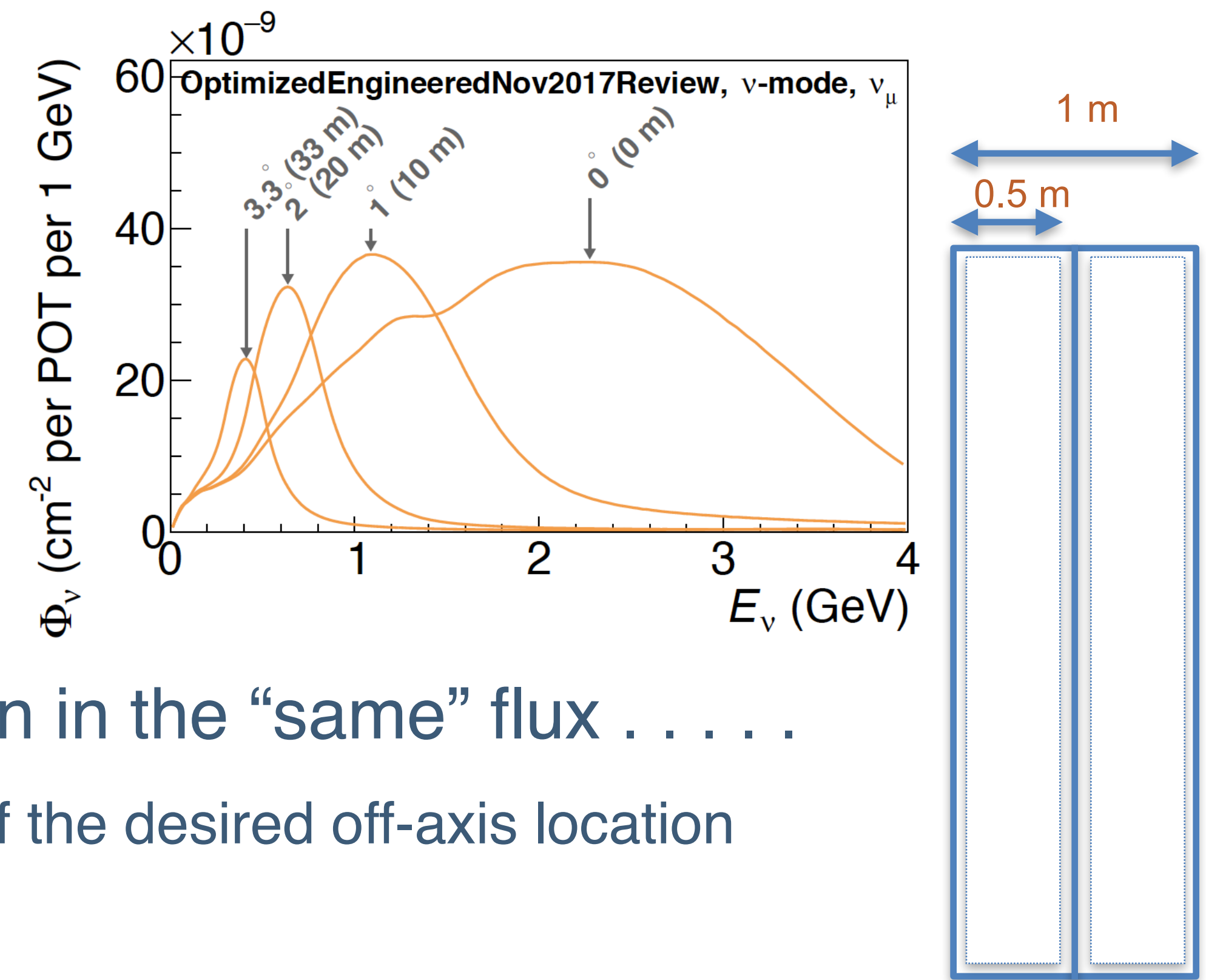


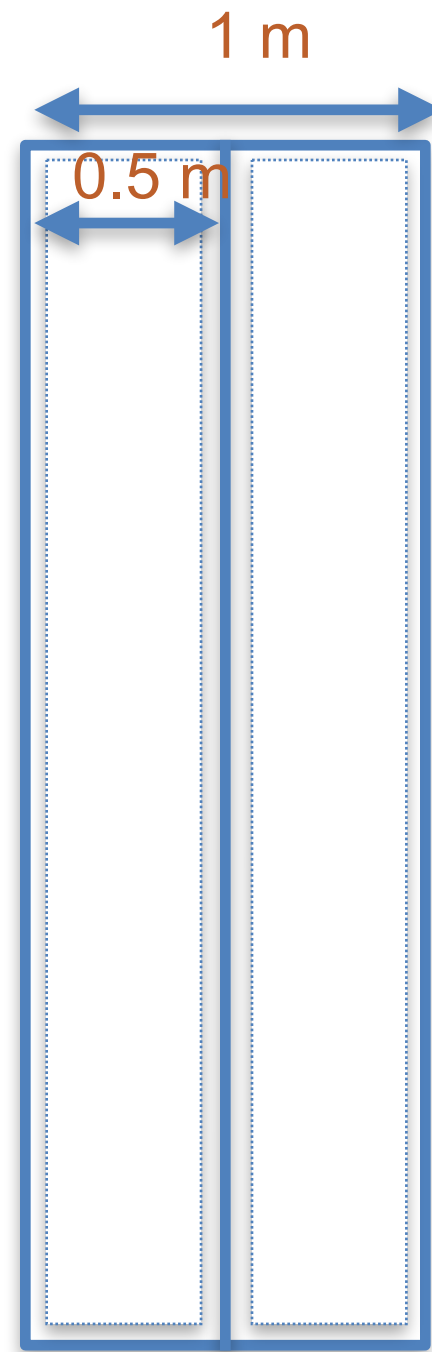
REQUIREMENTS

RECAP OF STATUS

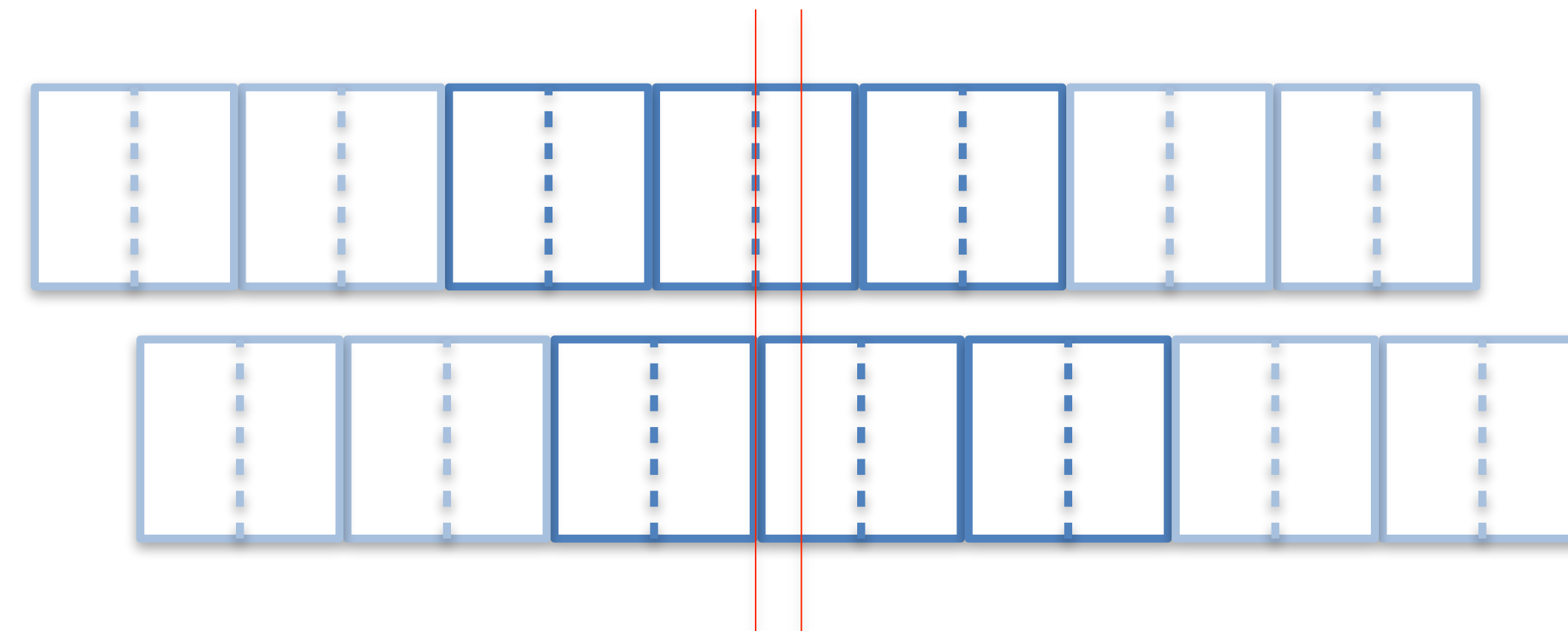
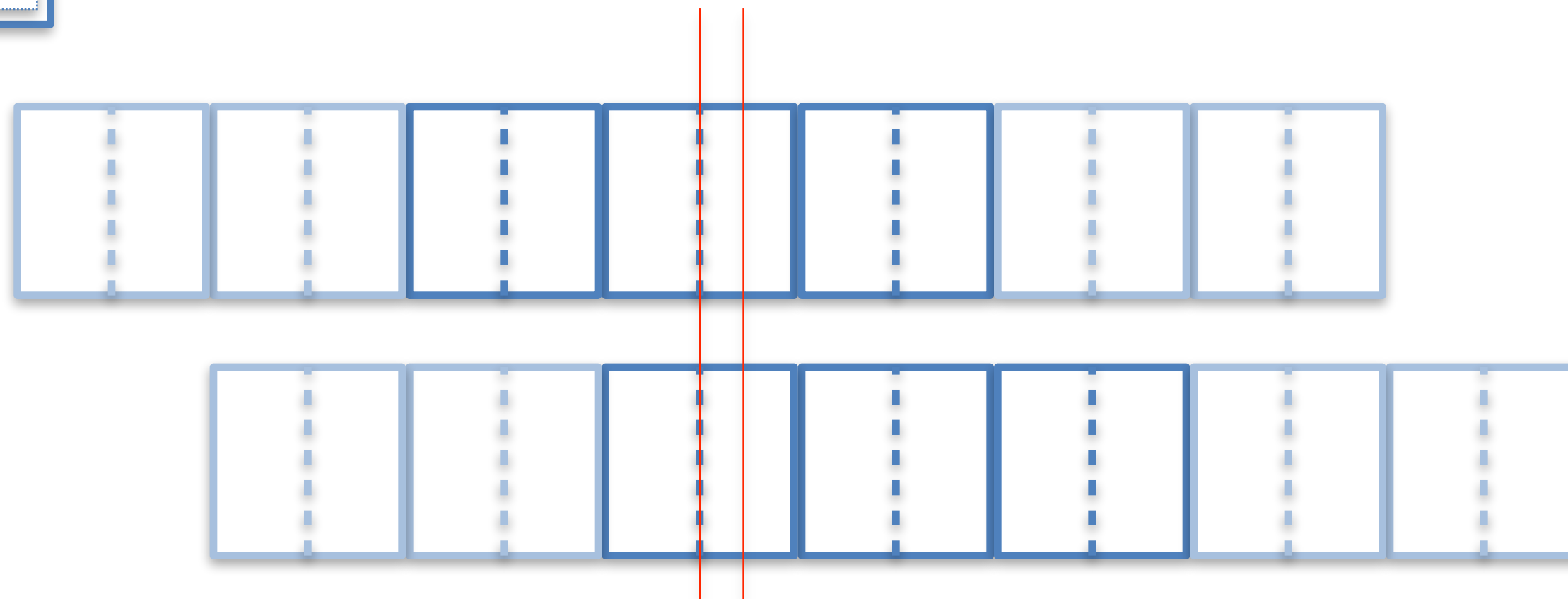
- Movement granularity is driven by two considerations:
 - length scale over which flux changes ($\sim 1\%$) \rightarrow 10 cm
 - length scale of detector module performance variations \rightarrow 10 cm
- If we wanted to study the detector performance variation in the “same” flux
 - we have to be able to put ~ 10 cm slice of detector within 10 cm of the desired off-axis location
 - this motivates granularity of 10 cm or better
 - from their precision, validation follow
- We were asked whether these requirements could be relaxed
 - Consider: if there are requirements performance uniformity, can the granularity be relaxed?
 - For example: if performance was completely uniform along the axis of movement, all positions on the detector are equivalent (up to containment)
 - so long as we can place some (central) part of the detector array at the desired off-axis location, we are okay.



