

3GPP2 X.S0004-000-E

v 7.0

Date: April 2008



3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"

Mobile Application Part (MAP)

INTRODUCTION

COPYRIGHT

3GPP2 and its Organizational Partners claim copyright in this document and individual OPs may copyright and issue documents or standards publications in individual Organizational Partner's name based on this document. Requests for reproduction of this document should be directed to the 3GPP2 Secretariat at secretariat@3gpp2.org. Requests to reproduce individual Organizational Partner's documents should be directed to that Organizational Partner. See www.3gpp2.org for more information.

Revision History

Revision	Date	Remarks
(IS-41) 0	February 1988	Initial publication.
(IS-41) A	January 1991	
(IS-41) B	December 1991	
(IS-41) C	February 1996	
TIA/EIA-41-D	December 1997	Initial ANSI publication.
X.S0004-000-E v1.0 X.S0004-500 ••• 590-E v1.0 X.S0004-700 ••• 790-E	March 2004	Initial publication with new part structure.
X.S0004-000-E v2.0	July 2005	Version 2.0.
X.S0004-400-E X.S0004-600 ••• 691-E	July 2005	Initial publication with new part structure.
X.S0004-000-E v3.0	October 2005	Version 3.0.
X.S0004-691-E v2.0	October 2005	Addition of Annex F: RECOVERY FROM SCCP SEGMENTATION FAILURE.
X.S0004-000-E v4.0	May 2006	Version 4.0.
X.S0004-200 and 290-E	May 2006	Initial ANSI publication with new part structure.
X.S0004-000-E v5.0	January 2007	Version 5.0.
X.S0004-321-E	January 2007	Initial ANSI publication with new part structure.
X.S0004-322-E	January 2007	Initial ANSI publication with new part structure.
X.S0004-323-E	January 2007	Initial ANSI publication with new part structure.
X.S0004-324-E	January 2007	Initial ANSI publication with new part structure.
X.S0004-000-E v6.0	July 2007	Version 6.0.
X.S0004-520-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-540-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-550-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-630-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-640-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-641-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.

Revision	Date	Remarks
X.S0004-651-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-690-E v2.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-691-E v3.0	July 2007	Incorporated changes from Miscellaneous Rev. E standards.
X.S0004-000-E v7.0	April 2008	Version 7.0.
X.S0004-325-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-326-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-327-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-328-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-329-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-330-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-331-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-332-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-371-E	April 2008	Initial ANSI publication with new part structure.
X.S0004-630-E v3.0	April 2008	Incorporated changes to section 2.1 "Idle MS Origination".

Contents

List of Tables 0–xli
 List of Figures 0–xlvii

Part 000 - INTRODUCTION TO MAP

1 COMPARISON WITH N.S0005-0 v1.0/TIA/EIA-41-D0–2
 2 PART STRUCTURE0–8
 2.1 OBJECTIVE 0–11
 2.2 SCOPE 0–11
 2.3 REFERENCES 0–11
 2.3.1 Normative References 0–11
 2.3.2 Informative References 0–14
 3 DEFINITIONS AND DOCUMENTATION CONVENTIONS0–16
 3.1 DEFINITIONS 0–16
 4 SYMBOLS AND ABBREVIATIONS0–28
 4.1 DOCUMENTATION CONVENTIONS 0–50
 4.1.1 Scenario Diagram Conventions 0–50
 4.1.2 Scenario Description Conventions 0–53
 4.1.3 TCAP Package Type Diagram Conventions 0–55
 5 NETWORK REFERENCE MODEL0–57
 5.1 NETWORK ENTITY RELATIONSHIP DIAGRAM 0–57
 6 CELLULAR INTERSYSTEM SERVICES0–59
 6.1 GENERAL BACKGROUND AND ASSUMPTIONS 0–60
 6.2 OTA ASSUMPTIONS 0–61
 6.3 NETWORK TMSI ASSUMPTIONS 0–61
 6.4 WIRELESS INTELLIGENT NETWORK ASSUMPTIONS 0–62
 6.5 SEGMENTATION AND REASSEMBLY ASSUMPTIONS 0–62
 6.6 PCS MULTI-BAND SUPPORT ASSUMPTIONS 0–63
 6.7 IMSI SUPPORT ASSUMPTIONS 0–63
 6.8 WIRELESS NUMBER PORTABILITY ASSUMPTIONS 0–65
 6.9 CALLING NAME PRESENTATION ASSUMPTIONS 0–66
 6.10 AUTHENTICATION ENHANCEMENT ASSUMPTIONS 0–67
 7 RESTRICTIONS0–67

Part 200

1 Introduction200–1
 1.1 OBJECTIVE 200–1

1.2	SCOPE	200-1
2	BASIC INTERSYSTEM HANDOFF SCENARIOS	200-2
2.1	Successful Handoff-Forward	200-3
2.2	Successful Handoff-Back	200-5
2.3	Successful Handoff-Back with Tandem via FacilitiesDirective (Path Minimization is not supported)	200-7
2.4	Successful Handoff-Back with Tandem via FacilitiesDirective when HandoffToThird Fails	200-9
2.5	Successful Handoff-Forward with Tandem	200-12
2.6	Successful Handoff-Back with Tandem	200-13
2.7	Successful HandoffToThird with Path Minimization	200-14
2.8	Successful HandoffToThird with Tandem and Path Minimization	200-16
2.9	Successful Handoff-Back with Tandem via HandoffToThird when the method of Handoff- ToThird with Tandem and Path Minimization is involved	200-18
2.10	Successful Call Release by Served MS	200-21
2.11	Successful Call Release by Other Party	200-22
2.12	Successful Handoff-Forward of an Originating MS Awaiting Answer	200-24
2.13	Successful Handoff-Forward of a Terminating MS While Alerting	200-26

Part 290

Annex A:	Additional DMH Support for Intersystem Handoff in MAP (normative)	290-1
----------	---	-------

Part 321

1	Call Delivery	321-1
1.1	CD Demand Activation or De-Activation	321-1
1.2	CD Invocation to an Idle MS on Another MSC	321-1
1.3	CD Invocation to an Idle, Local MS	321-4
1.4	CD Invocation to a Busy MS	321-5
1.5	CD Invocation with No Page Response or No Answer	321-6
1.6	CD Invocation to an Inaccessible MS	321-7
1.7	CD Invocation with Intersystem Paging	321-8
1.8	CD Invocation with Unsolicited Page Response	321-11
1.9	TLDN Call Arrival with Intersystem Paging	321-13
1.10	TLDN Call Arrival with No Page Response to Intersystem Paging	321-15
1.11	TLDN Call Arrival with No Answer After Intersystem Paging, Call Release Initiated by Serv- ing MSC	321-16
1.12	TLDN Call Arrival with No Answer After Intersystem Paging, Call Release Initiated by Bor- der MSC	321-19

Part 322

1	INTRODUCTION	322-1
---	--------------------	-------

- 2 Call Forwarding—Busy322–1
 - 2.1 CFB Variable Registration or De-Registration..... 322–1
 - 2.2 CFB Demand Activation with Courtesy Call 322–1
 - 2.3 CFB Demand Activation (without Courtesy Call) or De-Activation 322–1
 - 2.4 CFB Invocation 322–2
 - 2.5 CFB Invocation with Call Collision 322–3
- 3 Call Forwarding—Default322–5
 - 3.1 CFD Variable Registration or De-Registration 322–5
 - 3.2 CFD Demand Activation with Courtesy Call 322–5
 - 3.3 CFD Demand Activation (without Courtesy Call) or De-Activation 322–5
 - 3.4 CFD Invocation with Busy 322–5
 - 3.5 CFD Invocation with Call Collision 322–5
 - 3.6 CFD Invocation—Immediate 322–6
 - 3.7 CFD Invocation with No Answer or No Response to Page..... 322–7
- 4 Call Forwarding—No Answer322–9
 - 4.1 CFNA Variable Registration or De-Registration 322–9
 - 4.2 CFNA Demand Activation with Courtesy Call 322–9
 - 4.3 CFNA Demand Activation (without Courtesy Call) or De-Activation 322–9
 - 4.4 CFNA Invocation—Immediate 322–9
 - 4.5 CFNA Invocation—Delayed 322–9
- 5 Call Forwarding—Unconditional322–11
 - 5.1 CFU Variable Registration or De-Registration 322–11
 - 5.2 CFU Demand Activation with Courtesy Call 322–11
 - 5.3 CFU Demand Activation (without Courtesy Call) or De-Activation 322–11
 - 5.4 CFU Invocation with Alert 322–12

Part 323

- 1 INTRODUCTION323–1
- 2 Call Transfer323–1
- 3 Call Waiting323–1
 - 3.1 CW Demand Activation or De-Activation 323–1
 - 3.2 CW Demand Cancellation with Call 323–2
 - 3.3 CW Demand Cancellation (during call) 323–3
 - 3.4 CW Invocation 323–5
 - 3.5 CW Interaction after Handoff 323–7

Part 324

- 1 INTRODUCTION1–1

2	Calling Number Identification Presentation	1-1
2.1	CNIP Invocation to an Idle Subscriber	1-2
2.2	CNIP Interaction with CW	1-4
2.3	CNIP Interaction with CW After Handoff	1-5
2.4	CNIP Interaction with CFU	1-7
2.5	CNIP Interaction with CFU after Handoff	1-9
2.6	CNIP Invocation to a Forwarded-To Subscriber	1-10
3	Calling Number Identification Restriction	1-12
3.1	CNIR Temporary Activation or De-Activation with Call.....	1-12
3.2	CNIR Interaction with CFU	1-14
3.3	CNIR Interaction with CFNA or CFD on MS No Answer	1-16
3.4	CNIR Interaction with CFB or CFD on MS Busy	1-18
3.5	CNIR Interaction with CFB or CFD on Call Collision	1-20

Part 325

1	INTRODUCTION	1-1
2	THREE-WAY CALLING	1-1
3	CONFERENCE CALLING.....	1-1
3.1	CC Invocation with Call Setup Request.....	1-2
3.2	CC Add Party (Without Feature Code Entry)	1-4
3.3	CC Invocation During a Call.....	1-5
3.4	CC Drop Last Party Invocation	1-7

Part 326

1	INTRODUCTION	1-1
2	DO NOT DISTURB	1-1
2.1	DND Activation or De-Activation	1-1
2.2	DND Invocation	1-1
2.3	DND Interaction with CFD or CFNA	1-2
2.4	DND Interaction with CFU	1-2

Part 327

1	INTRODUCTION	1-1
2	FLEXIBLE ALERTING.....	1-1
2.1	FA Membership Activation or De-Activation	1-1
2.2	FA Invocation	1-2
2.3	FA Invocation with a Busy FA Group Member (Single-User Type).....	1-5
2.4	FA Invocation with a Busy FA Group Member	

(Multiple-User Type).....	1-7
2.5 FA Invocation with a No Answer FA Group Member with Member Redirection.....	1-9
2.6 FA Invocation with a No Answer FA Group Member with Group Redirection	1-11
2.7 FA Invocation on Revertive Call to FA Pilot DN	1-13
2.8 FA Invocation on Call from FA Group Member.....	1-15

Part 328

1 INTRODUCTION	1-1
2 Mobile Access Hunting	1-1
2.1 MAH Membership Activation or De-Activation.....	1-1
2.2 MAH Ordering Change Request	1-1
2.3 MAH Invocation.....	1-1
2.4 MAH Invocation with a Busy MAH Group Member (Single-User Type)	1-6
2.5 MAH Invocation with a Busy MAH Group Member (Multiple-User Type)	1-7
2.6 MAH Invocation with a No Answer MAH Group Member	1-9
2.7 MAH Invocation on Revertive Call to MAH Pilot DN	1-13
2.8 MAH Invocation on Call from MAH Group Member	1-15

Part 329

1 INTRODUCTION	1-1
2 MESSAGE WAITING NOTIFICATION	1-1
2.1 MWN Alert Pip Tone Activation or De-Activation	1-1
2.2 Temporary De-Activation of MWN PIP Tone (with call setup)	1-2
2.3 MWN via Alert Pip Tones.....	1-3
2.4 MWN via an MS Indication	1-4
2.5 MWN After Handoff	1-6
2.6 MWN via Pip Tone on MS Call Origination	1-7
2.7 MWN via Pip Tone on MS Termination	1-8
2.8 Message Waiting Update from a Voice Mail System (proprietary interface)	1-9
2.9 Message Waiting Update from a Message Center or Voice Mail System	1-10
2.10 Message Waiting Update from a Voice Mail System	1-11

Part 330

1 INTRODUCTION	1-1
2 PASSWORD CALL ACCEPTANCE.....	1-1
2.1 PCA Demand Activation or De-Activation.....	1-1
2.2 PCA Variable Diversion Registration or De-Registration.....	1-1
2.3 PCA Password Registration or De-Registration.....	1-1

2.4	PCA Invocation with Call Accepted	1-2
2.5	PCA Invocation with Call Accepted: Alternate Procedure	1-4
2.6	PCA Invocation with Call Refused to Tone or Announcement	1-6
2.7	PCA Invocation with Call Refused to Voice Mail	1-7
2.8	PCA Invocation with Call Refused to Forward-To Number	1-8
3	SELECTIVE CALL ACCEPTANCE	1-9
3.1	SCA Demand Activation or De-Activation	1-9
3.2	SCA Variable Diversion Registration	1-9
3.3	SCA Variable Number Registration or De-Registration.....	1-9
3.4	SCA Invocation with Call Accepted	1-10
3.5	SCA Invocation with Call Refused to Tone or Announcement	1-12
3.6	SCA Invocation with Call Refused to Voice Mail	1-13
3.7	SCA Invocation with Call Refused to Forward-To Number	1-14

Part 331

1	INTRODUCTION	1-1
2	PRIORITY ACCESS AND CHANNEL ASSIGNMENT	1-1
2.1	Successful PACA Activation	1-2
2.2	Aborted PACA Activation	1-4
2.3	Unsuccessful PACA Activation	1-5

Part 332

1	INTRODUCTION	1-1
2	REMOTE FEATURE CONTROL	1-1
2.1	Normal RFC Transaction Sequence	1-1

Part 371

1	Broadcast Teleservice Transport Capability	200-1
1.1	Successful Broadcast of Teleservice Messages: MSC-based Periodicity Control.....	200-1
1.2	Successful Cancellation of Broadcast of Teleservice Messages: MSC-based Periodicity Control	200-5
1.3	Successful Broadcast of Teleservice Messages: MC-based Periodicity Control	200-7
1.4	Unsuccessful Broadcast of Teleservice Messages: MC-based Periodicity Control	200-11
1.5	Successful Deletion of a Teleservice Message Previously Broadcast with a Specific Broadcast Category: MSC-based Periodicity Control	200-13

Part 400

1	Operations, Administration and Maintenance (OA&M)	400-1
---	---	-------

1	1.1	SCOPE	400-1
2			
3	1.2	NETWORK FEATURES	400-1
4	1.2.1	Automatic Repeat Attempt	400-1
5	1.2.2	Blocking and Unblocking of Circuits	400-1
6	1.2.3	Blocking States	400-2
7	1.2.4	State Transitions.....	400-2
8	1.2.5	Other Actions on Receipt of a Blocking INVOKE.....	400-5
9	1.2.6	State Transition Table	400-6
10			
11	1.3	ABNORMAL CONDITIONS	400-11
12	1.3.1	Dual Seizure (glare).....	400-11
13	1.3.1.1	Unguarded Interval	400-11
14	1.3.1.2	Detection of Dual Seizure.....	400-11
15	1.3.1.3	Preventative Action for Dual Seizure	400-11
16	1.3.1.4	Action To Be Taken On Detection Of Dual Seizure	400-11
17			
18	1.3.2	Reset of Circuits.....	400-12
19	1.3.2.1	Reset Circuit Signal	400-12
20	1.3.3	Failure in the Blocking and Unblocking Sequences	400-13
21	1.3.4	Receipt Of Unreasonable Signaling Information.....	400-14
22	1.3.5	Loss of Messages in the Release Sequence	400-15
23	1.3.5.1	Failure to Receive a FacilitiesRelease RETURN RESULT	400-15
24	1.3.6	Other Failure Conditions.....	400-15
25	1.3.6.1	Inability to Release in Response to a FacilitiesRelease INVOKE.....	400-15
26			
27			
28	2	Inter-MSC TRUNK TESTING	400-16
29	2.1	INTRODUCTION	400-16
30	2.2	TEST PROCEDURES	400-16
31	2.2.1	Trunk Test Request.....	400-16
32	2.2.2	Trunk Test Reply	400-17
33	2.2.3	Trunk Test Disconnect Request.....	400-17
34	2.2.4	Trunk Test Disconnect Reply	400-17
35			
36	2.3	OA&M TIMER VALUES FOR TRUNK TESTING.....	400-17
37			
38			
39			

Part 500

40			
41			
42	1	MAP PROTOCOL ARCHITECTURE	500-1
43			
44			
45			

Part 510

46			
47			
48	1	X.25-BASED DATA TRANSFER SERVICES.....	510-1
49			
50			

Part 511

51			
52			
53	1	Message Transfer Part	511-1
54			
55	2	Signaling Connection Control Part	511-2
56			
57			
58			
59			
60			

Part 512

1	ITU-T SS7-BASED DATA TRANSFER SERVICES.....	512-1	1
1.1	MESSAGE TRANSFER PART.....	512-1	2
1.2	SIGNALING CONNECTION CONTROL PART	512-2	3
			4
			5
			6
			7
			8
			9
			10

Part 520

1	APPLICATION SERVICES	520-1	11
1.1	APPLICATION SERVICES ARCHITECTURE.....	520-1	12
1.2	APPLICATION LAYER STRUCTURE	520-2	13
1.3	TCAP FORMATS AND PROCEDURES	520-3	14
1.3.1	Transaction Portion	520-3	15
1.3.2	Component Portion.....	520-3	16
1.3.2.1	TCAP INVOKE Component.....	520-4	17
1.3.2.2	TCAP RETURN RESULT Component.....	520-5	18
1.3.2.3	TCAP RETURN ERROR Component	520-6	19
1.3.3	TCAP REJECT Component	520-10	20
			21
			22
			23
			24
			25
			26
			27

Part 540

1	MAP OPERATIONS	540-1	28
1.1	General.....	540-1	29
1.2	Operation Formats.....	540-1	30
1.2.1	Parameters cross references.....	540-1	31
1.3	Operation Specifiers	540-1	32
1.3.1	Mapping of Operations onto TCAP Package Types	540-4	33
			34
			35
2	OPERATION DEFINITIONS	540-6	36
2.1	AnalyzedInformation	540-9	37
2.2	AuthenticationDirective	540-13	38
2.3	AuthenticationDirectiveForward	540-16	39
2.4	AuthenticationFailureReport	540-18	40
2.5	AuthenticationRequest	540-20	41
2.6	AuthenticationStatusReport	540-24	42
2.7	BaseStationChallenge	540-27	43
2.8	Blocking	540-29	44
2.9	BulkDeregistration	540-30	45
2.10	ChangeFacilities	540-31	46
2.11	ChangeService	540-33	47
2.12	ConnectionFailureReport	540-36	48
2.13	ConnectResource	540-37	49
2.14	CountRequest	540-38	50
2.15	DisconnectResource	540-39	51
2.16	FacilitiesDirective	540-40	52
			53
			54
			55
			56
			57
			58
			59
			60

1	2.17	FacilitiesDirective2	540-42
2	2.18	FacilitiesRelease	540-48
3	2.19	FacilitySelectedAndAvailable	540-49
4	2.20	FeatureRequest	540-52
5	2.21	FlashRequest	540-56
6	2.22	HandoffBack	540-58
7	2.23	HandoffBack2	540-60
8	2.24	HandoffMeasurementRequest	540-66
9	2.25	HandoffMeasurementRequest2	540-68
10	2.26	HandoffToThird	540-70
11	2.27	HandoffToThird2	540-72
12	2.28	InformationDirective	540-77
13	2.29	InformationForward	540-79
14	2.30	InstructionRequest	540-81
15	2.31	InterSystemAnswer	540-82
16	2.32	InterSystemPage	540-83
17	2.33	InterSystemPage2	540-87
18	2.34	InterSystemSetup	540-91
19	2.35	InterSystemSMSDeliveryPointToPoint	540-93
20	2.36	InterSystemSMSPage	540-95
21	2.37	LocationRequest	540-98
22	2.38	MessageDirective	540-102
23	2.39	MobileOnChannel	540-103
24	2.40	Modify	540-104
25	2.41	MSInactive	540-105
26	2.42	NumberPortabilityRequest	540-107
27	2.43	OriginationRequest	540-108
28	2.44	OTASPREquest	540-112
29	2.45	ParameterRequest	540-116
30	2.46	QualificationDirective	540-118
31	2.47	QualificationRequest	540-120
32	2.48	QualificationRequest2	540-123
33	2.49	RandomVariableRequest	540-127
34	2.50	RedirectionDirective	540-128
35	2.51	RedirectionRequest	540-130
36	2.52	RegistrationCancellation	540-132
37	2.53	RegistrationNotification	540-134
38	2.54	Release	540-138
39	2.55	RemoteUserInteractionDirective	540-139
40	2.56	ResetCircuit	540-140
41	2.57	ResetTimer	540-141
42	2.58	RoutingRequest	540-142
43	2.59	Search	540-146
44			
45			
46			
47			
48			
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			

1	2.16 AuthenticationResponseBaseStation	550–52
2	2.17 AuthenticationResponseReauthentication	550–53
3	2.18 AuthenticationResponseUniqueChallenge	550–54
4	2.19 AuthorizationDenied	550–55
5	2.20 AuthorizationPeriod	550–56
6	2.21 AvailabilityType	550–57
7	2.22 BaseStationManufacturerCode	550–58
8	2.23 BaseStationPartialKey	550–59
9	2.24 BillingID	550–60
10	2.25 BorderCellAccess	550–61
11	2.26 BroadcastCategory	550–62
12	2.27 BroadcastCategorySpecificInformation	550–63
13	2.28 BroadcastMessageIdentifier	550–64
14	2.29 BroadcastMessagePriority	550–65
15	2.30 BroadcastMessageStatus	550–66
16	2.31 BroadcastPeriodicity	550–67
17	2.32 BroadcastServiceGroup	550–68
18	2.33 BroadcastZoneIdentifier	550–69
19	2.34 BroadcastZoneIdentifierList	550–71
20	2.35 BSMCStatus	550–72
21	2.36 CallHistoryCount	550–73
22	2.37 CallHistoryCountExpected	550–74
23	2.38 CallingFeaturesIndicator	550–75
24	2.39 CallingPartyName	550–77
25	2.40 CallingPartyNumberDigits1	550–78
26	2.41 CallingPartyNumberDigits2	550–79
27	2.42 CallingPartyNumberString1	550–80
28	2.43 CallingPartyNumberString2	550–81
29	2.44 CallingPartySubaddress	550–82
30	2.45 CancellationDenied	550–83
31	2.46 CancellationType	550–84
32	2.47 CarrierDigits	550–85
33	2.48 CaveKey	550–86
34	2.49 CDMA2000HandoffInvokeIOSData	550–87
35	2.50 CDMA2000HandoffResponseIOSData	550–88
36	2.51 CDMA2000MobileSupportedCapabilities	550–89
37	2.52 CDMABandClass	550–90
38	2.53 CDMABandClassInformation	550–92
39	2.54 CDMABandClassList	550–93
40	2.55 CDMA CallMode	550–94
41	2.56 CDMAChannelData	550–95
42	2.57 CDMAChannelNumber	550–97
43	2.58 CDMAChannelNumberList	550–98
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		

2.59	CDMACodeChannel	550-99	1
2.60	CDMACodeChannelInformation	550-100	2
2.61	CDMACodeChannelList	550-101	3
2.62	CDMAConnectionReference	550-102	4
2.63	CDMAConnectionReferenceInformation	550-103	5
2.64	CDMAConnectionReferenceList	550-104	6
2.65	CDMAMobileProtocolRevision	550-105	7
2.66	CDMAMSMeasuredChannelIdentity	550-106	8
2.67	CDMANetworkIdentification	550-107	9
2.68	CDMAPilotPN	550-108	10
2.69	CDMAPilotStrength	550-109	11
2.70	CDMAPowerCombinedIndicator	550-110	12
2.71	CDMAPrivateLongCodeMask	550-111	13
2.72	CDMARedirectRecord	550-112	14
2.73	CDMASearchParameters	550-113	15
2.74	CDMASearchWindow	550-114	16
2.75	CDMAServiceConfigurationRecord	550-115	17
2.76	CDMAServiceOption	550-116	18
2.77	CDMAServiceOptionList	550-117	19
2.78	CDMAServingOneWayDelay	550-118	20
2.79	CDMASignalQuality	550-119	21
2.80	CDMASlotCycleIndex	550-120	22
2.81	CDMAState	550-121	23
2.82	CDMAStationClassMark	550-122	24
2.83	CDMAStationClassMark2	550-124	25
2.84	CDMATargetMAHOInformation	550-125	26
2.85	CDMATargetMAHOList	550-126	27
2.86	CDMATargetMeasurementInformation	550-127	28
2.87	CDMATargetMeasurementList	550-128	29
2.88	CDMATargetOneWayDelay	550-129	30
2.89	Change	550-130	31
2.90	ChangeServiceAttributes	550-131	32
2.91	ChannelData	550-132	33
2.92	CommandCode	550-133	34
2.93	ConditionallyDeniedReason	550-134	35
2.94	ConferenceCallingIndicator	550-135	36
2.95	ConfidentialityModes	550-136	37
2.96	ControlChannelData	550-138	38
2.97	ControlChannelMode	550-139	39
2.98	CountUpdateReport	550-140	40
2.99	DataAccessElement	550-141	41
2.100	DataAccessElementList	550-142	42
2.101	DatabaseKey	550-143	43
			44
			45
			46
			47
			48
			49
			50
			51
			52
			53
			54
			55
			56
			57
			58
			59
			60

