

ISO 21082:2016-07 (E)

Mission operations - MAL space packet transport binding and binary encoding

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 DEFINITIONS.....	1-2
1.7 NOMENCLATURE	1-3
1.8 BIT NUMBERING CONVENTION.....	1-3
1.9 REFERENCES	1-4
2 OVERVIEW	2-1
2.1 GENERAL.....	2-1
2.2 MO SERVICE FRAMEWORK OVER SPACE PACKET PROTOCOL.....	2-2
2.3 TYPICAL USE.....	2-5
2.4 MAL MESSAGE MAPPING.....	2-7
2.5 MAL TRANSPORT INTERFACE MAPPING	2-11
3 MAL MESSAGE MAPPING.....	3-1
3.1 OVERVIEW	3-1
3.2 URI FORMAT.....	3-5
3.3 MAL HEADER MAPPING	3-6
3.4 SPACE PACKET SPECIFIC FIELDS.....	3-12
3.5 MAL MESSAGE BODY MAPPING.....	3-14
4 MAL TRANSPORT INTERFACE MAPPING	4-1
4.1 OVERVIEW	4-1
4.2 SUPPORTEDQOS REQUEST.....	4-3
4.3 SUPPORTEDIP REQUEST	4-3
4.4 TRANSMIT REQUEST	4-3
4.5 TRANSMITMULTIPLE REQUEST	4-6
4.6 RECEIVE INDICATION	4-6
4.7 RECEIVEMULTIPLE INDICATION	4-7

<u>Section</u>	<u>Page</u>
5 MAL DATA ENCODING	5-1
5.1 OVERVIEW	5-1
5.2 ELEMENT	5-2
5.3 ENUMERATION	5-3
5.4 COMPOSITE	5-4
5.5 LIST	5-4
5.6 NULLABLE ELEMENT	5-4
5.7 BLOB	5-5
5.8 BOOLEAN	5-5
5.9 DURATION	5-5
5.10 FLOAT	5-5
5.11 DOUBLE	5-6
5.12 IDENTIFIER	5-6
5.13 OCTET	5-6
5.14 UOCTET	5-6
5.15 SHORT	5-6
5.16 USHORT	5-6
5.17 INTEGER	5-6
5.18 UINTEGER	5-7
5.19 LONG	5-7
5.20 ULONG	5-7
5.21 STRING	5-7
5.22 TIME	5-8
5.23 FINETIME	5-8
5.24 URI	5-8
5.25 UNSIGNED N-BIT INTEGER	5-8
5.26 SIGNED N-BIT INTEGER	5-8
5.27 UNSIGNED VARINT	5-8
5.28 SIGNED VARINT	5-10
ANNEX A PROTOCOL IMPLEMENTATION CONFORMANCE	
STATEMENT PROFORMA (NORMATIVE)	A-1
ANNEX B MAPPING CONFIGURATION PARAMETERS (NORMATIVE)	B-1
ANNEX C QOS PROPERTIES (NORMATIVE)	C-1
ANNEX D SECURITY, SANA, AND PATENT CONSIDERATIONS	
(INFORMATIVE)	D-1
ANNEX E ENCODING EFFICIENCY (INFORMATIVE)	E-1
ANNEX F ACRONYMS (INFORMATIVE)	F-1
ANNEX G INFORMATIVE REFERENCES (INFORMATIVE)	G-1

<u>Figure</u>	<u>Page</u>
1-1 Bit Numbering Convention.....	1-3
1-2 Octet Convention	1-4
2-1 Mission Operations Services Concept Document Set	2-2
2-2 Overview of the MO Service Framework.....	2-3
2-3 MO Service Framework above Space Packet Protocol	2-5
2-4 Typical Deployment of the MAL Space Packet Transport Binding.....	2-6
2-5 MAL Message Mapping to Space Packet.....	2-9

Table

3-1 MAL Message Header Fields	3-1
3-2 Space Packet Primary Header Format	3-2
3-3 Space Packet Secondary Header Format	3-4
3-4 QoSlevel Field Encoding.....	3-8
3-5 Session Field Encoding.....	3-10
3-6 Interaction Type and Stage Mapping.....	3-11
4-1 MAL Transport Interface Primitives	4-2
4-2 Packet Interface Primitives	4-2
5-1 Unsigned Integer 7-Bit Groups.....	5-9
5-2 Signed Integer Bit Shifting	5-10
B-2 Mapping Configuration Parameters.....	B-2
C-2 QoS Properties	C-1
D-1 Mission Operations MAL Space Packet Transport Binding Version Number Initial Values.....	D-3
D-2 MAL Transport Binding URI Scheme Name Initial Values	D-3
E-2 Secondary Header Additional Overheads.....	E-1