JT-V110
Support of Data Terminal Equipments (DTEs) with V-series Type Interfaces by an ISDN and Interface Specifications

1. Relations with international recommendations

This Standard is based on the ITU-T Recommendation V.110 approved by accelerated procedure in October 1992.

2. Summary of differences from the international recommendations

2.1 Selection of options from the international recommendations

None

2.2 National specific items

None

2.3 Others

This Standard has excluded the descriptions concerning the following item (s).

(a) Restricted 64kb/s transfer capability
Reason for exclusion: non-existence of restricted 64kb/s transfer capability in Japan

2.4 Differences in organizations of ITU-T Recommendation and TTC Standard

The contents of the preface of Recommendation V.110 has been integrated into Chapter 1 of TTC Standard JT-V110.

3. Others

(1) Identification of options
To satisfy the requirements on the services to be provided by Standard JT-V110, at least one of the options may be chosen for the items as identified below. However, compatibility checking of options adopted is required between the communicating users over the network for each communication based on this Standard.

List of items with selectable options

Symbol E: Essential
O: optional
A: Either or both options selectable

No.	Item (Section No.)	Options	Option Seleciton	Note
1	Indication of transfer rate for asynchronous mode (Note 4, Table 2-5 /JT-V110)	i. Use of out-of-band signalling (layer 3 message on D-channel)	E	
		ii. Use of in-band parameter exchange as described in Appendix I	O	
2	Frame structure in rate adaptation from 56kb/s user rate to 64kb/s (2.2)	i. Use of Table 2-7b/JT-V110	E	
		ii. Use of Table 2-7c/JT-V110	O	

3	Flow control (2.4)	i. Non-provision of flow control ii. Provision of flow control	E O
4	Connector	i. According to ISO 4902 ii. According to ISO 2593	A
5	Network independent clock (Chapter 5)	i. Non-support of network-independent clock ii. Support of network-independent clock	E O
6	In-band parameter exchange (Chapter 6)	i. Non-provision of in-band parameter exchange ii. Provision of in-band parameter exchange	E O

(2) Items for further study

List of Items for Further Study

No.	Item (Section No.)	Contents
1	Supoort of specific data signalling rates (2.1.2)	Support of data signalling rates other than 600, 1200, 2400, 4800, 7200, 9600, 12000, 14400, and 19200 b/s
2	Sample timing of Circuits 105 and 108 (Note 2, Fig. 2-2/ JT-V110)	Being the coordination between S and D bits intended to provide for compatibility with JT-X30, whether this coordination is strictly necessary for JT-V110
3	Rate negotiation (2.1.2.5)	Need for and method of rate negotiation
4	Multiplexing of inter-mediate rate streams (2.1.4)	Multiplexing of several intermediate rate streams to the 64kb/s B channel
5	Value of N (provi-sionally 24) (3.3)	Delay of the initial circuit 106 transition to the ON state after the transition of circuit 105 to the ON state
6	Data signalling rate selection (Note 5, Table 3-1/JT-V110)	The use of circuits 111 and 112 for data signalling rate selection
7	Transmitter signal element timing (Note 6, Table 3-1/JT-V110)	The use of circuit 113 is restricted by the synchronous nature of ISDN and needs further study.
8	Loopback testing (Note 8, Table 3-1/ JT-V110)	The use of circuits 140, 141, and 142
9	Loss of frame synchro-nization (4.1.5)	The values of three seconds and three frames are provisional.

10	Test facilities(Chapter 7)	Provision of maintenance and test loops
11	Interworking function (Note 1, Fig.A-2, Annex A)	Detailed requirements for the interworking function

(3) Relation between this Standard and JT-V120

ITU-T provides for two Recommendations, V.110 and V.120 which are not compatible with each other, for support of V-series data terminal equipments by an ISDN. TTC also provides for two corresponding Standards JT-V110 and JT-V120 based on these Recommendations. The rationale for this standardization is as follows.

This Standard and Standard JT-V120 have different characteristics because of difference in technical approaches and consequently they have different suitable areas of application. Standardization of both the specifications widens the application areas in total and provides the users with increased convenience and selection.

The following table compares the major features of each of the Standards and their application areas.

Features and Application Areas

	This Standard (JT-V110)	**JT-V120**
Features	1)Rate adaptation based on bit mapping 2)Transparent transfer of terminal data by the layer 1 capability 3)Multiplexing capability based on fixed multiplexing (item for further study) 4) Using for Circuit-mode connections	1)Rate adaptation based on HDLC flag staffing 2)Provision of error correction capability between TAs based on Standard JT-Q922 3)Using for Circuit-mode connections and Frame-mode connections 4)Efficient multiplexing based on statistical multiplexing 5)Generation of delay caused by assembling/disassembling of HDLC frames
Application	1)Generally easy in system designing, being similar to replacement of modems 2)No necessity to consider the effect of terminal-to-terminal delay and applicable in future not only to low bit-rate data but also to low bit-rate encoded voice signals (of less than or equal to 32kb/s) when standards for multiplexing will be ready 3)Suitable for applications with high-speed data transfer such as file transfer and batch processing (faster than or equal to 48kb/s)	1)More reliable in transmission thanks to error correction between TAs when start-stop mode terminals are connected 2)Maybe necessary to take the terminal-to-terminal delay into consideration in system designing. Possible to send low bit-rate encoded voice signals in broadcasting mode as delay has no significance 3)As multiplexing not only on a B-channel but also on an H0-or H11-channel is possible, this Standard will be applied to multiplexed transmission of communication information between the same endpoints including TA-host, PBX-host, and between PBXs

Area	
	4)The same rate adaptation mechanism is being used, so it enables terminals based on this Standard to communicate with X.21 based terminals (further study required for half-duplex mode of operation)

(4) Indication of this Standard in call control messages on D-channel
A supplement to JT-Q931 (Clarification on the application of layer 3) describes how to use this Standard in the information elements (Bearer Capability/Low Layer Compatibility) as specified in JT- Q931.

(5) Recommendations and Standards to be referred to

(i) TTC Standards
JT-I430,JT-I460,JT-X30,JT-Q921,JT-Q931,JT-V120

(ii) ITU-T Recommendations
X.1,V.10,V.11,V.14,V.24,V.25,V.25bis,V.35,V.54,V.110,V.230,I.211,I.411, I.500,I.510,I.515,I.530,I.600,I.603,T.50

(iii) ISO
2110,2593,4902