1	2.102 DataID	550-144
2	2.103 DataKey	550-145
3	2.104 DataPrivacyParameters	550-146
4	2.105 DataResult	550-147
5	2.106 DataUpdateResult	550-148
6	2.107 DataUpdateResultList	550-149
7	2.108 DataValue	550-150
8	2.109 DeniedAuthorizationPeriod	550-151
9	2.110 DenyAccess	550-153
10	2.111 DeregistrationType	550-154
11	2.112 DestinationAddress	550-155
12	2.113 DestinationDigits	550-156
13	2.114 DigitCollectionControl	550-157
14	2.115 Digits	550-160
15	2.116 DisplayText	550-162
16	2.117 DisplayText2	550-163
17	2.118 DMH_AccountCodeDigits	550-164
18	2.119 DMH_AlternateBillingDigits	550-165
19	2.120 DMH_BillingDigits	550-166
20	2.121 DMH_RedirectionIndicator	550-167
21	2.122 ElectronicSerialNumber	550-168
22	2.123 EmergencyServicesRoutingDigits	550-169
23	2.124 EnhancedPrivacyEncryptionReport	550-170
24	2.125 ExecuteScript	550-171
25	2.126 ExtendedMSCID	550-172
26	2.127 ExtendedSystemMyTypeCode	550-173
27	2.128 FailureCause	550-174
28	2.129 FailureType	550-175
29	2.130 FaultyParameter	550-176
30	2.131 FeatureResult	550-177
31	2.132 GeographicAuthorization	550-178
32	2.133 GlobalTitle	550-179
33	2.134 GroupInformation	550-180
34	2.135 HandoffReason	550-181
35	2.136 HandoffState	550-182
36	2.137 IMSI	550-183
37	2.138 InterMessageTime	550-184
38	2.139 InterMSCCircuitID	550-185
39	2.140 InterSwitchCount	550-186
40	2.141 IntersystemTermination	550-187
41	2.142 ISLPInformation	550-189
42	2.143 LegInformation	550-190
43	2.144 LocalTermination	550-191
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		

2.145 LocationAreaID	550-193	1
2.146 MessageWaitingNotificationCount	550-194	2
2.147 MessageWaitingNotificationType	550-195	3
2.148 MINExtension	550-197	4
2.149 MobileDirectoryNumber	550-198	5
2.150 MobileIdentificationNumber	550-199	6
2.151 MobileStationIMSI	550-200	7
2.152 MobileStationMIN	550-201	8
2.153 MobileStationMSID	550-202	9
2.154 MobileStationPartialKey	550-203	10
2.155 ModificationRequest	550-204	11
2.156 ModificationRequestList	550-205	12
2.157 ModificationResult	550-206	13
2.158 ModificationResultList	550-207	14
2.159 ModulusValue	550-208	15
2.160 MSC_Address	550-209	16
2.160.1 MSC_Address parameter for BCD Digits.....	550-209	17
2.160.2 MSC_Address parameter for an IP address	550-210	18
2.160.3 MSC_Address parameter for a generic SS7 Point Code address	550-211	19
2.161 MSCID	550-212	20
2.162 MSCIdentificationNumber	550-213	21
2.163 MSID	550-214	22
2.164 MSIDUsage	550-215	23
2.165 MSLocation	550-216	24
2.166 NAMPSCallMode	550-217	25
2.167 NAMPSChannelData	550-219	26
2.168 NetworkTMSI	550-221	27
2.169 NetworkTMSIExpirationTime	550-222	28
2.170 NewlyAssignedIMSI	550-223	29
2.171 NewlyAssignedMIN	550-224	30
2.172 NewlyAssignedMSID	550-225	31
2.173 NewMINExtension	550-226	32
2.174 NewNetworkTMSI	550-228	33
2.175 NoAnswerTime	550-229	34
2.176 NonPublicData	550-230	35
2.177 OneTimeFeatureIndicator	550-232	36
2.178 OriginationIndicator	550-235	37
2.179 OriginationTriggers	550-237	38
2.180 OTASP_ResultCode	550-242	39
2.181 PACAIndicator	550-243	40
2.182 PageCount	550-245	41
2.183 PageIndicator	550-246	42
2.184 PageResponseTime	550-247	43
		44
		45
		46
		47
		48
		49
		50
		51
		52
		53
		54
		55
		56
		57
		58
		59
		60

1	2.185 PagingFrameClass	550–248
2	2.186 PC_SSN	550–249
3	2.186.1 PC_SSN (ANSI)	550–249
4	2.186.2 PC_SSN (Generic)	550–250
5	2.187 PilotBillingID	550–251
6	2.188 PilotNumber	550–252
7	2.189 PreferredLanguageIndicator	550–253
8	2.190 PrimitiveValue	550–256
9	2.191 PrivateSpecializedResource	550–257
10	2.192 Profile	550–258
11	2.193 PSID_RSIDInformation	550–261
12	2.194 PSID_RSIDList	550–263
13	2.195 PSTNTermination	550–264
14	2.196 QoSPriority	550–265
15	2.197 QualificationInformationCode	550–266
16	2.198 RANDC	550–267
17	2.199 RandomVariable	550–268
18	2.200 RandomVariableBaseStation	550–269
19	2.201 RandomVariableReauthentication	550–270
20	2.202 RandomVariableSSD	550–271
21	2.203 RandomVariableUniqueChallenge	550–272
22	2.204 RANDValidTime	550–273
23	2.205 ReasonList	550–274
24	2.206 ReauthenticationReport	550–275
25	2.207 ReceivedSignalQuality	550–276
26	2.208 RedirectingNumberDigits	550–277
27	2.209 RedirectingNumberString	550–278
28	2.210 RedirectingPartyName	550–279
29	2.211 RedirectingSubaddress	550–280
30	2.212 RedirectionReason	550–281
31	2.213 ReleaseReason	550–282
32	2.214 ReportType	550–283
33	2.215 RequiredParametersMask	550–285
34	2.216 RestrictionDigits	550–287
35	2.217 RingStartDelay	550–288
36	2.218 RoamingIndication	550–289
37	2.219 RoutingDigits	550–290
38	2.220 ScriptArgument	550–291
39	2.221 ScriptName	550–292
40	2.222 ScriptResult	550–293
41	2.223 SecondInterMSCCircuitID	550–294
42	2.224 SeizureType	550–295
43	2.225 SenderIdentificationNumber	550–296
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		

2.226 ServiceDataAccessElement	550–297	1
2.227 ServiceDataAccessElementList	550–298	2
2.228 ServiceDataResult	550–299	3
2.229 ServiceDataResultList	550–300	4
2.230 ServiceID	550–301	5
2.231 ServiceIndicator	550–302	6
2.232 ServiceRedirectionCause	550–303	7
2.233 ServiceRedirectionInfo	550–304	8
2.234 ServicesResult	550–305	9
2.235 ServingCellID	550–306	10
2.236 SetupResult	550–307	11
2.237 SharedSecretData	550–308	12
2.238 SignalingMessageEncryptionKey	550–309	13
2.239 SignalingMessageEncryptionReport	550–310	14
2.240 SignalQuality	550–311	15
2.241 SMS_AccessDeniedReason	550–314	16
2.242 SMS_Address	550–316	17
2.242.1 SMS_Address parameter for BCD digits	550–316	18
2.242.2 SMS_Address Encoding for an IP address	550–317	19
2.242.3 SMS_Address Encoding for an ANSI SS7 Point Code Address	550–318	20
2.242.4 SMS_Address Encoding for a Generic SS7 Point Code Address	550–319	21
2.243 SMS_BearerData	550–320	22
2.244 SMS_CauseCode	550–321	23
2.245 SMS_ChargeIndicator	550–325	24
2.246 SMS_DestinationAddress	550–326	25
2.246.1 SMS_DestinationAddress parameter for BCD Digits	550–326	26
2.246.2 SMS_DestinationAddress parameter for an IP Address	550–327	27
2.247 SMS_MessageCount	550–328	28
2.248 SMS_MessageWaitingIndicator	550–329	29
2.249 SMS_NotificationIndicator	550–330	30
2.250 SMS_OriginalDestinationAddress	550–331	31
2.250.1 SMS_OriginalDestinationAddress parameter for BCD Digits	550–331	32
2.250.2 SMS_OriginalDestinationAddress parameter for IA5 Digits	550–332	33
2.250.3 SMS_OriginalDestinationAddress parameter for an IP Address	550–333	34
2.251 SMS_OriginalDestinationSubaddress	550–334	35
2.252 SMS_OriginalOriginatingAddress	550–335	36
2.252.1 SMS_OriginalOriginatingAddress for BCD Digits.....	550–335	37
2.252.2 SMS_OriginalOriginatingAddress parameter for IA5 Digits	550–336	38
2.252.3 SMS_OriginalOriginatingAddress parameter for an IP Address	550–337	39
2.253 SMS_OriginalOriginatingSubaddress	550–338	40
2.254 SMS_OriginatingAddress	550–339	41
2.254.1 SMS_OriginatingAddress parameter for BCD Digits	550–339	42
2.254.2 SMS_OriginalOriginatingAddress parameter for an IP Address	550–340	43
2.255 SMS_OriginationRestrictions	550–341	44
2.256 SMS_TeleserviceIdentifier	550–342	45
		46
		47
		48
		49
		50
		51
		52
		53
		54
		55
		56
		57
		58
		59
		60

1	2.257 SMS_TerminationRestrictions	550-345
2	2.258 SMS_TransactionID	550-346
3	2.259 SpecialHandling	550-347
4	2.260 SpecializedResource	550-348
5	2.261 SPINIPIN	550-349
6	2.262 SPINITriggers	550-350
7	2.263 SSDNotShared	550-355
8	2.264 SSDUpdateReport	550-356
9	2.265 StationClassMark	550-357
10	2.266 SuspiciousAccess	550-358
11	2.267 SystemAccessData	550-359
12	2.268 SystemAccessType	550-360
13	2.269 SystemCapabilities	550-361
14	2.270 SystemMyTypeCode	550-363
15	2.271 SystemOperatorCode	550-365
16	2.272 SOCStatus	550-366
17	2.273 TargetCellID	550-367
18	2.274 TargetCellIDList	550-368
19	2.275 TargetMeasurementInformation	550-369
20	2.276 TargetMeasurementList	550-370
21	2.277 TDMABandwidth	550-371
22	2.278 TDMABurstIndicator	550-372
23	2.279 TDMACallMode	550-373
24	2.280 TDMACHannelData	550-375
25	2.281 TDMADataFeaturesIndicator	550-377
26	2.282 TDMADataMode	550-378
27	2.283 TDMAServiceCode	550-380
28	2.284 TDMATerminalCapability	550-381
29	2.285 TDMAVoiceCoder	550-385
30	2.286 TDMAVoiceMode	550-386
31	2.287 TemporaryReferenceNumber	550-387
32	2.288 TerminalType	550-388
33	2.289 TerminationAccessType	550-390
34	2.290 TerminationList	550-391
35	2.291 TerminationRestrictionCode	550-392
36	2.292 TerminationTreatment	550-393
37	2.293 TerminationTriggers	550-394
38	2.294 TimeDateOffset	550-397
39	2.295 TransactionCapability	550-399
40	2.296 TriggerAddressList	550-402
41	2.297 TriggerCapability	550-403
42	2.298 TriggerList	550-406
43	2.299 TriggerType	550-407
44		
45		
46		
47		
48		
49		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		

2.300 TrunkStatus	550-409	1
2.301 UniqueChallengeReport	550-410	2
2.302 UpdateCount	550-411	3
2.303 UserGroup	550-412	4
2.304 UserZoneData	550-413	5
2.305 VoiceMailboxNumber	550-415	6
2.306 VoiceMailboxPIN	550-416	7
2.307 VoicePrivacyMask	550-417	8
2.308 VoicePrivacyReport	550-418	9
2.309 WINCapability	550-419	10
2.310 WINOperationsCapability	550-420	11
2.311 WIN_TriggerList	550-421	12

Part 551

1 PARAMETER TYPE DEFINITIONS	551-1	13
1.1 CHOICE	551-1	14
1.2 DigitsType	551-1	15
1.2.1 DigitsType variant for BCD digits	551-1	16
1.2.2 DigitsType variant for IA5 digits	551-3	17
1.2.3 DigitsType variant for IP address	551-4	18
1.2.4 DigitsType variant for an ANSI SS7 point code address	551-5	19
1.2.5 DigitsType variant for a generic SS7 point code address	551-6	20
1.3 ENUMERATED.....	551-9	21
1.4 IMPLICIT	551-10	22
1.5 IMSIType	551-12	23
1.6 INTEGER	551-14	24
1.7 MINType	551-15	25
1.8 NULL	551-16	26
1.9 OCTET STRING.....	551-16	27
1.10 SEQUENCE	551-16	28
1.11 SEQUENCE OF	551-16	29
1.12 SEQUENCE OF CHOICE	551-16	30
1.13 SET	551-16	31
1.14 SET OF CHOICE	551-17	32
1.15 SUBADDRESS	551-17	33
1.16 UNSIGNED ENUMERATED	551-18	34
1.17 UNSIGNED INTEGER.....	551-18	35

Part 590

1 MAP COMPATIBILITY GUIDELINES AND RULES.....	590-1	36
1.1 ACHIEVING FORWARD COMPATIBILITY AND BACKWARD COMPATIBILITY	590-1	37

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

- 1.1.1 Forward Compatibility590–1
- 1.1.2 Backward Compatibility590–1
- 1.2 GUIDELINES FOR FORWARD COMPATIBILITY590–1
- 1.3 GUIDELINES FOR BACKWARD COMPATIBILITY590–4
 - 1.3.1 Existing Messages.....590–4
 - 1.3.2 Parameters in Existing Messages.....590–4
 - 1.3.3 New Messages590–5
 - 1.3.4 New Parameters590–5
 - 1.3.5 New Parameter Fields590–5
 - 1.3.6 New Parameter Values.....590–5

Part 600 INTRODUCTION

- 1 OBJECTIVE600–1
 - 1.1 SCOPE600–1
 - 1.2 ORGANIZATION600–2
 - 1.3 DOCUMENTATION CONVENTIONS600–3
 - 1.4 INTERSYSTEM HANDOFF PROCEDURES600–6
 - 1.5 SHORT MESSAGE SERVICE PROCEDURES600–7

Part 630

- 1 Registration Call Tasks630–1
 - 1.1 Autonomous or Power-On Registration.....630–1
 - 1.2 Power-Off Deregistration.....630–2
 - 1.3 Loading of Profile Parameters630–2
- 2 Origination Call Tasks630–6
 - 2.1 Idle MS Origination630–6
 - 2.2 In Call MS Flash Attempt630–10
 - 2.3 MSC Analyze MS Dialed Number630–12
 - 2.4 HLR Analyze MS Dialed Number.....630–20
 - 2.5 Play All Announcements in the AnnouncementList.....630–21
 - 2.6 MSC Routing Points of Return630–22
 - 2.7 Originating Call Sent630–23
 - 2.8 Initialize the OneTimeFeatureIndicator Parameter.....630–25
 - 2.9 MSCActionCode Processing.....630–26
- 3 Terminating Call Tasks.....630–27
 - 3.1 Incoming Call Attempt.....630–27
 - 3.2 Wait for TLDN Call.....630–30
 - 3.3 Page an MS Procedure630–32
 - 3.4 Authorize MS Termination Attempt.....630–34
 - 3.5 MS Termination Alerting.....630–35
 - 3.6 MSC Special MS Alerting630–42

3.7	MSC Record the DMH Parameters	630–43	1
3.8	MSC Route the Call Leg Externally.....	630–43	2
3.9	MSC Select a Route for the Call	630–49	3
			4
			5
4	Disconnect Call Tasks	630–54	6
4.1	MS Disconnect	630–54	7
4.2	Other Party Disconnect.....	630–55	8
4.3	Commanded Disconnect.....	630–55	9
4.4	Apply Busy Treatment.....	630–55	10
4.5	Apply Access Denial Treatment.....	630–56	11
			12
			13
5	Recovery Call Tasks	630–56	14
5.1	Local Recovery Procedures	630–56	15
			16
			17
6	Handoff Call Tasks	630–58	18
6.1	Serving MSC Initiating a Handoff.....	630–58	19
			20
			21
			22
			23
			24
			25
			26
			27
			28
			29
			30
			31
			32
			33
			34
			35
			36
			37
			38
			39
			40
			41
			42
			43
			44
			45
			46
			47
			48
			49
			50
			51
			52
			53
			54
			55
			56
			57
			58
			59
			60

Part 640

1	Analyzed Information	640–1	25
1.1	MSC Initiating an Analyzed Information.....	640–1	26
1.2	SCF Receiving AnalyzedInformation INVOKE	640–4	27
			28
			29
2	Authentication Directive	640–6	30
2.1	AC Initiation of an Authentication Directive	640–6	31
2.2	HLR Receiving AuthenticationDirective INVOKE	640–10	32
2.3	VLR Receiving AuthenticationDirective INVOKE	640–13	33
2.4	MSC Receiving AuthenticationDirective INVOKE	640–19	34
2.5	VLR Initiating an Authentication Directive	640–21	35
2.6	MSC Receiving Authentication Parameters	640–23	36
			37
			38
			39
3	Authentication Directive Forward	640–29	40
3.1	Anchor MSC Initiating an Authentication Directive Forward.....	640–29	41
3.2	Serving MSC Receiving an AuthenticationDirectiveForward INVOKE	640–31	42
3.3	Tandem MSC Receiving an Authentication Directive Forward	640–33	43
			44
			45
4	AuthenticationFailureReport	640–34	46
4.1	MSC Initiating an Authentication Failure Report	640–34	47
4.2	VLR Receiving AuthenticationFailureReport INVOKE	640–35	48
4.3	HLR Receiving AuthenticationFailureReport INVOKE	640–39	49
4.4	AC Receiving AuthenticationFailureReport INVOKE	640–42	50
4.5	VLR Initiating an Authentication Failure Report	640–45	51
			52
			53
			54
5	Authentication Request	640–49	55
5.1	MSC Initiating an Authentication Request.....	640–49	56
5.2	VLR Receiving AuthenticationRequest INVOKE	640–53	57
			58
			59
			60

1	5.3	HLR Receiving AuthenticationRequest INVOKE	640–61
2	5.4	AC Receiving AuthenticationRequest INVOKE	640–64
3			
4	6	Authentication Status Report	640–70
5	6.1	MSC Initiating an Authentication Status Report	640–70
6	6.2	VLR Awaiting AuthenticationStatusReport INVOKE	640–72
7	6.3	HLR Receiving AuthenticationStatusReport INVOKE	640–77
8	6.4	AC Awaiting AuthenticationStatusReport INVOKE	640–80
9			
10	7	Base Station Challenge	640–84
11	7.1	MSC Initiating a Base Station Challenge	640–84
12	7.2	VLR Receiving BaseStationChallenge INVOKE	640–85
13	7.3	HLR Receiving BaseStationChallenge INVOKE	640–88
14	7.4	AC Receiving BaseStationChallenge INVOKE	640–90
15			
16	8	Blocking	640–92
17			
18	9	Bulk Deregistration	640–93
19	9.1	VLR Initiating a Bulk Deregistration.....	640–93
20	9.2	HLR Receiving BulkDeregistration INVOKE	640–94
21			
22	10	CHANGE FACILITIES	640–95
23	10.1	Anchor MSC Initiation of Change Facilities	640–95
24	10.2	Serving MSC Receiving Change Facilities INVOKE	640–96
25	10.3	Tandem MSC Receiving a Change Facilities INVOKE	640–98
26			
27	11	Change service	640–100
28	11.1	Serving MSC Initiation of a Change Service.....	640–100
29	11.2	Anchor MSC Receiving a Change Service INVOKE	640–102
30	11.3	Tandem MSC Receiving a Change Service INVOKE	640–104
31			
32	12	Connect Resource	640–107
33	12.1	SCF Initiating Connect Resource.....	640–107
34	12.2	SCF Relaying ConnectResource INVOKE	640–108
35	12.3	MSC Receiving ConnectResource INVOKE	640–110
36			
37	13	Connection Failure Report	640–113
38	13.1	MSC Initiating a Connection Failure Report.....	640–113
39	13.2	SCF Receiving ConnectionFailureReport INVOKE	640–114
40	13.3	SCF Relaying ConnectionFailureReport INVOKE	640–115
41			
42	14	Count Request	640–116
43	14.1	AC Initiating a Count Request.....	640–116
44	14.2	HLR Receiving CountRequest INVOKE	640–117
45	14.3	VLR Receiving Count Request INVOKE	640–119
46			
47	15	Disconnect Resource	640–120
48	15.1	SCF Initiating Disconnect Resource.....	640–120
49			
50			
51			
52			
53			
54			
55			
56			
57			
58			
59			
60			

15.2	SCF Relaying DisconnectResource INVOKE	640-121	1
15.3	MSC Receiving DisconnectResource INVOKE	640-122	2
			3
16	Facilities Directive (handoff forward)	640-123	4
16.1	Serving MSC Initiating a Facilities Directive	640-123	5
16.2	Target MSC Receiving a FacilitiesDirective INVOKE	640-128	6
			7
			8
17	Facilities Directive2 (Handoff Forward)	640-131	9
17.1	Serving MSC Initiating a Facilities Directive2	640-131	10
17.2	Target MSC Receiving a FacilitiesDirective2 INVOKE	640-135	11
17.3	Target MSC Handoff Forward	640-138	12
			13
			14
18	Facilities Release	640-140	15
18.1	MSC Initiation of Facilities Release.....	640-140	16
18.2	MSC Receiving FacilitiesRelease INVOKE	640-142	17
			18
			19
19	Facility Selected And Available	640-144	20
19.1	MSC Initiating a Facility Selected And Available	640-144	21
19.2	SCF Receiving FacilitySelectedAndAvailable INVOKE	640-146	22
			23
			24
20	Feature Request	640-148	25
20.1	MSC Detecting Feature Request	640-148	26
20.2	HLR Receiving FeatureRequest INVOKE	640-151	27
20.3	HLR Initiating Feature Request	640-161	28
20.4	SCF Receiving FeatureRequest INVOKE	640-162	29
20.5	SCF Initiating Feature Request	640-165	30
			31
			32
			33
21	Flash Request	640-166	34
21.1	Serving MSC Initiating a Flash Request	640-166	35
21.2	Anchor MSC Receiving a FlashRequest INVOKE	640-167	36
21.3	Tandem MSC Receiving of a Flash Request	640-169	37
			38
			39
22	Handoff Back (Shoe Lace Prevention)	640-171	40
22.1	Serving MSC Initiating a Handoff Back	640-171	41
22.2	Target MSC Receiving a HandoffBack INVOKE	640-174	42
22.3	Target MSC Handoff Back	640-176	43
			44
			45
23	Handoff Back2 (Shoe Lace Prevention)	640-178	46
23.1	Serving MSC Initiating a Handoff Back2	640-178	47
23.2	Target MSC Receiving a HandoffBack2 INVOKE	640-180	48
23.3	Target MSC Handoff Back2	640-182	49
			50
			51
24	Handoff Measurement Request	640-184	52
24.1	Serving MSC Initiating a Handoff Measurement Request.....	640-184	53
24.2	Target MSC Receiving a HandoffMeasurementRequest INVOKE	640-185	54
			55
			56
25	Handoff Measurement Request 2	640-187	57
25.1	Serving MSC Initiating a Handoff Measurement Request 2.....	640-187	58
			59
			60

1	25.2 Target MSC Receiving a HandoffMeasurementRequest2 INVOKE	640–189
2		
3	26 Handoff To Third (Path Minimization)	640–191
4	26.1 Serving MSC Initiating a Handoff To Third.....	640–191
5	26.2 Tandem MSC Receiving a HandoffToThird INVOKE	640–194
6	26.3 Anchor MSC Receiving a HandoffToThird INVOKE	640–197
7	26.4 MSC Initiating a FacilitiesDirective for Path Minimization	640–199
8		
9		
10	27 Handoff To Third2 (Path Minimization)	640–201
11	27.1 Serving MSC Initiating a Handoff To Third2.....	640–201
12	27.2 Tandem MSC Receiving a HandoffToThird2 INVOKE	640–204
13	27.3 Anchor MSC Receiving a HandoffToThird2 INVOKE	640–208
14	27.4 MSC Initiating a FacilitiesDirective2 for Path Minimization	640–211
15		
16	28 Information Directive	640–213
17	28.1 HLR Initiating an Information Directive	640–213
18	28.2 VLR Receiving an InformationDirective INVOKE	640–214
19	28.3 MSC Receiving an InformationDirective INVOKE	640–216
20		
21	29 Information Forward	640–218
22	29.1 MSC Initiating an Information Forward	640–218
23	29.2 MSC Receiving an InformationForward INVOKE	640–219
24		
25	30 Instruction Request	640–221
26	30.1 SRF Initiating Instruction Request.....	640–221
27	30.2 SCF Receiving InstructionRequest INVOKE	640–222
28		
29	31 Intersystem Answer	640–223
30	31.1 MSC Awaiting InterSystemAnswer.....	640–223
31	31.2 MSC Initiating InterSystemAnswer	640–225
32		
33	32 Intersystem Page	640–226
34	32.1 MSC Initiating an InterSystemPage.....	640–226
35	32.2 MSC Receiving InterSystemPage	640–228
36		
37	33 Intersystem Page2	640–232
38	33.1 MSC Initiating an InterSystemPage2.....	640–232
39	33.2 MSC Receiving InterSystemPage2 INVOKE	640–237
40		
41	34 Intersystem Setup	640–241
42	34.1 MSC Initiating an Intersystem Setup.....	640–241
43	34.2 MSC Receiving InterSystemSetup INVOKE	640–243
44		
45	35 INTERSYSTEM SMS PAGE	640–245
46	35.1 MSC Initiating InterSystem SMS Page	640–245
47	35.2 MSC Receiving an InterSystemSMSPage INVOKE	640–246
48		
49	36 Location Request	640–251
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		

