ISO 22672:2021-06 (E)

Space data and information transfer systems - Space link extension (SLE) - Forward space packet service specification

CONTENTS

Section Page

1 INTRODUCTION 1-1

1.1 PURPOSE OF THIS RECOMMENDED STANDARD 1-1
1.2 SCOPE 1-1
1.3 APPLICABILITY 1-2
1.4 RATIONALE 1-2
1.5 DOCUMENT STRUCTURE 1-3
1.6 DEFINITIONS, NOMENCLATURE, AND CONVENTIONS 1-5
1.7 REFERENCES 1-14

2 DESCRIPTION OF THE FORWARD SPACE PACKET SERVICE 2-1

2.1 OVERVIEW 2-1
2.2 SPACE LINK EXTENSION REFERENCE MODEL 2-1
2.3 SERVICE MANAGEMENT 2-3
2.4 ARCHITECTURE MODEL—FUNCTIONAL VIEW 2-3
2.5 ARCHITECTURE MODEL—CROSS SUPPORT VIEW 2-8
2.6 FUNCTIONAL DESCRIPTION 2-9
2.7 OPERATIONAL SCENARIO 2-16
2.8 SECURITY ASPECTS OF THE SLE FORWARD SPACE PACKET (FSP) TRANSFER SERVICE 2-18

3 FSP SERVICE OPERATIONS 3-1

3.1 GENERAL CONSIDERATIONS 3-1
3.2 FSP-BIND 3-10
3.3 FSP-UNBIND 3-17
3.4 FSP-START 3-20
3.5 FSP-STOP 3-24
3.6 FSP-TRANSFER-DATA 3-27
3.7 FSP-ASYNC-NOTIFY 3-38
3.8 FSP-SCHEDULE-STATUS-REPORT 3-53
3.9 FSP-STATUS-REPORT 3-57
3.10 FSP-GET-PARAMETER 3-64
3.11 FSP-THROW-EVENT 3-70
3.12 FSP-INVOKE-DIRECTIVE 3-75
3.13 FSP-PEER-ABORT 3-80

4 FSP PROTOCOL 4-1

4.1 GENERIC PROTOCOL CHARACTERISTICS 4-1
4.2 FSP SERVICE PROVIDER BEHAVIOR 4-4

CONTENTS (continued)

Section Page

ANNEX A DATA TYPE DEFINITIONS (NORMATIVE) A-1
ANNEX B FSP QUEUES AND MULTIPLEXING BEHAVIOR DEFINITION (NORMATIVE) B-1
ANNEX C PRODUCTION STATUS (NORMATIVE) C-1
ANNEX D FUNCTIONAL GROUP PRODUCTION REQUIREMENTS FOR FSP (NORMATIVE) D-1
ANNEX E CONFORMANCE MATRIX (NORMATIVE) E-1
ANNEX F INDEX TO DEFINITIONS (INFORMATIVE) F-3
ANNEX G ACRONYMS (INFORMATIVE) G-1
ANNEX H THROW EVENT DEFINITIONS (INFORMATIVE) H-1
ANNEX I INFORMATIVE REFERENCES (INFORMATIVE) I-1

Figure

1-1 SLE Services Documentation 1-4
2-1 Forward Telecommand Functional Groups 2-4
2-2 FSP Service Production and Provision 2-7
2-3 Example of the Management and Provision of FSP Service 2-8
2-4 Simplified FSP Service Provider State Transition Diagram 2-11
2-5 Communications Realization of FSP Service 2-14
B-1 FSP MAP and TC Frame Multiplexing B-1
B-2 MAP and VC Multiplexing B-2
B-3 FSP Queues B-4
C-1 FSP Production Status Diagram C-1

Table

2-1 FSP Service Operations 2-10
3-1 Setting of FSP Service Operation Parameters 3-6
3-2 FSP-BIND Parameters 3-11
3-3 FSP-UNBIND Parameters 3-18
3-4 FSP-START Parameters 3-20
3-5 FSP-STOP Parameters 3-24
3-6 FSP-TRANSFER-DATA Parameters 3-28
3-7 FSP-ASYNC-NOTIFY Parameters 3-38
3-8 FSP-SCHEDULE-STATUS-REPORT Parameters 3-53
3-9 FSP-STATUS-REPORT Parameters 3-57
3-10 FSP-GET-PARAMETER Parameters 3-64
3-11 FSP Service Parameters 3-65
3-12 FSP-THROW-EVENT Parameters 3-71
3-13 FSP-INVOKE-DIRECTIVE Parameters 3-75
3-14 FSP-PEER-ABORT Parameters 3-80
4-1 Provider Behavior 4-6
4-2 Event Description References 4-10
4-3 Predicate Definitions 4-11
4-4 Boolean Flags 4-11
4-5 Compound Action Definitions 4-12
C-1 Production Status Transitions C-2
C-2 Effects of Production Status on Operations C-4
D-1 Forward CLTU Generation Aggregate Production Status D-3
D-2 Forward TC VC Data Insertion Aggregate Production Status D-5
E-1 Conformance Matrix for FSP Service (Operations) E-1
E-2 Conformance Matrix for FSP Service (Other Requirements) E-2
H-1 Throw Event Examples H-1