

# Cosmic Vision 2015-2025 Technology Plan

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# Technology Development Plan Implementation

# TDP Implementation Plan 1./6 (CTP)

Mission Theme	Reference	Activity Title	PP	Start
IXO	C216-003MM	Bessy X-ray test facilities upgrade plan	DN/S	Q4 2008
IXO	C216-004MM	Development of XEUS Si pore optics and mass production processes	C(1)	Q2 2009
IXO	C216-005MM	Panter X-ray test facilities upgrades	DN/S	Q4 2008
IXO	C216-006MM	XEUS mirror module ruggedizing & enviromental testing Ph. II	C	Q4 2009
LISA	C207-009PW	GRS Front End Electronics characterization for LISA	C(2)	Q2 2009
LISA	C207-010EE	Compact low noise magnetic gradiometer	C(1)	Q4 2008
LISA	C207-011PW	Charge Management System for LISA	C(2)	Q1 2009
LISA	C207-012PW	Opto-mechanical stability characterization for LISA	C(2)	Q4 2008

# TDP Implementation Plan 2./6 (CTP)

Mission Theme	Reference	Activity Title	PP	Start
LISA	C207-013PW	Metrology system for LISA	C(2)	Q1 2009
LISA	C207-014PW	High-power laser system for LISA	C(2)	Q2 2009
LISA	C207-016PW	Outgassing and Contamination characterization for LISA	C(2)	Q3 2009
Several	C201-030ED	High processing power DPU based on high rel. DSP	C(2) *	Q4 2008
Several	C220-032MC	15K Pulse Tube cooler	C	Q2 2009
Several	C222-034QC	CCD radiation characterisation	DN/S	Q4 2008
Several	C223-035QM	Characterisation of ultra-stable materials at cryogenic temperature	C	Q2 2009

# TDP Implementation Plan 3./6 (TRP)

Mission Theme	Reference	Activity Title	PP	Start
Laplace Tandem	T201-002ED	Latch up protection for COTS (Commercial, off-the-shelf) digital components	C *	Q1 2009
Laplace Tandem	T201-003ED	Low mass SpaceWire	C(1)	Q4 2008
Laplace Tandem	T201-004ED	DAREplus (Design Against Radiation Effects) ASICs for extremely rad hard & harsh environments	DN/S	Q4 2008
Laplace Tandem	T203-006EP	Stirling Engine Radioisotopic Power System Requirement Study	C	Q4 2008
Laplace Tandem	T203-007PA	Novel Low Power Radioisotope Power Generator	C	Q1 2009
Laplace Tandem	T203-008PA	Optimized electrical power conversion for RHU based systems.	C	Q1 2009
Laplace Tandem	T204-009EE	Radiation Effects on Sensors and Technologies for Cosmic Vision SCI Missions (REST-SIM)	C(2)	Q1 2009
Laplace Tandem	T222-015QC	Radiation characterisation of RT digital CMOS technology	C(2)	Q4 2009
Laplace Tandem	T222-016QC	Radiation hard memory	C(2)	Q2 2009

# TDP Implementation Plan 4./6 (TRP)

Mission Theme	Reference	Activity Title	PP	Start
Laplace Tandem	T222-017QC	Radiation Tolerant analogue / mixed signal technology survey and test vehicle design	C *	Q1 2009
Laplace Tandem	T222-018QC	Front-end readout ASIC technology study and development test vehicles for front-end readout ASICS	C *	Q1 2009
Laplace Tandem	T222-019QC	Survey of critical components for 1 Mrad power system design including delta radiation characterisation of RH power EEE components	C(1)	Q4 2008
Laplace Tandem	T222-020QC	Radiation characterisation of Laplace/Tandem critical RH optocouplers, sensors and detectors	C(1)	Q4 2009
Laplace Tandem	T223-021QM	Characterisation of radiation resistant materials Phase 1	C(2)	Q1 2009
IXO	T216-022MM	Large area X-ray window development.	C(1)	Q3 2009
IXO	T216-023MM	Back-up XEUS optics technology Phase 1	C(1)	Q4 2008
IXO	T216-026MM	XEUS mirror module ruggedizing & enviromental testing	C(1)	Q4 2008

# TDP Implementation Plan 5./6 (TRP)

Mission Theme	Reference	Activity Title	PP	Start
Several/ EUCLID	T204-028EE	Solar/interplanetary electron hazards	C(3)	Q1 2009
Several/ Marco Polo	T205-029EC	Autonomous GNC Technology for NEO proximity, Landing and sampling Operations - Phase 1	C	Q1 2009
Several/ BPOL	T207-034EE	Low-loss, low-mass, large lenses with anti-reflection coating	C(1) *	Q3 2009
Several/ Phoibos	T203-035EP	Near-sun power generation: Identification of best suitable thermoelectric converters	C	Q1 2009
Several/ Phoibos	T223-038QM	Materials compatibility for the PHOIBOS mission (high temperature under high UV load)	C(2)	Q4 2008
Several	T204-042EE	Computational tools for spacecraft electrostatic cleanliness and payload analysis	C(1)	Q3 2009
Several	T204-043EE	Rad-Hard Electron monitor	C(1) *	Q3 2009
Several	T204-044PA	Solid-state neutron detector	C(1)	Q4 2008

# TDP Implementation Plan 6./6 (TRP)

Mission Theme	Reference	Activity Title	PP	Start
Several	T212-045GS	X/K band feed	C	Q3 2009
Several	T212-046GS	X/K/Ka band dichroic mirror	C	Q3 2009
Several	T216-047PA	Prototype ASIC development for large format NIR/SWIR detector array.	C(1)	Q2 2009
Several	T216-050PA	Low-noise scintillator detectors for planetary remote-sensing	C(1)	Q4 2008
Several	T217-051MP	Ablation radiation coupling	C	Q3 2009
Several	T217-052MP	Kinetic shock tube for radiation data base for planetary exploration	C	Q4 2008
Several	T220-053MC	Advanced 2K JT cooler	DN/S	Q4 2008
Several	T223-054QM	Development & testing of bonding and coating technologies of high temperature materials (C/C, C/SiC, ablative materials etc. ) under extreme conditions	C(2)	Q4 2008
Several	T223-055QM	Materials Charging effects under extreme environments (ultra-low temperatures and high radiation fields)	C(2)	Q4 2008