

ISO 22664:2013-06 (E)

Space data and information transfer systems - TC (telecommand) space data link protocol

Contents

Page

1	INTRODUCTION	1-1
1.1	PURPOSE.....	1-1
1.2	SCOPE.....	1-1
1.3	APPLICABILITY.....	1-1
1.4	RATIONALE.....	1-2
1.5	DOCUMENT STRUCTURE	1-2
1.6	CONVENTIONS AND DEFINITIONS	1-2
1.7	NORMATIVE REFERENCES	1-5
2	OVERVIEW	2-1
2.1	CONCEPT OF TC SPACE DATA LINK PROTOCOL.....	2-1
2.2	OVERVIEW OF SERVICES	2-4
2.3	OVERVIEW OF FUNCTIONS.....	2-11
2.4	SERVICES ASSUMED FROM LOWER LAYERS	2-15
3	SERVICE DEFINITION	3-1
3.1	OVERVIEW	3-1
3.2	SOURCE DATA.....	3-1
3.3	MAP PACKET SERVICE.....	3-3
3.4	VIRTUAL CHANNEL PACKET SERVICE.....	3-7
3.5	MAP ACCESS SERVICE.....	3-11
3.6	VIRTUAL CHANNEL ACCESS SERVICE.....	3-15
3.7	VIRTUAL CHANNEL FRAME SERVICE	3-19
3.8	MASTER CHANNEL FRAME SERVICE.....	3-21
3.9	COP MANAGEMENT SERVICE.....	3-24
4	PROTOCOL SPECIFICATION	4-1
4.1	PROTOCOL DATA UNIT (TC TRANSFER FRAME).....	4-1
4.2	PROTOCOL DATA UNIT (CLCW)	4-12
4.3	PROTOCOL PROCEDURES AT THE SENDING END	4-18
4.4	PROTOCOL PROCEDURES AT THE RECEIVING END	4-28
5	MANAGED PARAMETERS	5-1
5.1	MANAGED PARAMETERS FOR A PHYSICAL CHANNEL	5-1
5.2	MANAGED PARAMETERS FOR A MASTER CHANNEL	5-2
5.3	MANAGED PARAMETERS FOR A VIRTUAL CHANNEL	5-2
5.4	MANAGED PARAMETERS FOR A MAP CHANNEL	5-4

<u>Section</u>	<u>Page</u>
5.5 MANAGED PARAMETERS FOR PACKET TRANSFER.....	5-4
ANNEX A ACRONYMS.....	A-1
ANNEX B INFORMATIVE REFERENCES	B-1
ANNEX C CHANGES FROM REFERENCE [B2]	C-1

Figure

1-1 Bit Numbering Convention.....	1-4
2-1 Relationship with OSI Layers.....	2-1
2-2 Relationships Between Channels.....	2-4
2-3 Internal Organization of Protocol Entity (Sending End)	2-12
2-4 Internal Organization of Protocol Entity (Receiving End)	2-13
2-5 TC Space Data Link Protocol Channel Tree	2-14
4-1 TC Transfer Frame Structural Components.....	4-1
4-2 Transfer Frame Primary Header	4-2
4-3 Segment Header.....	4-8
4-4 Logic Diagram of the Encoder.....	4-11
4-5 Logic Diagram of the Decoder	4-12
4-6 Communications Link Control Word	4-13
4-7 Internal Organization of Protocol Entity (Sending End)	4-19
4-8 Abstract Model of MAP Packet Processing Function	4-20
4-9 Example of MAP Packet Processing Procedures	4-21
4-10 Abstract Model of MAP Generation Function	4-22
4-11 Example of MAP Generation Procedures.....	4-22
4-12 Abstract Model of MAP Multiplexing Function	4-23
4-13 Abstract Model of VC Packet Processing Function	4-24
4-14 Example of VC Packet Processing Procedures.....	4-24
4-15 Abstract Model of Virtual Channel Generation Function	4-25
4-16 Abstract Model of Virtual Channel Multiplexing Function	4-26
4-17 Abstract Model of Master Channel Multiplexing Function.....	4-27
4-18 Abstract Model of All Frames Generation Function	4-28
4-19 Internal Organization of Protocol Entity (Receiving End)	4-29
4-20 Abstract Model of MAP Packet Extraction Function.....	4-30
4-21 Abstract Model of MAP Reception Function	4-31
4-22 Abstract Model of MAP Demultiplexing Function	4-31
4-23 Abstract Model of VC Packet Extraction Function	4-32
4-24 Abstract Model of Virtual Channel Reception Function	4-33
4-25 Abstract Model of Virtual Channel Demultiplexing Function	4-34
4-26 Abstract Model of Master Channel Demultiplexing Function	4-35
4-27 Abstract Model of All Frames Reception Function.....	4-36

Table

	<u>Page</u>
2-1 Summary of Services Provided by TC Space Data Link Protocol	2-7
4-1 Interpretation of the Bypass and Control Command Flags.....	4-4
4-2 Interpretation of the Sequence Flags	4-8
5-1 Managed Parameters for a Physical Channel	5-1
5-2 Managed Parameters for a Master Channel.....	5-2
5-3 Managed Parameters for a Virtual Channel.....	5-3
5-4 Managed Parameters for a MAP Channel	5-4
5-5 Managed Parameters for Packet Transfer.....	5-4
C-1 Mapping of Terms That Have Been Changed	C-2