

ID	Name	Description	Rationale	Design Validation	Verification Method
SYS-001	ND LArTPC Fiducial Mass	The ND LArTPC shall provide >20 tons fiducial liquid argon target mass	To deliver the required statistical precision (<2%) for the measurement of neutrino-electron elastic scattering	Design	Test/ Inspection
SYS-002	ND LArTPC Active Size	The ND LArTPC active volume shall be ≥ 5 m in the beam direction, and ≥ 7 m x 3m in transverse directions	<p>To sufficiently contain the ionization signal from beam neutrino interactions on argon, except for forward-going muons and energetic neutrons.</p> <p>The size is driven by maintaining sensitivity to the kinematic phase space of the cross-section, not by detector efficiency. Detector efficiencies as low as ~5% can be tolerated, as long as the detector is not blind to substantial (few-%) regions of the cross-section phase space.</p>	Design	Test/ Inspection
SYS-003	Pileup Rejection Efficiency	The ND LArTPC shall be able to associate ionization signals to fiducial neutrino interactions with a purity, averaged over interactions, of > 97% by energy .	After the rejection of pileup, the residual pileup systematic uncertainties should be sub-dominant to other uncertainties in the prediction of the far detector signal based on near detector data.	ScSims	ScSims
SYS-004	3D Charge Imaging Accuracy	The ND LArTPC shall be able to associate ionization signals to fiducial neutrino interactions with completeness, averaged over interactions, of > 97% by energy .	Accurate 3D charge signal imaging is required in order to correctly associate charge depositions to their parent neutrino interactions in the high-pileup ND environment.	ScSims	ScSims