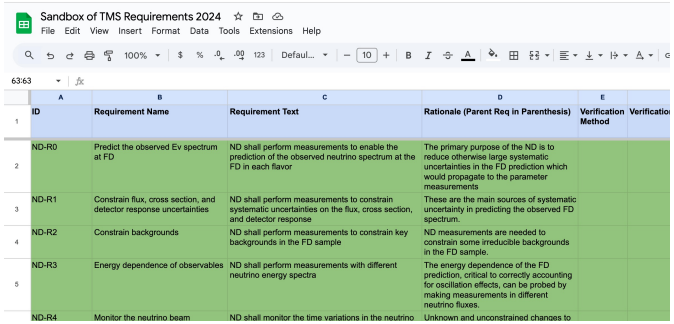
TMS Requirements

Current “sandbox” is here.



	A	B	C	D	E	
1	ID	Requirement Name	Requirement Text	Rationale (Parent Req in Parenthesis)	Verification Method	Verificatio
2	ND-R0	Predict the observed Ev spectrum at FD	ND shall perform measurements to enable the prediction of the observed neutrino spectrum at the FD in each flavor	The primary purpose of the ND is to reduce otherwise large systematic uncertainties in the FD prediction which would propagate to the parameter measurements		
3	ND-R1	Constrain flux, cross section, and detector response uncertainties	ND shall perform measurements to constrain systematic uncertainties on the flux, cross section, and detector response	These are the main sources of systematic uncertainty in predicting the observed FD spectrum.		
4	ND-R2	Constrain backgrounds	ND shall perform measurements to constrain key backgrounds in the FD sample	ND measurements are needed to constrain some irreducible backgrounds in the FD sample.		
5	ND-R3	Energy dependence of observables	ND shall perform measurements with different neutrino energy spectra	The energy dependence of the FD prediction, critical to correctly accounting for oscillation effects, can be probed by making measurements in different neutrino fluxes.		
	ND-R4	Monitor the neutrino beam	ND shall monitor the time variations in the neutrino	Unknown and unconstrained changes to		

There are various levels of ND Requirements:

- ”Requirements” – R level
- ”General” – G Level
- ”Measurement” – M Level
- “Capability” – C Level
- “Technical” – T Level

Requirements down to the Measurement level are controlled by the ND team, Capability and Technical by us.

These will all be described in the ND PDR, with Capability and Technical Requirements in the TMS Chapter.

TMS Requirements

Within each, we are allowed to write about “goals”

- Some qualitatively new thing we could do with a better detector (e.g. cross section measurements)
- A key capability we want to do as well as we can – e.g. muon stopping power.

Requirements:

- Are meant to show flow-down from high-level to technical
- Are meant to be developed *iteratively* and *recursively*

Requirements are *very important* during the review process.

- Reviewers: does this design meet the requirements? They can view their role as assigning a Pass/Fail and take a very legalistic approach.

Next Steps

The high-level requirements were finalized shortly after the Sept. collaboration meeting – incorporate them.

Capability requirements should be finalized ASAP.

We will split out technical requirements by sub-system and ask each to look at theirs and recommend changes.

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