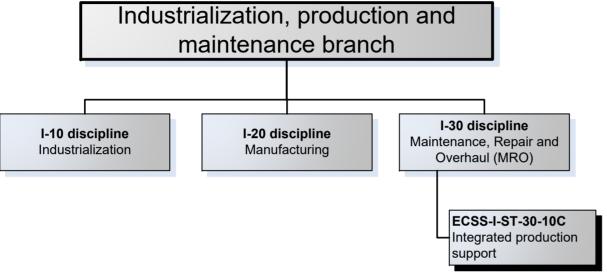
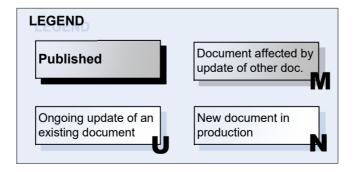


(as of March 2025)

Industrialization branch





Engineering branch

Space engineering branch

E-10 discipline System engineering ECSS-E-ST-10C Rev.1 System engineering general requirements ECSS-E-ST-10-02C Rev.1 Verification ECSS-E-ST-10-03C Rev.1 Testing ECSS-E-ST-10-04C Rev.1 Space environment ECSS-E-ST-10-06C Technical requirements specification ECSS-E-ST-10-09C Reference coordinate system ECSS-E-ST-10-11C Human factors engineering ECSS-E-ST-10-12C +Corr.1 Method for the calculation design margins

E-20 discipline Electrical and optical engineering

ECSS-E-ST-20C Rev.2 Electrical and electronic

ECSS-E-ST-20-01C Multipactor design and test

ECSS-E-ST-20-06C Rev.1 Spacecraft charging

ECSS-E-ST-20-07C Rev.2 Electromagnetic compatibility

> ECSS-E-ST-20-08C Rev.2 Photovoltaic assemblies and components

ECSS-E-ST-20-20C Interface requirements for electrical power

ECSS-E-ST-20-21C Interface requirements for electrical actuators

ECSS-E-ST-20-40C of radiation received and ASIC, FPGA and IP Core its effects, and a policy for engineering

ECSS-E-ST-10-24C Interface management ECSS-E-ST-10-24C Rev.1

ECSS-E-AS-11C Adoption Notice of ISO 16290 - Definition of TRLs and their criteria of assessment

E-30 discipline Mechanical engineering

> Note: E-30 discipline is detailed in the next chart

E-40 discipline Software engineering

ECSS-E-ST-40C Software general requirements ECSS-E-ST-40C Rev.1

> ECSS-E-ST-40-02C Machine learning software engineering, verification and validation

ECSS-E-ST-40-07C Simulation modelling platform ECSS-E-ST-40-07C Rev.1

ECSS-E-ST-40-08C Simulation modelling platform - Level 2

E-50 discipline Communications

Note: E-50 discipline is detailed in the next chart

E-60 discipline Control engineering

ECSS-E-ST-60-10C Control performances

> ECSS-E-ST-60-20C Rev.2 Star sensor terminology and performance specification

ECSS-E-ST-60-21C Gyros terminology and performance

ECSS-E-ST-60-30C Attitude and orbit control systems (AOCS) requirements

E-70 discipline Ground systems and operations

ECSS-E-ST-70C Ground systems and operations

ECSS-E-ST-70-01C On-board control procedures

ECSS-E-ST-70-11C Space segment operability ECSS-E-ST-70-11C Rev.1

ECSS-E-ST-70-31C Ground systems and operations - Monitoring and control data definition

> ECSS-E-ST-70-32C Test and operations

ECSS-E-ST-70-41C Telemetry and telecommand packet utilization

ECSS-E-ST-70-41C Rev.1

procedure language

LEGEND Document affected by **Published** update of other doc. Ongoing update of an New document in existing document production

(as of October 2024)

