

| ID | Name | Description | Rationale | Design Validation | Verification Method |
|---------|---|--|--|-------------------------|------------------------|
| SYS-005 | Charge-Light Signal Matching Efficiency | The ND LArTPC shall be able to associate scintillation light signal times to ionization signal clusters from fiducial neutrino interactions with an efficiency, averaged over interactions, of > 97% by energy . | Efficient matching of the charge signals with the fast (~ns-scale) light signals enable accurate discrimination of the charge signals from the approximately 50 neutrinos contributing to the charge signals per ~10us-wide beam spill. | ScSims | ScSims |
| SYS-006 | Detector Optical Modularity | The ND LArTPC shall have optically isolated regions, nominally 1.5 m ³ , to facilitate matching between the charge and optical signals | Isolation of scintillation light within LArTPC modules facilitates charge-light signal matching. | Design | Test/ Inspection |
| SYS-008 | ND LArTPC performance after PRISM detector move | The ND LArTPC shall meet operational performance requirements (Electric field uniformity & stability, module alignment, noise, live pixels), within 1 hour after PRISM movement of the detector | Start taking high quality data within an hour. This is a allocation of time to complete all activites associated with PRISM move within an 8 hour shift, driven by operational resource, and to achieve the required number of moves in a year with a 5% integrated downtime attributed to moving the detector (1 move/week) | Eng Analysis | Eng Analysis |
| SYS-009 | Electric Field Strength | The ND LArTPC shall be able to achieve an electric field strength >250 V/cm (goal 500 V/cm) | Equivalent electric field as FD to enable operation of the near detector with equivalent levels of electron recombination and other field-dependent effects. | Full Scale Demonstrator | MIF Integrated Testing |