36.1	MSC Initiating a Location Request	640-251	1
36.2	HLR Receiving LocationRequest INVOKE	640-256	2
			3
37	Message Directive	640-262	4
37.1	HLR Receiving MessageDirective INVOKE.....	640-262	5
			6
			7
38	Modify	640-264	8
38.1	SCF Initiating Modify	640-264	9
38.2	SDF Receiving Modify INVOKE	640-265	10
			11
			12
39	MS On Channel	640-266	13
			14
40	MS Inactive	640-267	15
40.1	MSC Initiating an MS Inactive.....	640-267	16
40.2	VLR Receiving MSInactive INVOKE	640-268	17
40.3	VLR Detection of MS Inactivity	640-269	18
40.4	HLR Receiving MSInactive INVOKE	640-270	19
40.5	AC Receiving MSInactive INVOKE	640-272	20
			21
			22
			23
41	NUMBER PORTABILITY REQUEST	640-273	24
41.1	MSC Initiating a Number Portability Request	640-273	25
41.2	Number Portability DataBase (NPDB) Receiving NumberPortabilityRequest INVOKE	640-275	26
			27
			28
			29
42	Origination Request	640-277	30
42.1	MSC Initiating an Origination Request.....	640-277	31
42.2	HLR Receiving an OriginationRequest INVOKE	640-281	32
42.3	SCF Receiving OriginationRequest INVOKE	640-284	33
42.4	HLR Relaying Origination Request	640-286	34
42.5	OTAF Receiving an Origination Request	640-288	35
			36
			37
			38
43	OTAF	640-290	39
43.1	OTAF Receiving a FeatureRequest INVOKE.....	640-290	40
43.2	OTAF Requesting TRN from an Alternate OTAF	640-292	41
43.3	OTAF Receiving RoutingRequest INVOKE	640-293	42
43.4	OTAF Initiating MSC Redirection of an OTASP Call	640-295	43
			44
			45
44	OTAF Attachment With Serving MSC	640-297	46
44.1	MSC Obtaining a TRN.....	640-297	47
44.2	OTAF Initiating an SMDPP INVOKE to Attach with Serving MSC	640-299	48
44.3	MSC Receiving an SMDPP INVOKE to Attach with OTAF	640-301	49
44.4	OTAF Initiating an SMDPP INVOKE to Release TRN	640-303	50
44.5	MSC Receiving an SMDPP INVOKE to Release TRN	640-304	51
			52
			53
			54
45	EXCHANGE OF OTASP DATA MESSAGES	640-305	55
45.1	OTAF Initiating SMDPP INVOKE for OTASP Data Message Exchange.....	640-305	56
45.2	MSC Receiving SMDPP INVOKE for OTA Data Message Exchange	640-307	57
			58
			59
			60

1	46	MSC Procedure Triggers for OTA	640–311
2		46.1 OTAF Initiating SMDPP INVOKE for MS Registration	640–311
3		46.2 MSC Receiving SMDPP INVOKE for Registration of MS	640–313
4		46.3 OTAF Initiating SMDPP INVOKE to Record New MSID	640–314
5		46.4 MSC Receiving SMDPP INVOKE to Record NEW MSID	640–316
6			
7			
8			
9	47	CSC Triggers to Execute OTA Procedures	640–317
10		47.1 CSC Trigger for OTA Data Message Exchange	640–317
11		47.2 CSC Trigger for OTA for A-key Generation	640–318
12		47.3 CSC Trigger for OTA for Perform SSD Update	640–320
13		47.4 CSC Trigger for OTA for Perform Reauthentication	640–321
14			
15			
16	48	OTAF Recovery	640–322
17		48.1 OTAF Recovery Procedure.....	640–322
18			
19			
20	49	OTASPrequest (CDMA)	640–323
21		49.1 OTAF Initiating OTASPrequest invoke	640–323
22		49.2 HLR Receiving an OTASPREQ INVOKE	640–326
23		49.3 AC Receiving an OTASPREQ INVOKE	640–331
24			
25			
26	50	OTASPrequest (TDMA)	640–338
27		50.1 OTAF Initiating OTASPrequest	640–338
28		50.2 HLR Receiving OTASPrequest INVOKE	640–340
29		50.3 AC Receiving OTASPrequest INVOKE	640–342
30			
31			
32	51	Parameter Request	640–344
33		51.1 Serving MSC Initiation of a ParameterRequest INVOKE.....	640–344
34		51.2 Serving VLR Receiving ParameterRequest INVOKE	640–345
35		51.3 New Serving VLR Initiation of a ParameterRequest	640–346
36		51.4 Old Serving VLR Receiving ParameterRequest INVOKE	640–347
37			
38			
39			
40	52	Qualification Directive	640–348
41		52.1 HLR Initiating a Qualification Directive	640–348
42		52.2 VLR Receiving QualificationDirective INVOKE	640–350
43		52.3 VLR Initiating a Qualification Directive	640–352
44		52.4 MSC Receiving QualificationDirective INVOKE	640–353
45			
46			
47	53	Qualification Request	640–355
48		53.1 MSC Initiating a Qualification Request.....	640–355
49		53.2 VLR Initiating a Qualification Request	640–357
50		53.3 VLR Receiving QualificationRequest INVOKE	640–358
51		53.4 HLR Receiving QualificationRequest INVOKE	640–362
52			
53			
54			
55	54	Qualification Request2	640–365
56		54.1 MSC Initiating a Qualification Request2 INVOKE	640–365
57		54.2 VLR Initiating a Qualification Request2	640–366
58		54.3	VLR Receiving QualificationRequest2 INVOKE640–367
59			
60			

54.4	HLR Receiving QualificationRequest2 INVOKE	640–371	1
			2
55	Random Variable Request	640–375	3
55.1	MSC Initiating a Random Variable Request	640–375	4
55.2	MSC Receiving RandomVariableRequest INVOKE	640–377	5
			6
			7
56	Redirection Directive	640–378	8
56.1	MSC Initiating a Redirection Directive	640–378	9
56.2	MSC Receiving RedirectionDirective INVOKE	640–380	10
			11
			12
57	Redirection Request	640–382	13
57.1	MSC Initiating a Redirection Request	640–382	14
57.2	MSC Receiving RedirectionRequest INVOKE	640–385	15
			16
			17
58	Registration Cancellation	640–387	18
58.1	HLR Initiating Registration Cancellation	640–387	19
58.2	VLR Receiving RegistrationCancellation INVOKE	640–389	20
58.3	VLR Initiating Registration Cancellation	640–392	21
58.4	MSC Receiving RegistrationCancellation INVOKE	640–393	22
			23
			24
59	Registration Notification	640–395	25
59.1	MSC Initiating MS Registration	640–395	26
59.2	VLR Receiving RegistrationNotification INVOKE	640–398	27
59.3	HLR Receiving RegistrationNotification INVOKE	640–406	28
59.4	OTAF Receiving RegistrationNotification INVOKE	640–412	29
			30
			31
			32
60	Release	640–414	33
60.1	MSC Initiating a RELEASE	640–414	34
60.2	MSC Receiving a RELEASE INVOKE	640–415	35
			36
			37
61	Remote User Interaction Directive	640–417	38
61.1	HLR Initiating a Remote User Interaction Directive	640–417	39
61.2	MSC Remote User Interaction	640–418	40
61.3	MSC Receiving a User Interaction Digit	640–422	41
61.4	Relaying RemoteUserInteractionDirective INVOKE	640–423	42
			43
			44
62	Reset Circuit	640–424	45
			46
63	Reset Timer	640–425	47
63.1	SCF Initiating Reset Timer	640–425	48
63.2	SCF Relaying ResetTimer INVOKE	640–426	49
63.3	MSC Receiving ResetTimer INVOKE	640–427	50
			51
			52
64	Routing Request	640–428	53
64.1	HLR Initiating a Routing Request	640–428	54
64.2	VLR Receiving RoutingRequest INVOKE	640–431	55
64.3	MSC Receiving RoutingRequest INVOKE	640–434	56
			57
			58
			59
			60

1	65 Search	640-443
2	65.1 SCF Initiating Search	640-443
3	65.2 SDF Receiving Search INVOKE	640-444
4		
5		
6	66 Seize Resource	640-445
7	66.1 SCF Initiating Seize Resource	640-445
8	66.2 SRF Receiving a SeizeResource INVOKE	640-446
9		
10		
11	67 Service Request	640-448
12	67.1 SCF Initiating Service Request	640-448
13	67.2 SCF Receiving ServiceRequest INVOKE	640-450
14		
15		
16	68 SRF Directive	640-452
17	68.1 SCF Initiating SRF Directive	640-452
18	68.2 SRF Receiving SRFDirective INVOKE	640-454
19	68.3 SRF Receiving a User Interaction Digit	640-458
20		
21		
22	69 Busy	640-459
23	69.1 MSC Initiating a TBusy	640-459
24	69.2 SCF Receiving a TBusy INVOKE	640-462
25		
26		
27	70 TMSI DIRECTIVE	640-464
28	70.1 Serving VLR Initiation of a TMSIDirective INVOKE	640-464
29	70.2 MSC Receiving TMSIDirective INVOKE	640-466
30		
31		
32	71 NoAnswer	640-468
33	71.1 MSC Initiating a TNoAnswer	640-468
34	71.2 SCF Receiving TNoAnswer INVOKE	640-471
35		
36		
37	72 Transfer-To-Number Request	640-473
38	72.1 MSC Initiating a Transfer-To-Number Request	640-473
39	72.2 HLR Receiving TransferToNumberRequest INVOKE	640-475
40	72.3 HLR Relaying Transfer-To-Number Request	640-480
41		
42		
43	73 Trunk Test	640-482
44		
45	74 Trunk Test Disconnect	640-483
46		
47	75 Unblocking	640-484
48		
49	76 Unreliable Roamer Data Directive	640-485
50	76.1 HLR Initiating a Unreliable Roamer Data Directive	640-485
51	76.2 VLR Receiving UnreliableRoamerDataDirective INVOKE	640-486
52		
53		
54	77 Unsolicited Response	640-487
55	77.1 MSC Detecting an Unsolicited Response	640-487
56	77.2 MSC Receiving UnsolicitedResponse INVOKE	640-489
57		
58		
59		
60		

Part 641

1	SMS Delivery Backward	641-1	1
1.1	MSC Initiating SMS Delivery Backward.....	641-1	2
1.2	MSC Receiving an SMSDeliveryBackward INVOKE	641-3	3
2	SMS Delivery Forward	641-4	4
2.1	MSC Initiating SMS Delivery Forward.....	641-4	5
2.2	MSC Receiving an SMSDeliveryForward INVOKE	641-6	6
3	SMS Delivery Point-to-Point	641-8	7
3.1	Fixed SME Initiating SMS Delivery	641-8	8
3.2	Initiating SMS Delivery Point-To-Point	641-10	9
3.3	Fixed SME Receiving an SMSDeliveryPointToPoint INVOKE	641-13	10
3.4	MSC Receiving an SMSDeliveryPointToPoint INVOKE	641-14	11
3.5	Anchor MSC Initiating SMS Delivery Point To Point	641-20	12
3.6	MC Receiving an SMSDeliveryPointToPoint INVOKE	641-21	13
3.7	MSC Attempt Border MSC SMS Message Delivery (new)	641-25	14
3.8	MSC Receiving InterSystemSMSDeliveryPointToPoint INVOKE (new)	641-28	15
3.9	MC Processing Broadcast SMS Delivery Point-To-Point	641-30	16
3.10	MC Initiating Broadcast SMS Delivery Point-To-Point	641-31	17
4	SMS Delivery point to point ack	641-33	18
4.1	MSC Initiating SMS Delivery Point To Point Ack	641-33	19
4.2	MSC Receiving an SMSDeliveryPointToPointAck INVOKE	641-34	20
4.3	OTAF Receiving SMSDeliveryPointToPoint INVOKE	641-35	21
4.4	Originating MC Supplementary Services	641-37	22
4.5	Terminating MC Supplementary Services	641-38	23
4.6	MC or OTAF Initiating SMS Delivery Point To Point to an MS-Based SME	641-39	24
5	SMS Notification	641-41	25
5.1	HLR Initiating SMS Notification	641-41	26
5.2	MSC Initiating SMS Notification	641-42	27
5.3	MC or TDMA OTAF Receiving an SMSNotification INVOKE	641-43	28
5.4	CDMA OTAF Receiving an SMSNotification INVOKE	641-45	29
6	SMS Request	641-47	30
6.1	MC or OTAF Initiating SMS Request	641-47	31
6.2	HLR Receiving an SMSRequest INVOKE	641-49	32
6.3	VLR Receiving an SMSRequest INVOKE	641-53	33
6.4	MSC Receiving an SMSRequest INVOKE	641-56	34

Part 642

1	Segmentation	642-1	35
1.1	Transmit an ANSI-41 Message	642-1	36

Part 650

1	Part 650	
2		
3	1 Call Forwarding Routing	650–1
4	1.1 HLR Select Forward-To or Diversion Number Courtesy Call Point of Return.....	650–1
5	1.2 HLR Select Forward-To or Diversion Number Point of Return	650–2
6		
7	2 Digit Analysis	650–3
8	2.1 Termination Address Expansion	650–3
9		
10	3 WIN Voice Feature Procedures	650–4
11	3.1 MSC Check of Serial Trigger Limit	650–4
12	3.2 WIN Service Logic	650–5
13		
14		
15		
16		

Part 651

17	Part 651	
18		
19	1 Call Delivery (CD).....	651–1
20	1.1 HLR CD Activation	651–1
21	1.2 HLR CD De-Activation	651–2
22	1.3 HLR CD Incoming Call Invocation	651–3
23		
24	2 Call Forwarding—Busy (CFB)	651–9
25	2.1 HLR CFB Registration.....	651–9
26	2.2 HLR CFB De-Registration	651–11
27	2.3 HLR CFB Activation	651–12
28	2.4 HLR CFB De-Activation	651–13
29	2.5 HLR CFB Busy MS Invocation	651–14
30		
31	3 Call Forwarding—Default (CFD)	651–15
32	3.1 HLR CFD Registration	651–15
33	3.2 HLR CFD De-Registration	651–17
34	3.3 HLR CFD Activation	651–18
35	3.4 HLR CFD De-Activation	651–19
36	3.5 HLR CFD Incoming Call Invocation	651–20
37	3.6 HLR CFD Inactive MS Invocation	651–21
38	3.7 HLR CFD Unavailable MS Invocation	651–22
39	3.8 HLR CFD Unresponsive MS Invocation	651–23
40	3.9 HLR CFD Busy MS Invocation	651–24
41	3.10 HLR CFD No Answer MS Invocation	651–25
42	3.11 HLR CFD Unroutable MS Invocation	651–26
43		
44	4 Call Forwarding—No Answer (CFNA)	651–27
45	4.1 HLR CFNA Registration	651–27
46	4.2 HLR CFNA De-Registration	651–29
47	4.3 HLR CFNA Activation	651–30
48	4.4 HLR CFNA De-Activation	651–31
49	4.5 HLR CFNA Incoming Call Invocation Task	651–32
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
60		

4.6	HLR CFNA Inactive MS Invocation	651-33	1
4.7	HLR CFNA Unavailable MS Invocation	651-34	2
4.8	HLR CFNA Unresponsive MS Invocation	651-35	3
4.9	HLR CFNA No Answer MS Invocation	651-36	4
4.10	HLR CFNA Unroutable MS Invocation	651-37	5
			6
			7
			8
5	Call Forwarding-Unconditional (CFU)	651-38	9
5.1	HLR CFU Registration	651-38	10
5.2	HLR CFU De-Registration	651-40	11
5.3	HLR CFU Activation	651-41	12
5.4	HLR CFU De-Activation	651-42	13
5.5	HLR CFU Incoming Call Invocation	651-43	14
5.6	HLR CFU Unconditional MS Invocation	651-44	15
			16
			17
			18
6	Call Transfer (CT)	651-45	19
			20
			21
7	Call Waiting (CW)	651-46	22
7.1	HLR CW Activation	651-46	23
7.2	HLR CW De-Activation	651-47	24
7.3	HLR CW Temporary De-Activation	651-48	25
7.4	MSC CW Terminating Call Invocation	651-49	26
7.5	MSC CW Processing for Flash Request	651-51	27
7.6	HLR Distinctive Ring Back on CW Activation	651-52	28
7.7	HLR Distinctive Ring Back on CW De-Activation	651-53	29
			30
			31
			32
8	Calling Name Presentation (CNAP)	651-54	33
8.1	HLR CNAP Terminating Call Invocation	651-54	34
8.2	MSC CNAP Terminating Call Invocation	651-56	35
8.3	HLR CNAP Activation	651-57	36
8.4	HLR CNAP De-Activation	651-58	37
			38
			39
9	Calling Name Restriction (CNAR)	651-59	40
9.1	HLR CNAR Temporary Activation	651-59	41
9.2	HLR CNAR Toggle	651-60	42
9.3	HLR CNAR Temporary De-Activation	651-61	43
9.4	MSC CNAR Originating Call Invocation	651-62	44
9.5	MSC CNAR Redirecting Call Invocation	651-63	45
			46
			47
			48
10	Calling Number Identification Presentation (CNIP)	651-64	49
10.1	HLR CNIP Terminating Call Invocation	651-64	50
10.2	HLR CNIP Redirecting Call Invocation	651-65	51
10.3	MSC CNIP Originating Call Invocation	651-66	52
10.4	MSC CNIP Terminating Call Invocation	651-67	53
10.5	MSC CNIP Redirecting Call Invocation	651-69	54
			55
			56
			57
11	Calling Number Identification Restriction (CNIR)	651-70	58
			59
			60

1	11.1 HLR CNIR Temporary Activation	651-70
2	11.2 HLR CNIR Temporary De-Activation	651-71
3	11.3 MSC CNIR Originating Call Invocation	651-72
4	11.4 MSC CNIR Redirecting Call Invocation	651-73
5		
6		
7	12 Conference Calling (CC)	651-74
8	12.1 HLR CC Invocation	651-74
9	12.2 HLR CC Drop Last Party Invocation	651-75
10	12.3 MSC CC Invocation	651-76
11		
12		
13	13 Do Not Disturb (DND)	651-77
14	13.1 HLR DND Activation	651-77
15	13.2 HLR DND De-Activation	651-78
16	13.3 HLR DND Incoming Call Invocation	651-79
17		
18		
19		
20	14 Flexible Alerting (FA)	651-80
21	14.1 HLR FA Membership Activation	651-80
22	14.2 HLR FA Membership De-Activation	651-82
23	14.3 HLR FA Incoming Call Invocation	651-84
24	14.4 HLR FA Revertive Call Invocation	651-89
25	14.5 HLR FA Busy MS Invocation	651-90
26	14.6 HLR FA Inactive MS Invocation	651-92
27	14.7 HLR FA Unavailable MS Invocation	651-93
28	14.8 HLR FA Unresponsive MS Invocation	651-94
29	14.9 HLR FA No Answer MS Invocation	651-95
30	14.10 HLR FA Unroutable MS Invocation	651-96
31		
32		
33		
34		
35	15 User Group	651-97
36	15.1 HLR User Group Incoming Call Invocation.....	651-97
37		
38		
39	16 Message Waiting Notification (MWN)	651-98
40	16.1 HLR MWN Demand Pip Tone Activation	651-98
41	16.2 HLR MWN Demand Pip Tone De-Activation	651-99
42	16.3 HLR MWN Pip Tone Temporary De-Activation	651-100
43	16.4 HLR MWN Demand Alert Pip Tone Activation	651-101
44	16.5 HLR MWN Demand Alert Pip Tone De-Activation	651-102
45	16.6 HLR MWN Status Change Invocation	651-103
46	16.7 MSC MWN Call Origination Invocation	651-104
47	16.8 MSC MWN Call Termination Invocation	651-105
48	16.9 MSC MWN Status Change Invocation	651-106
49		
50		
51		
52		
53	17 Mobile Access Hunting (MAH)	651-107
54	17.1 HLR MAH Demand Ordering	651-107
55	17.2 HLR MAH Membership Activation	651-109
56	17.3 HLR MAH Membership De-Activation	651-110
57	17.4 HLR MAH Incoming Call Invocation	651-111
58		
59		
60		

17.5	HLR MAH Revertive Call Invocation	651-114	1
17.6	HLR MAH Busy MS Invocation	651-115	2
17.7	HLR MAH Inactive MS Invocation	651-117	3
17.8	HLR MAH Unavailable MS Invocation	651-118	4
17.9	HLR MAH Unresponsive MS Invocation	651-119	5
17.10	HLR MAH No Answer MS Invocation	651-120	6
17.11	HLR MAH Unroutable MS Invocation	651-121	7
18	Password Call Acceptance (PCA)	651-122	8
18.1	HLR PCA Diversion Number Registration	651-122	9
18.2	HLR PCA Diversion Number De-Registration	651-123	10
18.3	HLR PCA Password Registration	651-124	11
18.4	HLR PCA Password De-Registration	651-125	12
18.5	HLR PCA Activation	651-126	13
18.6	HLR PCA De-Activation	651-127	14
18.7	HLR PCA Incoming Call Invocation	651-128	15
19	Preferred Language (PL)	651-129	16
19.1	HLR PL Language Registration	651-129	17
20	Priority Access and Channel Assignment (PACA)	651-130	18
20.1	HLR PACA Per Call Invocation	651-130	19
20.2	MSC PACA Call Origination Invocation	651-131	20
21	Remote Feature Control (RFC)	651-133	21
21.1	HLR RFC Incoming Call Invocation.....	651-133	22
22	Selective Call Acceptance (SCA)	651-140	23
22.1	HLR SCA Diversion Number Registration	651-140	24
22.2	HLR SCA Diversion Number De-Registration	651-141	25
22.3	HLR SCA Number Registration	651-142	26
22.4	HLR SCA Number De-Registration	651-143	27
22.5	HLR SCA Activation	651-144	28
22.6	HLR SCA De-Activation	651-145	29
22.7	HLR SCA Incoming Call Invocation	651-146	30
23	Subscriber PIN Access (SPINA)	651-147	31
23.1	HLR SPINA Registration	651-147	32
23.2	HLR SPINA Activation	651-149	33
23.3	HLR SPINA De-Activation	651-150	34
24	Subscriber PIN Intercept (SPINI)	651-151	35
24.1	HLR SPINI Registration.....	651-151	36
24.2	HLR SPINI Originating Call Invocation	651-153	37
24.3	MSC SPINI Originating Call Invocation	651-154	38
24.4	HLR SPINI Feature Request Invocation	651-155	39

1	25	Three-Way Calling (3WC)	651–156
2			
3	26	Voice Message Retrieval (VMR)	651–157
4		26.1 HLR VMR VoiceMailboxPIN Registration	651–157
5		26.2 HLR VMR Invocation	651–159
6		26.3 HLR VMR Revertive Call Invocation	651–164
7			
8			
9	27	Voice Privacy (VP)	651–165
10			
11			
12			
13		Part 660	
14			
15	1	WIN PROCEDURES	660–1
16		1.1 Call Modeling for WIN	660–2
17		1.2 Modeling of Service Logic Processing for WIN	660–3
18			
19			
20			
21		Part 690	
22			
23	1	OPERATION TIMER VALUES.....	690–1
24			
25	2	OA&M TIMER VALUES FOR HANDOFF CIRCUITS	690–10
26			
27	3	OA&M TIMER VALUES FOR TRUNK TESTING	690–11
28			
29			
30			
31		Part 691	
32			
33	1	ANNEX A: Procedures for RANDC Verification.....	691–1
34			
35	2	ANNEX B: Procedures for SSD Management at AC	691–2
36			
37	3	ANNEX C: Authentication Response Verification	691–4
38			
39	4	ANNEX D: SMS Air Interface Delivery Point-to-Point	691–6
40		4.1 MSC Initiating SMD-REQUEST Toward an MS-Based SME	691–9
41		4.2 MS-Based SME Receiving an SMD-REQUEST	691–11
42		4.3 MSC Receiving an Unexpected SMD-ACK or SMD-NAK	691–12
43		4.4 MS-Based SME Initiating SMD-REQUEST Toward an MSC	691–13
44		4.5 Serving MSC Receiving an SMD-REQUEST	691–14
45		4.6 MS-Based SME Receiving an Unexpected SMD-ACK or SMD-NAK	691–16
46		4.7 MSC Initiating Broadcast SMD-REQUEST Across The Air Interface	691–17
47			
48			
49			
50			
51	5	ANNEX E: Signal Strength Arbitration	691–18
52		5.1 RegistrationCancellation Race Condition Algorithm	691–18
53		5.2 Timer Method to Detect Duplicate RegistrationNotification	691–20
54		5.3 Time Stamp Method to Detect Duplicate RegistrationNotification	691–23
55			
56			
57	6	Annex F: Recovery from SCCP Segmentation Failure	691–26
58		6.1 Introduction.....	691–26
59			
60			

6.2	Profile Parameter Suppression.....	691–26	1
			2
			3
			4
			5
			6
			7
			8
			9
			10
			11
			12
			13
			14
			15
			16
			17
			18
			19
			20
			21
			22
			23
			24
			25
			26
			27
			28
			29
			30
			31
			32
			33
			34
			35
			36
			37
			38
			39
			40
			41
			42
			43
			44
			45
			46
			47
			48
			49
			50
			51
			52
			53
			54
			55
			56
			57
			58
			59
			60

Part 700

1	INTRODUCTION	700–1
1.1	OBJECTIVE.....	700–2
1.2	SCOPE.....	700–2
2	WIN DISTRIBUTED FUNCTIONAL PLANE	700–3
2.1	Scope of WIN Distributed Functional Plane	700–3
2.1.1	End User Access.....	700–3
2.1.2	Service Invocation and Control	700–3
2.1.3	End User Interaction.....	700–4
2.1.4	Service Management	700–5

Part 730

1	WIN DISTRIBUTED FUNCTIONAL MODEL	730–1
1.1	WIN Functional Model.....	730–3
1.2	WIN Functional Entities.....	730–3
1.2.1	Authentication Control Function (ACF)	730–3
1.2.2	Call Control Function (CCF).....	730–3
1.2.3	Location Registration Functions (LRFh, LRFv)	730–4
1.2.4	Mobile Station Access Control Function (MACF)	730–4
1.2.5	Radio Access Control Function (RACF).....	730–5
1.2.6	Radio Control Function (RCF).....	730–6
1.2.7	Radio Terminal Function (RTF).....	730–6
1.2.8	Service Control Function (SCF).....	730–6
1.2.9	Service Creation Entity Function (SCEF)	730–6
1.2.10	Service Data Function (SDF)	730–7
1.2.11	Service Management Access Function (SMAF)	730–7
1.2.12	Service Management Function (SMF)	730–7
1.2.13	Service Switching Function (SSF)	730–7
1.2.14	Specialized Resource Function (SRF).....	730–7

