Draft for Public Comment

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Interested committees:

Title: Draft BS ISO 21740 Space systems - Launch window estimation and collision avoidance.

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Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

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Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx

1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex **(e.g. 3.1)**	Paragraph/ Figure/Table/Note	**Type of comment**	**Commend (justification for change) by the MB**	**Proposed change by the MB**	**Secretariat observations on each comment submitted**
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

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DRAFT International Standard

ISO/DIS 21740

Space systems — Launch window estimation and collision avoidance

ICS: 49.140

ISO/TC **20**/SC **14**

Secretariat: **ANSI**

Voting begins on:
2024-08-09

Voting terminates on:
2024-11-01

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Foreword

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This document was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 14, *Space systems and operations*..

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Introduction

Human-inhabited and inhabitable space stations and space capsules are exposed to the risk of collision with newly launched upper stages and spacecraft during their launch and early orbit phase. While such collision threats also exist during on-orbit satellite operations, the launch and early orbit phase is unique in that potential collisions with inhabitable space stations and space capsules can be very cheaply avoided (i.e., without the expenditure of on-orbit maneuvering fuel) through the proper selection of suitable launch times.

Consistent with Clause B.5 of the United Nations Long Term Sustainability guidelines[1] and to protect human missions from the danger of collision with newly launched objects, the launch authority may apply Launch Collision Avoidance (LCOLA) methods to assess this collision risk and/or detect close encounters. If this assessment determines that launch at certain times would incur unacceptable risk to the human missions, the launch authority may delay the time of launch.

This document serves to enhance safety of human space stations and space capsules by mitigating collision risk posed by launch vehicles and deployed spacecraft using standardized procedures and tools. Further, via informative annexes, this document also provides details on algorithms, processes, and thresholds that may be used to conduct Safety LCOLA.

Annex A of this document provides details on algorithms, processes, and screening criteria that may be used to conduct Safety LCOLA assessments, intended to ensure the safety and integrity of human-inhabited or inhabitable space stations.

Annex B provides additional details on algorithms, processes, and screening criteria that may be used to conduct “Mission Assurance” LCOLA assessments, intended to ensure the safety and integrity of both the newly launched space objects and any on-orbit active spacecraft that could potentially collide with the launched objects for the initial LCOLA screening time period, and also to reduce the risk of unintended fragmentation events caused by collision of the newly launched space objects with orbital debris during that same initial screening period. A selection of general procedures for the determination of unacceptable risk that result in the identification of all collision-safe launch opportunities is described.

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