E-80 discipline

Security

Security in space systems

ECSS-E-ST-80C

lifecycles

E-30 discipline

Mechanical engineering

ECSS-E-ST-31C

Thermal control general requirements

ECSS-E-ST-31-02C Rev.1

Two-phase heat transport equipment

ECSS-E-ST-31-04C

Exchange of thermal analysis data

ECSS-E-ST-32C Rev.1

Structural general requirements

ECSS-E-ST-32-01C Rev.2

Fracture control

ECSS-E-ST-32-02C Rev.1

Structural design and verification of pressurized hardware

ECSS-E-ST-32-02C Rev.2

ECSS-E-ST-32-03C

Structural finite element models

ECSS-E-ST-32-08C Rev.1

Materials

ECSS-E-ST-32-10C Rev.2

Structural factors of safety for spaceflight hardware

ECSS-E-ST-32-11C

Modal survey assessment

ECSS-E-ST-33-01C Rev.2

Mechanisms

ECSS-E-ST-33-11C Rev.1

Explosive subsystems and devices

ECSS-E-ST-34C

Environmental control and life support

ECSS-E-ST-35C Rev.1

Propulsion general requirements

ECSS-E-ST-35-01C

Liquid and electric propulsion for spacecraft

ECSS-E-ST-35-02C

Solid propulsion for spacecraft and launchers

ECSS-E-ST-35-03C

Liquid propulsion for launchers

ECSS-E-ST-35-06C Rev.2

Cleanliness requirements for spacecraft propulsion hardware

ECSS-E-ST-35-10C

Compatibility testing for liquid propulsion systems

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Ongoing update of an existing document

Document affected by update of other doc.

New document in production

(as of June 2024)

E-50 discipline

Communications

ECSS-E-ST-50C Rev.2

Communications

ECSS-E-ST-50-02C

Ranging and Doppler tracking

ECSS-E-ST-50-05C Rev.2

Radio frequency and modulation

ECSS-E-AS-50-21C Rev.2

Adoption Notice of CCSDS 131.0-B-5, TM Synchronization and Channel Coding

ECSS-E-AS-50-22C Rev.1

Adoption Notice of CCSDS 132.0-B-3, TM Space Data Link Protocol

ECSS-E-AS-50-23C Rev.1

Adoption Notice of CCSDS 732.0-B-4, AOS Space Data Link Protocol

ECSS-E-AS-50-24C Rev.1

Adoption Notice of CCSDS 231.0-B-4, TC Synchronization and Channel Coding

ECSS-E-AS-50-25C Rev.1

Adoption Notice of CCSDS 232.0-B-4, TC Space Data Link Protocol

ECSS-E-AS-50-26C

Adoption Notice of CCSDS 232.1-B-2, Communications Operation Procedure-1

ECSS-E-ST-50-11C

SpaceFibre – Very high-speed serial link

ECSS-E-ST-50-12C Rev.1

SpaceWire - Links, nodes, routers and networks

ECSS-E-ST-50-13C

Interface and communication protocol for Mil std 1553B

ECSS-E-ST-50-14C

Spacecraft discrete interfaces

ECSS-E-ST-50-15C

CAN bus extension protocol

ECSS-E-ST-50-15C Rev.1

ECSS-E-ST-50-16

Time-triggered ethernet (TTE)

ECSS-E-ST-50-51C

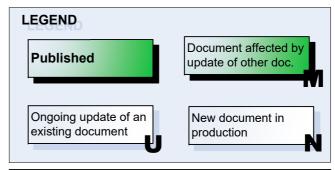
SpaceWire protocol identification

ECSS-E-ST-50-52C

SpaceWire - Remote memory access protocol

ECSS-E-ST-50-53C

SpaceWire - CCSDS packet transfer protocol



NOTE: All planned Updates are on hold until the completion of the ECSS NextGen project

(as of December 2024)

Ongoing update of an

existing document

New document in

production

Product assurance branch Space product assurance branch Q-10 discipline Q-70 discipline Q-20 discipline Q-30 discipline Q-40 discipline Q-60 discipline Product assurance Materials, mechanical parts Dependability Quality assurance Safety **EEE** components and processes management ECSS-Q-ST-60C Rev.3 ECSS-Q-ST-10C Rev.1 ECSS-Q-ST-20C Rev.2 ECSS-Q-ST-30C Rev.1 ECSS-Q-ST-40C Rev.1 Product assurance Electrical, electronic and NOTE: Quality assurance Dependability Safety electromechanical (EEE) management Q-70 discipline is components detailed in the next ECSS-Q-ST-60C Rev.4 ECSS-Q-ST-20-07C ECSS-Q-ST-10-04C ECSS-Q-ST-30-02C chart ECSS-Q-ST-40-02C Critial-item control Quality and safety Failure modes, effects Hazard analysis assurance for space test (and criticality) analysis ECSS-Q-ST-60-03C centres ASIC, FPGA And IP Core ECSS-Q-ST-20-07C ECSS-Q-ST-10-09C Rev.1 product assurance Nonconformance control Rev.1 ECSS-Q-ST-40-12C ECSS-Q-ST-30-09C system Fault tree analysis -ECSS-Q-ST-20-08C Availability analysis Adoption notice ECSS/ ECSS-Q-ST-60-05C Rev.1 Storage, handling and IEC 61025 Generic procurement transportation of requirements for hybrids spacecraft hardware ECSS-Q-ST-30-11C Rev.2 ECSS-Q-ST-20-10C Derating - EEE ECSS-Q-ST-60-12C components Off-the-shelf items Design, selection, procurement utilization in space and use of die form monolithic systems microwave integrated circuits ECSS-Q-ST-20-30C ECSS-Q-ST-60-13C Rev.1 Manufacturing and control Commercial electrical, electronic of electronic harness and electromechanical (EEE) components **LEGEND** ECSS-Q-ST-60-14C Rev.1 Corr.1 Relifing procedure - EEE Document affected by **Published** components update of other doc. ECSS-Q-ST-60-15C Radiation hardness assurance -

