CCITT SG XV
Specialists group on Coding
STOCKHOLM
June 1987

DOC # 243

SOURCE : FRANCE

DISCUSSION PAPER IN REFERENCE OF DOCUMENT 195 FROM JAPAN

TITLE : PROPOSAL FOR CODEC TO CODEC INFORMATION IN THE FRAME

I - ABSTRACT

This document contains a subset of codec to codec information which are necessary for compatibility. A part of service and operating signalling is included. Examples are given for including these signals in the recommended frame Y 221. Solutions proposed take into account needs of encryption and network aspects.

Since switched networks will not be available at N x 384 kbit/s in the next future signalling is not treated in this document. But leased circuits on "manual" connected networks are envisaged. In this case maintenance and operation of the videoconference service will request the same controls such as remote loops and sometimes the same alarms. This double set of functions must be preferred to the case where detailed alarms are missing.

II - NETWORK INTERFACES

Two kinds of network interfaces are available now :
- 2 Mbit/s or 1,5 Mbit/s in accordance to G 703 recommendation
- X 21 port.

II.1. Bearers at 2 Mbit/s or 1,5 Mbit/s

This interface is described in G 703 recommendation for the physical acces. Time slots used by HO channels are described in I 431 recommendation.

To avoid free running frequency on the sending frequency on leased lines a tighter tolerance should be applied such as 10 ppm instead of 50 ppm. In this case and only in this one, we will have synchronous streams (in average) on the sending and receiving ports. Hence, we will avoid remote control bit for synchronisation which would be the rule in digital networks. The specification could be written :

- the signal shall have a bit rate of 2 Mbit/s (1,5 Mbit/s) $\pm$ 10 ppm on the sending port.

- the receiving port will accept bit rates of 2 Mbit/s (1,5 Mbit/s) $\pm$ 50 ppm.

Networks may use TS 16 for maintenance operation. Codecs are free to copy service information in this channel. Bilateral agreement between countries is possible for using bits in this channel.

Time slot sequence integrity is guaranteed by the network.

II.2. X 21 port

The interface is described is X 21 recommendation.
Byte synchronisation is provided by the network.

III - FRAMING

Only one channel has to be framed. The other time slots are all described in the frame. Provisional coding of Y 221 for videoconference application is given below.

III.1. General organization

The sound is transmitted at 48 kbit/s or 56 kbit/s for compatibility with audioconference. The coding algorithm is described in G 722 recommendation.

The application channel must provide subchannels for :

- Frame Alignment Signal (FAS)
- Bit Allocation Signal (BAS)
- Codec-to-codec information
- Controls and Information (Human-machine-Dialogue)
- Maintenance
- Options for encryption
- Message channel.

Among these subchannels encryption should not be allowed in order to have proper multipoint working.

III.2. Time slots and service channel examples

Figure 1 gives provisional organisation fo the sound channel
Figure 2 gives provisional organisation of the service channel