Part 750

1	SSF/CCF CALL AND SERVICE LOGIC MODEL	750–1
1.1	General.....	750–1
1.1.1	Feature and Service Interaction Management	750–2
1.1.2	Feature Interactions Manager (FIM) - SSF/CCF	750–3
1.1.3	Service Interactions Manager (SIM) - SCF	750–6
1.2	SSF/CCF Model	750–8
1.2.1	Basic Call Manager (BCM)	750–10
1.2.1.1	BCSM.....	750–10
1.2.2	WIN BCSM Description	750–12
1.2.2.1	Originating BCSM	750–12

1	1.2.2.2 Terminating BCSM.....	750–21
2	1.2.2.3 BCSM Transitions	750–28
3	1.2.3 BCSM Detection Points	750–32
4	1.2.3.1 Detection Points Types	750–34
5	1.2.3.2 Trigger Detection Point Criteria	750–34
6	1.2.3.3 Triggers.....	750–36
7	1.2.3.4 Trigger Types and Trigger Precedence.....	750–37
8	1.2.3.5 Trigger Profile.....	750–49
9	1.2.3.6 DP Processing.....	750–49
10		
11		
12		
13		

Part 790

15	A.1 Introduction.....	790–1
16	A.2 Scope.....	790–1
17	A.3 MAP Signaling for MS-MS Call	790–1
18	A.4 Normal Intrasystem Call Delivery	790–4
19	A.4.1 MAP Signaling for Normal Intrasystem Call Delivery	790–5
20	A.4.2 Call Segments	790–5
21	A.4.3 BCSM and MAP Interactions	790–5
22	A.5 Normal Intersystem Call Delivery	790–7
23	A.5.4 MAP Signaling for Normal Intersystem Call Delivery	790–8
24	A.5.5 Call Segments	790–8
25	A.5.6 BCSM and MAP Interactions	790–8
26	A.5.6.1 Originating MSC Processing.....	790–8
27	A.5.6.2 Serving MSC Processing.....	790–12
28		
29		
30		
31		
32		

Annex B: Mapping of WIN Functional Entities to Network Entities

33	Annex B: Mapping of WIN Functional Entities to Network Entities	790–16
34	B.1 Introduction.....	790–16
35	B.2 Mapping WIN FEs to TR-45 NEs	790–16
36		
37		

Annex C: Notes on Trigger Concepts and Usage

38	Annex C: Notes on Trigger Concepts and Usage	790–19
39	C.1 Purpose.....	790–19
40	C.2 Introduction.....	790–19
41	C.3 Triggers are Service Independent	790–19
42	C.4 Triggers Include Service Logic Address Information	790–19
43	C.5 The SLP Will Respond with an Executable Instruction	790–19
44	C.6 Triggered Services Take Precedence Over Known Services.....	790–20
45	C.7 Triggers Are Only Acted Upon When They Are Encountered in the BCSM	790–20
46	C.8 Triggers Take Precedence in Order: Subscriber, Group, Office.....	790–20
47	C.9 Each Trigger is Fully Considered Before the Next Trigger.....	790–20
48	C.10 More Specific Triggers Take Precedence Over Less Specific Triggers	790–20
49	C.11 An SLP Instruction Other Than “Continue” or “User Interaction” Will Cause Triggers to be Bypassed.....	790–21
50	C.12 Relationship Between MAP and WIN Triggers	790–21
51	C.13 Issues in Selecting Overlapping Trigger Arming Parameters.....	790–21
52		
53		
54		
55		
56		
57		
58		
59		
60		

C.14	Distributed Triggers	790-22	1
C.15	Distributed Triggers Example	790-22	2
C.16	Dynamic Trigger Arming Mechanism	790-23	3
C.17	Dynamic Trigger Arming Can Readily Be Misused	790-23	4
C.18	Evolution to WIN	790-24	5
C.19	General Responsibility of Service Providers.....	790-24	6
			7
			8
			9
			10
			11
			12
			13
			14
			15
			16
			17
			18
			19
			20
			21
			22
			23
			24
			25
			26
			27
			28
			29
			30
			31
			32
			33
			34
			35
			36
			37
			38
			39
			40
			41
			42
			43
			44
			45
			46
			47
			48
			49
			50
			51
			52
			53
			54
			55
			56
			57
			58
			59
			60

List of Tables

Part 000 - INTRODUCTION TO MAP

Table 1	Part Structure	0–8
Table 2	Symbols and Abbreviations	0–28

Part 400

Table 1	Blocking States	400–2
Table 2	State Transition After Message Received.....	400–7
Table 3	State Transition After Message Transmitted	400–9

Part 511

Table 1	MAP Operations having MTP Message Priority Value 1	511–1
Table 2	ANSI SS7 - MIN to HLR Global Title	511–3
Table 3	ANSI SS7 - MIN to MC Global Title	511–4
Table 4	ANSI SS7 - E.212 Global Title	511–5
Table 5	ANSI SS7 - MDN to HLR (E.164) Global Title	511–6
Table 6	ANSI SS7 - MDN to MC (E.164) Global Title	511–7
Table 7	ANSI SS7 - IMSI to MC Global Title	511–8
Table 8	ANSI SS7 - DN to NPDB Global Title	511–9
Table 9	ANSI SS7 - SCP Global Title Addressing.....	511–10

Part 512

Table 1	ITU-T SS7 - E.212 Global Title	512–3
Table 2	ITU-T SS7 - E.164 Global Title	512–4

Part 520

Table 1	Structure of TCAP Package with INVOKE Component.....	520–4
Table 2	Structure of TCAP Package with RETURN RESULT Component.....	520–5
Table 3	Structure of TCAP Package with RETURN ERROR Component.....	520–6
Table 4	Error Codes	520–9
Table 5	Structure of TCAP Package with REJECT Component.....	520–10

Part 540

Table 1	MAP Operation Specifiers	540–1
Table 2	Mapping of MAP Operations onto TCAP Package Types	540–4
Table 3	Summary of MAP Operations	540–6
Table 1	MAP Parameter Identifiers	550–3

Part 590

Table 1	Forward Compatibility Guidelines for Handling Incoming Messages and Parameters	590–2
---------	---	-------

Part 640

Table 1	SCF AnalyzedInformation Response.....	640–4
Table 2	HLR AuthenticationDirective Response.....	640–11
Table 3	VLR Authentication Response.....	640–17
Table 4	MSC AuthenticationDirective Response.....	640–19
Table 5	<i>Serving MSC AuthenticationDirectiveForward Response</i>	640–32
Table 6	VLR AuthenticationFailureReport Response.....	640–38
Table 7	HLR AuthenticationFailureReport Response.....	640–40
Table 8	AC AuthenticationFailureReport Response.....	640–44
Table 9	VLR AuthenticationRequest Response.....	640–60
Table 10	HLR AuthenticationRequest Response.....	640–63
Table 11	AC AuthenticationRequest Response.....	640–68
Table 12	VLR AuthenticationStatusReport Response.....	640–75
Table 13	HLR AuthenticationStatusReport Response.....	640–78
Table 14	AC AuthenticationStatusReport Response.....	640–83
Table 15	VLR BaseStationChallenge Response.....	640–86
Table 16	HLR BaseStationChallenge Response.....	640–89
Table 17	AC BaseStationChallenge Response.....	640–90
Table 18	HLR BulkDeregistration Response.....	640–94
Table 19	Serving MSC ChangeFacilities Response.....	640–96
Table 20	Tandem MSC ChangeFacilities Response.....	640–99
Table 21	Anchor MSC ChangeService Response.....	640–103
Table 22	Tandem MSC ChangeService Response.....	640–105
Table 23	SCF Relaying ConnectResource Response.....	640–109
Table 24	MSC ConnectResource Response.....	640–112
Table 25	SCF ConnectionFailureReport Response.....	640–114
Table 26	SCF Relaying ConnectionFailureReport Response.....	640–115
Table 27	HLR CountRequest Response.....	640–118
Table 28	VLR CountRequest Response.....	640–119
Table 29	SCF DisconnectResource Response.....	640–121
Table 30	MSC DisconnectResource Response.....	640–122
Table 31	Target MSC FacilitiesDirective Response.....	640–129
Table 32	Target MSC FacilitiesDirective2 Response.....	640–136
Table 33	Receiving MSC FacilitiesRelease Response.....	640–143
Table 34	SCF FacilitySelectedandAvailable Response.....	640–146
Table 35	HLR FeatureRequest Response.....	640–159
Table 36	FeatureRequest Response.....	640–163
Table 37	Anchor MSC FlashRequest Response.....	640–167
Table 38	Tandem MSC FlashRequest Response.....	640–170
Table 39	Target MSC HandoffBack Response.....	640–174
Table 40	Target MSC HandoffBack2 Response.....	640–181
Table 41	Target MSC HandoffMeasurementRequest Response.....	640–185
Table 42	Target MSC HandoffMeasurementRequest2 Response.....	640–190
Table 43	Tandem MSC HandoffToThird Response.....	640–196
Table 44	Anchor MSC HandoffToThird Response.....	640–198
Table 45	Tandem MSC HandoffToThird2 Response.....	640–206
Table 46	Anchor MSC HandoffToThird2 Response.....	640–209
Table 47	VLR InformationDirective Response.....	640–214
Table 48	MSC InformationDirective Response.....	640–216
Table 49	Serving MSC InformationForward Response.....	640–220
Table 50	SCF InstructionRequest Response.....	640–222
Table 51	MSC Awaiting InterSystemAnswer Response.....	640–223
Table 52	Border MSC InterSystemPage Response.....	640–231
Table 53	Border MSC InterSystemPage2 Response.....	640–240

1	Table 54	Border MSC InterSystemSetup Response.....	640–244
2	Table 55	Border MSC IntersystemSMSPage Response.....	640–250
3	Table 56	HLR LocationRequest Response.....	640–260
4	Table 57	HLR MessageDirective Response.....	640–262
5	Table 58	SDF Modify Response.....	640–265
6	Table 59	VLR MSInactive Response.....	640–268
7	Table 60	HLR MSInactive Response.....	640–271
8	Table 61	AC MSInactive Response.....	640–272
9	Table 62	NPDB NumberPortabilityRequest Response.....	640–275
10	Table 63	HLR OriginationRequest Response.....	640–282
11	Table 64	SCF OriginationRequest Response.....	640–284
12	Table 65	OTAF OriginationRequest Response.....	640–288
13	Table 66	OTAF FeatureRequest Response.....	640–291
14	Table 67	OTAF RoutingRequest Response.....	640–293
15	Table 68	Originating MSC RedirectionDirective Response for OTASP.....	640–296
16	Table 69	HLR OTASPRequest Response (CDMA).....	640–329
17	Table 70	AC OTASPRequest Response.....	640–337
18	Table 71	HLR OTASPRequest Response (TDMA).....	640–341
19	Table 72	AC OTASPRequest Response.....	640–342
20	Table 73	Serving VLR ParameterRequest Response.....	640–345
21	Table 74	Serving VLR ParameterRequest Response.....	640–347
22	Table 75	VLR QualificationDirective Response.....	640–350
23	Table 76	MSC QualificationDirective Response.....	640–354
24	Table 77	MSC QualificationDirective Response.....	640–360
25	Table 78	HLR QualificationRequest Response.....	640–363
26	Table 79	VLR QualificationRequest2 Response.....	640–369
27	Table 80	HLR QualificationRequest2 Response.....	640–373
28	Table 81	MSC RandomVariableRequest (RANDREQ) Response.....	640–377
29	Table 82	Originating MSC RedirectionDirective Response.....	640–380
30	Table 83	Originating MSC RedirectionRequest Response.....	640–386
31	Table 84	VLR RegistrationCancellation Response.....	640–390
32	Table 85	MSC RegistrationCancellation Response.....	640–394
33	Table 86	VLR RegistrationNotification Response.....	640–403
34	Table 87	HLR RegistrationNotification Response.....	640–410
35	Table 88	OTAF RegistrationNotification Response.....	640–412
36	Table 89	MSC Release Response.....	640–415
37	Table 90	MSC RemoteUserInteractionDirective Response.....	640–421
38	Table 91	SCF ResetTimer Response.....	640–426
39	Table 92	MSC ResetTimer Response.....	640–427
40	Table 93	VLR RoutingRequest Response.....	640–432
41	Table 94	MSC RoutingRequest Response.....	640–441
42	Table 95	SDF Search Response.....	640–444
43	Table 96	SRF SeizeResource Response.....	640–446
44	Table 97	SRF Service Resource Response.....	640–450
45	Table 98	SRF SRFDirective Response.....	640–457
46	Table 99	SCF TBusy Response.....	640–462
47	Table 100	MSC TMSI Directive Response.....	640–467
48	Table 101	SCF TNoAnswer Response.....	640–471
49	Table 102	HLR TransferToNumberRequest Response.....	640–478
50	Table 103	VLR UnreliableRoamerDataDirective Response.....	640–486
51	Table 104	Neighboring MSC Unsolicited Response.....	640–490

57
58
59 **Part 641**

Table 1	MC or TDMA OTAF SMSNotification Response.....	641–43	1
Table 2CDMA OTAF SMSNotification Response	641–45	2
Table 3	HLR SMSRequest Response	641–51	3
Table 4	VLR SMSRequest Response	641–54	4
Table 5	MSC SMSRequest Response.....	641–56	5
			6
			7
			8
Part 690			9
Table 1	Operation Timer Values	690–1	10
Table 2	Handoff OA&M Timer Values.....	690–10	11
Table 3	Trunk Test Timer Values.....	690–11	12
			13
			14
			15
Part 691			16
Table 1	SMD-REQUEST Parameters	691–6	17
Table 2	SMD-ACK Parameters	691–7	18
Table 3	SMD-NAK Parameters	691–7	19
Table 4	Mapping of Air Interface Parameters to SMD-REQUEST, SMS-ACK, and SMD-NAK Parameters	691–8	20
			21
			22
			23
			24
Part 750			25
Table 1	Originating BCSM Transitions.....	750–29	26
Table 2	Terminating BCSM Transitions	750–31	27
Table 3	BCSM DP Types	750–34	28
Table 4	WIN Trigger Precedence for Originating BCSM.....	750–38	29
Table 5	WIN Trigger Precedence for Terminating BCSM.....	750–39	30
Table 6	Information Contained in Trigger Profile.....	750–49	31
			32
			33
			34
Part 790			35
Table 1	Mapping of WIN Functional Entities to Network Entities.....	790–18	36
			37
			38
			39
			40
			41
			42
			43
			44
			45
			46
			47
			48
			49
			50
			51
			52
			53
			54
			55
			56
			57
			58
			59
			60

List of Figures

Part 000 - INTRODUCTION TO MAP

Figure 1	Diagrammatic Conventions	0–51
Figure 2	TCAP Package Type Diagram Conventions	0–55

Part 200

Figure 1	Successful Handoff-Forward	200–3
Figure 2	Successful Handoff-Back	200–5
Figure 3	Successful Handoff-Back with Tandem via FacilitiesDirective (Path Minimization is not supported)	200–7
Figure 4	Successful Handoff-Back with Tandem via FacilitiesDirective when HandoffToThird with Tandem and Path Minimization Fails	200–10
Figure 5	Successful Handoff-Forward with Tandem	200–12
Figure 6	Successful Handoff-Back with Tandem	200–13
Figure 7	Successful HandoffToThird with Path Minimization	200–14
Figure 8	Successful HandoffToThird with Tandem and Path Minimization	200–16
Figure 9	Successful Handoff-Back with Tandem viaHandoffToThird when the method of HandoffToThird with Tandem and Path Minimization is involved	200–19
Figure 10	Successful Call Release by Served MS	200–21
Figure 11	Successful Call Release by Other Party	200–22
Figure 12	Successful Handoff-Forward of an Originating MS Awaiting Answer	200–24
Figure 13	Successful Handoff-Forward of a Terminating MS While Alerting	200–26

Part 290

Figure 1	Handoff-Forward (A to B)	290–1
Figure 2	Handoff-Back (B to A)	290–2
Figure 3	Handoff-Forward (B to C)	290–3
Figure 4	Handoff-Back (C to B)	290–4
Figure 5	Path Minimization (A-B to A-C)	290–5
Figure 6	Release by the MS (C-B-A)	290–6
Figure 7	Release by the other party (A-B-C)	290–7
Figure 8	Release Glare	290–8

Part 321

Figure 1	CD Invocation to an Idle MS on Another MSC	321–2
Figure 2	CD Invocation to an Idle, Local MS	321–4
Figure 3	CD Invocation to a Busy MS	321–5
Figure 4	CD Invocation with No Page Response or No Answer	321–6
Figure 5	CD Invocation to an Inaccessible MS	321–7
Figure 6	CD Invocation with Intersystem Paging	321–9
Figure 7	CD Invocation with Unsolicited Page Response	321–11
Figure 8	TLDN Call Arrival with Intersystem Paging	321–13
Figure 9	TLDN Call Arrival with No Page Response to Intersystem Paging	321–15
Figure 10	TLDN Call Arrival with No Answer After Paging, Call Release Initiated by Serving MSC	321–17
Figure 11	TLDN Call Arrival with No Answer After Intersystem Paging, Call Release Initiated by Border MSC	321–20

Part 322

Figure 1	CFB Invocation	322–2
Figure 2	CFB Invocation with Call Collision.....	322–3
Figure 3	CFD Invocation (Immediate).....	322–6
Figure 4	CFD Invocation with No Answer or No Response to Page.....	322–7
Figure 5	CFU Invocation with Alert	322–12

Part 323

Figure 1	CW Demand Cancellation with Call.....	323–2
Figure 2	CW Demand Cancellation (during call).....	323–3
Figure 3	CW Invocation	323–5
Figure 4	CW Interaction After Handoff	323–7

Part 324

Figure 1	CNIP Invocation to an Idle Subscriber	1–2
Figure 2	CNIP Interaction with CW.....	1–4
Figure 3	CNIP Interaction with Call Waiting After Handoff.....	1–5
Figure 4	CNIP Interaction with CFU	1–7
Figure 5	CNIP Interaction with CFU After Handoff.....	1–9
Figure 6	CNIP Invocation to a Forwarded-To Subscriber	1–10
Figure 7	CNIR Temporary Activation or De-Activation with Call	1–12
Figure 8	CNIR Interaction with CFU	1–14
Figure 9	CNIR Interaction with CFNA or CFD on MS No Answer.....	1–16
Figure 10	CNIR Interaction with CFB or CFD on MS Busy	1–18
Figure 11	CNIR Interaction with CFB or CFD on Call Collision.....	1–20

Part 325

Figure 1	CC Invocation with Call Setup Request	1–2
Figure 2	CC Add Party (Without Feature Code Entry).....	1–4
Figure 3	CC Invocation During a Call	1–5
Figure 4	CC Drop Last Party Invocation.....	1–7

Part 326

Figure 1	DND Invocation	1–1
Figure 2	DND Interaction with CFU.....	1–2

Part 327

Figure 1	FA Invocation	1–2
Figure 2	FA Invocation with a Busy FA Group Member (Single-User Type)	1–5
Figure 3	FA Invocation with a Busy FA Group Member (Multiple-User Type).....	1–7
Figure 4	FA Interaction with CFNA on FA Group Member.....	1–9
Figure 5	FA Invocation with a No Answer FA Group Member with Group Redirection	1–11
Figure 6	FA Invocation on Revertive Call to FA Pilot DN.....	1–13
Figure 7	FA Invocation on Call from FA Group Member	1–15

Part 328

Figure 1 — MAH Invocation.....	1-2
Figure 2 — MAH Invocation with a Busy MAH Group Member(Single-User Type)	1-6
Figure 3 — MAH Invocation with a Busy MAH Group Member (Multiple-User Type).....	1-7
Figure 4 — MAH Invocation with a No Answer MAH Group Member	1-10
Figure 5 — MAH Invocation on Revertive Call to MAH Pilot DN.....	1-13
Figure 6 — MAH Invocation on Call from MAH Group Member	1-15

Part 329

Figure 1 — Temporary De-Activation of MWN PIP Tone (with call setup).....	1-2
Figure 2 — MWN via Alert Pip Tone	1-3
Figure 3 — MWN via an MS Indication and/or MS Count	1-4
Figure 4 — MWN After Handoff	1-6
Figure 5 — MWN via Pip Tone on MS Call Origination.....	1-7
Figure 6 — MWN via Pip Tone on MS Termination	1-8
Figure 7 — Message Waiting Update from a Voice Mail System (proprietary interface).....	1-9
Figure 8 — Message Waiting Update from a Message Center or a Voice Mail System	1-10
Figure 9 — Message Waiting Update from a Voice Mail System	1-11

Part 330

Figure 1 — PCA Invocation with Call Accepted	1-2
Figure 2 — PCA Invocation with Call Accepted: Alternate Procedure	1-4
Figure 3 — PCA Invocation with Call Refused to Tone or Announcement	1-6
Figure 4 — PCA Invocation with Call Refused to Voice Mail	1-7
Figure 5 — PCA Invocation with Call Refused to Forward-To Number.....	1-8
Figure 6 — SCA Invocation with Call Accepted	1-10
Figure 7 — SCA Invocation with Call Refused to Tone or Announcement	1-12
Figure 8 — SCA Invocation with Call Refused to Voice Mail	1-13
Figure 9 — SCA Invocation with Call Refused to Forward-To Number.....	1-14

Part 331

Figure 1 — Successful PACA Activation	1-2
Figure 2 — Aborted PACA Activation	1-4
Figure 3 — Unsuccessful PACA Activation with Call	1-5

Part 332

Figure 1 — Typical RFC Transaction Sequence	1-2
---	-----

Part 371

Figure 1	Successful Broadcast of Teleservice Messages: MSC-based Periodicity Control	200-2
Figure 2	Successful Cancellation of Broadcast of Teleservice Messages: MSC-based Periodicity Control.....	200-5
Figure 3	Successful Broadcast of Teleservice Messages: MC-based Periodicity Control	200-8
Figure 4	Unsuccessful Broadcast of Teleservice Messages: MC-based Periodicity Control..	200-11
Figure 5	Successful Deletion of a Teleservice Message Previously Broadcast with a Specific Broadcast Category: MSC-based Periodicity Control	200-13

Part 500

Figure 1	MAP Protocol Architecture.....	500-1
Figure 2	OSI Reference Model Relationship.....	500-2
Figure 3	Application Services.....	500-2
Figure 4	X.25-based Data Transfer Services.....	500-3
Figure 5	SS7-based Data Transfer Services.....	500-3

Part 520

Figure 1	Application Services Architecture.....	520-1
Figure 2	TIA-41 Application Layer Structure.....	520-2

Part 540

Figure 1	Definition of Signal Quality for Handoff.....	550-312
----------	---	---------

Part 600 INTRODUCTION

Figure 1	MS Originated SMS Delivery Point-to-Point Messages.....	600-7
Figure 2	Originating SMS Delivery Point-to-Point Procedures.....	600-7
Figure 3	MS Terminated SMS Delivery Point-to-Point Messages.....	600-8
Figure 4	Terminating SMS Delivery Point-to-Point Procedures.....	600-8
Figure 5	Message Center Processing of SMS Delivery Point-to-Point Messages.....	600-9
Figure 6	Message Center SMS Delivery Point-to-Point Procedures.....	600-9

Part 691

Figure 1	Multiple registrations received at the HLR (timer method).....	691-21
Figure 2	Multiple registrations received at the HLR (time stamp method).....	691-24

Part 730

Figure 1	WIN Distributed Functional Model.....	730-2
----------	---------------------------------------	-------

Part 750

Figure 1	Feature Interactions Manager at the SSF/CCF.....	750-3
Figure 2	Effect of “Continue” Response to SSF /CCF.....	750-4
Figure 3	Effect of Returning to a Different PIC at the SSF/CCF.....	750-5
Figure 4	Service Interactions Manager at the SCF.....	750-6
Figure 5	SSF/CCF Model.....	750-8
Figure 6	BCSM Components.....	750-11
Figure 7	Originating BCSM.....	750-13
Figure 8	Terminating BCSM.....	750-22
Figure 9	DP Processing for each DP type.....	750-50

Part 790

Figure 1	MAP Registration and “Call From” Signaling.....	790-2
Figure 2	MAP “Call To” Signaling.....	790-4
Figure 3	Call Segments for Intrasystem MS to MS Call.....	790-5
Figure 4	BCSMs for Normal Intrasystem Call Delivery (1 of 2).....	790-6

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Figure 4 — BCSMs for Normal Intrasystem Call Delivery (2 of 2) 790–7
Figure 5 Call Segments for Intersystem MS to MS Call 790–8
Figure 6 Originating System BCSMs for Normal Intersystem Call Delivery (1 of 2) 790–9
Figure 6 — Originating System BCSMs for Normal Intersystem Call Delivery (2 of 2) 790–10
Figure 7 Serving System BCSMs for Normal Intersystem Call Delivery (1 of 2) 790–13
Figure 7 — Serving System BCSMs for Normal Intersystem Call Delivery (2 of 2) 790–14
Figure 8 Mapping WIN Functional Entities to Network Entities 790–17
Figure 9 Distributed Trigger Profiles 790–23

PART 000 - INTRODUCTION TO MAP

FOREWORD

This Foreword is not part of this Document.

This is one of a series of recommendations which describe procedures necessary to provide to wireless radio telephone subscribers certain services requiring interaction between different wireless systems.

This part provides an introduction to MAP.

“Shall” and “shall not” identify requirements to be followed strictly to conform to this document and from which no deviation is permitted. “Should” and “should not” indicate that one of several possibilities is recommended as particularly suitable, without mentioning or excluding others, that a certain course of action is preferred but not necessarily required, or that (in the negative form) a certain possibility or course of action is discouraged but not prohibited. “May” and “need not” indicate a course of action permissible within the limits of the document. “Can” and “cannot” are used for statements of possibility and capability, whether material, physical or causal.