(as of June 2024)

EEE components

ECSS-Q-ST-60-15C Rev.1

Q-80 discipline

Software product

assurance

ECSS-Q-ST-80C Rev.1

ECSS-Q-ST-80C Rev.2

Software product

assurance

Q-70 discipline Materials, mechanical parts and processes

Cleanliness

Material testing

Material processes

Assembling processes

Parts

Planetary protection

ECSS-Q-ST-70C Rev.2

Materials, mechanical parts and processes

ECSS-Q-ST-70-71C Rev.1

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Materials, processes and their data selection

ECSS-Q-ST-70-01C

Cleanliness and contamination control

ECSS-Q-ST-70-01C Rev.1

ECSS-Q-ST-70-05C Rev.1

Detection of organic contamination surfaces by IR spectroscopy

ECSS-Q-ST-70-05C Rev.2

ECSS-Q-ST-70-50C

Particle contamination monitoring for spacecraft systems and cleanrooms

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New document in

production

ECSS-Q-ST-70-02C

Thermal vacuum outgassing test for the screening of space materials

ECSS-Q-ST-70-04C

Thermal testing for the evaluation of space materials, processes, mechanical parts and assemblies

ECSS-Q-ST-70-06C

Particle and UV radiation testing for space materials

ECSS-Q-ST-70-15C

Non-destructive inspection

ECSS-Q-ST-70-20C

Determination of the susceptibility of silver-plated copper wire and cable to "red-plaque" corrosion

ECSS-Q-ST-70-21C

Flammability testing for the screening of space materials

ECSS-Q-ST-70-29C

Determination of offgassing products from materials and assembled articles to be used in a manned space vehicle crew compartment

ECSS-Q-ST-70-36C

Material selection for controlling stress-corrosion cracking

ECSS-Q-ST-70-36C Rev.1

ECSS-Q-ST-70-37C

Determination of the susceptibility of metals to stress-corrosion cracking

ECSS-Q-ST-70-37C Rev.1

ECSS-Q-ST-70-45C

Mechanical testing of metallic materials

ECSS-Q-ST-70-03C

Black-anodizing of metals with inorganic dyes

ECSS-Q-ST-70-09C

Measurements of thermooptical properties of thermal control materials

ECSS-Q-ST-70-13C Rev.1

Measurements of the peel and pull-off strength of coatings and finishes using pressure-sensitive tapes

ECSS-Q-ST-70-17C

Durability testing of coatings

ECSS-Q-ST-70-22C

Control of limited shelf-life materials

ECSS-Q-ST-70-31C Rev.1

Application of paints and coatings on space hardware

ECSS-Q-ST-70-14C

Corrosion

ECSS-Q-ST-70-26C Rev.1 +Corr.1

Crimping of high-reliability electrical connections

ECSS-Q-ST-70-28C

Repair and modification of printed circuit board assemblies for space use

ECSS-Q-ST-70-30C

Wire wrapping of highreliability electrical connections

ECSS-Q-ST-70-39C

Welding of metallic materials for flight hardware

ECSS-Q-ST-70-40C

Processing and quality assurance requirements for brazing of flight hardware

ECSS-Q-ST-70-61C

High reliability assembly for surface mount and through hole connections

ECSS-Q-ST-70-80C

Processing and quality assurance requirements for metallic powder bed fusion technologies for space applications

