ITU-T Telecommunication Standardization Sector
Study Group 15
Experts Group for Video Coding and Systems
in ATM and Other Network Environments

Document AVC-662
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SOURCE: EDITOR (Sakae OKUBO)
TITLE :   DRAFT RECOMMENDATION H.32Y
Purpose: Discussion

Draft Recommendation H.32Y
Adaptation of H.320 terminals to B-ISDN

Vertical bars in the left margin indicate some Editor's notes added to the version input to the May SG15 meeting as TD-39(1/15).

{Editor's note - "existing H.320 terminal" is for convenience of writing, but it may need rewording if the time after this Recommendation becomes effective is taken into account}

1. Scope

This Recommendation describes technical specifications for adapting the terminal conforming to Recommendation H.320 to B-ISDN environments. The terminal conforming to this Recommendation interworks with the same type of terminals accommodated in B-ISDN as well as existing H.320 terminals accommodated in N-ISDN.

It is noted that functionalities supported by the H.32Y terminal are a subset of those of the H.32X terminal since the latter shall support interworking with H.320 terminals as a mandatory requirement.

{Editor's note - H.32Y may optionally support extra inband functionalities beyond those of existing H.320 terminals, such as negotiation for use of SRTS. This point needs further study.}

2. References

{Editor's note - ITU-T boiler plate be placed here}

ITU-T Recommendations

H.221	Frame structure for a 64 to 1920 kbit/s channel in audiovisual teleservices (revised at Helsinki, 1993)
H.230	Frame-synchronous control and indication signals for audiovisual systems (revised at Helsinki, 1993)
H.242	System for establishing communication between audiovisual terminals using digital channels up to 2 Mbit/s (revised at Helsinki, 1993)
H.243	Procedures for establishing communication between three or more audiovisual terminals using digital channels up to 2 Mbit/s (Helsinki, 1993)
H.261	Video codec for audiovisual services at px64 kbit/s (revised at Helsinki, 1993)
H.320	Narrow-band visual telephone systems and terminal equipment (revised at Helsinki, 1993)
H.32X	Broadband audiovisual communication systems and terminal equipment (???, 199?)
H.32Z	Visual telephone systems and terminal equipment for local area networks (???, 199?)
I.361	B-ISDN ATM layer specification (revised at Helsinki, 1993)
I.363	B-ISDN ATM adaptation layer (AAL) specification (revised at Helsinki, 1993)
I.431	B-ISDN user-network interface (Geneva, 199?)

I.580	General arrangements for interworking between B-ISDN and 64 kbit/s based ISDN (???, 199?)
Q.2931	Broadband integrated services digital network (B-ISDN). Digital Subscriber Signalling No.2 (DSS2). User network interface layer 3 specification for basic call/connection control (Geneva, 1994)

3. Definitions

• terminal adaptor

4. System description

4.1 Applications

This terminal can be used for various applications such as conversational services, distributive services, retrieval services, messaging services as the existing H.320 terminal can. This Recommendation does not specify any particular service.

4.2 System configuration

The H.32Y terminal is mapped onto the B-ISDN reference configuration, which is depicted in Recommendation I.413, as shown in Figure 1.
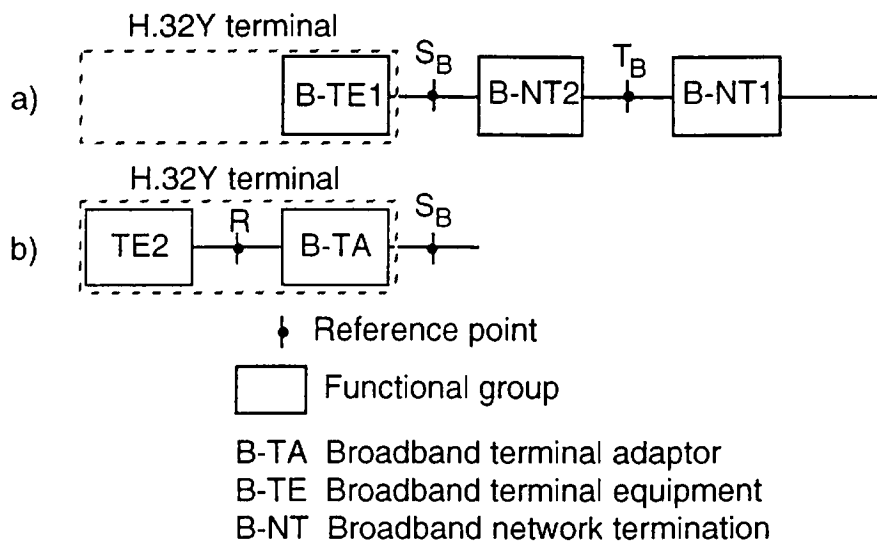

