Recommendation T/CAC S 10 E (Cannes 1983, revised in Odense 1986, Copenhagen 1987 and Vienna 1989(CAC) Athens 1992) Formerly Recommendation T/SF 31 E

SERVICES AND FACILITIES ASPECTS OF AN INTEGRATED SERVICES DIGITAL NETWORK (ISDN)

Recommendation proposed by Working Group T/WG 7 "Services and Facilities" (SF) Amendments proposed by Project Team Service Descriptions for the ISDN (SDI)

Text of the Recommendation adopted by Commercial Action Committee

"The European Conference of Post and Telecommunications Administrations,

considering

- that Integrated Services Digital Network (ISDN) will make available new services and facilities for customers and network operators.
- 2. that there is merit in harmonising the form in which these services are given to users in order to simplify operating procedures,
- 3. that the services may require to interface with each other,
- 4. that harmonised services should result in lower overall costs and faster growth,
- 5. that there is a need to develop within a common framework coherent arrangements for subscriber access to different services provided. Such arrangements have to allow for various network architectures taking into account the varying conditions in different countries.
- that unless harmonisation of the details of the services is achieved, incompatibilities may result between services at one network operator and between services offered by different network operators,
- 7. that there are different national numbering plans in terms of length and structure,
- 8. that there is a need to utilise one existing world numbering plan if possible,
- 9. that the increase in the number length must be as small as possible,
- that services should, where possible, use common supplementary services and facilities, e.g. Incoming Calls Barring, Call Diversion,
- 11. that the definition of services and facilities resulting from an ISDN would be of value to manufacturers in guiding development and to the network operators in their relations with consumer groups,

- 12. that CCITT have made a number of Recommendations standardizing the subscriber access for data services in digital networks,
- 13. that once subscribers have been connected both they and the network operator will benefit from the reduced marginal costs and installation lead-times for expanding the services available.
- 14. that the introduction should not adversely affect the network operators requirements to exercise control over the use of the network, to collect the revenue due to it for the use of the network and to maintain the network economically,
- that the services and supplementary services/add-on characteristics provided are likely to increase and alter with time, while the service available to a subscriber on an ISDN should be more flexible and certainly no less flexible than the service obtainable from a combination of all the existing dedicated networks that it will be replacing,

recommends

the following services and facilities aspects on an Integrated Services Digital Network (ISDN)."

CONTENTS

Recommendation T/CAC S 10.1: GENERAL ASPECTS OF AN ISDN

General

Types of ISDN Service

User Interfaces (excluding ISPBXs)

Call Handling Procedures

Channel Allocation

Numbering, Addressing and Service Indication Aspects

Definition of Busy in an ISDN

Figure 1: Bearer Service Attributes

Figure 2: Illustrating the Essential Difference between Services and Teleservices

Figure 3: Inter-Relationship of Service

Figure 4: Procedural Aspects of Call Offering

Recommendation T/CAC S 10.2: BEARER SERVICES TO BE PROVIDED BY ISDNs

General

List of Bearer Services

Descriptions of Bearer Services to be provided by ISDNs

CEPT Telecom T/CAC S 10 E

Annex 1: Circuit Mode 64 kbit/s unrestricted 8 kHz structured Bearer Service Category

Annex 2: Circuit Mode 64 kbit/s 8 kHz structured Bearer Service Category usable for

Speech Information Transfer

Annex 3: Circuit Mode 64 kbit/s 8 kHz structured Bearer Service Category usable for

3.1 kHz Audio Information Transfer

Annex 4: Circuit Mode Alternate Speech 64 kbit/s unrestricted 8 kHz structured Bearer

Service Category

Annex 5: Circuit Mode 2 x 64 kbit/s unrestricted 8 kHz structured Bearer Service

Category

Annex 6: Circuit Mode 384 kbit/s unrestricted 8 kHz structured Bearer Service

Category

Annex 7: Circuit Mode 1920 kbit/s unrestricted 8 kHz structured Bearer Service

Category

Annex 8: ISDN Virtual Call (VC) and Permanent Virtual Circuit (PVC) Bearer Services

provided on the B-channel of the User Access: Basic and Primary Rate.

Annex 9: ISDN Virtual Call (VC) and Permanent Virtual Circuit (PVC) Bearer Services

provided on the D-channel of the User Access: Basic and Primary Rate.

