

SOURCE : WORKING PARTY XV/1

TITLE : EXCERPT FROM THE REPORT OF THE GENEVA MEETING (Feb. 18-22, 1991)

PURPOSE: Report

1. Introduction

The fourth meeting of WP XV/1 (Audiovisual) was held on 18-22 February 1991 in Geneva, under the chairmanship of Mr. M. Yamashita (NTT, Japan), Vice-Chairman of SG XV.

The chairman reported on the approval of five draft Recommendations drafted by the WP and thanked the delegates for the achievement. As a result of the establishment of H.261, it was reported that the Specialists Group on Coding for Visual Telephony has now successfully finished its work and has been disbanded, and that any further matter which may arise on H.261 will be dealt with in the WP.

2. Documentation

2.1 Documents relevant to Question 1/XV

- XV-127 (total signal/noise characteristics for G.722 codecs, France)
- D.242 (various tests and measurements, L M Ericsson)
- TD.19 (Rapporteur's report)

2.2 Documents relevant to Question 2/XV

- TD.19 (Rapporteur's report)

2.3 Documents relevant to Q3/XV

- D.263 (comments to H.320, Japan)
- TD.8 (cell loss in ATM network, WP XVIII/6)
- TD.9 (IVS baseline document, WP XVIII/8)
- TD.10 (Traffic and resource management, WP XVIII/8)
- TD.11 (liaison from MPEG, MPEG)
- TD.13 (Report of ATM Video Coding Experts Group) attached at the end

2.4 Documents relevant to Q4/XV

- D.251 (video teleconferencing service capabilities, USA)
- D.261 (comments on multipoint system draft Recs., Japan)
- D.262 (Comments on privacy systems, Japan)
- D.267 (extension of AV equipment Recs., Australia)
- D.283 (broadcasting type multipoint service, NTT)
- D.284 (information on FEAL cipher, NTT)
- TD.3 (human factor issues for UPT, SG I)
- TD.4 (LLC and HLC, WP I/3)
- TD.5 (revised AV Recs. framework, WP I/3)
- TD.6 (LLC and HLC, WP XI/6)
- TD.7 (multiple call collisions, WP XVIII/5)
- TD.16 (privacy system, SpR for Q4/XV)

- TD.17 (draft Recs. for multipoint systems, SpR for Q4/XV)
- TD.18 (texts for AV.231 and 243, SpR for Q4/XV)

3. Results

3.1 Question 1/XV - Characteristics of equipment for the digital transmission of sound programme signals

(omitted)

3.2 Question 3/XV - Visual telephone systems including videoconferencing and videophone

3.2.1 Report of Experts Group on ATM Video Coding

TD.13 was introduced. The WP appreciated the work initiated by the Experts Group.

The WP took note of the fact that the liaison statement produced by the Experts Group was directly sent to a SG XVIII meeting and this was done because of lack of time to get the formal approval of the WP. According to item 6 of terms of reference of the Experts Group (Annex 1, COM XV R-44), the Group is said to directly coordinate with CMTT and ISO/IEC, but not with other CCITT Study Groups. In order to allow the Experts Group a more flexible and free working method, the WP decided to modify item 6 as follows:

"to coordinate directly with the Experts of other CCITT Groups, CMTT and ISO/IEC on video coding;"

There was some discussion on the methods and degree of collaboration for the Experts Group with other standardization bodies. Although it was recognized that a common coding algorithm for all purposes is the most desirable objective, it was also pointed out that the effort of bringing commonality between the algorithms studied in other bodies should not hinder the Experts Group's activities in specifying an algorithm most appropriate for them. The work should be carried out on a delicate balance of the two objectives.

3.2.2 Integrated Video Service (IVS) baseline document

TD.9 was reviewed and it was decided to send to SG XVIII the liaison statement contained in Annex 1.

3.2.3 Cell loss in an ATM network

TD8 was reviewed. The WP considered it to be an input to the Experts Group on ATM Video Coding.

