ISO/IEC 10021-7:2003-12 (E)

Information technology - Message Handling Systems (MHS): Interpersonal messaging system

CONTENTS

Page

SECTION 1 – INTRODUCTION 1

1 Scope 1

2 Normative references 1

2.1 Open Systems Interconnection 1
2.2 Message Handling Systems 2
2.3 Directory Systems 2
2.4 Language Code 2
2.5 Character Sets 2
2.6 Telematic Services 2
2.7 File Transfer 3
2.8 Open Document Architecture 3
2.9 Digital Encoding of Sound 3
2.10 Cryptography 3

3 Definitions 3

4 Abbreviations 3

5 Conventions 3

5.1 ASN.1 4
5.2 Grade 4
5.3 Terms 5
5.4 Conventions for attribute-types used in Table 5 5
5.5 Interpretation of UTC Time values 5

SECTION 2 – ABSTRACT INFORMATION OBJECTS 5

6 Overview 5

7 Interpersonal Messages 6

7.1 Heading Field Component Types 6
7.1.1 IPM Identifier 7
7.1.2 Recipient Specifier 7
7.1.3 OR-Descriptor 8
7.1.4 IPMS Extension 8
7.2 Heading Fields 9
7.2.1 This IPM 9
7.2.2 Originator 9
7.2.3 Authorizing Users 9
7.2.4 Primary Recipients 9
7.2.5 Copy Recipients 9
7.2.6 Blind Copy Recipients 10
7.2.7 Replied-to IPM 10
7.2.8 Obsoleted IPMs 10
7.2.9 Related IPMs 10
7.2.10 Subject 11
7.2.11 Expiry Time 11
7.2.12 Reply Time 11
7.2.13 Reply Recipients 11
7.2.14 Importance 11
7.2.15 Sensitivity 11
7.2.16 Auto-forwarded 12
7.2.17 Extensions 12
7.3 Body Parts 12
7.3.1 Extended Body Part 13
7.3.2 Body Part Encoding 14
7.4 Standard Body Part Types 15
7.4.1 IA5 Text 15
7.4.2 G3 Facsimile 15
7.4.3 G4 Class 1 16
7.4.4 Teletex 16

Page
7.4.5 Videotex ... 17
7.4.6 Encrypted ... 17
7.4.7 Message ... 18
7.4.8 Mixed-mode ... 18
7.4.9 Bilaterally Defined ... 19
7.4.10 Nationally Defined ... 19
7.4.11 General Text ... 19
7.4.12 File Transfer ... 20
7.4.13 Voice ... 25
7.4.14 Report ... 27
7.4.15 Notification ... 27
7.4.16 Forwarded Content ... 27
7.4.17 PKCS7 ... 28
8 Interpersonal Notifications ... 29
8.1 Common Fields ... 30
8.1.1 Subject IPM ... 30
8.1.2 IPN Originator ... 30
8.1.3 IPM Intended Recipient ... 30
8.1.4 Conversion EITs ... 31
8.1.5 Notification Extensions ... 31
8.2 Non-receipt Fields ... 31
8.2.1 Non-receipt Reason ... 31
8.2.2 Discard Reason ... 31
8.2.3 Auto-forward Comment ... 32
8.2.4 Returned IPM ... 32
8.2.5 NRN Extensions ... 32
8.3 Receipt Fields ... 32
8.3.1 Receipt Time ... 33
8.3.2 Acknowledgment Mode ... 33
8.3.3 Suppl Receipt Info ... 33
8.3.4 RN Extensions ... 33
8.4 Other Notification Type Fields ... 33
8.4.1 Absence Advice ... 33
8.4.2 Change of Address Advice ... 34
SECTION 3 – ABSTRACT SERVICE DEFINITION ... 35
9 Overview ... 35
10 Primary Object Types ... 35
10.1 Interpersonal Messaging System User ... 35
10.2 Interpersonal Messaging System ... 36
11 Primary Port Types ... 36
11.1 Origination ... 36
11.2 Reception ... 36
11.3 Management ... 36
12 Abstract Operations ... 36
12.1 Origination Abstract Operations ... 37
12.1.1 Originate Probe ... 37
12.1.2 Originate IPM ... 37
12.1.3 Originate RN ... 38
12.1.4 Originate ON ... 38
12.2 Reception Abstract Operations ... 39
12.2.1 Receive Report ... 39
12.2.2 Receive IPM ... 39
12.2.3 Receive RN ... 40
12.2.4 Receive NRN ... 40
12.2.5 Receive ON ... 40
12.3 Management Abstract Operations ... 40
12.3.1 Change Auto-discard ... 40
12.3.2 Change Auto-acknowledgment ... 41
12.3.3 Change Auto-forwarding ... 41