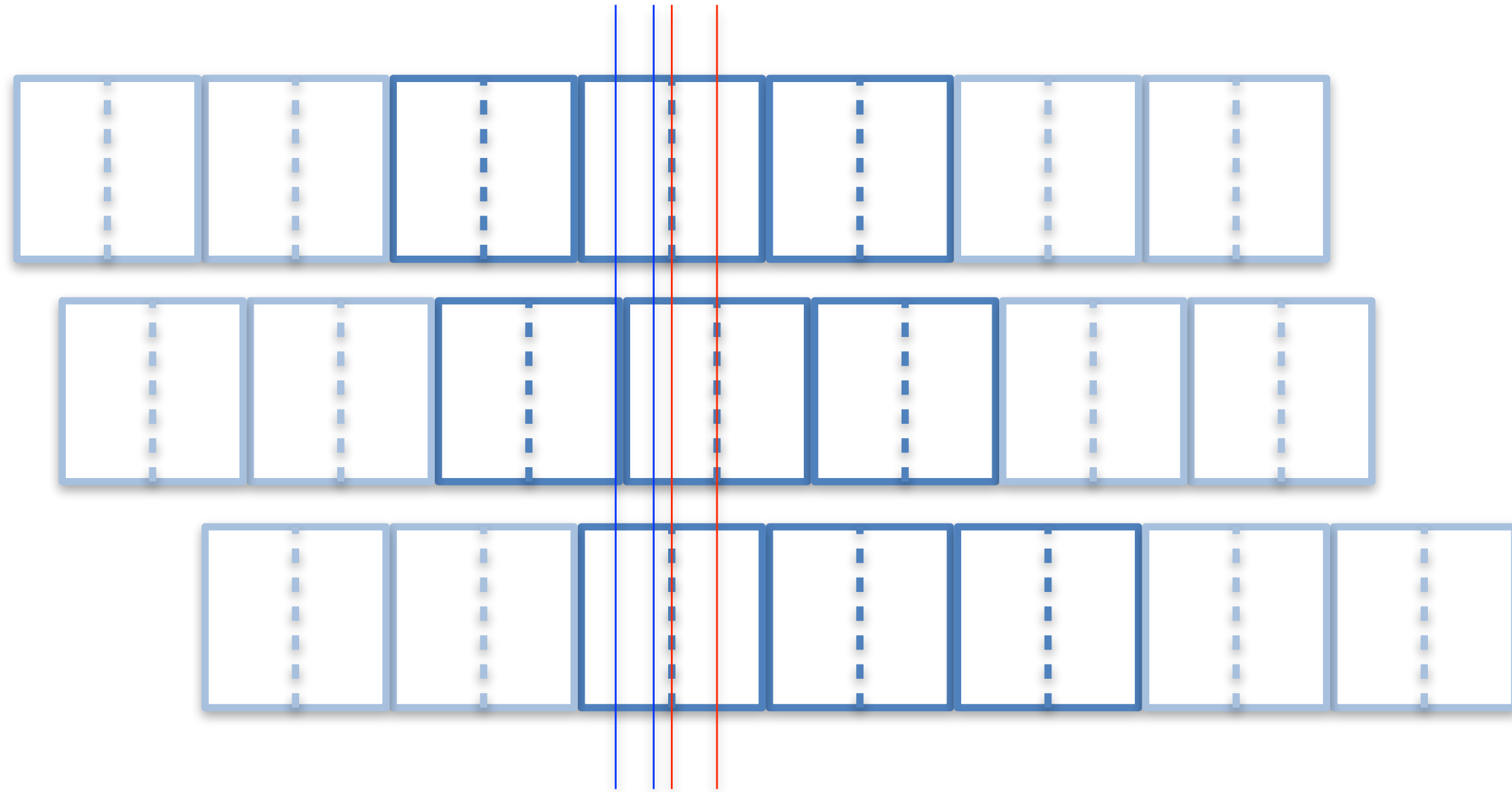
ONE STEP UP



- I don't see how we will ever get around the dead material
 - module boundaries, cathode plane
 - these regions will always be "bad" interactions happening here will always be compromised to some extent
 - we want to avoid granularity that consistently place locations in sweet/sour spots
- From that perspective, consider the relative scale of granularity/module structure
 - for example, 1x module width (1 meter) step size is maximally bad
 - some off-axis locations will always coincide with the cathode plane or the module boundary
 - likewise, 1/2 module width (50 cm) is also bad