3.2.4 Traffic and resource management aspects

TD10 was introduced. This document was also found to be an input to the Experts Group on ATM Video Coding. In order to ask for further details to SG XVIII, a liaison statement contained in Annex 2 was prepared.

3.2.5 Liaison from MPEG

TD.11 was noted. It was also noted that collaboration work on ATM video

coding and MPEG phase 2 is now under way.

3.2.6 Completion of H.320

(omitted)

3.3 Question 4/XV - Harmonization of audiovisual systems

3.3.1 Multipoint systems

3.3.2 Privacy systems

3.3.3 LLC and HLC for AV services

3.3.4 H.242 matters

3.3.5 Multiple call collisions

3.3.5 Human factor issues for UPT

3.3.6 Subjective evaluation of AV systems and services by SGXII

3.3.7 AV Rec. framework

3.3.8 Compatibility with satellite

(omitted)

4. Future work

WP XV/1 will meet next on 11-15 November 1991. Efforts should be made in consolidating the draft Recommendations for multipoint systems and preferably privacy systems. Proposals for new Questions should also be prepared. More contributions and active participation of experts are requested.

It was agreed to hold a Special Rapporteur's meeting in the timeframe of autumn 1991, if sufficient progress is made on multipoint and privacy draft Recommendations based on the results of this WP meeting, through correspondence among interested members.

Experts Group on ATM Video Coding has been authorized to decide holding presumably two meetings before the November WP XV/1 meeting.

END

ANNEX 1

Questions: 2, 3, 4/XV, and 22/XVIII

Source : Working Party XV/1 - Geneva meeting, 18-22 February 1991

Title : Liaison statement to SG XVIII on IVS baseline document
(For information and action)

Subject : Comments to IVS baseline document

Contact point:

SpR for Q2/XV
H. Carbiere
PTT-Research
Dr. Neher Labs

SpR for Q3/XV
S. Okubo
NTT Human Interface
Laboratories

SpR for Q4/XV
N. D. Kenyon
BTRL

Deadline for reply: November 1991

WP XV/1 welcomes the initiative taken by SG XVIII in coordinating issues associated with video services and coding for B-ISDN through the baseline document. We are willing to contribute to the progress of the study, mainly through the activities of the Experts Group on ATM Video Coding. Particular areas in which we intend to provide input for updating the baseline document are;

- Video coding aspects: CBR vs. VBR, possibility of using layered coding, commonality of algorithms among different applications, adaptation to the network characteristics,
- Multimedia multiplexing for ATM environments,
- Requirements to AAL Type 2.

It is also suggested that in order to have an overview of the work ahead of us, it is advantageous to establish a framework of Recommendations for IVS and to have a rough division of work among the relevant groups on the basis of this framework. This approach has been adopted and proved to be successful in the development of Recommendations for audiovisual services and systems. For your information, the Annex contains this framework comprising Recommendations relevant to service, infrastructure, terminals and network. Having the experience of developing various Recommendations for the infrastructure for AV services, WP XV/1 believes it can also contribute in the same area in the development of B-ISDN related Recommendations.

Annex: Reproduce Annex 5 of COM XV-R 44

END

ANNEX 2

Questions: 3/XV, 2,13/XVIII

Source : Working Party XV/1 - Geneva meeting, 18-22 February 1991

Title : Liaison statement to SG XVIII (For action)

Subject : Traffic control and resource management aspects

Contact point: SpR for Q3/XV

S.Okubo

NTT Human Interface Laboratories

Deadline for reply: June 1991

WP XV/1 thanks WP XVIII/8 in providing initial pieces of information on the subject matter and looks forward to hearing further details which are indispensable to the development of video coding suitable for ATM environments.

We are particularly concerned with the mechanism and parameters to be applied for network usage monitoring (e.g. peak and average to be measured with some defined windows). Since these are crucial to the design (e.g. to clarify advantages of VBR against CBR), we would welcome not only final conclusions but also possible alternative solutions as soon as they become available.