Annex 10: User Signalling Bearer Service Category (USBS)

Recommendation T/CAC S 10.3: TELESERVICES TO BE PROVIDED BY ISDNs

General

List of Standardized Teleservices for the ISDN

Existing Services to be Supported on an ISDN

Definitions of Teleservices to be Provided by ISDNs

Annex 1: Telephony 3.1 kHz

Annex 2: Telephony 7 kHz

Annex 3: Teletex

Annex 4: Telefax 4

Annex 5: Mixed Mode

Annex 6: Videotex

Annex 7: Telex

Annex 8: Videotelephony

Recommendation T/CAC S 10.4: INTERCOMMUNICATION ASPECTS OF AN ISDN

Introduction

General Intercommunication Aspects

Annex 1: Intercommunication and Interworking

Annex 2: Intercommunication - Overview

Annex 3: Teleservice Intercommunication Requirements due to the Introduction of

ISDN

Annex 4: Specific Requirements for Intercommunication/Interworking between ISDN

and PSTN

Recommendation T/CAC S 10.5: GENERAL SUPPLEMENTARY SERVICE ASPECTS OF AN ISDN

Provision

Annex 1: List of Supplementary Services

Annex 2: Definitions of Supplementary Services common to Voice and Non-Voice

Services

Recommendation T/CAC S 10.6: SUPPLEMENTARY SERVICES TO BE PROVIDED IN AN ISDN

General Aspects

Annex 1: Matrix with the Relevance and Priority of Supplementary Services to ISDN

Bearer Services

Annex 2: Matrix with the Relevance and Priority of Supplementary Services to

Teleservices

Recommendation T/CAC S 10.7: OPERATIONAL REQUIREMENTS AND RELEVANCE OF ISDN SUPPLEMENTARY SERVICES

Introduction

General Items concerning Descriptions of Supplementary Services

Annex 0.1: Format for the Operational Requirements for Supplementary Services

Annex 0.2: User Operation of Supplementary Services

Annex 0.3: List of Definitions for used Terms

Annex 0.4: List of Abbreviations

Operational Requirements

Annex 1: AOC Advice of Charge

Annex 1.1: AOC-S Advice of Charge, Charging Information at Call Setup Time
Annex 1.2: AOC-D Advice of Charge, Charging Information during the Call

Annex 1.3: AOC-E Advice of Charge, Charging Information at the End of the Call

Annex 2: CW Call Waiting
Annex 3: HOLD Call Hold

Annex 4: CT Call Transfer Services
Annex 4.1: ECT Explicit Call Transfer
Annex 4.2: SCT Single Step Call Transfer
Annex 5: Number Identification Services

Annex 5.1: CLIP Calling Line Identification Presentation

Annex 5.2: CLIR Calling Line Identification Restriction
Annex 5.3: COLP Connected Line Identification Presentation
Annex 5.4: COLR Connected Line Identification Restriction

Annex 6: Call Barring Services
Annex 6.1: CUG Closed User Group
Annex 6.2: OCB Outgoing Call Barring

Annex 7: CCBS Completion of Calls to Busy Subscriber

Annex 8: Conference Services
Annex 8.1: CONF Conference Call, Add On
Annex 8.2: MMC Meet-me Conference
Annex 9: DDI Direct Dialling In

Annex 10:		Diversion Services
Annex 10.1:	CFU	Call Forwarding Unconditional
Annex 10.2:	CFB	Call Forwarding Busy
Annex 10.3:	CFNR	Call Forwarding No Reply
Annex 10.4:	CD	Call Deflection
Annex 10.5:	CFU-S	Call Forwarding Unconditional to a Service Centre
Annex 10.6:	CFB-S	Call Forwarding Busy to a Service Centre
Annex 10.7:	CFNR-S	Call Forwarding No Reply to a Service Centre
Annex 11:	FPH	Freephone
Annex 12:	LH	Line Hunting
Annex 13:	MCID	Malicious Call Identification
Annex 14:	MSN	Multiple Subscriber Number
Annex 15:	PNP	Private Numbering Plan
Annex 16:	PRI	Priority
Annex 17:	RCSS	Remote Control of Supplementary Services
Annex 18:	SUB	Sub-Addressing
Annex 19:	TP	Terminal Portability
Annex 20:	3PTY	Three Party Service
Annex 21:	UUS	User to User Signalling

Recommendation T/CAC S 10.8: USER CONTROL FUNCTIONS OF ISDN TERMINAL EQUIPMENT

General

Scope

Terminal Elements

- Physical Modules
- Control Functions

Support of Services

Recommendation of Control Functions

- Start
- Stop
- Accept
- Service
- Control
- Select
- Edit
- Indication
- Do
- Reject
- Info

