



ECSS
First step Tailoring

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Project : Space Debris Laser Ranging

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Attached to the 'Capitolato Tecnico'



	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 2 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

TABLE OF CONTENTS

1.	INTRODUCTION	3
1.1	Scope.....	3
1.2	Applicability	3
2.	DOCUMENTS.....	4
2.1	Applicable documents	4
2.2	Reference document.....	4
3.	TAILORING OF THE STANDARD	5
4.	“FIRST STEP TAILORING” TABLES.....	6
5.	SECOND LEVEL TAILORING”.....	13

	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 3 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

1. INTRODUCTION

1.1 Scope


This document establishes the tailoring (first step/level tailoring) for applicable ECSS Standards, in accordance to the document [AD 01], taking into consideration Project risks, constraints and characteristics. According to the project phases all management, quality and technical aspects are evaluated through an integrated approach.

The document takes into consideration the main characteristics defined in [RD 01] and it is lower-level in hierarchy wrt the Contratto and “Allegato Tecnico Gestionale”.

The document has been issued ASI Quality Division.

1.2 Applicability

The present document is applicable to the project **Space Debris Laser Ranging (SDLR)**, covering all the branches S, Q, M, E and U of the ECSS system of standards.

	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 4 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

2. DOCUMENTS

2.1 Applicable documents


[AD 01] OP-UQT-2022-001 “Linee guida per il Tailoring delle norme ECSS”

[AD 02] OP-UQT-2022-002 “Tailoring per Space Engineering Software e Software Product Assurance”

[AD 03] DC-UOM-2022-040 “Capitolato Tecnico SDLR

2.2 Reference document

[RD 01] IPC-2006-002 Rev B “Applicability Guidelines for ASI Programmes”

	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 5 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

3. TAILORING OF THE STANDARD


The ECSS standards are intended to be used with the extension required by the program phase and project specificities.

The ECSS Standards shall be made applicable to all the supply chain.

Starting from the present document the Contractor shall develop the detailed tailoring of the requirements of the selected ECSS Standards (ECSS 2nd step tailoring), to be made applicable also to subcontractors on the basis of project characteristics.

The Contractor shall ensure application of ECSS Standards down to the lower level of the supply chain.

Please note: as ECSS Standards are under continuous development/update, the final list of the applicable standards shall be frozen at beginning of the activities (kick-off meeting or contract signature).

 Agenzia Spaziale Italiana	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 6 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

4. "FIRST STEP TAILORING" TABLES

General documents

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue/date	Applicability
Top-level requirements for implementation of the ECSS system in space projects	ECSS-S-ST-00C Rev. 1	Description, implementation and general requirement	First Issue, 15 June 2020	Y
Glossary and general terms	ECSS-S-ST-00-01C	Glossary of terms	Third issue, 01 October 2012	Y
Requirements and methodology for tailoring	S-ST-00-02C	Draft 1 "Tailoring"	First issue DRAFT1, 15 June 2020	Y



ECSS
First step Tailoring

Document : DC-UQT-2022-014
Issue : 2
Date : 04/08/2022
Issue : 7 di 13
Folder: : UQT

Project : Space Debris Laser Ranging

Series ECSS "M" – Management

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue/date	Applicability
Project/product/organization management	ECSS-M-ST-10C Rev.1	Project planning and implementation	Third issue, 6 march 2009	Y
A structured way to perform reviews is required also depending on project organization complexity.	ECSS-M-ST-10-01C	Organisation and conduct of reviews	Second issue, 15 November 2008	Y
Configuration control is needed to ensure interface management, control of all the items also considering the project organization complexity	ECSS-M-ST-40C Rev.1	Configuration and information management	Third issue, 6 March 2009	Y
Cost and schedule management shall be applied	ECSS-M-ST-60C	Cost & schedule management	Third issue 31 July 2008	Y
To set management requirements aimed at the identification and provision of logistical support	ECSS-M-70A	Integrated logistic support	First issue, 19 april 1996	Y
Technological innovation and programmatic constraints could introduce risk factors, to be analysed and controlled.	ECSS-M-ST-80C	Risk management	Third issue, 31 July 2008	Y

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File name: DC-UQT-2022-014 _ SDLR ECSS tailoring.docx



ECSS
First step Tailoring

Document : DC-UQT-2022-014
Issue : 2
Date : 04/08/2022
Issue : 8 di 13
Folder: : UQT

Project : Space Debris Laser Ranging

Series ECSS "Q" – Product Assurance

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue/Date	Applicability
Policy and general principle are applicable	ECSS-Q-ST-10C Rev.1	Product assurance management	First issue, 15 March 2016	Y
Control of non-conformities	ECSS-Q-ST-10-09C Rev.1	Nonconformance Control System	Third issue, 01 March 2018	Y
Control of potentially critical Items	ECSS-Q-ST-10-04C	Critical-item control	Second issue, 31 July 2008	Y
Quality Assurance to guarantee achievement of contractual obligation	ECSS-Q-ST-20C Rev.2	Quality Assurance	Third issue, 01 February 2018	Y
Space test centres operate a quality and safety assurance system in line with ECSS requirements	ECSS-Q-ST-20-07C	Quality and safety assurance for space test centres	Second issue, 01 October 2014	Y
Safe handling, storage, transportation of space segment hardware	ECSS-Q-ST-20-08C	Storage, handling and transportation of spacecraft hardware	First issue, 1 October 2014	Y
support criticality analysis	ECSS-Q-ST-30-02C	Failure Modes, effects (and criticality) analysis (FMEA/FMECA)	Second issue, 06 March 2009	Y
Safety aspects shall be taken in due consideration during the definition phase	ECSS-Q-ST-40C Rev.1	Safety	Third issue, 15 February 2017	Y
Need to support safety analysis	ECSS-Q-ST-40-02C	Hazard analysis	Second issue, 15 November 2008	Y
To satisfy specific requirements at system and mission level	ECSS-Q-ST-70-01C	Cleanliness and contamination control	Second issue, 15 November 2008	Y

