2 Technology Tree Issue 3.0 – Abbreviated Version

TD	TECHNOLOGY DOMAIN	TS	TECHNOLOGY SUBDOMAIN
1	Onboard Data Systems	A	Payload data processing
		B	Onboard data management
		C	Microelectronics for digital and analogue applications
2	Space System Software	A	Advanced Software technologies
		B	Space segment software
		C	Ground segment software
		D	Ground data processing
		E	Earth observation payload data exploitation
3	Spacecraft Electrical Power	A	Power system architecture
		B	Power generation technologies
		C	Energy storage technologies
		D	Power conditioning and distribution including regulation, control and distribution
4	Spacecraft Environments and Effects	A	Space environment
		B	Environment effects
		C	Space weather
5	Space System Control	A	Control systems engineering
		B	Control systems innovative technologies
		C	Control techniques and tools
		D	AOCS/GNC sensors and actuators
6	RF Systems, Payloads and Technologies	A	Telecommunication systems/subsystems
		B	Radio navigation systems/subsystems
		C	TT&C and payload data modulator (PDM) systems/subsystems
		D	RF payloads
		E	RF technologies and equipment
7	Electromagnetic Technologies and Techniques	A	Antennas
		B	Wave Interaction and propagation
		C	EMC/RFC/ESD
8	System Design & Verification	A	Mission and system specification
		B	Collaborative and concurrent engineering
		C	System analysis and design
		D	System verification and AIT
9	Mission Operation and Ground Data systems	A	Advanced system concepts
		B	Mission operations
		C	Ground data systems (MCS)
10	Flight Dynamics and GNSS	A	Flight dynamics
		B	GNSS high-precision data processing
11	Space Debris	A	Ground- and space-based debris and meteoroid measurements
		B	Modelling and risk analysis
		C	Debris mitigation, debris environment remediation and protection
12	Ground Station System and Networks	A	Ground station system
		B	Ground communications networks
13	Automation, Telepresence & Robotics	A	Applications and concepts
		B	Automation & robotics systems
		C	Automation & robotics components and technologies

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14	Life & Physical Sciences	A	Instrumentation in support of life sciences
		B	Instrumentation in support of physical sciences
		C	Applied life science technology
		D	Applied physical science technology
15	Mechanisms	A	Mechanism core technologies
		B	Non-explosive release technologies
		C	Exploration tool technologies
		D	Control electronics technologies
		E	MEMS technologies
		F	Tribology technologies
		G	Mechanism engineering
		H	Pyrotechnic technologies
16	Optics	A	Optical system engineering
		B	Optical component technology and materials
		C	Optical equipment and instrument technology
17	Optoelectronics	A	Laser technologies
		B	Detector technologies
		C	Photonics
18	Aerothermodynamics	A	Numerical methods
		B	Ground-based facilities
		C	Sensors and Measurement Techniques
		D	Flight databases
19	Propulsion	A	Chemical propulsion technologies
		B	Electric propulsion technologies
		C	Advanced propulsion
		D	Supporting Propulsion Technologies and Tools
20	Structures	A	Structural design and verification methods and tools
		B	High-stability and high-precision S/C structures
		C	Inflatable and deployable structures
		D	Hot structures
		E	Active/adaptive structures
		F	Damage tolerance and health monitoring
		G	Launchers, reentry vehicles, planetary vehicles
		H	Crew habitation, safe haven and EVA suits
		I	Meteoroid and debris shield design and analysis
		J	Advanced structural concepts and materials
21	Thermal	A	Heat transport technology
		B	Cryogenics and refrigeration
		C	Thermal protection
		D	Heat storage and rejection
		E	Thermal analysis tools
22	Environmental Control Life Support (ECLS) and *In Situ* Resource Utilisation (ISRU)	A	ECLS
		B	ISRU
23	EEE (electric, electromechanical & electronic) Components and quality	A	Methods and processes for product assurance of EEE components, including radiation hardness assurance
		B	EEE component technologies

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24	Materials and Processes	A	Novel materials and materials technology
		B	Materials processes
		C	Cleanliness and sterilisation
		D	Space environmental effects on materials and processes
		E	Modelling of materials behaviour and properties
		F	Non-destructive inspection (NDI)
		G	Materials and process obsolescence
		H	Materials for electronic assembly
25	Quality, Dependability and Safety	A	System Dependability and Safety
		B	Software quality
		C	Product and quality assurance
26	OTHERS		