Examples of Control Procedures

SUBJECT INDEX

Abbreviations	10.7	Annex 0.4
Auto Repeat Attempts	10.1	4.3
Availability of Services	10.1	6.4
Basic Access Capabilities	10.1	3.1
Bearer Services	10.1	2.2
Bearer Services to be provided by ISDNs	10.2	Annex 1 to 10
Bearer Service Attributes	10.1	Fig. 1
Busy in an ISDN	10.1	7
Call Handling Procedures	10.1	4
Channel Allocation	10.1	5
Charging	10.1	1.5
Circuit Mode Bearer Services	10.2	3.1
Circuit Mode Bearer Services	10.2	Annex 1 to 7
Commercial Benefits of the ISDN	10.1	1.3
Commonality between Public and Private ISDN Services	10.1	2.7
Connection of More than One Terminal	10.1	3.2
Control Functions of ISDN Terminal Equipment	10.8	V.
· ·	40.5	
Definitions of Supplementary Services	10.5	3
Definitions of Supplementary Services	10.5	Annex 2
Description of Bearer Service to be Provided by ISDNs	10.2	2.3
Description of Teleservices	10.1	2.5
Descriptions of Bearer Services	10.2	3
Differences Between Bearer Services and Teleservices	10.1	Fig. 2
Electrical and Protocol Characteristics	10.1	3.3
End of Address Message	10.1	6.7
Evolution of ISDN	10.1	1.2
Factors to be Taken into Account when Considering		
the Provision of Network Interworking	10.4	6
Factors to be Taken into Account when Considering		
the Provision of Service Intercommunication	10.4	5
Format for the Operational Requirements for Supplementary Services	10.7	Annex 0.1
	40.4	
General Intercommunication Aspects	10.4	0
Guidance on Facilities	10.4	3
Guidance on Operation Procedures	10.4	4
Guidance on Quality	10.4	2
Implementation of Supplementary Services	10.5	4
Information Elements	10.1	6.3
Intercommunication and Interworking	10.4	Annex 1
Intercommunication (Between Services)	10.4	7.1
Intercommunication of Teleservices	10.4	Annex 3
Intercommunication Overview	10.4	Annex 2
Interworking (Between Networks)	10.4	7.2
Interworking Numbering Arrangements	10.1	6.6
Inter-Relationship of Services	10.1	Fig. 3
Introduction of New Services	10.1	2.8
List of Bearer Services	10.2	2
List of Supplementary Services	10.5	2
List of Supplementary Services	10.5	Annex 1

List of Teleservices for the ISDN	10.3	2
Locations of Supplementary Services	10.5	1.4
Network Interworking Arrangements	10.1	6.5
Numbering, Addressing and Service Indication Aspects	10.1	6
Numbering Aspects	10.1	6.1
Packet Mode Bearer Services	10.2	3.2
Packet Mode Bearer Services	10.2	Annex 8 to 10
Physical Connection	10.1	1.9
Power Failure	10.1	1.7
Priority	10.1	4.2
Procedural Aspects of Call Offering	10.1	Fig. 4
Provision of New Types of Supplementary Services	10.5	1.2
Provision of Service	10.1	1.8
Relationship between Service Intercommunication		
and Network Interworking	10.4	7.3
Relevance and Priority of Supplementary Services		
to ISDN Bearer Services Matrix	10.6	Annex 1
Relevance and Priority of Supplementary Services		
to Teleservices Matrix	10.6	Annex 2
Relevance of Supplementary Services	10.6	
Removal of Service	10.1	1.8
Rules for Channel Allocation	10.1	5.2
Security	10.1	1.4
Service Design	10.1	1.1
Service Indicators	10.1	6.3
Service Intercommunication Requirements, ISDN		
Bearer Services with Other Services	10.4	Annex 2
Service Types	10.1	2.1
Specific Requirements for Interworking/Inter-		
communication between ISDN and PSTN	10.4	Annex 4
Subscriber Control of Channel Allocation	10.1	5.1
Supplementary Services	10.1	2.6
Supplementary Services General Aspects	10.5	
Supplementary Services Operational Requirements	10.7	Annex 1 to 21
Telephony Supported by the ISDN	10.3	Annex 1 & 2
Teleservice Intercommunication Requirements due to		
the Introduction of ISDN	10.4	Annex 3
Teleservices	10.1	2.4
Teleservices	10.2	Annex 1 to 8
Terminal Addressing/Selective Calling	10.1	6.2
Terminal Interchangeability	10.1	1.10
Terms	10.7	Annex 0.3
Testing	10.1	1.6
Types of ISDN Services	10.1	2
User Control Functions of ISDN Terminal Equipment	10.8	
User Control Procedures	10.1	4.1
User Equipment End-to-end Capabilities	10.1	3.4
User Interface (Excluding ISPBX's)	10.1	3
User Operation of Supplementary Services	10.7	Annex 0.2
Validation of Network Requirements	10.1	4.4
Withdrawal of Service	10.1	1.8