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File name: DC-UQT-2022-014 _ SDLR ECSS tailoring.docx




ECSS
First step Tailoring

Document : DC-UQT-2022-014
Issue : 2
Date : 04/08/2022
Issue : 9 di 13
Folder: : UQT

Project : Space Debris Laser Ranging

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue/Date	Applicability
For the methodology to be used to calculate the thermo-optical properties of thermal-control materials	ECSS-Q-ST-70-09C	Measurements of thermo-optical properties of thermal control materials	Second issue, 31 July 2008	Y
To qualify the materials and processes selected to provide corrosion protection.	ECSS- Q-ST-70-14C	Corrosion	First issue, 01 November 2016	Y
To define the technical and quality assurance requirements for the assembly and mounting of high-reliability RF coaxial-cable interconnections	ECSS-Q-ST-70-18C	Preparation, assembly and mounting of RF coaxial cables	Second issue, 15 novembre 2008	Y
To satisfy specific requirements at system and mission level	ECSS-Q-ST-70-26C Rev.1	Crimping of high-reliability electrical connections	Second issue, 15 March 2017+Corr.1 (1 June 2017)	Y
Complex software development/use is foreseen	ECSS-Q-ST-80C Rev.1	Software Product Assurance	Third issue, 15 February 2017	Y

 Agenzia Spaziale Italiana	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 10 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

Series ECSS “E” – Engineering

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue, Date of publication	Applicability
A structured way to perform SE activities is mandatory.	ECSS-E-ST-10C Rev.1	System Engineering general requirements	Third issue, 15 February 2017	Y
A structured way to perform verification activities is mandatory.	ECSS-E-ST-10-02C Rev.1	Verification	Second issue, 01 February 2018	Y
A structured way to perform testing activities is mandatory.	ECSS-E-ST-10-03C Rev.1	Testing	Second issue, 31 May 2022	Y
To satisfy specific requirements at system and mission level	ECSS-E-ST-10-06C	Technical requirements specification	Third issue 6 March 2009	Y
For definition of reference directions, coordinate systems and their inter-relationships	ECSS-E-ST-10-09C	Reference coordinate system	First issue, 31 July 2008	Y
To management and control of interfaces	ECSS-E-ST-10-24C	Interface management	First issue 1 June 2015	Y
For design of space system able to function satisfactorily in its electromagnetic environment	ECSS-E-ST-20-07C Rev.2	Electromagnetic compatibility	First Issue 03 January 2022	Y
To identify the requirements needed to specify, procure or develop a space power distribution system	ECSS-E-ST-20C	Electrical and electronic	Second issue, 8 April 2022	Y
Ground Segment and Operations for definition phase.	ECSS-E-ST-70C	Ground Systems and Operations	Second issue, 31 July 2008	Y
To define the monitoring and control data in order to allow a customer to perform space system integration,	ECSS-E-ST-70-31C	Ground systems and operations - Monitoring and control data definition	Second issue, 31 July 2008	Y

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File name: DC-UQT-2022-014 _ SDLR ECSS tailoring.docx




ECSS
First step Tailoring

Document : DC-UQT-2022-014
 Issue : 2
 Date : 04/08/2022
 Issue : 11 di 13
 Folder: : UQT

Project : Space Debris Laser Ranging

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue, Date of publication	Applicability
testing and mission operations.				
To define language and procedures for space system testing and operations.	ECSS-E-ST-70-32C	Test and operations procedure language	Second issue, 31 July 2008	Y
To satisfy specific requirements at system and mission level	ECSS-E-ST-70-41C	Telemetry and telecommand packet utilization	Second issue, 15 April 2016	Y

 Agenzia Spaziale Italiana	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 12 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		


Series ECSS "U" – Sustainability

Project Characteristics and Risks (justification for selection)	ECSS Standard	Title	Issue, Date of publication	Applicability
The key space debris mitigation requirements shall be considered	U-AS-10C	Adoption Notice of ISO 24113: Space systems – Space debris mitigation requirements	First issue- Rev.1 03 December 2019	Y

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File name: DC-UQT-2022-014 _ SDLR ECSS tailoring.docx

	ECSS First step Tailoring	Document : DC-UQT-2022-014 Issue : 2 Date : 04/08/2022 Issue : 13 di 13 Folder: : UQT
Project : Space Debris Laser Ranging		

5. SECOND LEVEL TAILORING”

The Second Level/Step Tailoring consists in the analysis and definition of the applicability of requirements included in each single ECSS standard.

This process is developed by the Contractor in conjunction with ASI and approved by ASI.

The Contractor shall repeat the Tailoring process (First and Second Level) with Subcontractor and require application of the Tailoring process at all level of the supply chain.

Each requirement included in the ECSS standard shall be analysed in order to assess its level of applicability and considered as follows, depending on the project characteristics:

- A= Applicable without change/ Applicabile senza modifiche
- MR= Applicable with modification / Applicabile con modifiche
- NA = Not Applicable (deleted) / Non Applicabile
- NR= Additional/New Requirement / Requisito supplementare

The following table shows an example of the required output.

Example:

ECSS-Y-XX Req. /paragr.	Requirement Description	Applicability	Differencies
<u>2.3.1</u>	< Requirement description >	A	
<u>2.3.4</u>	< Requirement description >	NA	Not applicable, <to be justified>
<u>4.5</u>	< Requirement description >	MR	To write modified requirement
<u>5.6</u>	< Requirement description >	NR	To write text of the new requirement