ECSS-Q-ST-70-12C

Design rules for printed circuit boards

ECSS-Q-ST-70-12C Rev.1

ECSS-Q-ST-70-18C

Preparation, assembly and mounting of RF coaxial cables

ECSS-Q-ST-70-46C Rev.1

Requirements for manufacturing and procurement of threaded fasteners

ECSS-Q-ST-70-60C

Qualification and procurement of printed circuit boards

ECSS-Q-ST-70-60C Rev.1

ECSS-Q-ST-70-53C

Materials and hardware compatibility tests for sterilization processes

ECSS-Q-ST-70-54C

Ultra cleaning of flight hardware

ECSS-Q-ST-70-55C

Microbiological examination of flight hardware and cleanrooms

ECSS-Q-ST-70-56C

Vapour phase bioburden reduction for flight hardware

ECSS-Q-ST-70-57C

Dry heat bioburden reduction for flight hardware

ECSS-Q-ST-70-58C

Bioburden control in cleanrooms

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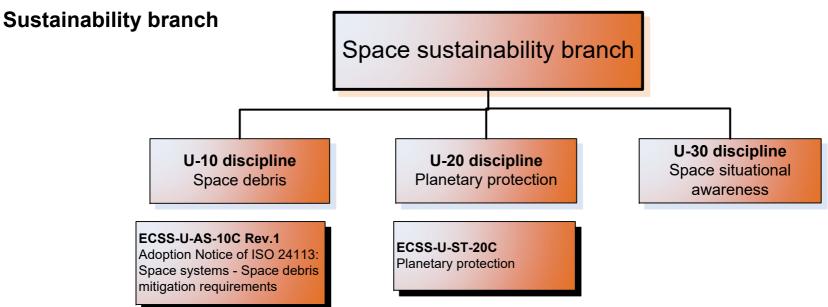
ECSS-Q-ST-70-60C

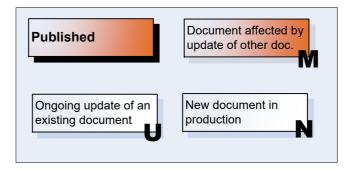
= merge of Q-ST-70-10C Rev.1 and Q-ST-70-11C

ECSS-Q-ST-70-61

= merge of Q-ST-70-07C, Q-ST-70-08C and Q-ST-70-38C Rev.1

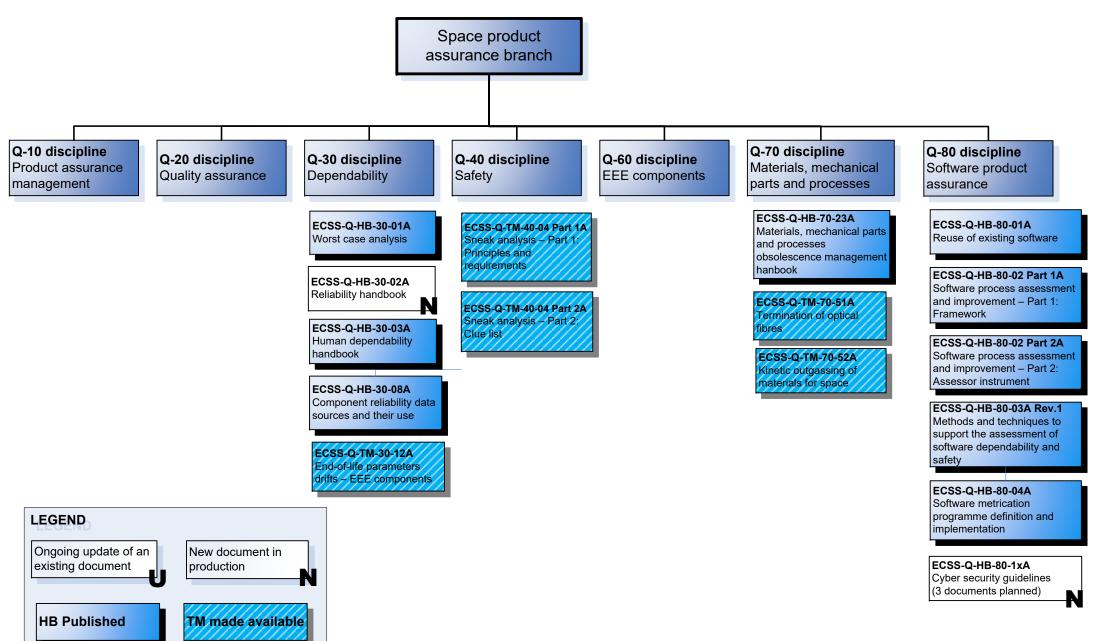
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ECSS Handbooks and Technical memoranda

PA branch HBs and TMs



(as of June 2024)

ECSS Handbooks and Technical memoranda

Engineering branch HBs and TMs

Space engineering branch

E-10 discipline

System engineering

E-20 discipline

Electrical and optical engineering

E-30 discipline

E-40 discipline Software engineering

E-50 discipline Communications

ECSS-E-HB-50A

Communications

guidelines

Control engineering

E-70 discipline Ground systems and operations

ECSS-E-HB-10-02A Verification guidelines

ECSS-E-HB-10-03A

Testing guidelines

ECSS-E-HB-10-12A Calculation of radiation and its effects, and margin policy handbook