Page

13 Abstract Errors ... 42
13.1 Subscription Error ... 42
13.2 Recipient Improperly Specified ... 42
14 Other Capabilities ... 42
SECTION 4 – ABSTRACT SERVICE PROVISION ... 43
15 Overview ... 43
16 Secondary Object Types ... 43
16.1 Interpersonal Messaging System User Agent ... 43
16.2 Interpersonal Messaging System Message Store ... 43
16.3 Telematic Agent ... 43
16.4 Telex Access Unit ... 44
16.5 Physical Delivery Access Unit ... 44
16.6 Message Transfer System ... 45
17 Secondary Port Types ... 45
17.1 Submission ... 45
17.2 Delivery ... 45
17.3 Retrieval ... 45
17.4 Administration ... 45
17.5 Import ... 45
17.6 Export ... 45
18 User Agent Operation ... 46
18.1 State Variables ... 46
18.2 Performance of Origination Operations ... 46
18.2.1 Originate Probe ... 46
18.2.2 Originate IPM ... 47
18.2.3 Originate RN ... 47
18.2.4 Originate ON ... 48
18.3 Performance of Management Operations ... 48
18.3.1 Change Auto-discard ... 48
18.3.2 Change Auto-acknowledgment ... 49
18.3.3 Change Auto-forwarding ... 49
18.4 Invocation of Reception Operations ... 49
18.4.1 Receive Report ... 49
18.4.2 Receive IPM ... 49
18.4.3 Receive RN ... 50
18.4.4 Receive NRN ... 50
18.4.5 Receive ON ... 50
18.5 Internal Procedures ... 50
18.5.1 Auto-discard ... 50
18.5.2 Auto-acknowledgment ... 51
18.5.3 Auto-forwarding ... 52
19 Message Store Operation ... 53
19.1 Binding to the IPMS-MS ... 53
19.1.1 MS-Bind-argument ... 53
19.1.2 MS-Bind-result ... 53
19.2 Creation of Information Objects ... 53
19.2.1 Mapping an IPMS Message to an MS entry ... 54
19.2.2 Mapping of forwarding messages in the IPMS-MS ... 54
19.2.3 Presence of General-attributes in child-entries ... 55
19.3 Maintenance of Attributes ... 56
19.4 Notification of Non-receipt ... 57
19.5 IPMS-MS abstract-operation extensions ... 57
19.5.1 MS-Bind extensions ... 57
19.5.2 MS-Bind-Result extensions ... 58
19.5.3 IPM -submission options ... 58
19.5.4 IPM submission errors ... 60

Page
19.5.5 Forwarding-request extension ... 60
19.5.6 Delete extensions ... 60
19.6 IPMS-MS Attributes ... 60
19.6.1 Summary Attributes ... 63
19.6.2 Heading Attributes ... 66
19.6.3 Body Attributes ... 71
19.6.4 Notification Attributes ... 74
19.6.5 Correlation Attributes ... 76
19.6.6 The IPMS-attribute-table information object class ... 83
19.6.7 Generation of the IPMS-specific Attributes ... 84
19.6.8 Attributes Subject to Modification ... 89
19.7 IPMS-MS matching rules ... 89
19.7.1 IPM-identifier-match ... 89
19.7.2 IPM-location-match ... 89
19.7.3 OR-descriptor-match ... 90
19.7.4 OR-descriptor-elements-match ... 90
19.7.5 OR-descriptor-substring-elements-match ... 90
19.7.6 OR-descriptor-single-element-match ... 90
19.7.7 Recipient-specifier-match ... 90
19.7.8 Recipient-specifier-elements-match ... 91
19.7.9 Recipient-specifier-substring-elements-match ... 91
19.7.10 Recipient-specifier-single-element-match ... 91
19.7.11 Circulation-member-match ... 91
19.7.12 Circulation-member-elements-match ... 91
19.7.13 Circulation-member-substring-elements-match ... 91
19.7.14 Circulation-member-single-element-match ... 92
19.7.15 Circulation-member-checkmark-match ... 92
19.7.16 Distribution-code-match ... 92
19.7.17 Information-category-match ... 92
19.8 IPMS-MS auto-actions ... 93
19.8.1 Auto-action performance ... 94
19.8.2 IPM Auto-forward ... 94
19.8.3 IPM Auto-acknowledgement ... 96
19.8.4 IPM Auto-correlate ... 97
19.8.5 IPM Auto-discard ... 98
19.8.6 IPM auto-advise ... 98
19.9 Procedures for the IPMS-MS ... 100
19.9.1 Additional procedures for Message-delivery and Report-delivery ... 100
19.9.2 Additional Procedures for MS-message-submission ... 104
19.9.3 Additional Procedures for Fetch ... 106
19.9.4 Additional Procedures for Delete and Auto-delete ... 106
19.9.5 Auto-discard of expired IPMs ... 106
20 Message Contents ... 107
20.1 Content ... 107
20.2 Content Type ... 107
20.3 Content Length ... 107
20.4 Encoded Information Types ... 108
21 Port Realization ... 108
22 Conformance ... 109
22.1 Origination Versus Reception ... 109
22.2 Statement Requirements ... 109
22.3 Static Requirements ... 109
22.4 Dynamic Requirements ... 110
Annex A – General IPMS Extensions ... 111
A.1 Heading Extensions ... 111
A.1.1 Incomplete Copy ... 111
A.1.2 Languages ... 111
A.1.3 Auto-submitted ... 111
A.1.4 Body Part Signature ... 111