This document was prepared by 3GPP2 TSG-X .

1 COMPARISON WITH N.S0005-0 v1.0

This edition of the Document replaces N.S0005-0 v1.0 and differs from this previous edition in its support of the following functionality:

Content from...	Description
TSB-76	PCS Multi-band
IS-725-A	OTASP and OTAPA
IS-730	DCCH
IS-735	CDMA
IS-737	Circuit Mode Services - Data
IS-751	IMSI
IS-756-A	WNP Phase 1 and Phase 2
IS-764	CNAP/CNAR
IS-771	Wireless Intelligent Networking (WIN Phase I)
IS-778	Authentication Enhancements
IS-807	Internationalization
IS-812	Message Segmentation
IS-824	Broadcast Transport Teleservice Capability
TIA-935	Circuit- Switched Call Precedence over Packet
J-STD-034	Emergency Services
Miscellaneous Enhancements 10, 10.9, 10.9b and 10.9c	Technical Clarifications and Compatibility

The following new operations have been added in this revision:

Operation Name
AnalyzedInformation
ChangeFacilities
ChangeService
ConnectionFailureReport
ConnectResource
DisconnectResource
FacilitySelectedAndAvailable
InstructionRequest
InterSystemSMSDeliveryPointToPoint
InterSystemSMSPage
MessageDirective
Modify

Operation Name
NumberPortabilityRequest
OTASPRRequest
ParameterRequest
QualificationRequest2
Release
ResetTimer
Search
SeizeResource
ServiceRequest
SMSDeliveryPointToPointAck
SRFDirective
TBusy
TMSIDirective
TNoAnswer

The following new parameters have been added in this revision:

Parameter Name
AKeyProtocolVersion
AllorNone
AnalogRedirectInfo
AnalogRedirectRecord
AuthenticationFailureEvent
AuthenticationResponseReauthentication
BaseStationManufacturerCode
BaseStationPartialKey
BroadcastCategory
BroadcastCategorySpecificInformation
BroadcastMessageIdentifier
BroadcstMessagePriority
BroadcastMessageStatus
BroadcastPeriodicity
BroadcastServiceGroup
BroadcastZoneIdentifier
BroadcastZoneIdentifierList
BSMCStatus
CallingPartyName

Parameter Name	
CaveKey	1
CDMABandClassInformation	2
CDMA2000HandoffInvokeIOSData	3
CDMA2000HandoffResponseIOSData	4
CDMA2000MobileSupportedCapabilities	5
CDMAMSMMeasuredChannelIdentity	6
CDMABandClass	7
CDMABandClassList	8
CDMAChannelNumber	9
CDMAChannelNumberList	10
CDMAConnectionReference	11
CDMAConnectionReferenceInformation	12
CDMAConnectionReferenceList	13
CDMANetworkIdentification	14
CDMAPilotPN	15
CDMAPowerCombinedIndicator	16
CDMARedirectRecord	17
CDMASearchParameters	18
CDMAServiceConfigurationRecord	19
CDMAServiceOption	20
CDMAServiceOptionList	21
CDMAState	22
CDMAStationClassMark2	23
Change	24
ChangeServiceAttributes	25
CommandCode	26
ControlChannelCapability	27
ControlChannelMode	28
DataAccessElement	29
DataAccessElementList	30
DatabaseKey	31
DataID	32
DataKey	33
DataPrivacyParameters	34
DataResult	35
DataUpdateResult	36
DataUpdateResultList	37
	38
	39
	40
	41
	42
	43
	44
	45
	46
	47
	48
	49
	50
	51
	52
	53
	54
	55
	56
	57
	58
	59
	60

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Parameter Name
DataValue
DestinationAddress
DigitsType
DisplayText
DisplayText2
EmergencyServicesRoutingDigits
EnhancedPrivacyEncryptionReport
ExecuteScript
FailureCause
FailureType
GlobalTitle
IMSI
InterMessageTime
ISLPInformation
MobileStationIMSI
MobileStationMIN
MobileStationMSID
MobileStationPartialKey
ModificationRequest
ModificationRequestList
ModificationResult
ModificationResultList
ModulusValue
MSC_Address
MSID
MSIDUsage
NetworkTMSI
NetworkTMSIExpirationTime
NewlyAssignedIMSI
NewlyAssignedMIN
NewlyAssignedMSID
NewMINExtension
NewNetworkTMSI
NonPublicData
OTASP_ResultCode
PageCount
PageResponseTime

Parameter Name	
PagingFrameClass	1
	2
PDITimer	3
	4
PrimitiveValue	5
	6
PrivateSpecializedResource	7
	8
PSID_RSIDInformation	9
	10
PSID_RSIDList	11
	12
QoSPriority	13
	14
RandomVariableReauthentication	15
	16
ReasonList	17
	18
ReauthenticationReport	19
	20
RedirectingPartyName	21
	22
RequiredParametersMask	23
	24
RingStartDelay	25
	26
RoamingIndication	27
	28
ScriptArgument	29
	30
ScriptName	31
	32
ScriptResult	33
	34
SecondInterMSCCircuitID	35
	36
ServiceDataAccessElement	37
	38
ServiceDataAccessElementList	39
	40
ServiceDataResult	41
	42
ServiceDataResultList	43
	44
ServiceID	45
	46
ServiceIndicator	47
	48
ServiceRedirectionCause	49
	50
ServiceRedirectionInfo	51
	52
ServicesResult	53
	54
SignalingMessageEncryptionReport	55
	56
SMS_TransactionID	57
	58
SOCStatus	59
	60
SpecialHandling	
SpecializedResource	
SuspiciousAccess	
SystemOperatorCode	
TargetCellIDList	
TDMABandwidth	
TDMADataFeaturesIndicator	

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Parameter Name
TDMADataMode
TDMAServiceCode
TDMA TerminalCapability
TDMAVoiceCoder
TDMAVoiceMode
TemporaryReferenceNumber
TimeDateOffset
TriggerAddressList
TriggerCapability
TriggerList
TriggerType
UserGroup
UserZoneData
VoicePrivacyReport
WINCapability
WINOperationsCapability
WIN_TriggerList

2 PART STRUCTURE

The following table identifies all of the parts of Wireless Radio-Telecommunications Intersystem Operations.

Table 1 Part Structure

Part	Contents	Previously (N.S0005-0 v1.0)	Publication Date
X.S0004-000-E v6.0	Introduction	Chapter 1	July 2007
X.S0004-200-E v1.0	Intersystem Handoff	Chapter 2	May 2006
X.S0004-290-E v1.0	Intersystem Handoff -Annexes		
X.S0004-300-E v1.0	Introduction to Automatic Roaming Stage 2	Chapter 3	Under development
X.S0004-310-E v1.0	Authentication and Registration Scenarios (Section 4 deleted)		
X.S0004-311-E v1.0	Basic Feature Processing		
X.S0004-312-E v1.0	Automatic Roaming Maintenance		
X.S0004-321-E v1.0	Voice Feature Scenarios: Call Delivery	Chapter 3	January 2007
X.S0004-322-E v1.0	Voice Feature Scenarios: Call Forwarding		
X.S0004-323-E v1.0	Voice Feature Scenarios: Call Waiting		
X.S0004-324-E v1.0	Voice Feature Scenarios: Calling Number Identification Presentation/Restriction		
X.S0004-325-E v1.0	Voice Feature Scenarios: Conference Calling	Chapter 3	April 2008
X.S0004-326-E v1.0	Voice Feature Scenarios: Do Not Disturb		
X.S0004-327-E v1.0	Voice Feature Scenarios: Flexible Alerting		
X.S0004-328-E v1.0	Voice Feature Scenarios: Mobile Access Hunting		
X.S0004-329-E v1.0	Voice Feature Scenarios: Message Waiting Notification		
X.S0004-330-E v1.0	Voice Feature Scenarios: Password Call Acceptance/Selective call Acceptance		
X.S0004-331-E v1.0	Voice Feature Scenarios: Priority Access and Channel Assignment		
X.S0004-332-E v1.0	Voice Feature Scenarios: Remote Feature Control		

Part	Contents	Previously (N.S0005-0 v1.0)	Publication Date
X.S0004-333-E v1.0	Voice Feature Scenarios: Subscriber PIN Access/Intercept		
X.S0004-334-E v1.0	Voice Feature Scenarios: Voice Message Retrieval		
X.S0004-335-E v1.0	Voice Feature Scenarios: Calling name Presentation/restriction		
X.S0004-336-E v1.0	Voice Feature Scenarios: Wireless Emergency Services		
X.S0004-337-E v1.0	Voice Feature Scenarios: Wireless Intelligent Network (WIN)		
X.S0004-338-E v1.0	Voice Feature Scenarios: Calling Name Presentation for WIN		
X.S0004-339-E v1.0	Voice Feature Scenarios: Voice Controlled Services		
X.S0004-340-E v1.0	Voice Feature Scenarios: Incoming Call Screening		
X.S0004-346-E v1.0	Circuit Mode Data Services		
X.S0004-347-E v1.0	Network Directed System Selection and Subscriber Confidentiality		
X.S0004-348-E v1.0	Wireless Number Portability		
X.S0004-349-E v1.0	Over-The-Air Service Provisioning/Parameter Administration		
X.S0004-370-E v1.0	SMS Scenarios		
X.S0004-371-E v1.0	Broadcast Teleservice Transport Capability Scenarios	Chapter 3	April 2008
X.S0004-390-E v1.0	Annex A: Assumptions for MS Authentication, Signaling Message Encryption and Voice Privacy	Chapter 3	Under development
X.S0004-400-E v1.0	Operations, Administration and Maintenance (OA&M)	Chapter 4	July 2005
X.S0004-500-E v1.0	Introduction to Signaling Protocols	Chapter 5	March 2004
X.S0004-510-E v1.0	X.25 Transport Signaling Protocols		
X.S0004-511-E v1.0	ANS SS7 Transport Signaling Protocols		
X.S0004-512-E v1.0	ITU SS7 Transport Signaling Protocols		
X.S0004-520-E v2.0	TCAP Applications Signaling Protocols	Chapter 5	July 2007
X.S0004-540-E v2.0	MAP Operations Signaling Protocols	Chapter 5	July 2007
X.S0004-550-E v2.0	MAP Parameters Signaling Protocols		
X.S0004-551-E v1.0	Parameter Type Definitions		March 2004
X.S0004-590-E v1.0	MAP Compatibility Guidelines and Rules		
X.S0004-600-E v1.0	Introduction to Signaling Procedures	Chapter 6	July 2005
X.S0004-630-E v3.0	Basic Call Processing	Chapter 6	January 2008
X.S0004-640-E v2.0	Intersystem Operations	Chapter 6	July 2007
X.S0004-641-E v2.0	SMS		

Part	Contents	Previously (N.S0005-0 v1.0)	Publication Date
X.S0004-650-E v1.0	Common Voice Feature Procedures	Chapter 6	July 2005
X.S0004-651-E v2.0	Voice Features	Chapter 6	July 2007
X.S0004-660-E v1.0	WIN	Chapter 6	July 2005
X.S0004-690-E v2.0	Timers	Chapter 6	July 2007
X.S0004-691-E v3.0	Annexes for the 6XX series		
X.S0004-700-E v1.0	Wireless Intelligent Network	IS-771	March 2004
X.S0004-730-E v1.0	WIN Distributed Functional Model		
X.S0004-750-E v1.0	SSF/CCF Call and Service Logic Model		
X.S0004-790-E v1.0	WIN Call Delivery		

2.1 OBJECTIVE

The purpose of this standard is to identify those wireless services which require intersystem cooperation, to present the general background against which those services are to be provided, and to summarize the principal considerations which have governed and directed the particular approaches taken in the procedural recommendations.

2.2 SCOPE

This part defines the range of application of the current issue of the series. It focuses on overall objectives and basic assumptions. Procedural details are presented in the other recommendations.

2.3 REFERENCES

2.3.1 Normative References

The documents that are referenced herein are for the sole purpose of identifying related normative reference sources and were used in the formulation of this standard. There are no direct or indirect claims regarding the property rights, legal or regulatory status of those documents listed.

CCITT 1992:

[T.50] T.50 International Reference Alphabet (IRA) formerly international Alphabet No. 5 (or IA5)

CBC:

[C.S0057-0 v1.0] Band Class Specification for cdma2000¹ Spread Spectrum Systems, March 2004

¹ cdma2000[®] is the trademark for the technical nomenclature for certain specifications and standards of the Organizational Partners (OPs) of 3GPP2. Geographically (and as of the date of publication), cdma2000[®] is a registered trademark of the Telecommunications Industry Association (TIA-USA) in the United States.

1 ITU:

- 2 [E.164] Rec. E.164: The international public telecommunication numbering plan, 1997
- 3 [E.212] Rec. E.212: The international identification plan for mobile terminals and mobile
- 4 users, 1998
- 5 [Q.700] Q.700 Introduction to CCITT Signalling System No. 7, 1993
- 6 [Q.701] Q.701 Functional description of the message transfer part (MTP) of signalling
- 7 system No. 7, 1993
- 8 [Q.702] Q702 Signalling data link, 1989
- 9 [Q.703] Q.703 Signalling link, 1996
- 10 [Q.704] Q.704 Signalling network functions and messages, 1996
- 11 [Q.705] Q.705 Signalling network structure,1993
- 12 [Q.706] Q.706 Message transfer part signalling performance, 1993
- 13 [Q.707] Q.707 Testing and maintenance,1989
- 14 [Q.708] Q.708 Assignment procedures for international signalling point codes, 1999
- 15 [Q.709] Q.709 Hypothetical signalling reference connection, 1993
- 16 [Q.710] Q.710 Simplified MTP version for small systems, 1989
- 17 [Q.711] Q.711 Functional description of the signalling connection control part, 2001
- 18 [Q.712] Q.712 Definition and function of SCCP messages, 1996
- 19 [Q.713] Q.713 SCCP formats and codes, 2001
- 20 [Q.714] Q.714 Signalling connection control part procedures, 2001
- 21 [Q.716] Q.716 Signalling connection control part (SCCP) performances, 1993
- 22 [Q.1224] Q.1224 Distributed Functional Plane for Intelligent Network CS-2, 1997
- 23 [V.24] V.24 List of Definitions for Interchange Circuits between Data
- 24 TerminalEquipment (DTE) and Data Circuit-terminating Equipment (DCE), 2000
- 25 [X.25] X.25 Interface Between DTE And DCE For Terminals Operating In ThePacket
- 26 Mode And Connected To Public Data Networks By DedicatedCircuit, 1996
- 27 [X.200] X.200 Series of Documents, 1994

28 ISO (International Organization for Standardization):

- 29 [ISO/IEC-7776] ISO-7776 X.25 LAPB Compatible DTE Data Link Procedures, 1995
- 30 [ISO/IEC-8208] ISO-8208 X.25 Packet Layer Protocol for Data Terminal Equipment, 2000
- 31 [ISO/IEC-8878] ISO-8878 Use Of X.25 To Provide The OSI Connection-Mode Network Service,
- 32 1992

33 ATIS Standards (Alliance for Telecommunications Industry Solutions):

- 34 [T1.111] ANSI T1.111-2001 Signaling System Number 7 - Message Transfer Part (MTP)

[T1.112]	ANSI T1.112-2001 Signaling System Number 7 - Signaling Connection Control Part (SCCP)	1
		2
		3
[T1.114]	ANSI T1.114-1988 Signaling System Number 7 - Transaction Capabilities Application Part (TCAP) ¹	4
		5
		6
[T1.209]	ANSI T1.209-2003 Operations, Administration, Maintenance, and Provisioning (OAM&P) - Network Tones and Announcements; American National Standards Institute, Inc.	7
		8
		9
[T1.610]	ANSI T1.610-1998 (R 2003) Generic Procedures for the Control of ISDN Supplementary Services; American National Standards Institute, Inc.	10
		11
		12
[T1.611]	ANSI T1.611-1991(R 2003) Signaling System Number 7 (SS7) - Supplementary Services for Non-ISDN-Subscribers American National Standards Institute, Inc.	13
		14
		15
[T1.660]	ANSI T1.660-1998 (R 2003) American National Standard for Telecommunications - Signaling System No. 7 (SS7) Call Completion to a Portable Number	16
		17
		18
		19
	TIA/EIA (Telecommunications Industry Association/Electronics Industry Alliance):	20
		21
[FEAT]	S.R0006-A v1.0, Cellular Features Description; July 2007. Previously identified as [TIA-664].	22
		23
		24
[TIA-93]	TIA-93-B Wireless Radio Telecommunications Ai - Di Interfaces Standard; July 2001	25
		26
		27
[ISLP]	N.S0019, Intersystem Link Protocol; January 2000. Previously identified as [IS-728].	28
		29
		30
[TIA/EIA-232]	TIA/EIA-232-F Telecommunications Industry Association Interface Between DTE and DCE Employing Serial Binary Data Interchange; October 1997	31
		32
	AMPS (Telecommunications Industry Association):	33
		34
[TIA-553]	TIA/EIA-553-A Mobile Station - Base Station Compatibility Standard; November 1999	35
		36
		37
	CDMA (Telecommunications Industry Association):	38
		39
		40
[ANSI-97]	C.S0010-A Recommended Minimum Performance Standards for Base Stations Supporting Dual-Mode Spread Spectrum Cellular Mobile Stations; April 2001	41
		42
[IOS]	A.S0001-A, 3GPP2 Access Network Interfaces Interoperability Specification (3G-IOS v4.1.0) Revision A; November 2000	43
		44
		45
[CDMASMS]	C.S0015-B, Short Message Service (SMS) for Wideband Spread Spectrum Systems, Release A; July 2004. Previously identified as [TIA/EIA/IS-637-C-1].	46
		47
		48
[CDMA_OTA]	C.S0016-A v2.0, Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Systems; December 2001. Previously identified as [IS-683].	49
		50
		51
[IS-95-B]	TIA/EIA-95-B - Mobile Station-Base Station Compatibility Standard for Dual-Mode Spread Spectrum Systems; March 1999	52
		53
		54
[IS-707]	C.S0017 v5.0, Data Service Options for Wideband Spread Spectrum Systems; February 2003	55
		56
		57

¹ This old version is referenced since newer versions include functionality not supported by MAP.

1 [IS-2000] C.S0001-A, cdma2000 Series; July 2000

2
3 DMH (Telecommunications Industry Association):

4
5 [DMH] X.S0014-E v1.0 Wireless Radio Telecommunication Intersystem Non-Signaling
6 Data Communication DMH; February 2005. Previously identified as [TIA-124-
7 E].
8

9 LAES (Telecommunications Industry Association and Alliance for Telecommunica-
10 tions Industry Solutions):

11 [ANSI
12 /J-STD-025-A] ANSI/J-STD-025-A Lawfully Authorized Electronic Surveillance: April 2003
13
14

15 NAMPS (Telecommunications Industry Association):

16
17 [IS-91] TIA/EIA/IS-91 Mobile Station - Base Station Compatibility Standard for 800
18 MHz Analog Cellular; Telecommunications Industry Association; November
19 1999
20

21 TDMA (Telecommunications Industry Association):

22
23 [TIA/EIA-136] TIA/EIA-136-D. TDMA Third Generation Wireless, April 2002

24 [ANSI-627] TIA/EIA-627 800 MHz Cellular System, TDMA Radio Interface, Dual Mode
25 Mobile Station - Base Station Compatibility Standard. April 1996
26
27

28 [IS-641] TIA/EIA IS-641 800 MHz Cellular System, TDMA Radio Interface, Enhanced
29 Full Rate Speech Codec. March 1996
30

31 [136-720] TIA/EIA-136-720-A-1, TDMA/PCS Over-the-Air Activation Teleservice
32 (OATS); Telecommunications Industry Association; 2000
33

34 [136-730] TIA/EIA-136-730, Over-the-Air Programming Teleservice (OPTS);
35 Telecommunications Industry Association; 2000
36
37

38 **2.3.2 Informative References**

39
40 *SR-TSV-002275 Notes on the LEC Networks*; Bell Communications Research,
41 Inc.; April 1994
42

43 *TR-NWT-000776 Network Interface Description for National ISDN-1 Customer*
44 *Access*; Bell Communications Research, Inc.; August 1993
45

46 CTIA Report on Wireless Number Portability; Version 2.0; Cellular
47 Telecommunications Industry Association; July 7 1998
48

49 CC Docket No. 95-116, Second Report and Order, Federal Communications
50 Commission 1997
51

52 [TSB29] N.S0017-B, International Implementation of Wireless Telecommunication
53 Systems Compliant with TIA/EIA-41; December 2002
54

55 [TSB58] C.R1001-D, Administration of Parameter Value Assignments for cdma2000
56 Spread Spectrum Standards; April 2003
57

58 [NRM] S.R0005-B v1.0, Network Reference Model for cdma2000 Spread Spectrum
59 Systems; May 2001. Previously identified as [TSB100].
60

3 DEFINITIONS AND DOCUMENTATION CONVENTIONS

3.1 DEFINITIONS

Activation MIN

In CDMA OTASP, an Activation_MIN is allocated by the Over-The-Air Service Provisioning Function (OTAF) or obtained by the OTAF from the Customer Service Center (CSC), for the duration of an OTASP session. It is only used as a reference number for an OTASP call instance. The Activation_MIN does not have to conform to numbering plan guidelines or regulations. It shall, however, be unique for all concurrently active OTASP sessions under the control of a given Serving System. When the Activation_MIN is present in a message used for OTASP, it is carried in the MIN parameter of that message.

In TDMA OTASP, an Activation_MIN is supplied by an unactivated mobile station for the duration of an OTASP session. It takes the form NPA-NXX-xxxx, where NPA = 000, and the NXX-xxxx is assigned from the lower digits of a decimal representation of the ESN, as specified in *TDMA*.

Active

The MS is available for call delivery. This state is maintained by the MSC, the VLR and the HLR. (See also Inactive and Unavailable.)

Access Denial Call Treatment

A tone, announcement, or call redirection applied as appropriate.

Adjunct MSC

A Mobile Switching Center (MSC) that is providing adjunct services such as voice response, voice recognition, DTMF tone detection, voice message storage, etc.

Anchor MSC

The Mobile Switching Center (MSC), that is the first to assign a traffic channel to a call on origination or termination is called the Anchor MSC. For the duration of this call, this MSC shall be the anchor (fixed) point in the event that the Mobile Station (MS) should be handed off to other MSCs.

American National Standards Institute (ANSI)

The American National Standards Institute (ANSI) is a private, non-profit organization (501 (c) 3) that administers and coordinates the U.S. voluntary standardization and conformity assessment system.

Available

The MS can accept a call delivery (i.e., the MS is in a known location and it is in a state able to accept call deliveries). The availability of a MS to accept a call delivery is maintained only by the MSC. (See also Active, Inactive and Unavailable.)

Band

A group of radio traffic channels reserved for the use of wireless service providers within a given service area.

Band Class

A set of frequency channels and a numbering scheme for these channels.

Base Station Manufacturer Code (BSMC)

An indicator that uniquely identifies the manufacturer of the Base Station equipment. It allows a Mobile Station to acquire services offered by a specific vendor's Base Station. See *TIA/EIA-136*.

Border MSC

An MSC that is adjacent to the Serving MSC for the purposes of paging.

Call Delivery

The process by which calls directed to the cellular subscriber are delivered to the subscriber while roaming in a visited system.

Call Delivery Method

Method by which a call is delivered to a subscriber in Visited System.

Call Disconnect

The process of requesting the release of a connection between two or more network addresses.

Call Release

The process of relinquishing the facilities and circuits used for a call.

Call Termination

The process of connecting a subscriber to an incoming call.

Callback Number

The Directory Number (e.g., MDN) provided to the PSAP to call back the Emergency Services Caller.

Candidate MSC

An MSC that is being requested to provide its best CELL ID and SIGNAL QUALITY values during handoff measurement.

Cell Site

The physical location of a cell's radio equipment and supporting systems. This term is also used to refer to the equipment located at the cell site.

Clearinghouse

A service used for the exchange and management of information.

Control Channel Mode (CCM)

An indicator that uniquely identifies the last known Control Channel (Analog or Digital) used by an MS to access the system.

Data Communications

The digital transmission of information (other than voice).

Default Routing

Routing based on the called number, in the absence of number portability information.

Destination Address

SMS address of network element to which an SMDPP is addressed. Sometimes a SME address may be used to allow routing to a network element (e.g., MDN or MSID used with global title routing).

Dialogue

A user interaction sequence composed of tones and announcements that may gather information.

Directory Number (DN)

A telephone network routing address for a subscriber terminal, often simply referred to as the telephone number.

Donor

The switch from which a ported DN was originally ported.

Emergency Services Call

A call requiring connection to a PSAP. The digits 9-1-1 require this treatment in the United States.

Emergency Services Network Entity

An entity which serves as an Emergency Services point of interface to an MSC (e.g., S/R, PSAP).

Emergency Services Routing Digits

A digit string that uniquely identifies a base station, cell site or sector. This number may also be a network routeable number (but not necessarily a dialable number).

Forced Handoff

Mobile Station handoffs performed with only the use of serving system signal strength measurements (e.g., without the use of the Mobile Assisted Handoff (MAHO) function or the HandoffMeasurementRequest (HANDMREQ) operation).

Frequency Block

A set of frequency channels within a Band Class indicated by a Frequency Block Designator (e.g., A, B, C, D, E, F).

Full TMSI

The combination of TMSI zone and TMSI code. It is a globally unique address for the MS.

Full TMSI Timer

The full-TMSI timer is used to automatically de-assign the assigned TMSI when the MS roams into a different TMSI zone. The MS starts the full-TMSI timer whenever it first accesses the system in a new TMSI zone. If the timer expires before a new TMSI is assigned, the MS deletes the TMSI and registers again using the IMSI.

Gateway MSC (MSC-G)

An MSC that is capable of the Intersystem procedures, defined in this document, between entities in the network reference model so as to provide service.

Home Location Register (HLR)

See *NRM*.

Home MSC (MSC-H)

The MSC which is broadcasting the SID that is recorded in the MS's Security and Identification memory, and to which the MS's Directory Number is assigned.

