INTERNATIONAL TELECOMMUNICATION UNION

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I.241.4

INTEGRATED SERVICES DIGITAL NETWORK (ISDN)
SERVICE CAPABILITIES

TELESERVICES SUPPORTED BY AN ISDN: MIXED MODE

ITU-T Recommendation I.241.4

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation I.241.4 was published in Fascicle III.7 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation I.241.4

TELESERVICES SUPPORTED BY AN ISDN: MIXED MODE

(Melbourne, 1988)

4 Mixed mode

The prose definition of the mixed mode service is an extract of Recommendation F.230.

4.1 *Definition*

This service provides combined text and facsimile communication for end-to-end transfer of documents containing mixed information of text and fixed images. The high layer attributes are based on the CCITT Recommendations for Teletex and Telefax 4.

4.2 *Description*

For further study.

4.3 *Procedures*

For further study.

4.4 *Network capabilities for charging*

This Recommendation does not cover charging principles. Future Recommendations in the D-Series are expected to contain that information.

It shall be possible to charge the subscriber accurately for the service.

4.5 *Interworking requirements*

For further study.

4.6 *Interaction with supplementary services*

For further study.

4.7 *Attributes and values of attributes of the mixed mode service*

a) *LOW LAYER ATTRIBUTES*

Information transfer attributes

		Circuit-mode bearer capability	*Packet-mode bearer capability*
1.	Information transfer mode	circuit	packet
2.	Information transfer rate	64 kbit/s	maximum throughput of a given virtual circuit is less than or equal to the maximum bit rate of the user information access channel and the throughput class of the virtual circuit
3.	Information transfer capability	unrestricted (Note 1)	unrestricted
4.	Structure	unstructured (Note 2)	service data unit integrity
5.	Establishment of communication	demand	demand (VC), permanent (PVC)
6.	Symmetry	bidirectional symmetric	bidirectional symmetric
7.	Communication configuration	point-to-point	point-to-point

Access attributes

		Circuit-mode bearer capability	*Packet-mode bearer capability*
8.	Access channel:	B for user information D for signalling	user information over virtual circuit within B- or D-channel. When D-channel is used, maximum packet size and quality of service may be restricted. Signalling may be provided via D-channel and/or virtual circuit within B-channel (Note 3)
9.	Access protocol		
9.1	Signalling access protocol layer 1:	Rec. I.430/I.431	Rec. I.430/I.431
9.2	Signalling access protocol layer 2:	Rec. I.440/I.441	Rec. I.440/I.441, X.31
9.3	Signalling access protocol layer 3:	Rec. I.450/I.451	Rec. I.450/I.451, X.31
9.4	Information access protocol layer 1:	Rec. I.430/I.431	Rec. I.430/I.431
9.5	Information access protocol layer 2:	Rec. X.75 (SLP)	Rec. X.25 (LAPB)
9.6	Information access protocol layer 3:	ISO 8208	Rec. X.25 (PLP)

b) *HIGH LAYER ATTRIBUTES*

10.	Type of user information :	mixed mode
11.	Layer 4 protocol functions:	X.224, X.214
12.	Layer 5 protocol functions:	X.225, X.215
13.	Layer 6 protocol functions:	T.61, X.226, X.216
13.1	Resolution [pixels per inch (ppi)]:	300×300 240×240 400×400 optional, 600, 1200
14.	Layer 7 protocol functions:	T.501, T.522, T.561

c) *GENERAL ATTRIBUTES*

15.	Supplementary services provided:	for further study
16.	Quality of service:	for further study
17.	Interworking possibilities:	ISDN Teletex, ISDN Telefax 4 (others for further study)
18.	Operational and commercial:	for further study

Note 1 - The interworking arrangements with networks having restricted 64 kbit/s information transfer capability require further study.

Note 2 - Even if no structure is required the network may provide 8 kHz integrity.

Note 3 - User information transferred via virtual channel on the D-channel is for further study.

4.8 *Recommended support of mixed mode by an ISDN*

a) Overall support[1]: A

b) Variation of non-dominant attributes:

1) Information transfer mode

– circuit: A
– packet: A

2)

Establishment of communication	*Symmetry*	*Communication configuration*	*Support*[1]
demand	bidirectional symmetric	pt-pt	E

3) Access

Signalling and OAM (Note 1)		User information		Support
Channel and rate	Protocols	Channel and rate	Protocols	
Circuit mode				
D(16)	I.430, I.440, I.441, I.450, I.451 (Note 2)	B(64)	I.430, X.75 (SLP), ISO 8208	A
D(64)	I.431, I.440, I.441, I.450, I.451 (Note 2)	B(64)	I.431, X.75 (SLP), ISO 8208	A
Packet mode				
D(16)	I.430, I.440, I.441, I.450, I.451, X.31	B(64) or D (16)	I.430, X.25 LAPB, X.25 (PLP)	FS
D(64)	I.431, I.440, I.441, I.450, I.451, X.31	B(64)	I.431, X.25 LAPB, X.25 (PLP)	FS
VC in B(64)	for further study	B(64)	for further study	FS

Note 1 - Definition of protocols for OAM is for further study.

Note 2 - Demand services only. Others are for further study.

4.9 *Dynamic description*

The circuit mode dynamic description appears in Recommendation I.220.

[1] The definition of E (essential) and A (additional) can be found in Recommendation I.240.