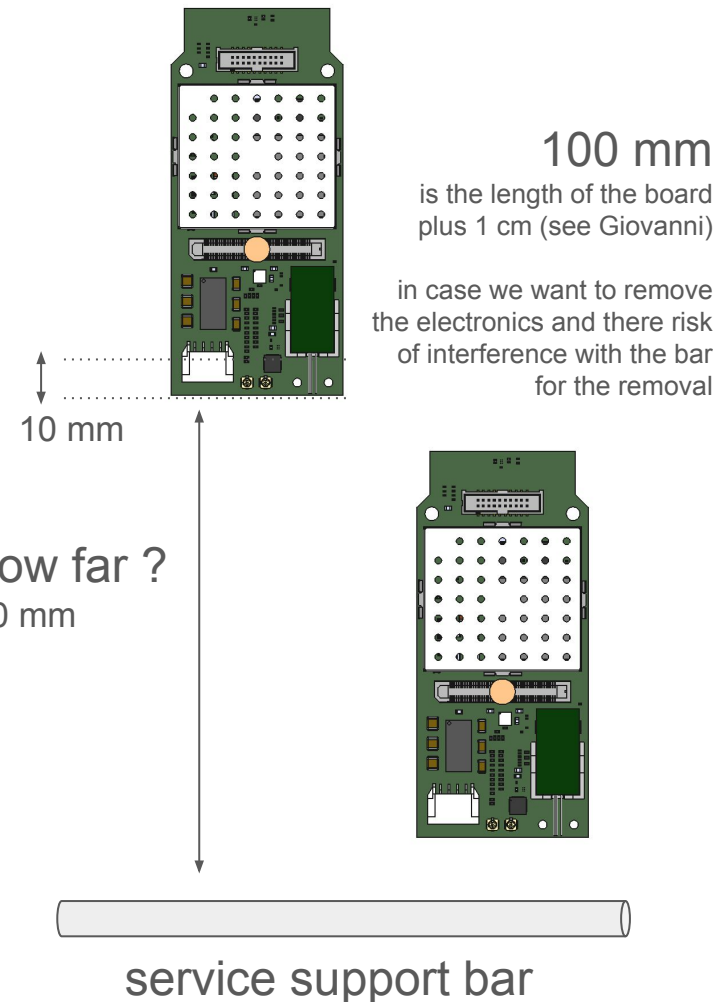
do the connection between the VTRx+ pigtail  
MT connector to the patch cord somewhere else

better if there is something to support  
→ the service support bar

where is the service support bar ?  
we don't even know if it will exist  
but I think we need something like this  
otherwise we will have a jungle of cables

10 cm plus some margin of operation  
how much?

5 cm margin will make a total 18 cm (not available, 20 cm)



# The service bar option

one service support bar  
**every two** PDU rows  
seems not really reasonable  
no space to put hands (10 cm)

better one **every four** PDU rows  
in this case:

max horizontal distance = 10 cm  
max vertical distance = 10 cm  
max H + max Z = 20 cm of fibre  
plus 3 cm = 25 cm (23 not available)

in the case one-every-four the support bar can  
be closer because there is more horizontal space

**20 cm total length could work well**