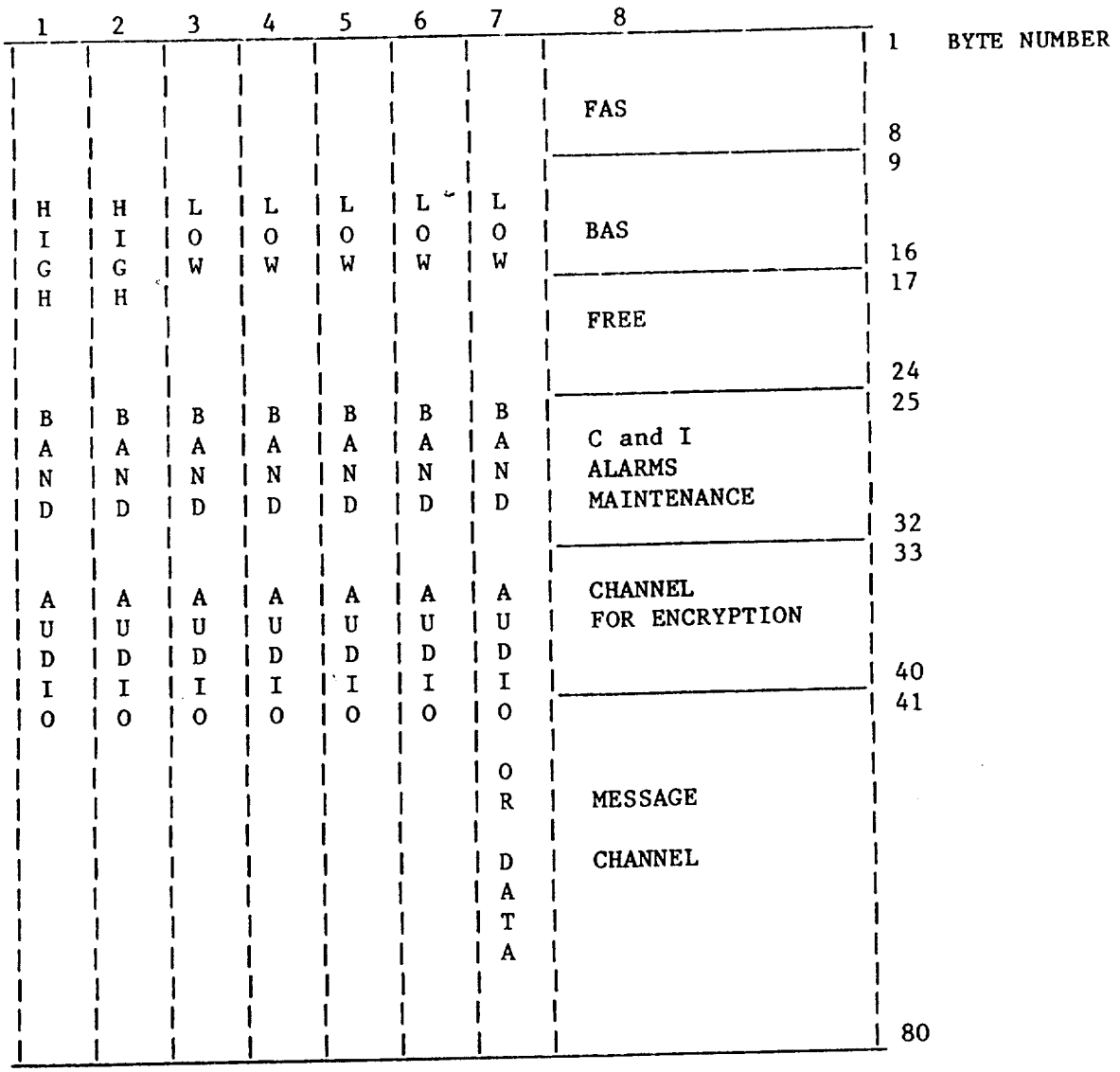

FIGURE 1
PROVISIONAL ORGANISATION OF THE SOUND CHANNEL

BAS		SOUND	DATA	ENCRYPTED SOUND	VIDEO	DATA	TOTAL *
Attribute bit 9-11	attribute bits 12-16						
	00000	RESERVED	RESERVED	RESERVED	RESERVED	RESERVED	384 kbit/s
		"	"	"	"	"	128 "
		"	"	"	"	"	128 "
		56 ADPCM	0	0	64	0	128 "
		48 ADPCM	8	0	64	0	128 "
		56 ADPCM	0	0	320	0	384 "
		56 ADPCM	0	0	256	64	384 "
		48 "	8	0	320	0	384 "
		48 "	8	0	256	64	384 "
		56 "	0	0	704	0	768
		56 "	0	0	640	64	768
		48 "	8	0	704	0	768
		48 "	8	0	640	64	768
		56 "	0	2 to 6 x 64	320	0	768
		56 "	8	2 to 6 x 64	256	64	768
		48 "	0	2 to 6 x 64	320	0	768
		48 "	8	2 to 6 x 64	256	64	768
		56 "	0	2 to 6 x 64	320	1 to 6x64	768
		48 "	8	2 to 6 x 64	320	1 to 6x64	768
		56 "	0	0	1088	0	1152

BAS		SOUND	DATA	ENCRYPTED SOUND	VIDEO	DATA	TOTAL *
Attribute bit 9-11	attribute bits 12-16						
		56 "	0	0	1024	64	1152 kbit/s
		48 "	8	0	1088	0	1152 "
		48 "	8	0	1024	64	1152 "
		56 "	0	0	1472	0	1536 "
		56 "	0	0	1408	64	1536 "
		48 "	8	0	1472	0	1536 "
		48 "	8	0	1408	64	1536 "
		56 "	0	0	1856	0	1920 "
		56 "	0	0	1792	64	1920 "
		48 "	8	0	1856	0	1920 "
		48 "	8	0	1796	64	1920 "

FIGURE 2 : PROVISIONAL ORGANISATION OF THE SERVICE CHANNEL

* The total amount includes framing and all side information

LIST OF DYNAMIC CONTROLS

These controls needs a majority vote at the receiver Side

- 64 kbit/s channel used for data
- graphics-mode used
- encryption used
- error correction used
- freeze frame request
- fast update request

LIST OF OPTIONS IN CODECS OR TERMINAL

- rates at physical port (1 to 6 HO channels)
- available rates : 1 to 6 Ho channels
- graphics mode available
- encryption system
- error correction system
- split-screen
- fac-simile available at 8 kbit/s port
- fac-simile available at 64 kbit/s port
- stereo channel available at 64 kbit/s port

MAINTENANCE INFORMATION

- Loop at terminal/network interface (local and towards network)
- remote loop at terminal/network interface (remote terminal and towards sending terminal)
- terminal ready
- alarm : errors on the Ho receiving port
- alarm : lost of video synchronisation at receiver side
- alarm : missing of video at the codec input.

C and I information

Audio, point-to-point
- . Activity
- . Origin
- . (Stereo/bilingual channel)

Video, point-to-point
- . Activity
- . Origin
- . Mode
- . Composition

Telematics (for further study)

Telewriter/marker
- . Activity
- . Mix/overlay

Multipoint working
- . Chairmanship assignment
- . Floor assignment
- . Telematics control
- . Video control (extension to point-to-point catalogue)
- . Audio control (extension to point-to-point catalogue)
- . Session control
- . Remote control (applicable to some audiovisual services, such as remote lecturing).

OTHER INFORMATION

Broadcasting data channel (for MCU)

REFERENCE

- CCITT STUDY GROUP XV Temporary document 105-E
  Control and indications for audiovisual Services ;
  Rapporteur for Q5/XV

- CCITT SG XV ; SGCV document 195
  Bit assignment for Application Channel, NTT, KDD, NEC and FUJITSU.