END

Questions: 3/XV, 4/XV

SOURCE: CHAIRMAN OF THE EXPERTS GROUP FOR ATM VIDEO CODING
TITLE : FIRST PROGRESS REPORT

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1. General
 2. Group organization
 3. Scope of the study
 4. Work plan and work method
 5. Harmonization with other groups
 6. Future activities
 7. Specific items requiring the guidance or advice of Working Party XV/1

1. General

The Experts Group for ATM Video Coding was established to develop video coding standards for ATM environments at the Study Group XV meeting in July 1990. The group met first from 13 to 16 November in The Hague at the kind invitation of PTT-RNL. List of participants appears in Annex 1.

This document reports major achievements and particular items for consideration of the Working Party XV/1.

2. Group organization

Chairman Mr. S. Okubo NTT, Japan

Coordinating Members

FRG	Mr. F. May	Daimler-Benz
	Mr. G. Zedler	FTZ
Australia	Mr. M. Biggar	Telecom Australia
Belgium	Mr. W. Verbiest	Bell Telephone
Canada	Mr. S. Sabri	BNR
Denmark	Mr. E. Nielsen	Telecom Denmark
USA	Mr. R.A. Schaphorst	DIS
	Mr. A.J. Tabatabai	Bellcore
France	Mr. J. Guichard	CNET(PAA/TPA)
Italy	Mr. M. Guglielmo	CSELT
Japan	Mr. T. Tanaka	NTT
	Mr. M. Wada	KDD
Norway	Mr. H. Sandgrind	Norwegian Telecom
Netherlands	Mr. D.A. Schinkel	PTT-RNL
UK	Mr. D.G. Morrison	BTRL
Sweden	Mr. H. Brusewitz	STA
Switzerland	Mr. H. Keller	Ascom Tech

It is noted that Sweden has been added to the previous list (Annex 3 to COM XV-R 44) obtained at the Study Group XV meeting in July 1990.

Liaison Representatives

CMTT	Mr. H. Carbiere	PTT-RNL, Netherlands
ISO	Mr. M. Anderson	Bellcore, USA

3. Scope of the study

3.1 Applications

Possible applications for ATM video coding in B-ISDN are summarized in general term as:

- conversational services,
- distributive services,
- retrieval services.

with stress on their multimedia nature. During the discussion, the group recognized that our objective is to define a unified coding method which can cover the above mentioned services, rather than to confine to a specific service.

3.2 Boundary conditions for video coding

3.2.1 Target networks

We focus on B-ISDN as networks to which the new video codec is connected but do not preclude such networks as LAN and MAN as far as they are ATM based.

3.2.2 Network characteristics

ATM network characteristics to which our new video coding should adapt were overviewed by listing up opportunities as well as limitations. The group identified a number of questions which should be answered by the network people. A liaison statement contained in Annex 2 was addressed to SGXVIII which met at the end of November 1990.

3.2.3 Technical requirements for ATM video coding

1) Video signals to be handled

Initially we will concentrate on video coding of source signals in standard television formats but at the same time will try to accommodate extension to EDTV and HDTV sources.

2) Picture quality target

The target is defined as a range between conversational service quality and distribution service quality, awaiting quantification in the future.

3) Processing delay target

Processing delay of the new video coding should be less than that of the current systems.

4) Average bit rate

It should cover a range from 64 kbit/s to several tens of Mbit/s.

3.2.4 Compatibility issues

There was some discussion on the balance of achieving compatibility (between H.26X and H.261, see Figure 1) and highest coding performance. The group agreed on a guideline that compatibility between the new coding system and existing systems should be highly respected. Exact ways to implement this property requires further study.