ALPHABETICAL INDEX FOR SUPPLEMENTARY SERVICES IN RECOMMENDATION T/CAC S 10.5, and 10.7

Name	Abbrev.	T/CAC S 10.5 Number	T/CAC S 10.7 Annex no.
Abbreviated Address Abbreviated Address Services Account Card Calling Address Information Services Advice of Charge Services AOC, Charging Information at Call Setup Time AOC, Charging Information During the Call AOC, Charging Information at the End of the Call Alarm (Warning) Alarm Call	AOC AOC-S AOC-D AOC-E	1.1 1 16.3 2 3 3.1 3.2 3.3 18.1 4.1	1 1.1 1.2 1.3
Booked Call		4.2	
Call Barring Services Call Booking Services Call Completion Services Call Deflection Call Distribution	CD	5 4 6 9.4 15.4	6
Call Diversion Override Call Forwarding Busy Call Forwarding Busy to a Service Centre Call Forwarding No Reply Call Forwarding No Reply to a Service Centre Call Forwarding Unconditional Call Forwarding Unconditional to a Service Centre Call Hold Call Registration Services	CFB CFB-S CFNR CFNR-S CFU CFU-S HOLD	18.8 9.2 9.6 9.3 9.7 9.1 9.5 13.1 7 13.3	10.2 10.6 10.3 10.7 10.1 10.5 3
Call Transfer Services Call Volume Distribution Call Waiting Calling Line Identification Presentation Calling Line Identification Restriction Centrex Changed Charging Services Changing of Service During an Established Call.	CT CW CLIP CLIR	15.5 6.1 14.1 14.2 12.1 8 18.2	2 5.1 5.2
Closed User Group Completion of Calls on No Reply Completion of Calls to Busy Subscriber Conference Call, Add On Connected Line Identification Presentation Connected Line Identification Restriction Credit Card Calling	CUG CCBS CONF COLP COLR CRED	5.1 6.4 6.2 13.4 14.3 14.4	6.1 7 8.1 5.3 5.4
Date and Time Call Record Delivery Confirmation Direct Dialling In Diversion Services Expediting of a Call in Progress Explicit Call Transfer	DDI ECT	7.1 11.1 2.1 9 18.3 13.3-1	9 10 4.1
Fault Reporting Fixed Destination Call Freephone	FPH	10.1 1.2 8.1	11

General Deactivation		10.2	
Help Services		10	
Incall Modifications Incoming Call Barring Information Transfer Services Inhibition of Incoming Forwarded Calls Interception of Calls	IM ICB IIFC	18.9 5.2 11 5.5 18.4	
Lecture Call Line Hunting Logging of Incoming Calls	LH	13.6 12.2 7.2	12
Malicious Call Identification Mass Calling Meet-me Conference Multiline Services Multilocation Business Group Multiparty Calls Multiple Subscriber Number	MCID MMC MSN	7.3 19.3 13.5 12 12.4 13 2.2	13 8.2 14
Multi-Level Precedence and Preemption National Selection and Indication of Throughput Class Number Identification Services Numbering and Routing Services	MLPP	17.3 18.5 14 15	
Operator Access to and Control of Supplementary Services Opinion Collecting Services Out of Area Lines Outgoing Call Barring	OCB	15.1 5.3	6.2
Packet Delivery Confirmation Payment Changing Services Payphone Permanent Circuit Service Permanent Subscriber Number Permanent Virtual Circuit Service Predetermined Conference Call	PRM	11.2 16 16.2 15.8 15.2 15.9 13.7 8.6	
Premium Rate Priority Priority Selection Priority Services	PRI	17.1 17.2 17	16
Private Numbering Plan Provision of Charging Information on Request Queue Service	PNP	12.3 3.4 6.3	15
Remote Control of Supplementary Service Repeat Last Call Reverse Charging	RCSS REV	10.4 1.3 8.2	17
Security Screening Selective Call Forwarding Busy Selective Call Forwarding No Reply Selective Call Forwarding Unconditional Sequence Calling		5.4 9.9 9.10 9.8 9.11	
Single Step Call Transfer Split Charging Sub-Addressing	SCT SUB	13.3-2 8.5 2.3	4.2 18
Teledialog Service		19.2	

T/CAC S 10 E Page 10			CEPI Telecom
Televoting Temporary Location for Outgoing Calls Terminal Portability Three Party Service	TP 3PTY	19.1 15.7 18.6 13.2	19 20
Transfer of Charge	LIANI	8.3	
Universal Access Number User Defined Routing User Selection of PAD Parameter Settings	UAN	15.3 15.6 18.7	
User to User Signalling	UUS	11.3	21

8.4

Wide Area Service