Home System

The system which is transmitting the System Identifier (SID) (refer to *TIA-553*) which is recognized by the MS as the "Home" SID.

HyperBand

A collection of bands within a frequency range, i.e. 800 MHz and 1800 MHz.

International Mobile Subscriber Identity (IMSI)

The IMSI is a string of decimal digits, up to a maximum of 15 digits, that identifies a unique mobile terminal or mobile subscriber internationally. The IMSI consists of three fields: the mobile country code, the mobile network code, and the mobile subscriber identification number.

Inactive

The MS is not available for call delivery. The MS may not be registered. The MS may be registered, but is out of radio contact (e.g., missing autonomous registrations) or is intentionally inaccessible for periods of time (e.g., slotted mode, paging frame class, or sleep mode). An inactive MS may accept SMS message deliveries. This state is maintained by the MSC, the VLR and the HLR. (See also Active and Unavailable.)

Location Routing Number (LRN)

A network routing address (e.g., 10-digit NANP formatted number) assigned to uniquely identify a switch that serves ported numbers.

Market Identification (MarketID)

A unique market identifier that is specified by the service provider (e.g., FCC assigned SID, CIBERNET assigned BID - see *TSB29*).

Mobile Assisted Handoff (MAHO)

A process where handoff measurements are done by the MS under the control of the MSC and Base Station. The MSC and Base Station retain the control over when the handoff actually occurs.

Mobile Directory Number (MDN)

A directory number assigned to a mobile subscriber.

1 **Mobile Station (MS)**

2
3 See *NRM*.

4 5 6 **Mobile Station Identity (MSID)**

7
8 The identifier for an MS, which may be the MIN or IMSI.

9 10 11 **Mobile Switching Center (MSC)**

12
13 See *NRM*.

14 15 16 **Negative List**

17
18 A short list of unacceptable system identifications that is stored in the memory of the MS.

19 20 21 **Neighboring MSC:**

22
23 An MSC that is adjacent to a Serving MSC for the purposes of handoff.

24 25 26 **Network Identification (NID)**

27
28 A number that uniquely identifies a network within a wireless system.

29 30 31 **Network Reference Model**

32
33 The functional entities and the associated interface reference points that may logically comprise a
34 cellular network. (See *NRM*).

35 36 37 **NetworkTMSI**

38
39 The full TMSI transported over the *MAP*. The NetworkTMSI is mapped to the subscriber's MIN or
40 IMSI at either the Serving VLR, or the prior Serving VLR.

41 42 43 **Number Portability Database (NPDB)**

44
45 A network entity containing associations between ported numbers and their Location Routing
46 Numbers (LRNs).

47 48 49 **Original Destination Address**

50
51 Identifies the SME to which a short message is being sent.

Original Originating Address

Identifies the SME which initiated a short message and allows responses (e.g. MDN for MS-based SME).

Originating Address

SMS address of network element sending an SMDPP.

Originating MSC

The MSC-H or MSC-G that initiates the call delivery procedures defined in this document.

Originating SMS supplementary service

Services or features that affect SMS message originations and are requested on a per message basis as supported by a particular teleservice, for example, delayed delivery, or message distribution to a list of destinations.

OTASPCallEntry

The OTASPCallEntry is a name created to represent an implementation dependent temporary call record used during an OTASP or OTAPA session. Depending on the implementation, the OTASPCallEntry may exist at one or more of the following network entities: HLR, AC, MSC or VLR. Conceptually, the OTASPCallEntry may be identified by either the ESN, or, alternately the Activation MIN, for OTASP, or, for OTAPA, the MS's MIN at the start of the OTAPA session. The OTASPCallEntry may be used to store temporary OTASP or OTAPA session related information (e.g. A-key, SSD, another network entity's SS7 address, etc).

OTASP Data Message

The OTASP Data Message is an OTASP related air-interface message.

Over-The-Air (OTA)

Operations that assist in the administration and provisioning of MS's using over-the-air techniques. See OTAPA and OTASP.

Over-The-Air Parameter Administration (OTAPA)

Over-The-Air Parameter Administration is a network capability that can be used by a service provider to update the NAM or other operational parameters in a subscriber's activated OTAPA capable Mobile Station (MS) over-the-air. OTAPA sessions are initiated autonomously by the network, and proceed without any subscriber involvement or knowledge and with no limitation on the subscriber's ability to receive telecommunications services.

Over-The-Air Service Provisioning (OTASP)

The Over the Air Service Provisioning (OTASP) allows a potential wireless service subscriber to activate (i.e., become authorized for) new wireless service, and allows an existing wireless subscriber to make changes in existing services without the intervention of a third party.

Paging Frame Class (PFC)

The number of Hyperframes over which an MS has a single instance of Paging Channel allocation, therefore allowing the MS to “sleep”. See *TIA/EIA-136*.

Portable Number

A Directory Number (DN) that is part of a portable range (e.g. NPA-NXX) from which one or more DNs may have been ported. A Portable Number is not necessarily a Ported Number.

Ported Number

A Directory Number (DN) that has been ported (e.g. moved) from one service provider to another. A Ported Number is also a Portable Number.

Ported Number Translation Indicator

An indicator within the ISUP Forward Call Indicator (i.e. the M bit) that is set to indicate that the query to a Number Portability DataBase (NPDB) has been successfully performed, or that one is not needed (e.g. intersystem termination to a TLDN). The Ported Number Translation Indicator is used by subsequent switches to prevent extraneous NPDB queries.

Private System ID (PSID)

A non-public (private) system identifier that is only accessible by authorized users. See SID and *TIA/EIA-136*.

Protocol Extension

A mechanism provided to allow systems with a common bilateral agreement to extend the *MAP* protocol. There is a range of reserved Error Codes, Operation Codes, Parameter Identifiers (in addition to PRIVATE Parameter Identifiers), and ranges of values in enumerated parameter types and data fields. The only mechanism to resolve conflicting uses of protocol extension is to standardize their usage. The Protocol Extension mechanism is used at the risk of the implementation. Protocol Extensions should not be used unless the message recipient is known to support them.

Public Safety Answering Point (PSAP)

An emergency services network element that is responsible for answering emergency calls.

Recipient

The switch to which a Ported Number has been ported.

Registered

The HLR has a pointer to a system serving an MS. A registered MS may be active or inactive.

Registration

The procedure by which a MS becomes listed as being present in the service area of an MSC.

Remote Feature Control Port (RFC Port)

A terminating directory number supporting service profile modification.

Residential System Identifier (RSID)

A non-public system identifier that is only accessible by users on a residential system. See SID and *TIA/EIA-136*.

Roamer Port

A terminating directory number supporting call delivery to mobile stations.

Roamer Service Profile

The specific set of features, capabilities and/or operating restrictions, other than financial accountability, associated with the subscriber.

Roamer Validation

That aspect of roamer service qualification dealing with financial accountability. Also, the general procedure by which a roamer's financial accountability is established.

Rsvd

Reserved.

Selective Router (S/R)

An emergency services network element that is responsible for routing incoming emergency calls to the appropriate PSAP, and may be responsible for other functions, such as redirecting calls from a primary PSAP to a secondary PSAP. The specification of Selective Router functionality is outside the scope of this document.

Service Qualification

The service capabilities, features and privileges to which an MS is entitled. Also, the general procedure by which such service capabilities, features, and privileges become established in an MSC.

Serving MSC

The MSC which currently has the MS obtaining service at one of its cell sites within its coverage area.

Signaling

The information exchanged between the mobile station and the network, or within the network, for the purposes of service provision (e.g. connection establishment).

System Identification (SID)

A mandatory system identifier that shall be broadcast by a Base Station.

System Operator Code (SOC)

An indicator that uniquely identifies the System Operator. It allows a Mobile Station to acquire services offered by a specific System Operator. See *TIA/EIA-136*.

Switch Number (SWNO)

A number uniquely identifying a particular switch (i.e. a group of cell sites and the associated switch resources) within a group of switches associated with a common MarketID.

Tandem

An intermediate switch (e.g. Access Tandem) that has normal PSTN routing capabilities, and is not performing the selective routing function for an Emergency Services Call.

Tandem MSC

An MSC in a handoff chain intermediate between the Anchor MSC and the Serving MSC.

Target MSC

The MSC that was selected from the candidate list as having the cell site with the best signal quality value for the MS during the handoff measurement request function.

Temporary Local Directory Number (TLDN)

A network address temporarily assigned for call setup.

Temporary Mobile Station Identity (TMSI)

An identification number assigned to an MS on a temporary basis by a serving system (e.g. MSC or VLR).

Terminating SMS supplementary service

Services or features that affect SMS message terminations, for example, screening, forwarding, delivery to an MS, delayed delivery while roaming, or distribution to a group based upon a destination address.

Termination Address

One or more digits, as determined by the Home System, which identify the Terminating Party. This could include Speed Call Codes (when supported by the Home Service Provider), other Mobile Telephone Numbers or any valid World Telephone Number.

TMSI Code

A temporarily assigned MS identification of length up to 32-bits within a TMSI Zone. A TMSI with only a TMSI Code will not provide a globally unique address for an MS.

TMSI Expiration Time

The TMSI expiration time is used to automatically de-assign the assigned TMSI. It allows a TMSI to be reassigned periodically and prevents an MS from "holding" a TMSI during extended periods of inactivity. It also helps protect against inadvertent VLR faults which would result in duplicate TMSI assignments. The MS obtains the expiration time value in the message which assigns the TMSI. If the expiration time has passed, the MS deletes the TMSI and uses the IMSI as its identification.

TMSI Zone

The administrative area that allows the TMSI Code to be reused. The TMSI Code is unique only within a TMSI Zone and may be reused in a different TMSI Zone. A TMSI consisting of both the TMSI Zone and TMSI Code provides a globally unique address of an MS.

Traffic

The information generated by the subscriber that is transported on the network (i.e. user voice or data).

Unavailable

The MS cannot accept a normal call delivery (i.e. the MS is in an unknown location or it is in a state unable to accept call deliveries). The availability of an MS to accept a call delivery is maintained only by the MSC. (See also Active and Inactive.)

Unregistered

A state where the MS is unavailable for any type of termination event and the HLR pointer is not directed to any visited system.

User Group (UG)

A limited number of subscribers associated by a common Directory Number, that can be alerted simultaneously when registered as group members.

User Zone (UZ)

An entity specified by associated PSIDs, RSIDs, SIDs or NIDs that may offer differentiating services or flavors of services beyond those offered by the Public System.

Visited MSC (MSC-V)

A “visited” MSC in whose service area a roamer is operating.

Visited System

From the MS’s perspective, a system which is transmitting a SID which is not recognized by the MS as the “Home” SID. From a network perspective, the system in which an MS is currently registered.

Visitor Location Register (VLR)

See *NRM*.

XOREDSSD

The value that represents the Shared Secret Data (SSD-A) exclusive ORed with the MS's A-key.

4 SYMBOLS AND ABBREVIATIONS

Table 2 Symbols and Abbreviations

Symbol or Abbreviation	Meaning
3WC	Three Way Calling
A/D	Analog to Digital
AAV	AuthenticationAlgorithmVersion parameter
ABDGTS	DMH_AlternateBillingDigits parameter
AC	Authentication Center
ACCDEN	AccessDeniedReason parameter
ACDGTS	DMH_AccountCodeDigits parameter
ACF	Authentication Control Function
ACK	Positive Acknowledgment Signal
ACSE	Association Control Service Element
ACT	Active
ACTCODE	ActionCode parameter
ADFT	Authentication Directive Forward Timer
ADS	Asynchronous Data Service
ADT	Authentication Directive Timer
AE	Application Entity
AFREPORT	AuthenticationFailureReport INVOKE
afreport	AuthenticationFailureReport RETURN RESULT
AFRT	Authentication Failure Report Timer
AKEYPV	AKeyProtocolVersion parameter
ALERTIME	AlertTime parameter
ALRTCODE	AlertCode parameter
ALRTRES	AlertResult parameter
AMPS	Advanced Mobile Phone System
ANALOGRI	AnalogRedirectInfo parameter
ANALOGRR	AnalogRedirectRecord parameter
ANI	Automatic Number Identification
ANLYZD	AnalyzedInformation INVOKE
anlyzd	AnalyzedInformation RETURN RESULT
ANNCODE	AnnouncementCode parameter
ANNLIST	AnnouncementList parameter
ANSI	American National Standards Institute
ANZT	Analyzed Information Timer
AON	AllOrNone parameter

Symbol or Abbreviation	Meaning
APDU	Application Protocol Data Unit
ART	Authentication Request Timer
ASE	Application Service Element
ASN.1	Abstract Syntax Notation One
ASP	Application Service Part
ASR	Automatic Speech Recognition
ASREPORT	AuthenticationStatusReport INVOKE
asreport	AuthenticationStatusReport RETURN RESULT
ASRRRT	Authentication Status Report Response Timer
ASRT	Authentication Status Report Timer
ATIS	Alliance for Telecommunications Industry Solutions
AUTH	AuthenticationIndicator parameter
AUTHBS	AuthenticationResponseBaseStation parameter
AUTHCAP	AuthenticationCapability parameter
AUTHDATA	AuthenticationData parameter
AUTHDEN	AuthorizationDenied parameter
AUTHDIR	AuthenticationDirective INVOKE
authdir	AuthenticationDirective RETURN RESULT
AUTHDIRFWD	AuthenticationDirectiveForward INVOKE
authdirfwd	AuthenticationDirectiveForward RETURN RESULT
AUTHPER	AuthorizationPeriod parameter
AUTHR	AuthenticationResponse parameter
AUTHRA	AuthenticationResponseReauthentication parameter
AUTHREQ	AuthenticationRequest INVOKE
authreq	AuthenticationRequest RETURN RESULT
AUTHU	AuthenticationResponseUniqueChallenge parameter
AVTYP	AvailabilityType parameter
BCD	Binary Coded Decimal
BCM	Basic Call Manager
BCSM	Basic Call State Model
BDT	Bulk Deregistration Timer
BER	Basic Encoding Rules
BID	Billing System Identifier
BILLDGTS	DMH_BillingDigits parameter
BILLID	BillingID parameter
BLKT	Blocking Timer
BLOCKING	Blocking INVOKE

Symbol or Abbreviation	Meaning
blocking	Blocking RETURN RESULT
BORDACC	BorderCellAccess parameter
BS	Base Station
BSCHALL	BaseStationChallenge INVOKE
bschall	BaseStationChallenge RETURN RESULT
BSCT	Base Station Challenge Timer
BSKEY	BaseStationPartialKey parameter
BSMC	BaseStationManufacturerCode (parameter)
BSMCS	BSMCStatus parameter
BTTC	Broadcast Teleservice Transport Capability
BTTI	Broadcast TeleserviceTransport Information
BULKDEREG	BulkDeregistration INVOKE
bulkdereg	BulkDeregistration RETURN RESULT
c2KHINVID	CDMA2000HandoffInvokeIOSData parameter
c2KHRSPID	CDMA2000HandoffResponseIOSData parameter
c2KMSC	CDMA2000MobileSupportedCapabilities parameter
CANDEN	CancellationDenied parameter
CANTYP	CancellationType parameter
CARDGTS	CarrierDigits parameter
CAVE	Cellular Authentication and Voice Encryption
CC	Conference Calling
CCDATA	ControlChannelData parameter
CCF	Call Control Function
CCI	ConferenceCallingIndicator parameter
CCITT	International Telegraph and Telephone Consultative Committee
CCM	ControlChannelMode parameter
CCPN	Call Completion to a Portable Number
CCS7	Common Channel Signaling #7
CD	Call Delivery
CDEN	ConditionallyDeniedReason parameter
CDMA	Code Division Multiple Access
CDMABC	CDMABandClass parameter
CDMABCI	CDMABandClassInformation parameter
CDMABCL	CDMABandClassList parameter
CDMACHAN	CDMACodeChannel parameter
CDMACHINFO	CDMACodeChannelInformation parameter
CDMACHLIST	CDMACodeChannelList parameter

Symbol or Abbreviation	Meaning
CDMACN	CDMAChannelNumber parameter
CDMACNL	CDMAChannelNumberList parameter
CDMACR	CDMAConnectionReference parameter
CDMACRINFO	CDMAConnectionReferenceInformation parameter
CDMACRLIST	CDMAConnectionReferenceList parameter
CDMADATA	CDMAChannelData parameter
CDMAMAHO	CDMATargetMAHOInformation parameter
CDMAMAHOLIST	CDMATargetMAHOList parameter
CDMAMEAS	CDMATargetMeasurementInformation parameter
CDMAMEASLIST	CDMATargetMeasurementList parameter
CDMAMODE	CDMACallMode parameter
CDMAMPR	CDMAMobileProtocolRevision parameter
CDMAMSMCI	CDMAMSMMeasuredChannelIdentity parameter
CDMANID	CDMANetworkIdentification parameter
CDMAPCI	CDMAPowerCombinedIndicator parameter
CDMAPILOT	CDMAPilotStrength parameter
CDMAPLCM	CDMAPrivateLongCodeMask parameter
CDMAPPN	CDMAPilotPN parameter
CDMAQUAL	CDMASignalQuality parameter
CDMARR	CDMARedirectRecord parameter
CDMAS	CDMAState parameter
CDMASCI	CDMASlotCycleIndex parameter
CDMASCMM	CDMAStationClassMark parameter
CDMASCMM2	CDMAStationClassMark2 parameter
CDMASCR	CDMAServiceConfigurationRecord parameter
CDMASO	CDMAServiceOption parameter
CDMASOL	CDMAServiceOptionList parameter
CDMASOWD	CDMAServingOneWayDelay parameter
CDMASP	CDMASearchParameters parameter
CDMASWIN	CDMASearchWindow parameter
CDMATOWD	CDMATargetOneWayDelay parameter
CDRT	Call Data Request Timer
CFB	Call Forwarding—Busy
CFD	Call Forwarding—Default
CFI	CallingFeaturesIndicator parameter
CFNA	Call Forwarding—No Answer
CFRT	Connection Failure Report Timer

Symbol or Abbreviation	Meaning
CFU	Call Forwarding—Unconditional
CGNAME	CallingPartyName parameter
CGSA	Cellular Geographical Service Area
CHANGE	Change parameter
CHDATA	ChannelData parameter
CHGFAC	ChangeFacilities INVOKE
chgfac	ChangeFacilities RETURN RESULT
CHGSERV	ChangeService INVOKE
chgserv	ChangeService RETURN RESULT
CHGSRVAT	ChangeServiceAttribute parameter
CHNO	Channel Number
CM	ConnectionManagement parameter
CMAC	Control Mobile Attenuation Code
CMDCODE	CommandCode parameter
CMODES	ConfidentialityModes parameter
CNA	Calling Name Identification
CNAP	Calling Name Presentation
CNAR	Calling Name Restriction
CNI	Calling Number Identification
CNIP	Calling Number Identification Presentation
CNIR	Calling Number Identification Restriction
CONNFAILRPT	ConnectionFailureReport INVOKE
CONNRES	ConnectResource INVOKE
COUNT	CallHistoryCount parameter
COUNTEx	CallHistoryCountExpected parameter
COUNTREQ	CountRequest INVOKE
countreq	CountRequest RETURN RESULT
COUNTRPT	CountUpdateReport parameter
CPNDGTS1	CallingPartyNumberDigits1 parameter
CPNDGTS2	CallingPartyNumberDigits2 parameter
CPNSTRG1	CallingPartyNumberString1 parameter
CPNSTRG2	CallingPartyNumberString2 parameter
CPSUB	CallingPartySubaddress parameter
CRM	Circuit Reservation Message
CRT	Count Request Timer
CS-2	Capability Set 2
CSC	Customer Service Center

Symbol or Abbreviation	Meaning
CT	Call Transfer
CTT	Clear Trunk Timer
CW	Call Waiting
C_SOC1	CDMAServiceOptionConnectionIdentifier parameter
DADS	Digital Asynchronous Data Service
DAE	DataAccessElement parameter
DAEL	DataAccessElementList parameter
DATAID	DataID parameter
DATAKEY	DatabaseKey parameter
DATARES	DataResult parameter
DATAVAL	DataValue parameter
DATUR	DataUpdateResult parameter
DATURL	DataUpdateResultList parameter
DCC	Digital Color Code
DCE	Data Circuit-Terminating Equipment
DENACC	DenyAccess parameter
DENAUTHPER	DeniedAuthorizationPeriod parameter
DEREG	DeregistrationType parameter
DFP	Distributed Functional Plane
DGTCC	DigitCollectionControl parameter
DGTSDIAL	DigitsDialed parameter
DISCONNRES	DisconnectResource INVOKE
DISPTEXT	DisplayText parameter
DISPTEXT2	DisplayText2 parameter
DKEY	DataKey parameter
DMAC	Digital Mobile Attenuation Code
DMH	Data Message Handling
DN	Directory Number
DND	Do Not Disturb
DP	DataPrivacy parameter
DP	Detection Point
DPC	Destination Point Code
DPP	DataPrivacyParameters parameter
DTE	Data Terminating Equipment
DVCC	Digital Verification Color Code
DXE	Data Terminating or Data Circuit-Terminating Equipment
EC	Exchange Carrier

Symbol or Abbreviation	Meaning
EDP	Event Detection Point
EDP-N	Event Detection Point - Notification
EDP-R	Event Detection Point - Request
EIA	Electronic Industry Association
EIR	Equipment Identity Register
EPERPT	EnhancedPrivacyEncryptionReport parameter
ERP	Effective Radiated Power
ES	Emergency Services
ESN	Electronic Serial Number or ElectronicSerialNumber parameter
ESNE	Emergency Services Network Entity
ESRD	EmergencyServicesRoutingDigits parameter
EXESCR	ExecuteScript parameter
EXTMSCID	ExtendedMSCID parameter
EXTMYTYP	ExtendedSystemMyTypeCode parameter
FA	Flexible Alerting
FACDIR	FacilitiesDirective INVOKE
facdir	FacilitiesDirective RETURN RESULT
FACDIR2	FacilitiesDirective2 INVOKE
facdir2	FacilitiesDirective2 RETURN RESULT
FACREL	FacilitiesRelease INVOKE
facrel	FacilitiesRelease RETURN RESULT
FAILCAUSE	FailureCause parameter
FAILTYPE	FailureType parameter
FAVAIL	FacilitySelectedAndAvailable INVOKE
favail	FacilitySelectedAndAvailable RETURN RESULT
FAVT	Facility Selected And Available Timer
FAX	Facsimile
FC	Feature Code
FE	Functional Entity
FEATREQ	FeatureRequest INVOKE
featreq	FeatureRequest RETURN RESULT
FEATRESULT	FeatureResult parameter
FIM	Feature Interactions Manager
FLASHREQ	FlashRequest INVOKE
flashreq	FlashRequest RETURN RESULT
FM	Feature Manager
FRRT	Feature Request Response Timer

Symbol or Abbreviation	Meaning
FRT	Flash Request Timer
FSLP	Feature Service Logic Program
FU	Functional Unit
GAP	Generic Address Parameter (ISUP parameter)
GEOAUTH	GeographicAuthorization parameter
GRPINFO	GroupInformation parameter
GSL	Global Service Logic
GT	GlobalTitle parameter
GTT	Global Title Translation
HANDBACK	HandoffBack INVOKE
handback	HandoffBack RETURN RESULT
HANDBACK2	HandoffBack2 INVOKE
handback2	HandoffBack2 RETURN RESULT
HANDMREQ	HandoffMeasurementRequest INVOKE
handmreq	HandoffMeasurementRequest RETURN RESULT
HANDMREQ2	HandoffMeasurementRequest2 INVOKE
handmreq2	HandoffMeasurementRequest2 RETURN RESULT
HANDREASON	HandoffReason parameter
HANDTHIRD	HandoffToThird INVOKE
handthird	HandoffToThird RETURN RESULT
HANDTHIRD2	HandoffToThird2 INVOKE
handthird2	HandoffToThird2 RETURN RESULT
HLR	Home Location Register
HLRID	Home Location Register Identification
HLRINFO	HLRInformation
HOSTATE	HandoffState parameter
HOT	Handoff Order Timer
HTTRT	Handoff To Third Result Timer
HTTT	Handoff To Third Timer
IA5	International Alphabet 5 see CCITT Rec. T.50
IAM	Initial Address Message
IC	Interexchange Carrier
ICS	Incoming Call Screening
IDT	Information Directive Timer
IFT	Information Forward Timer
IMSCCID	InterMSCircuitIdentification
IMSI	International Mobile Subscriber Identity or IMSI parameter

Symbol or Abbreviation	Meaning
IMTIME	InterMessageTime parameter
IN	Intelligent Network
INC	International Carrier
INFODIR	InformationDirective INVOKE
infodir	InformationDirective RETURN RESULT
INFOFWD	InformationForward INVOKE
infofwd	InformationForward RETURN RESULT
INSTREQ	InstructionRequest INVOKE
instreq	InstructionRequest RETURN RESULT
IP	Internet Protocol
IP	Intelligent Peripheral
IRT	Instruction Request Timer
ISANSWER	InterSystemAnswer INVOKE
isanswer	InterSystemAnswer RETURN RESULT
ISART	InterSystemAnswer Response Timer
ISAT	InterSystemAnswer Timer
ISCOUNT	InterSwitchCount parameter
ISDN	Integrated Services Digital Network
ISLP	InterSystem Link Protocol
ISLPINFO	ISLPInformation parameter
ISO	International Standards Organization
ISPAGE	InterSystemPage INVOKE
ispage	InterSystemPage RETURN RESULT
ISPAGE2	InterSystemPage2 INVOKE
ispage2	InterSystemPage2 RETURN RESULT
ISPR	InterSystemPage Request Timer
ISSETUP	InterSystemSetup INVOKE
issetup	InterSystemSetup RETURN RESULT
ISSRT	InterSystemSetup Request Timer
ISSWT	InterSystemSetup Wait Timer
ISTERM	IntersystemTermination parameter
ISUP	ISDN User Part
ITU	International Telecommunication Union
IWF	Interworking Function
LATA	Local Access and Transport Area
LB	Locally Blocked
LEGINFO	LegInformation parameter