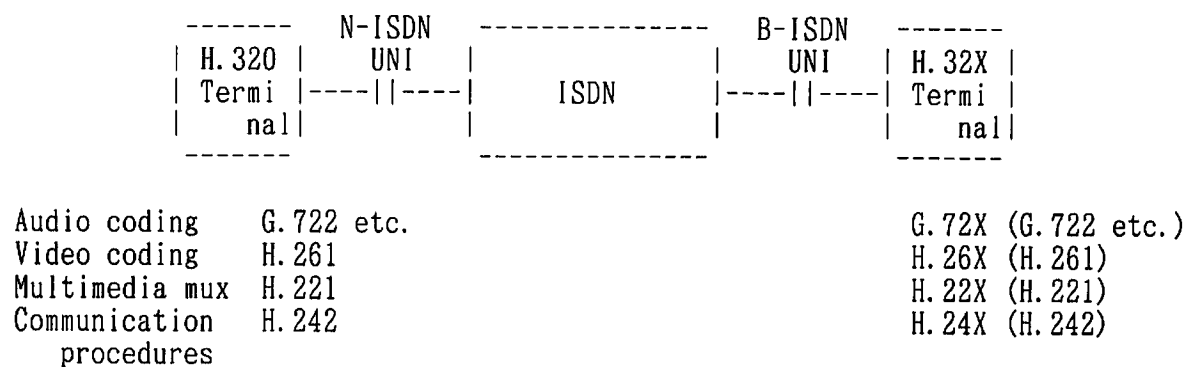


Figure 1 Interworking between H.32X and H.320 terminals

3.2.5 System aspects other than video coding

The group discussed how to handle such system aspects as multimedia multiplexing. Though it is obvious that this Experts Group is responsible for video coding aspects, we are in a position to raise requirements to WPXV/1 which is responsible for systems aspects of audiovisual services in B-ISDN. We confirmed that the group will study these system aspects to the extent that it facilitates video coding study.

3.3 Video coding problems to be worked out

3.3.1 Coding architecture

The group aims at a universal coding algorithm in terms of services, quality, resolution, application and bit rate each of which is given as a range.

3.3.2 Variable bit rate coding vs constant bit rate coding

Since VBR (variable bit rate) for constant quality is considered as one of the outstanding features of ATM, the group recognized it as an urgent study item to clarify the advantages of VBR video coding against CBR (constant bit rate) video coding in terms of statistical multiplexing gain and picture quality.

In the course of discussion, the group felt it would assist progress toward the next meeting to agree on a common network model, even if simple and crude. The first network model was developed, relating network loading to cell loss probability. Comparison of video coding efficiency (e.g. one layer coding vs two layer coding) based on this model as well as proposals for improvement of this model are encouraged.

3.3.3 Layered coding

The intention of layered coding is to obtain compatibility among different service classes (e.g. different picture resolutions) or to cope with cell loss (equivalently to make use of statistical multiplexing). How the layering should be implemented requires further study.

3.3.4 Picture formats

For simulation purpose, we will initially deal with QCIF/CIF and CCIR-601 formats. The group recognized the idea of a single coding format for CCIR-601 level pictures, but the details await further study. Contributions are requested to clarify advantages and disadvantages of that idea for making a decision.

3.4 AAL and multimedia multiplex suitable for video services

Extensive information was presented to understand the relation between AAL (ATM Adaptation Layer) and multimedia communications including video. The group confirmed that we should concentrate on Type 2 (see I.363) and provide our study results for SGXVIII.

4. Work plan and work method

4.1 Work plan

There was consensus on the following work plan of the group:

- Final Recommendation be made official in 1994, taking into account the completion of the B-ISDN Recommendations in 1992 and subsequent service provision.
- Outline Recommendation be produced at the end of the current study period, which includes scope, list of contents, such parameters as picture formats, framework of coding scheme, etc. to be agreed by that time.

4.2 Work method

The following methods practiced in the previous Specialists Group for H.261 were supported:

- Study is phased as "divergence" and "convergence".
- Step by step using Reference Models, and
- Hardware verification at the final stage.

As to the reference model, it was clarified that this time we need two kinds of model; one for network aspects study and the other for video coding aspects study. It was also clarified that the latter includes source coding as well as channel coding.