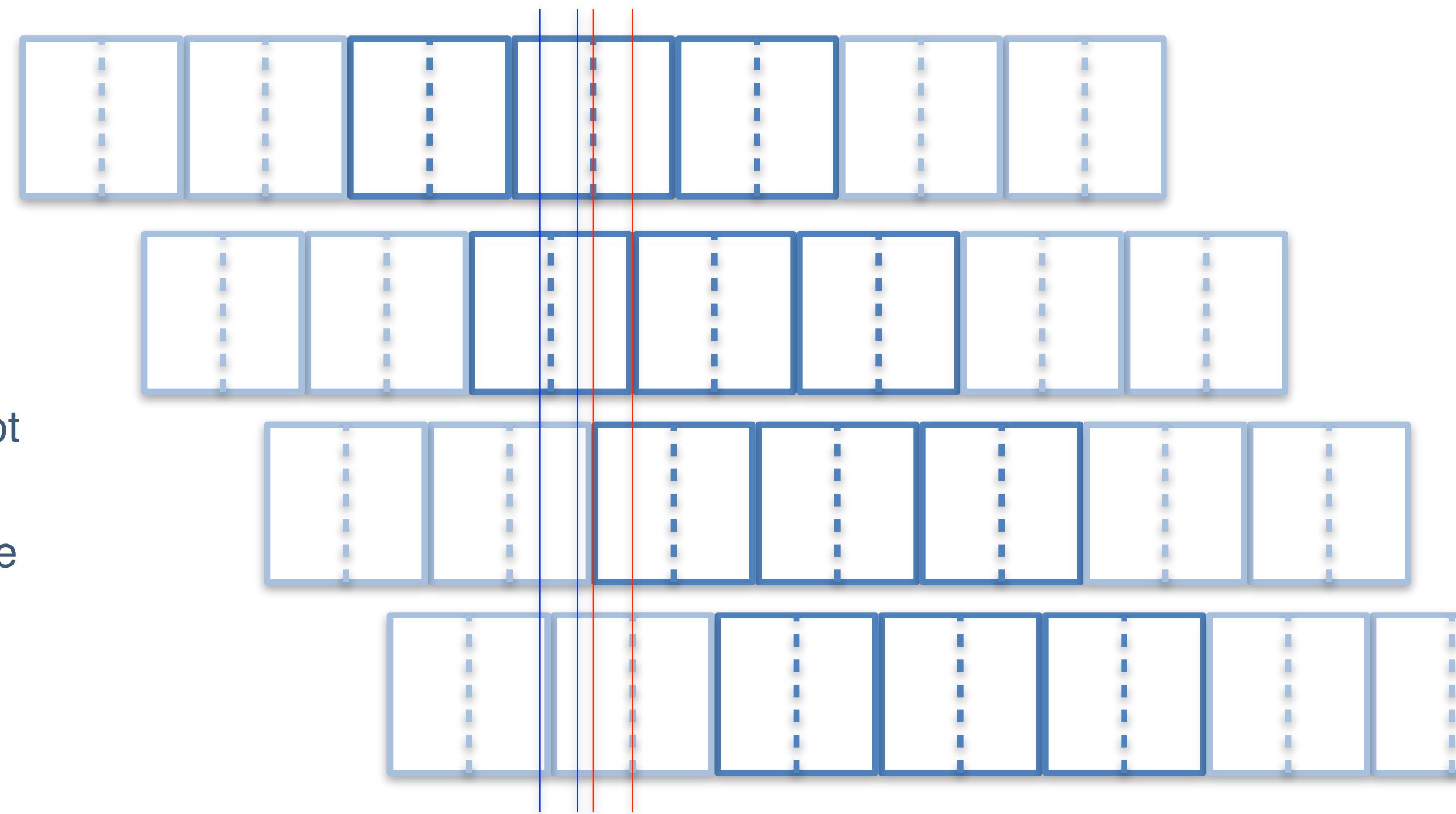


OPTIONS



- Another option:
 - 75 cm step will allow us to move a sweet/sour spot into a sour/sweet spot in the next module/drift volume
 - Does not allow ability to switch alternate proximity from cathode or anode
 - requires module-to-module uniformity
 - However, I consider this better than 50 cm steps.

- One option:
 - 1/4 width (25 cm) step will allow us to alternate “sweet” and “sour”
 - Likewise, locations which are x cm from a sweet/sour spot end up 25 cm- x from a sweet/sour spot
 - allows alternation of proximity from cathode and anode plane



DISCUSSION/PROPOSAL

- Technical/Engineering:
 - Are granularity “requirements” of effectively continuous placement (e.g. <10 cm) driving complexity/cost?
 - Or are all these possibilities in the comfort zone of the current technical choice?
- Can we consider “value/goal” for the granularity?
 - “value”: 1/4 or 3/4 module width assuming suitable detector performance requirements
 - “goal”: Original <10 cm requirements to allow the system to probe detector performance in detail