Figure 1/H.32Y Reference configuration

There may be two type of implementations. The first one is of an integrated design to include all of in-band and out-band functional elements, whereas the second one consists of an H.320 terminal equipment (TE2) and a broadband terminal adaptor (B-TA). In the second configuration, end-to-network signalling is performed in B-TA with possible interaction with TE2.

{Editor's note - is there any need to mention interface specifications for the junction point R between TE2 and B-TA?}

4.3 Protocol stack

A generic protocol stack of the H.32Y terminal corresponding to Figure 1 a) configuration is shown in Figure 2, where constituent elements and corresponding Recommendations are indicated.

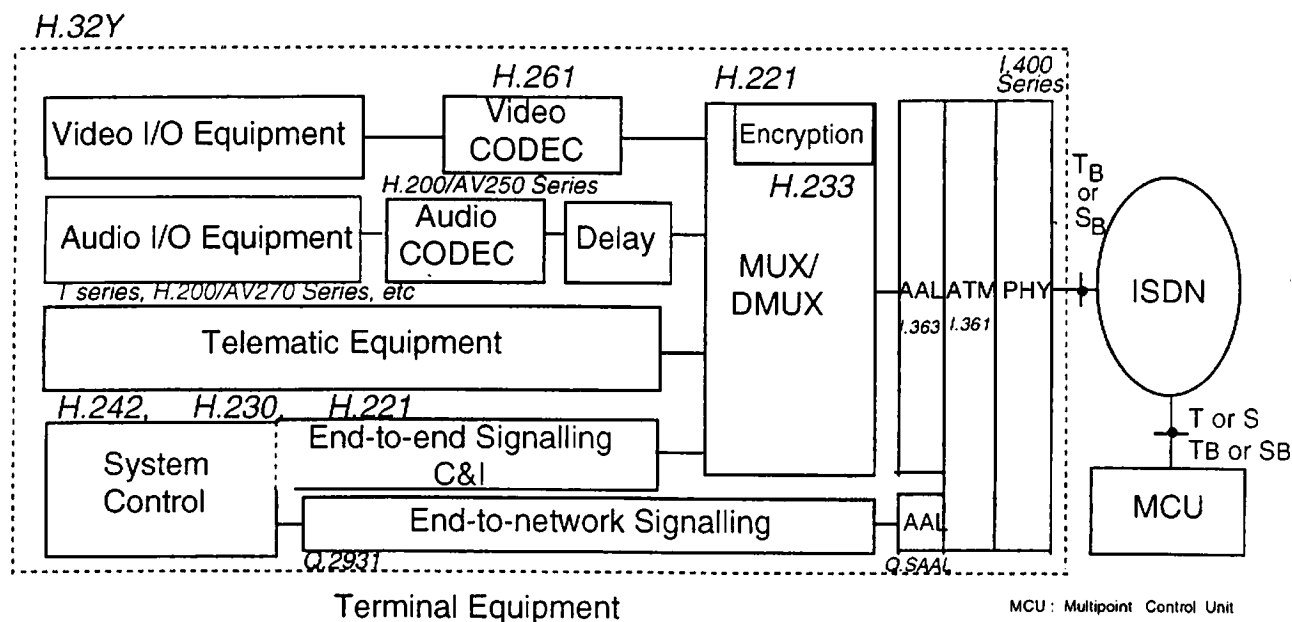{Editor's note - can we call Fig. 2 "protocol" stack? There seems to be strict definition of "protocol".}

H.32Y

Figure 2/H.32Y Protocol stack of the H.32Y terminal

4.4 Terminal type

Several types of terminal are defined according to the channel access capability (B, H0, H11/H12) and bit rate classes as for the H.320 terminal.

