

ISO 21442:2022-05 (E)

Space systems - General requirements for control engineering

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Abbreviated terms	5
5	Control engineering	5
5.1	The general control structure	5
5.2	Project phases	6
5.3	Control engineering process	7
5.4	Control engineering tasks per project phase	10
6	Control engineering process requirement	16
6.1	Control engineering management	16
6.1.1	General	16
6.1.2	Organization and planning of control engineering activities	16
6.1.3	Management of interfaces with other disciplines	16
6.1.4	Contribution to human factors engineering	16
6.1.5	Budget and margin philosophy for control	16
6.1.6	Assessment of control technology and cost effectiveness	17
6.1.7	Risk management	17
6.1.8	Support to control components procurement	17
6.1.9	Change control and configuration management	17
6.1.10	Control engineering capability assessment and resource management	17
6.1.11	System safety	17
6.1.12	Dependability management	17
6.1.13	Quality assurance	17
6.2	Requirements definition	17
6.2.1	General	17
6.2.2	Generation of control requirements	18
6.2.3	Allocation of control requirements to control components	18
6.3	Analysis	21
6.3.1	General	21
6.3.2	Analysis models, analysis methods and analysis tools	21
6.3.3	Requirements analysis	23
6.3.4	Control system performance analysis	24
6.4	Design	24
6.4.1	Control system architecture design	24
6.4.2	Control system functional design	25
6.4.3	Control system interface design	25
6.4.4	Control algorithm design	25
6.4.5	Control system software design	26
6.4.6	Control system configuration design	26
6.4.7	Control system implementation and operational design	26
6.5	Production	27
6.6	Verification and validation	27
6.6.1	General	27
6.6.2	Definition of control verification strategy	27
6.6.3	Preliminary verification of performance	28

6.6.4	Final functional and performance verification.....	28
6.6.5	In-flight validation.....	28
6.7	Operation.....	29
6.8	Maintenance.....	29
6.8.1	Equipment maintenance.....	29
6.8.2	Software maintenance.....	29
6.9	Disposal.....	29
Annex A (informative) Tailoring guidelines.....		30
Bibliography.....		34