Page
A.1.5 IPM Security Label ... 112
A.1.6 Authorization Time ... 113
A.1.7 Circulation List Recipients ... 113
A.1.8 Distribution Codes ... 114
A.1.9 Extended Subject ... 115
A.1.10 Information Category ... 115
A.1.11 Manual Handling Instructions ... 116
A.1.12 Originator's Reference ... 116
A.1.13 Precedence Policy Identifier ... 116
A.2 Recipient Extensions ... 116
A.2.1 Circulation List Indicator ... 116
A.2.2 Precedence ... 117
A.3 Notification Extensions ... 117
Annex B – IPMS Security Extensions ... 118
B.1 Recipient Security Request ... 118
B.2 IPN Security Response ... 119
B.3 Security Diagnostic Code ... 119
B.4 Additional UA Procedures ... 121
B.4.1 Originate IPM ... 121
B.4.2 Originate IPN ... 122
B.5 Additional MS Procedures ... 124
B.6 MTS Extensions ... 124
B.6.1 Body Part Encryption Token ... 124
B.6.2 Forwarded Content Token ... 126
Annex C – Reference Definition of Object Identifiers ... 127
Annex D – Reference Definition of Abstract Information Objects ... 133
Annex E – Reference Definition of Extended Body Part Types ... 143
E.1 Equivalents of Basic Body Part Types ... 143
E.2 General Text ... 144
E.3 File Transfer ... 145
E.4 Voice ... 148
E.5 Report and Notification ... 148
E.6 Forwarded Content ... 149
E.7 PKCS7 ... 150
Annex F – Reference Definition of Functional Objects ... 151
Annex G – Reference Definition of Abstract Service ... 152
Annex H – Reference Definition of IPM Extensions ... 155
Annex I – Reference Definition of Message Store Attributes ... 159
Annex J – Reference Definition of IPMS-MS auto-actions ... 174
Annex K – Reference Definition of IPMS Security Extensions ... 178
Annex L – Reference Definition of Upper Bounds ... 181
Annex M – Support of the Interpersonal Messaging Service ... 182
M.1 Support of Recipient Specifier Components ... 182
M.2 Support of Heading Fields ... 182
M.3 Support of Body Aspects ... 183
M.4 Support of Notification Fields ... 184
M.5 Support of Envelope Fields ... 184
M.6 Support of IPMS Message Store ... 184
Annex N – Security Model Supplement for IPMS ... 185
N.1 Introduction ... 185
N.2 Security Services ... 185
N.3 Supplements to Clause 10.2: Security Services ... 185
N.4 Body Part Encryption ... 185
N.5 Body Part Authentication and Integrity ... 185

Page

N.6 IPM Security Labelling 185
N.7 IPN Authentication 186
N.7.1 Proof of Notification 186
N.7.2 Proof of Content 186
N.8 Non-repudiation of IPM Responsibility. 186
N.8.1 Non-repudiation of Notification 186
N.8.2 Non-repudiation of Content 186

Annex O – ASN.1 Module for PKCS#7 187

Annex P – Differences Between ISO/IEC 10021-7 and ITU-T Recommendation X.420 192

Annex Q – Summary of Changes to Previous Editions 193
Q.1 Differences between CCITT Rec. X.420 (1984) and CCITT Rec. X.420 (1988) 193
Q.2 Differences between CCITT Rec. X.420 (1988) and ISO/IEC 10021-7:1990 193
Q.3 Differences between ISO/IEC 10021-7:1990 and CCITT Rec. X.420 (1992) 193
Q.4 Differences between CCITT Rec. X.420 (1992) and ITU-T Rec. X.420 (1996) | ISO/IEC 10021-7:1997 194
Q.5 Differences between ITU-T Rec. X.420 (1996) | ISO/IEC 10021-7:1997 and ITU-T Rec. X.420 (1998) | ISO/IEC 10021-7:1999 194

Annex R – Index 196