Symbol or Abbreviation	Meaning
LMMRT	Location Measurement Maximum Response Timer
LOCID	LocationAreaID parameter
LOCREQ	LocationRequest INVOKE
locreq	LocationRequest RETURN RESULT
LOCTERM	LocalTermination parameter
LRB	Locally and Remotely Blocked
LRF	Location Registration Function
LRFh	Location Registration Function – HLR
LRFv	Location Registration Function – VLR
LRN	Location Routing Number
LRT	Location Request Timer
LSB	Least Significant Bit
MA	Mobile Application
MACF	Mobile Station Access Control Function
MAH	Mobile Access Hunting
MAHO	Mobile Assisted Handoff
MAHT	Mobile Access Hunt Timer
MAP	Mobile Application Part
MAT	Mobile Arrival Timer
MAXHANDOFF	MaximumHandoffCount parameter
MBC	Mandatory for Backward Compatibility
MC	Message Center
MDN	MobileDirectoryNumber parameter
MHOT	Mobile Handoff Order Timer
MHS	Message Handling Systems
MIN	Mobile Identification Number or MobileIdentificationNumber parameter
MIN1	NXX-XXXX of MIN
MIN2	NPA of MIN
MODIFY	Modify INVOKE
modify	Modify RETURN RESULT
MODRES	ModificationResult parameter
MODRQ	ModificationRequest parameter
MODRQL	ModificationRequestList parameter
MODRSL	ModificationResultList parameter
MODVAL	ModulusValue parameter
MS	Mobile Station
MSB	Most Significant Bit

Symbol or Abbreviation	Meaning
MSC	Mobile Switching Center
MSC-G	Mobile Switching Center—Gateway
MSC-H	Mobile Switching Center—Home
MSC-V	Mobile Switching Center—Visited
MSCADDR	MSC_Address parameter
MSCID	MSCID parameter
MSCIN	MSCIdentificationNumber parameter
MSGDIR	MessageDirective INVOKE
msgdir	MessageDirective RETURN RESULT
MSID	Mobile Station Identity or MSID parameter
MSIDUSE	MSIDUsage parameter
MSIMSI	MobileStationIMSI parameter
MSINACT	MSInactive INVOKE
msinact	MSInactive RETURN RESULT
MSIT	MS Inactive Timer
MSKEY	MobileStationPartialKey parameter
MSLOC	MSLocation parameter
MSMIN	MobileStationMIN parameter
MSONCH	MobileOnChannel INVOKE
MS_MSID	MobileStationMSID parameter
MT	Modify Timer
MTP	Message Transfer Part
MWN	Message Waiting Notification parameter
MWNCOUNT	MessageWaitingNotificationCount parameter
MWNTYPE	MessageWaitingNotificationType parameter
MYTYP	SystemMyTypeCode parameter
NACK	Negative Acknowledgment Signal
NAM	NumberAssignment Module
NAMI	Calling Name Capability Indicator
NAMPS	Narrow AMPS
NAMPSCMODE	NAMPSCallMode parameter
NANP	North American Numbering Plan
NATIME	NoAnswerTime parameter
NCHDATA	NAMPSCchannelData parameter
NDSS	Network Directed System Selection
NE	Network Entity
NETMSI	NetworkTMSI parameter

Symbol or Abbreviation	Meaning
NETMSIT	NetworkTMSIExpirationTimer parameter
NEWIMSI	NewlyAssignedIMSI parameter
NEWMIN	NewlyAssignedMIN parameter
NEWMINEXT	NewMIN extension parameter
NEWMSID	NewlyAssignedMSID parameter
NID	Network Identity
NNETMSI	NewlyAssignedNetworkTMSI parameter
NOSSD	SSDNotShared parameter
NP	Non-Public Service Mode
NP	Number Portability
NPA	Numbering Plan Area (repeat block Area Code)
NPDATA	NonPublicData parameter
NPDB	Number Portability DataBase
NPREQ	NumberPortabilityRequest INVOKE
npreq	NumberPortabilityRequest RETURN RESULT
NPT	Number Portability Timer
NRM	Network Reference Model
NSAP	Network Service Access Point
NXX	Office Code
O	Optional
OA&M	Operations, Administration, and Maintenance
OATS	Over-The-Air Activation Teleservice (TDMA)
OMT	Overhead Message Train
OPC	Originating Point Code
OPDU	Operation Protocol Data Unit
ORIGIND	OriginationIndicator parameter
ORIGTRIG	OriginationTriggers parameter
ORREQ	OriginationRequest INVOKE
orreq	OriginationRequest RETURN RESULT
ORT	Origination Request Timer
OSI	Open Systems Interconnection
OSSS	Originating SMS Supplementary Service
OTA	Over-The-Air
OTAF	Over-The-Air Service Provisioning Function
OTAPA	Over-The-Air Parameter Administration
OTART _{Cx}	OTASP Request Response Timer (CDMA: where x = s, l)

Symbol or Abbreviation	Meaning
OTART _t	OTASP Request Response Timer (TDMA)
OTASP	Over-the-Air Service Provisioning
OTASPRC	OTASP_ResultCode parameter
OTASPREQ	OTASP_Request INVOKE
otaspreq	OTASP_Request RETURN RESULT
OTFI	OneTimeFeatureIndicator parameter
PACA	Priority Access and Channel Assignment
PACAIND	PACAIndicator parameter
PACS	Personal Access Communications System
PAGECOUNT	PageCount parameter
PAGEIND	PageIndicator parameter
PAGETIM	PageResponseTime parameter
PARMREQ	ParameterRequest INVOKE
parmreq	ParameterRequest RETURN RESULT
PAT	PACA Answer Timer
PC	Point Code
PCA	Password Call Acceptance
PCS	Personal Communications Service/System
PC_SSN	PC_SSN parameter
PDN	Public Data Network
PDT	PACA Detection Timer
PDU	Protocol Data Unit
PFC	PagingFrameClass parameter
PFT	PACA Feedback Timer
PIC	Preferred Interexchange Carrier
PIC	Point In Call
PILOT	PilotNumber parameter
PILOTBID	PilotBillingID parameter
PIMM	Point In Mobility Management
PIN	Personal Identification Number
PL	Preferred Language
PLIND	PreferredLanguageIndicator parameter
PN	Pseudo random noise
POI	Point of Interface
PPDU	Presentation Protocol Data Unit
PRIMVAL	PrimitiveValue parameter

Symbol or Abbreviation	Meaning
PRINFO	PSID/RSIDInformation parameter
PRLIST	PSID/RSIDList parameter
PSAP	Public Safety Answering Point
PSID	Private System Identifier
PSTN	Public Switched Telephone Network
PSTNTERM	PSTNTermination parameter
QDT	Qualification Directive Timer
QOS	Quality of Service
QoSPRI	QoSPriority parameter
QRT	Qualification Request Timer
QUALCODE	QualificationInformationCode
QUALDIR	QualificationDirective INVOKE
qualdir	QualificationDirective RETURN RESULT
QUALREQ	QualificationRequest INVOKE
qualreq	QualificationRequest RETURN RESULT
R	Required
RACF	Radio Access Control Function
RAND	RandomVariable parameter
RANDBS	RandomVariableBaseStation parameter
RANDC	RANDC parameter
RANDRA	RandomVariableReauthentication parameter
RANDREQ	RandomVariableRequest INVOKE
randreq	RandomVariableRequest RETURN RESULT
RANDRT	Random Variable Request Timer
RANDSSD	RandomVariableSSD parameter
RANDU	RandomVariableUniqueChallenge parameter
RANDVT	RANDValidTime parameter
RARPT	ReauthenticationReport parameter
RB	Remotely Blocked
RCF	Radio Control Function
RCT	Registration Cancellation Timer
RDNAME	RedirectingPartyName parameter
RDRT	Redirection Request Timer
RDT	Redirection Directive Timer
Rec.	Recommendation
REDDIR	RedirectionDirective INVOKE
reddir	RedirectionDirective RETURN RESULT

Symbol or Abbreviation	Meaning
REDIND	DMH_RedirectionIndicator parameter
REDREASON	RedirectionReason parameter
REDREQ	RedirectionRequest INVOKE
redreq	RedirectionRequest RETURN RESULT
REGCANC	RegistrationCancellation INVOKE
regcanc	RegistrationCancellation RETURN RESULT
REGNOT	RegistrationNotification INVOKE
regnot	RegistrationNotification RETURN RESULT
RELEASE	Release INVOKE
release	Release RETURN RESULT
RELREASON	ReleaseReason parameter
RESETCKT	ResetCircuit INVOKE
resetckt	ResetCircuit RETURN RESULT
RESETTIMER	ResetTimer INVOKE
REST	Reset Timer
RF	Radio Frequency
RFC	Remote Feature Control
RNDGTS	RedirectingNumberDigits parameter
RNSTRING	RedirectingNumberString parameter
RNT	Registration Notification Timer
RO	Remote Operation
ROAMIND	RoamingIndicator parameter
ROUTDGTS	RoutingDigits parameter
ROUTREQ	RoutingRequest INVOKE
routreq	RoutingRequest RETURN RESULT
RPM	RequiredParametersMask parameter
RPTTYP	ReportType parameter
RRT	Routing Request Timer
RSID	Residential System Identifier
RSIGQUAL	ReceivedSignalQuality parameter
RSNLST	ReasonList parameter
RSSI	Received Signal Strength Indication
RSTT	Reset Circuit Timer
RSUB	RedirectingSubaddress parameter
RTF	Radio Terminal Function
RUDT	Remote User Interaction Directive Timer
RUI	Remote User Interaction

Symbol or Abbreviation	Meaning
RUI-MSC	repeat block MSC capable of Remote User Interaction
RUIDIR	RemoteUserInteractionDirective INVOKE
ruidir	RemoteUserInteractionDirective RETURN RESULT
S/R	Selective Router
SADT	SMS Air Delivery Timer
SAOT	SMS Air Origination Timer
SAT	Supervisory Audio Tone
SBI	Shortened Burst Indicator
SBSL	Switch-Based Service Logic
SBT	SMS Delivery Backward Timer
SC	Subscriber Confidentiality
SCA	Selective Call Acceptance
SCC	SAT Color Code
SCCP	Signaling Connection Control Part
SCEF	Service Creation Environment Function
SCCELLID	ServingCellID parameter
SCF	Service Control Function
SCFT	Service Control Function Timer
SCM	StationClassMark parameter
SCP	Service Control Point
SCRARG	ScriptArgument parameter
SCRNAME	ScriptName parameter
SCRRESULT	ScriptResult parameter
SDAE	ServiceDataAccessElement parameter
SDAEL	ServiceDataAccessElementList parameter
SDCC	Supplementary Digital Color Code
SDF	Service Data Function
SDR	ServiceDataResult parameter
SDRL	ServiceDataResultList parameter
SEARCH	Search INVOKE
search	Search RETURN RESULT
SECIMSCCID	SecondInterMSCCircuitID parameter
SEIZERES	SeizeResource INVOKE
seizeres	SeizeResource RETURN RESULT
SEIZTYP	SeizureType parameter
SENDERIN	SenderIdentificationNumber parameter
SERVREQ	ServiceRequest INVOKE

Symbol or Abbreviation	Meaning
servreq	ServiceRequest RETURN RESULT
SERVRSLT	ServicesResult parameter
SETRESULT	SetupResult parameter
SFT	SMS Delivery Forward Timer
SHH	SpecialHandling parameter
SID	System ID
SIGQUAL	SignalQuality parameter
SIM	Service Interactions Manager
SLP	Service Logic Program
SLPI	Service Logic Program Instance
SM	Switching Manager
SMAF	Service Management Access Function
SMD-ACK	ShortMessageDeliveryAcknowledge message
SMD-NACK	ShortMessageDeliveryNegativeAcknowledge message
SMD-REQ	ShortMessageDeliveryRequest message
SMD-REQUEST	ShortMessageDeliveryRequest message
SMDBACK	SMSDeliveryBackward INVOKE
smdback	SMSDeliveryBackward RETURN RESULT
SMDFWD	SMSDeliveryForward INVOKE
smdfwd	SMSDeliveryForward RETURN RESULT
SMDPP	SMSDeliveryPointToPoint INVOKE
smdpp	SMSDeliveryPointToPoint RETURN RESULT
SMDPPACK	SMSDeliveryPointToPointAck INVOKE
SME	Short Message Entity
SMEKEY	SignalingMessageEncryptionKey parameter
SMEM	SignalingMessageEncryptionMode parameter
SMERPT	SignalingMessageEncryptionReport parameter
SMF	Service Management Function
SMS	Short Message Service
SMSACCDEN	SMS_AccessDeniedReason parameter
SMSADDR	SMS_Address parameter
SMSCAUSE	SMS_CauseCode parameter
SMSDPF	SMS_DeliveryPendingFlag parameter
SMSMSGCNT	SMS_MessageCount parameter
SMSMWI	SMS_MessageWaitingIndicator parameter
SMSNOT	SMSNotification INVOKE
smsnot	SMSNotification RETURN RESULT

Symbol or Abbreviation	Meaning
SMSNOTIND	SMS_NotificationIndicator parameter
SMSREQ	SMSRequest INVOKE
smsreq	SMSRequest RETURN RESULT
SMSTERMREST	SMS_TerminationRestrictions parameter
SMSTID	SMS_TeleserviceIdentifier parameter
SMS_TID	SMS_TransactionID parameter
SMT	Short Message Timer
SMT _{cx}	Short Message Delivery Timer (CDMA; where x=s, m, l)
SN	Service Negotiation
SN	Service Node
SNT	SMS Notification Timer
SOC	SystemOperatorCode parameter
SOCS	SOCStatus parameter
SPDT	Service Profile Directive Timer
SPDU	Session Protocol Data Unit
SPINA	Subscriber PIN Access
SPINI	Subscriber PIN Intercept
SPINIPIN	Subscriber PIN Intercept PIN
SPRT	Service Profile Request Timer
SPT	SMS Point-To-Point Timer
SRCAUSE	ServiceRedirectionCause parameter
SRF	Specialized Resource Function
SRFDIR	SRFDirective INVOKE
srfdir	SRFDirective RETURN RESULT
SRFDT	SRF Directive Timer
SRINFO	ServiceRedirectionInfo parameter
SRT	SMS Request Timer
SRVID	ServiceID parameter
SRVIND	ServiceIndicator parameter
SS7	Signaling System 7 (ANSI)
SSD	SharedSecretData parameter
SSD-A	Shared Secret Data-A
SSD-B	Shared Secret Data-B
SSDURPT	SSDUpdateReport parameter
SSF	Service Switching Function
SSFT	Service Switching Function Timer

Symbol or Abbreviation	Meaning
SSL	Service Specific Logic
SSM	Switching State Model
SSN	Subsystem Number
ST	Search Timer
STP	Signaling Transfer Point
STU	Secure Telephone Unit
SUSACC	SuspiciousAccess parameter
SWNO	Switch Number
SYSACCDATA	SystemAccessData parameter
SYSACCTYPE	SystemAccessType parameter
SYSCAP	SystemCapabilities parameter
SZRT	Seize Resource Timer
TA	Termination Address
TANDEMDEPTH	TandemDepth parameter
TAT	TerminationAccessType parameter
TBCD	Telephony Binary Coded Decimal
TBT	TBusy Timer
TBUSY	TBusy INVOKE
tbusy	TBusy RETURN RESULT
TC	Transaction Capabilities
TCAP	Transaction Capabilities Application Part
TCELLID	TargetCellID parameter
TCELLIDLIST	TargetCellIDList parameter
TDD/TTY	Telecommunications Device for the Deaf/Teletypewriter
TDMA	Time Division Multiple Access
TDMABW	TDMABandwidth parameter
TDMADATA	TDMACHannelData parameter
TDMADFI	TDMADataFeaturesIndicator parameter
TDMADM	TDMADataMode parameter
TDMAMODE	TDMACallMode parameter
TDMASBI	TDMABurstIndicator parameter
TDMASC	TDMAServiceCode parameter
TDMAVC	TDMAVoiceCoder parameter
TDO	TimeDateOffset parameter
TDP	Trigger Detection Point
TDP-N	Trigger Detection Point - Notification
TDP-R	Trigger Detection Point - Request

Symbol or Abbreviation	Meaning
TDT	TMSIDirective timer
TERMCAP	TDMATerminalCapability parameter
TERMLIST	TerminationList parameter
TERMRES	TerminationRestrictionCode parameter
TERMTRIG	TerminationTriggers parameter
TERMTRMT	TerminationTreatment parameter
TERMTYP	TerminalType parameter
THTTT	Tandem Handoff To Third Timer
TIA	Telecommunications Industry Association
TLDN	Temporary Local Directory Number
TLDNAT	Temporary Local Directory Number Association Timer
TMEAS	TargetMeasurementInformation parameter
TMEASLIST	TargetMeasurementList parameter
TMSI	Temporary Mobile Station Identity
TMSIDIR	TMSIDirective INVOKE
tmsidir	TMSIDirective RETURN RESULT
TNAT	TNoAnswer Timer
TNOANS	TNoAnswer INVOKE
tnoans	TNoAnswer RETURN RESULT
TPDU	Transport Protocol Data Unit
TRANSCAP	TransactionCapability parameter
TRANUMREQ	TransferToNumberRequest INVOKE
tranumreq	TransferToNumberRequest RETURN RESULT
TRIGADDRLIST	TriggerAddressList parameter
TRIGCAP	TriggerCapability parameter
TRIGLIST	TriggerList parameter
TRIGTYPE	TriggerType parameter
TRN	TemporaryReferenceNumber parameter
TRNKSTAT	TrunkStatus parameter
TSAP	Transport Service Access Point
TSB	Telecommunications Systems Bulletin
TSR	Time Slot and Rate Indicator
TSSS	Terminating SMS Supplementary Service
TTDT	Trunk Test Disconnect Timer
TTEST	TrunkTest INVOKE
ttest	TrunkTest RETURN RESULT
TTESTDISC	TrunkTestDisconnect INVOKE

Symbol or Abbreviation	Meaning
ttestdisc	TrunkTestDisconnect RETURN RESULT
TTNRT	Transfer-To Number Request Timer
TTT	Trunk Test Timer
UBLKT	Unblocking Timer
UCHALRPT	UniqueChallengeReport parameter
UDT	Unitdata message
UDTS	Unitdata Service message
UG	UserGroup parameter
UGID	User Group ID
UNBLOCKING	Unblocking INVOKE
unblocking	Unblocking RETURN RESULT
UNRELDIR	UnreliableRoamerDataDirective INVOKE
unreldir	UnreliableRoamerDataDirective RETURN RESULT
UNSOLRES	UnsolicitedResponse INVOKE
unsolres	UnsolicitedResponse RETURN RESULT
UPDCOUNT	UpdateCount parameter
URDDT	Unreliable Roamer Data Directive Timer
URT	Unsolicited Response Timer
UZ	User Zone
UZDATA	UserZoneData parameter
VCH	Voice Channel
VCS	Voice Controlled Services
VLR	Visitor Location Register
VMAC	Voice Mobile Attenuation Code
VMBOX	VoiceMailboxNumber parameter
VMN	Voice Mail Number
VMR	Voice Message Retrieval
VMS	Voice Message System
VMSPIN	VoiceMailboxPIN parameter
VP	Voice Privacy
VPM	Voice Privacy Mode
VPMASK	VoicePrivacyMask parameter
VPRPT	VoicePrivacyReport parameter
VRU	Voice Response Unit
VUI	Voice-based User Identification
WIN	Wireless Intelligent Network
WINCAP	WINCapability parameter

Symbol or Abbreviation	Meaning
WINOPCAP	WINOperationsCapability parameter
WINRT	WIN Response Timer
WNP	Wireless Number Portability
WTRIGLIST	WIN_TriggerList parameter
XXXX	Station Number (in context of NPA-NXX-XXXX)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

4.1 DOCUMENTATION CONVENTIONS

Each scenario description has two components:

- a scenario diagram, followed by
- a description of each step in the scenario diagram.

Each of these two components employs a set of documentation conventions, described below.

4.1.1 Scenario Diagram Conventions

The scenarios presented in this document use the following diagrammatic conventions to illustrate the information exchange between network entities:

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

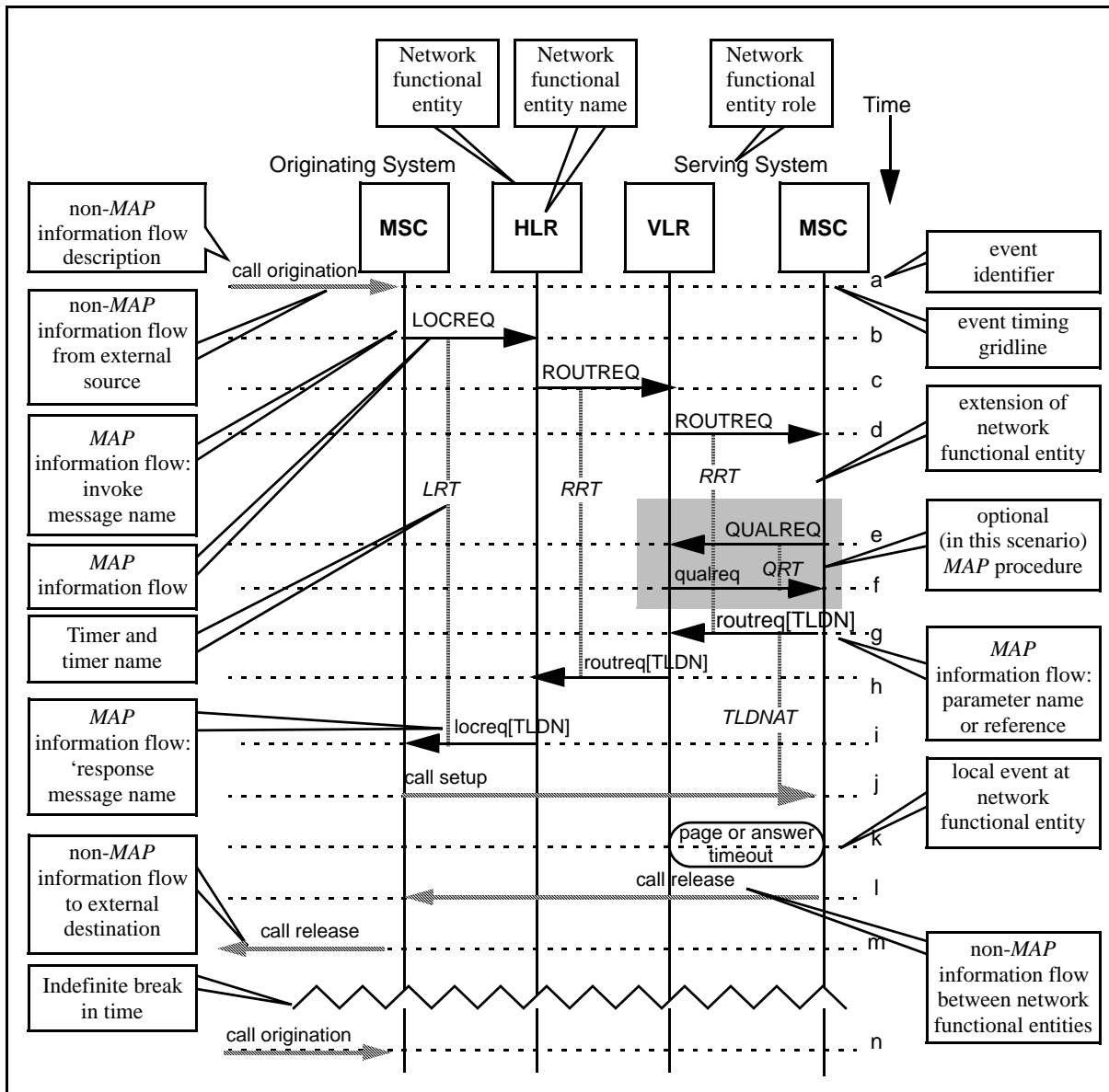


Figure 1 Diagrammatic Conventions

The following items should be noted in figure 1:

- i. Every event identifier must have an associated information flow.
- ii. Information flows are classified as either *MAP* or *non-MAP*; the former are subject to standardization in this document, while the latter are not.
- iii. Only functional entities which are involved in an information flow (i.e. source, destination, or tandem) are shown.
- iv. Use of parameter references, rather than the parameter names themselves, is permitted (e.g. TLDN rather than Digits (Destination)) where this is deemed to improve readability. However, the mapping of references to actual parameters must be provided.

- v. An *MAP* operation's INVOKE component is designated by an upper-case acronym (e.g. LOCREQ); its RETURN RESULT is designated by a lower-case acronym (e.g. locreq); its RETURN ERROR is designated by the full name (e.g. LocationRequest RETURN ERROR).
- vi. Optional *MAP* operations are enclosed by shaded areas. See events "e" and "f".

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

4.1.2 Scenario Description Conventions

The scenario descriptions presented in this document use the following conventions:

1. Each event identifier (or *step*) in a scenario diagram has an accompanying text description of the information flow involved.
2. Scenario steps which involve a *MAP* information flow are followed by a tabular listing of the parameters included in the operation component; e.g. ,:
 - c. The HLR determines that authorization can be granted to the MS and returns this indication to the Serving VLR in the `qualreq`.

Parameters	Usage	Type
AUTHPER	Authorization confirmed indication with period of authorization.	R
Profile:	Subscriber's profile information:	
[CFI]	Authorization and activity states for features.	R
[ORIGIND]	Type of calls MS is allowed to originate.	O
[TERMRES]	Type of calls MS is allowed to terminate.	O
HLRID [MSCID]	HLR MSCID to key MS record against for UnreliableRoamerDataDirective.	R
MYTYP	HLR vendor identification.	MBC

The following items from the table should be noted:

- When a more descriptive reference is used for one or more *MAP* parameters (e.g. HLRID vs. MSCID and Profile vs. the three *MAP* parameters listed), the *MAP* parameter(s), in square brackets, follows the reference. The reference is used in the scenario figure.
 - The Type refers to whether the parameter is Required (R) *for the scenario*, Optional (O) *for the scenario*, or Mandatory for Backward Compatibility (MBC). MBC identifies a parameter that is not used for the scenario but mandatory based on backward compatibility with previous versions of *MAP*.
3. Scenario steps which involve a *MAP* information flow are followed by a tabular listing of the *additional* parameters included in the operation component; e.g.:
 - c. The HLR detects the authorized CNIR request and sends a `featreq` to the Serving MSC. The `featreq` includes the OneTimeFeatureIndicator (OTFI).