ECSS-E-HB-11A

TRL guidelines

ECSS-E-TM-10-10A

ECSS-E-TM-10-20A roduct data exchang

ECSS-E-TM-10-21A System modelling and

ECSS-E-TM-10-23A Space system data

ECSS-E-HB-20-01A

Multipactor handbook

ECSS-E-HB-20-02A

Li-ion battery handbook

ECSS-E-HB-20-03A

Magnetic cleanliness handbook

ECSS-E-HB-20-05A

High voltage engineering and design handbook

ECSS-E-HB-20-06A

Assessment of spacecraft worst case charging

ECSS-E-HB-20-07A

Spacecraft electromagnetic compatibility handbook

ECSS-E-HB-20-08A

Guidelines for deltaqualification of photovoltaic assemblies

ECSS-E-HB-20-20A

Guidelines for electrical interface requirements for power supply

ECSS-E-HB-20-21A

Guidelines for electrical design and interface requirements for actuators

ECSS-E-HB-20-40A

Engineering techniques for radiation effects mitigation in ASICs and FPGAs handbook

ECSS-E-HB-20-41A

Guidelines for the Automatic Code Generation for High Level Synthesis (HDL) in Space Applications

Mechanical engineering

ECSS-E-HB-31-01A

Thermal design data handbook (16 parts)

ECSS-E-HB-31-03A

Thermal analysis handbook

ECSS-E-HB-32-20A

Structural design data handbook (8 parts)

ECSS-E-HB-32-21A

Adhesive bonding handbook

ECSS-E-HB-32-22A

Insert design handbook

ECSS-E-HB-32-23A Rev.1

Threaded fasteners handbook

ECSS-E-HB-32-24A

Buckling handbook

ECSS-E-HB-32-24A Rev.1

ECSS-E-HB-32-25A

Mechanical shock design and verification handbook

ECSS-E-HB-32-26A

Spacecraft mechanical loads analyses handbook

ECSS-E-HB-32-26A Rev.1

ECSS-E-HB-32-27A

Microvibration handbook

ECSS-E-HB-40A

Software engineering handbook

ECSS-E-HB-40A Rev.1

ECSS-E-HB-40-01A

Agile software development handbook

ECSS-E-HB-40-02A

Machine learning qualification for space applicatons handbook

E-60 discipline

ECSS-E-HB-60A

Control engineering handbook

ECSS-E-HB-60-10A

Control performance guidelines

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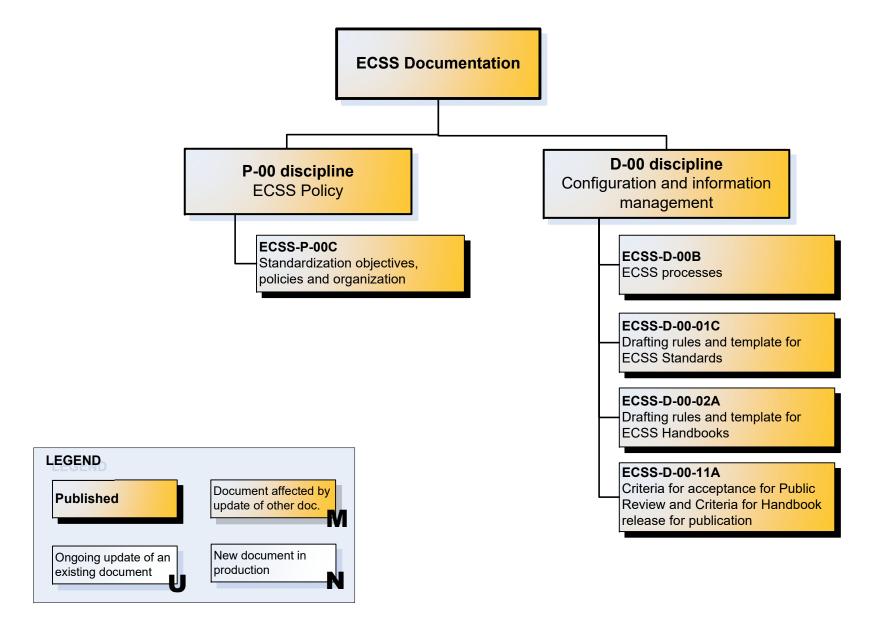
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HB Published

New document in production

TM made available

ECSS Policy (P) and Configuration and information mangement (D) documents



(as of June 2024)