{Editor's note - exactly the same types can be applied? How to handle multiple connections? Many of the existing H.320 terminals are for 2B channels - Type Xb_1 (G.711/728), $Xb_{2/3}$ (G.711/722/728), Xb_4 (G.711), Xb_5 (G.711/G.722). The H.32Y terminal sets up two VCs, or the Interworking Function in the network takes care of channel aggregation?}

4.5 Point to point communication

An H.32Y terminal may have a variety of capabilities in audio coding, video coding, data handling, encryption, etc. In point to point communications, a common mode of operation is determined on a call by call basis through the communication procedures defined in H.242.

4.6 Multipoint communication

The H.32Y terminal can participate in multipoint communications through MCUs which are accommodated in B-ISDN or N-ISDN. Necessary communication procedures are found in Recommendation H.243.

{Editor's note - the following should be mentioned here?

   - Use of B-ISDN services such as multicasting
   - System solution for the mixture of H.32X and H.32Y/H.320
}

5. Infrastructure

5.1 Audio coding

As per G.711, G.722, G.728 or other standardized coding methods which may be added in the future.

{Editor's note - particularly H.200/AV253 "Wideband speech coding at 16/24 kbit/s" is in his mind}

5.2 Video coding

As per H.261.

5.3 Multimedia multiplexing and synchronization

As per H.221.

5.4 End-to-end control

Mandatory Control & Indication signals are defined in Table 4/H.320. Other C&I signals are defined in H.230.

5.5 Communication procedures

As per H.242 and H.243 for point-to-point and multipoint communications, respectively.

5.6 AAL for user information

AAL Type 1 as defined in I.363 shall be used for transmission of audiovisual information with the following parameters;

- SAR
- CS

{Editor's note - cell loss correction if bit rate >= 384 kbit/s ?}

{Editor's note - a specific subset of AAL Type 1 should be spelled out here for "circuit emulation"}

5.7 Call control

A call is established through the procedures defined in Q.2931.

{Editor's note - a specific set of parameters should de described here. I need your help!}

6. Terminal equipment

6.1 Environments

6.2 Audio source and arrangement

6.3 Video source and arrangement

6.4 Data and other auxiliary equipment

6.5 Optional enhancements

{Editor's note - in these 5 sections, there may be nothing new for H.32Y which is different from the H.320 description}

6.6 Error resilience

In B-ISDN environments, a communication channel may suffer from occasional cell losses in addition to bit errors. Audio and video source coding/decoding have inherent or built-in error correction or resilience mechanisms such as BCH in H.261. If the network performance is not sufficient for reconstructed audiovisual representation, error handling functions in AAL shall be used.

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{Editor's note - quantitative description is required}

7. Intercommunications

7.1 Intercommunication between different terminal types

{Editor's note - the following should be covered;

- H.32Y depending on bit rate class
- H.32X terminals connected to B-ISDN}

7.2 Intercommunication with N-ISDN terminals

The H.32Y terminal has capability of interworking with the H.320 terminal through the network support of interconnection between B-ISDN and N-ISDN as specified in Recommendation I.580.

7.3 Intercommunication with telephony

The H.32Y terminal shall be able to interwork with telephones accommodated in N-ISDN and PSTN. Its operational mode of communication is 3.1 kHz audio.

{Editor's note - use of signalling elements such as Bearer Capability should be mentioned.}

{Editor's note - packetizing delay of 6 ms is added for telephone communication through B-ISDN. This should be mentioned? Is there any network solution for this additional delay?}

7.4 Intercommunication with audiovisual terminals connected to other networks

- H.32Z for LANs

8. Maintenance

9. Human factor aspects

END