Additional Parameters	Usage	Type
OTFI	Modify CNIR feature processing for the duration of this call originated by MS.	R

4. The following notation convention is used:
 - When referring to an operation, the operation name is used (e.g. AuthenticationDirective).

- When referring to the operation's INVOKE component, the uppercase acronym is used (e.g. AUTHDIR). 1
- When referring to the operation's RETURN RESULT component, the lowercase acronym is used (e.g. authdir). 2
- When referring to the operation's RETURN ERROR component, the full name of the operation is used (e.g. AuthenticationDirective RETURN ERROR). 3

4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

4.1.3 TCAP Package Type Diagram Conventions

The following figure illustrates the diagrammatic conventions used to identify TCAP package types for the information exchange between network entities.

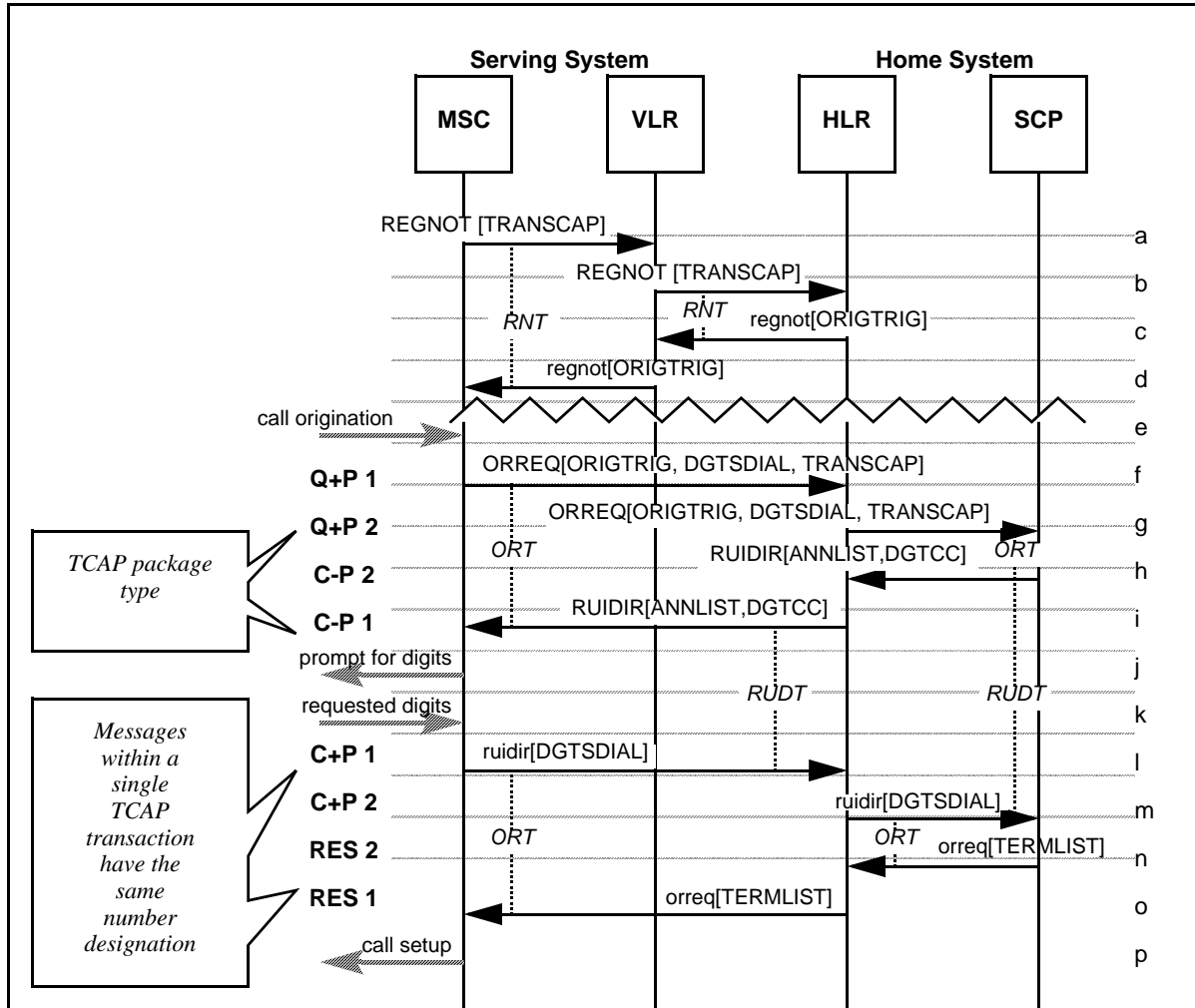


Figure 2 TCAP Package Type Diagram Conventions

The following items should be noted:

- a. TCAP package types are only shown for complex TCAP transactions (i.e. more than two messages within the same TCAP transaction).
- b. The valid TCAP package types for complex TCAP transactions are:
 - Q+P Query with Permission
 - Q-P Query without Permission
 - C+P Conversation with Permission
 - C-P Conversation without Permission

- RES Response
- c. The number following the TCAP package type will be the same for all messages within a single TCAP transaction. By definition, a TCAP transaction involves only two network entities. The numbering begins at 1 in each figure and is incremented for each complex TCAP transaction.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

5 NETWORK REFERENCE MODEL

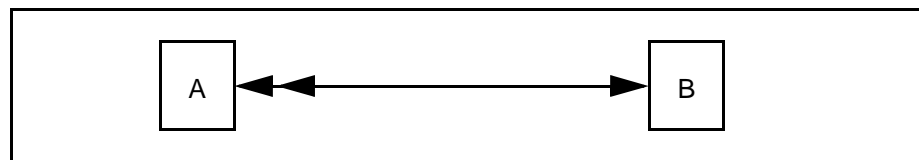
The network reference model used by this standard is defined in *NRM*.

5.1 NETWORK ENTITY RELATIONSHIP DIAGRAM

The following figures show the relationship between network entities identified in the Network Reference Model. The following symbols are used:

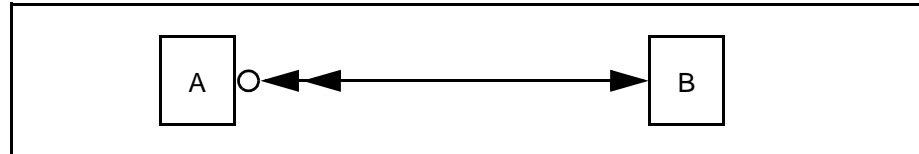
a. One-to-Many Relationship

This symbol indicates that entity “A” is associated with exactly one entity of type “B.” Each entity of type “B” is associated with one or more entities of type “A.”



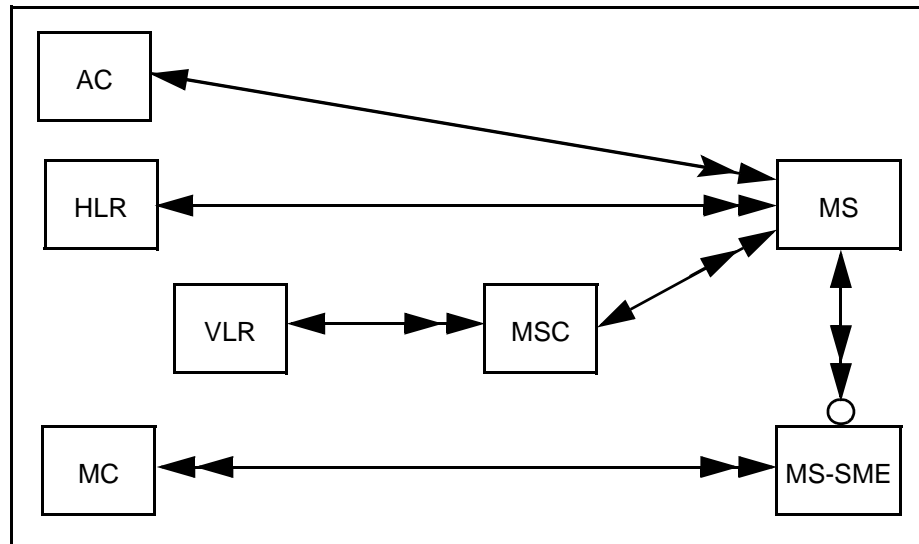
b. One-to-Zero or More Relationship

This symbol indicates that entity “A” is associated with exactly one entity of type “B.” Each entity of type “B” is associated with zero or more entities of type “A.”



c. Many-to-Many Relationship

All pairs of entities for which a relationship is not shown have a many-to-many relationship (e.g. an HLR may have subscribers registered in many VLRs, and a VLR may be serving subscribers from many HLRs).



1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

6 CELLULAR INTERSYSTEM SERVICES

This issue of the series addresses two major categories of intersystem services:

a. Intersystem Handoff

Intersystem Handoff refers to the general provisions by which a call in progress on a radio channel under the control of a current serving MSC may be automatically transferred to a different radio channel under the control of another MSC without interruption to the ongoing communication.

b. Automatic Roaming

Automatic Roaming refers to the general provisions for automatically providing cellular services to the MSs which are operating outside their home service area but within the aggregate service area of all participating MSCs. In the most general implementation these include:

1. Timely identification of the current serving MSC
2. Automatic Service Qualification of the roaming MSs, including credit validation, feature privileges, and feature control
3. Automatic call delivery to the roaming MSs.

The requirement that the procedures by which these operations are implemented be automatic is implicit in the intent of these recommendations.

6.1 GENERAL BACKGROUND AND ASSUMPTIONS

Procedures for the implementation of the identified intersystem services have been defined with due regard to the following general considerations:

- a. It is intended that the procedures defined afford, to each autonomous participant in any service (subscriber, service provider, etc.), control, to the maximum practical degree, over those aspects of operation which directly affect that participant.
- b. It is intended that the procedures defined address only the required intersystem transactions without infringing on the right of individual system operators and manufacturers to design their internal methods and procedures as they may deem best.
- c. All procedures are defined in terms of transactions conducted between the network entities that are defined in *NRM*. This is not intended to preclude participation in the identified operations by entities such as "Clearinghouses," PSTN switching offices, etc.
- d. It is intended that the procedures defined provide the flexibility to utilize any suitable facilities commonly available to system operators for intersystem voice or data transmission and that any required facilities be utilized as efficiently as possible.
- e. It is intended that the procedures defined be usable in systems serving the small, non-urban areas as well as in the large metropolitan centers.
- f. An attempt has been made to conform to existing national or international standards.
- g. The procedures defined assume that the Cellular system equipment and the MS served operate according to the air-interface specifications referenced in Part 000, sec. 2. This does not mean that the procedures cannot operate correctly (or cannot be adapted to operate correctly) with other radio-telephone protocols, but that no particular effort has been made to ensure that they can.
- h. The procedures defined here are based on the assumption that intersystem handoff relies upon dedicated intersystem trunks. This is required since intersystem handoff is a tightly controlled activity of the cellular systems involved. Intersystem handoff cannot be considered any differently than an inter-cell handoff.
- i. Consideration has been given to the facilitation of valid routing under all appropriate conditions, whether mandated by regulatory authorities or not. This includes selection of the interexchange carrier.
- j. This Standard assumes support of the Intersystem Link Protocol [ISLP].
- k. For CDMA Systems, this Interim Standard provides intersystem support for Service Negotiation between the Serving BS/MSC and MS.
- l. ASCII representations of calling party and redirecting party information have been defined within *MAP* for purposes of displaying this information to an MS. When this information is being manipulated within the network, the BCD representations shall be used.

6.2 OTA ASSUMPTIONS

- a. The OTASP feature is intended to meet a need of the wireless industry to enable and expedite in a secure manner the process by which potential wireless service subscribers can activate (i.e. become authorized for) new wireless service(s) or current subscribers can request changes in their existing service, without the intervention of a third party or parties.
- b. The OTAPA feature is initiated by the network service provider (and not by the mobile subscriber) to program Mobile Station Number Assignment Module (NAM) parameters and the CDMA Preferred Roaming list or the TDMA Intelligent Roaming Database (IRDB). These parameters control the wireless network usage by the MS. Administration of such parameters without the involvement of the mobile subscriber simplifies and significantly improves the customer care process by the network service providers.
- c. OTAPA does not require a voice dialogue with the service provider's customer service center and thus there is no need of involvement or interaction with the mobile subscriber during parameter administration. OTAPA can be performed at anytime while the MS is powered on and it does not interfere with normal end user operation (e.g. placing or receiving calls). If the mobile originates, receives, or ends a call while the OTAPA is in progress, the OTAPA is terminated. The interaction of OTAPA with SMS is controlled by the Air Interface specification. For CDMA, if an OTAPA override mechanism is provided, the default setting shall be "off" (meaning OTAPA is permitted by default).
- d. This recommendation assumes that MSs are compatible with the provisions in *TIA/EIA/136* for Over-the-Air Activation Teleservice (OATS) and *TIA/EIA-136-730* for Over-the-Air Programming Teleservice (OPTS), developed by TIA sub-committee TR-45.3 (TDMA), or with the provisions in *CDMA_OTA* Over-the-Air Service Provisioning of Mobile Stations in Spread Spectrum Systems, developed by TIA sub-committee TR-45.5 (CDMA).
- e. The MIN or IMSI or both stored in an HLR's record for an MS that is being reprogrammed by an OTASP or OTAPA shall not be changed until after all OTAF/AC interactions are completed.
- f. The OTAF shall not issue an order that would result in a newly assigned MSID being committed in either the MS or the AC until after all OTAF triggered SSD updates, if any, and MS Reauthentication procedures, if any, for the OTASP or OTAPA session have been completed.

6.3 NETWORK TMSI ASSUMPTIONS

These assumptions are related to the use of network TMSI (i.e. TMSI valid in more than one MSC).

- a. The IMSI associated with an MS's TMSI should be stored at the MSC for future paging of the MS. The MS should be paged with a valid TMSI (e.g. an invalid TMSI is one which is erroneously assigned to multiple MSs causing authentication to fail).
- b. The network supports full TMSI (i.e. TMSI-CODE and TMSI-ZONE) referred to as a NetworkTMSI. If the MS registers with a TMSI-CODE, the TMSI-ZONE is added to create a full TMSI (i.e. NetworkTMSI) before it is sent across the network.

6.4 WIRELESS INTELLIGENT NETWORK ASSUMPTIONS

- a. The Wireless Intelligent Network (WIN) is a network which supports the use of intelligent network capabilities to provide seamless terminal services, personal mobility services and advanced network services in the mobile environment.
- b. Intelligent network capabilities are all those functional capabilities which support creation and execution of service logic programs which reside outside of switching equipment, but work in collaboration with the switching equipment based upon a common definition of call models and protocols. These service logic programs may utilize data resources and physical resources which also reside outside of the switching equipment.
- c. Whenever new WIN triggers are identified for detection points (DPs) that have not had any previously defined triggers, new *MAP* operations have been defined to query WIN service logic from those DPs. This methodology provides for the smooth introduction of new capabilities while minimizing backwards compatibility issues that could arise from modifying the existing *MAP* operations. The name of the new *MAP* operation is the name of the DP where the new WIN trigger is defined. This methodology is consistent with the ITU-T methodology of naming operations based upon the DP associated with the operation.
- d. Interactions between WIN and both Flexible Alerting (FA) and Mobile Access Hunting (MAH) are beyond the scope of this document and therefore have not been modeled.

6.5 SEGMENTATION AND REASSEMBLY ASSUMPTIONS

- a. Signal Transfer points (STPs) within the signaling network that perform global title translation for messages that may be segmented must be upgraded to SCCP XUDT (with forward compatibility rules) capability (e.g. ANSI SCCP Issue 3) before the IS-812 solution approach may be utilized. Other STPs within the signaling network that do not perform global title translation for messages that may be segmented do not have to be upgraded to SCCP XUDT capability since the SCCP protocol layer is 'invisible' to these nodes.
- b. International signaling gateways that exist in the signaling path between source and destination network entities must be upgraded to SCCP S&R capability before the IS-812 solution approach may be utilized.

6.6 PCS MULTI-BAND SUPPORT ASSUMPTIONS

- a. This recommendation assumes existing *IS-41-C* or earlier 800 MHz Base Station equipment may not have the ability to perform signal strength measurements for an MS operating at the 1800 MHz band. If MAHO is not possible, 1800 MHz to 800 MHz interband handoffs with these existing *IS-41-C* or earlier systems may be “forced handoffs.”

6.7 IMSI SUPPORT ASSUMPTIONS

- a. Backward compatibility is handled in several different ways, depending on the circumstances of individual transactions:

- i. Mandatory MIN is replaced by mandatory MSID, when one of MIN or IMSI is required. This effectively changes MIN from a mandatory to an optional parameter.

A Serving, Border, or Anchor System sends IMSI towards an MS’s HLR if IMSI is received from the MS, unless the IMSI received is recognized as a MIN-based IMSI. An IMSI of the format MCC+00+10D shall be recognized as a potential MIN-based IMSI. A potential MIN-based IMSI shall be recognized as a MIN-based IMSI if the MCC is one that has been designated by the associated country’s numbering authorities for this use. In the U.S., the MCC 310 has been designated for use with MIN-based IMSIs. In addition, an IMSI of the form 000+00+10D should also be treated as a MIN-based IMSI.

If a Serving, Border, or Anchor System receives a MIN-based IMSI from an MS, it shall treat the 10D extracted from that IMSI as the MS’s MIN and include the MobileIdentificationNumber parameter in messages sent to the MS’s Home System HLR or in other messages in which that parameter should be included if the MIN is known.

- ii. Optional MIN is replaced by an optional MSID when one of MIN or IMSI (or neither) is possible.
- iii. Optional IMSI is added where both MIN and IMSI may be present (particularly in handoff messages and messages to an Originating MSC).

- b. The MSID is introduced as a documentation convenience. It is an ASN.1 CHOICE of MIN or IMSI. MSID has no physical encoding, as the *X.208* specification for ASN.1 specifies that the tag (parameter identification) of a type defined using the “CHOICE” keyword takes the value of the tag of the type from which the chosen data value is taken (i.e., MIN or IMSI).

- c. Registration with one identifier (MIN or IMSI) results in the alternate identifier being returned, if possible. This is to support call detail record generation, roamer port terminations, redirection, intersystem paging, local roaming between locations using IMSI and locations not using IMSI (e.g., a VLR supporting multiple MSCs), *TIA/EIA-136* authentication, etc.

An MSC contains a database that contains a record for each registered MS. The MSC’s record for a registered MS contains the MS identification information included by the MSC in the MSID parameter in the RegistrationNotification INVOKE sent to register the MS. If additional MS identification information was received in an MSID parameter in the RegistrationNotification RETURN RESULT, the additional MS identification information is also stored in the MSC’s record for the MS.

- The VLR's record for a registered MS also stores this MS identification information. 1
2
- d. The VLR may substitute the MIN for the IMSI, or the IMSI for the MIN, in an INVOKE 3
component received by the VLR, before forwarding the message to the MSC. 4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

6.8 WIRELESS NUMBER PORTABILITY ASSUMPTIONS

- a. MobileDirectoryNumbers (MDNs) are the only wireless service provider's E.164 numbering resource that may be ported (e.g., Temporary Local Directory Numbers (TLDNs), Remote Feature Control (RFC) ports, Roamer Ports are not ported).
- b. This Number Portability document considers only "circuit mode calls."
- c. WNP interactions with Automatic Code Gapping (ACG) have not been addressed in this document.
- d. WNP interactions with Short Message Service (SMS) have not been addressed in this document.
- e. WNP interactions with other call-related features (e.g., Calling Name Presentation [CNAP]) have not been addressed in this document.
- f. WNP impacts on message accounting (e.g., *TIA/EIA-124* recommendations) have not been addressed in this document.
- g. WNP impacts to interface standards (e.g., *TIA/EIA-93*) have not been addressed in this document.
- h. Only limited location portability is supported consistent with *ANSI T1.660*. The designation of portable numbers may vary between systems. Establishing the geographical areas within which Number Portability (NP) must be supported is beyond the scope of this document.
- i. Number Portability databases (NPDBs) do not maintain records for numbers which are not ported.
- j. NP queries are performed by an MSC for all calls to numbers recognized as portable numbers, except for calls to portable numbers that are assumed to be not ported (see "a" above). NP queries are not performed for calls to operator services including calls dialed as "0+" calls.
- k. MobileStationIdentity (MSID) (i.e., InternationalMobileSubscriberIdentity [IMSI] or MobileIdentificationNumber [MIN]) is not portable.
- l. Public Switched Telephone Network (PSTN) directory numbers may be portable.
- m. The HLR operations (i.e., messages) have not been modified to support WNP. No new parameters, new parameter fields, or new parameter values have been added to existing HLR operations and no support is provided for HLR initiated Number Portability queries.
- n. An MSC which is Number Portability capable and has ISUP facilities supports *ANSI T1.660* on those facilities.
- o. Call looping should be avoided. However, no mechanism is provided by this standard to accomplish that objective.
- p. Roamer ports allow calls only to MSs known to be present in that system. NP queries are not performed for Roamer Port calls unless the called MS's HLR redirects the call from the MS to a portable number.
- q. ANSI ISUP Release Cause value 26 Misrouted call to ported number is supported to identify mismatches between the NPDB and HLR. Refinements to the use of Cause value 26 are for further study.
- r. An MSC knows which DN ranges are portable, but an MSC does not necessarily know

- which individual MDNs have been ported.
- s. When the MSC is not able to obtain portability information from the NPDB, the MSC shall default route the call.
 - t. When a call is default routed to the donor MSC, and that MSC attempts to deliver the call, the MSC performs a NumberPortabilityRequest (NPREQ) query to do so.
 - u. In a Number Portability environment the MobileIdentificationNumber (MIN) and MobileDirectoryNumber (MDN) may be different.
 - v. Only the MDN shall be used by the Serving MSC in call services to identify the subscriber externally (e.g. Emergency Services call back number, Automatic Number Identification). The Serving MSC shall not, in the absence of a successful HLR response, make any assumption as to the equivalence of an MDN and a MIN.
 - w. As this standard does not require the HLR to distinguish vacant numbers from numbers which have ported out, implementation specific HLR operations (e.g., signaling optimizations, forwarding number validation) may need to be modified so that service is not impacted. The required modifications are not addressed in this document.
 - x. An NP capable MSC may support an ISUP trunk group option for signaling the ported number instead of the LRN as the called party number for outgoing calls sent on that trunk group.
 - y. WNP interactions with transit call handling (e.g., tandem calls) have not been addressed in this document.
 - z. “Aging” and “Number Pooling” of MDNs have not been addressed in this document, including their implications on the use of ANSI Cause value 26.

6.9 CALLING NAME PRESENTATION ASSUMPTIONS

- a. This document describes intersystem operations for the implementation of Calling Name Presentation (CNAP) and Calling Name Restriction (CNAR) services. Not all of the CNAP and CNAR features and corresponding intersystem operations can be implemented in many public networks because of regulatory constraints, limitations of interconnecting networks, or other restrictions. Examples of such features include:
 - i. CNAR Blocking Toggle;
 - ii. the use of CNAR feature activation and deactivation codes that are distinct from corresponding Calling Number Restriction (CNIR) feature activation or deactivation code; and
 - iii. the use of distinct default presentation status for CNIR and CNAR.
- b. There are circumstances in which a CNAP subscriber roaming in a CNAP capable system receives an indication that a calling party name is *not available* for a call that is being redirected to that subscriber, even though the calling party number has been received by the subscriber’s Home System and the calling party name is available for retrieval from the appropriate database (e.g., a Line Information Database). These circumstances are limited to cases in which:
 - i. Before redirection, the call had been directed to an MS from the same Home System as the Home System of the subscriber to which the call is being redirected.

- 1 ii. The call is redirected by the Serving MSC, rather than by the Originating MSC.
- 2
- 3 c. Similarly, in some cases in which these circumstances apply, if the subscriber to which the
- 4 call is redirected is a CNIP subscriber, that subscriber may receive an indication that a
- 5 calling party number is not available even though the calling party number has been
- 6 received by the subscriber's Home System and the Serving System supports CNIP.
- 7
- 8 d. These limitations have been accepted because the only proposal that addressed these
- 9 limitations would have impacted call delivery for all calls, including calls to MSs that are
- 10 not subscribed to CNAP (or CNIP), and because it is assumed that circumstances in which
- 11 these limitations might interfere with the proper operation of CNAP (or CNIP) are rare.
- 12

13

14 **6.10 AUTHENTICATION ENHANCEMENT ASSUMPTIONS**

- 15
- 16
- 17 a. The TR-45 Cellular Authentication and Voice Encryption algorithm (CAVE) shall be
- 18 executed in an Authentication Center (AC), associated with the Home Location Register
- 19 (HLR), or in the Visitor Location Center (VLR) if SSD is shared, and in the Mobile Station
- 20 (MS). The HLR and MSC shall not be required to execute CAVE. As indicated below, the
- 21 AC is a *functional* entity in the network reference model that may or may not be located
- 22 within, and be distinguishable from, the HLR. (The interface between the AC and the HLR
- 23 is for further study.)
- 24
- 25 b. It is assumed that when the VLR receives a REGCANC it shall also cancel the subscriber's
- 26 SSD and any pending operations immediately.
- 27
- 28 c. It is assumed that the VLR shall not initiate a COUNT update for an unregistered MS.
- 29

30

31 **7 RESTRICTIONS**

- 32
- 33
- 34 a. Voice facilities for intersystem handoff are restricted to direct dedicated circuits between
- 35 pairs of participating systems.
- 36
- 37 b. This version does not provide for flow control of data between applications. However, flow
- 38 control is provided in the data link and network layer portions of this protocol.
- 39
- 40
- 41
- 42
- 43
- 44
- 45
- 46
- 47
- 48
- 49
- 50
- 51
- 52
- 53
- 54
- 55
- 56
- 57
- 58
- 59
- 60