The group considered when the first Reference Model for video coding should be defined, and over what period various types of candidate algorithm should be tried, concluding that both should coincide with the demarcation between the "divergence phase" and the "convergence phase".

4.3 Time table

As a summary of the discussion for the work plan and method, the time table as shown in Annex 3 was agreed.

5. Harmonization with other groups

5.1 MPEG and CMTT plans

The group reviewed the organization and relevant work plan of ISO/IEC JTC1/SC2 (MPEG) phase 2 and CMTT to form a background of discussion.

5.2 Guideline

A basic question was whether this Group should work aligned with ISO and CMTT. After having a free discussion, the group agreed in principle to carry out joint work in order to avoid different standards in the same or similar areas and to avoid duplication of standardization work as well.

5.3 Specific ways of collaboration

After having heard suggestions on several possible ways of collaboration, the group produced a liaison statement to MPEG as contained in Annex 4.

This statement was discussed at the MPEG Berlin meeting of December 4-7, 1990. They concluded in response to our liaison statement that the ongoing phase of work on audiovisual coding at bit rates up to about 10 mbit/s be carried out in collaboration with CCITT, by holding joint meetings on matters of common interest such as video, systems, implementation.

A similar liaison statement to CMTT was felt needed. It will be discussed and decided at the next meeting of the Experts Group.

6. Future activities

The second meeting of the Experts Group, together with the 13th meeting of MPEG, was to be held during March 4-8, 1991 in San Jose (USA) at the kind invitation of C-Cube Microsystems. It has been postponed, however, due to the current world situation.

The Experts Group requests that it can decide its meeting schedule (presumably two meetings before November 1991) consulting with the Chairman of Working Party XV/1 after the present Working Party XV/1 meeting, taking into account changes of the situation which are not known at this moment.

7. Specific items requiring the guidance or advice of Working Party XV/1

- 1) Work plan - Annex 3
- 2) Methods of collaboration with other standardization bodies - §5.3
- 3) Responsibility of system aspects study for B-ISDN audiovisual services - §3.2.5
- 4) Meeting schedule between the current and next Working Party meetings - §6

END

Annex 1

List of Participants of the first meeting
of the Experts Group for ATM Video Coding
(13 - 16 November 1990, The Hague)

FRG	Mr. P. Klein Mr. G. Zedler	Siemens AG DBP Telecom	CM
Australia	Mr. M. Biggar	Telecom Australia	CM
Belgium	Mr. L. Elewaut Mr. O. Poncin Mr. W. Verbiest	Alcatel Bell Telephone University of Louvain Alcatel Bell Telephone	CM
Canada	Mr. D. Lemay	BNR	
USA	Mr. P. Alexander Mr. B.G. Haskell Mr. R.A. Schaphorst Mr. A.J. Tabatabai Mr. C.L. Yeh Mr. J. Zdepski	PictureTel AT&T Bell Labs DIS Bellcore Apple Computer David Sarnoff Research Center	CM CM
France	Mr. G. Eude Mr. J. Guichard	France Telecom France Telecom	CM
Italy	Mr. M. Guglielmo	CSELT	CM
Japan	Mr. Y. Kato Mr. S. Okubo Mr. T. Tanaka Mr. M. Wada Mr. M. Yano	Mitsubishi Electric NTT NTT KDD NEC	Chairman CM CM
Norway	Mr. G. Bjoentegaard Mr. H. Sandgrind	Norwegian Telecom Norwegian Telecom	CM
Netherlands	Mr. H. Carbiere Mr. A. Koster Mr. R. Plompen Mr. D. Schinkel Mr. B. Schuurink	PTT Research PTT Research PTT Contest PTT Research PTT Research	LR (CMTT) CM
UK	Mr. M.D. Carr Mr. D.G. Morrison	BT BT	CM
Sweden	Mr. H. Brusewitz Ms. C. Verreth	Swedish Telecom Swedish Telecom	CM
Switzerland	Mr. H. Keller	Ascom Tech	CM

CM: Coordinating Member
LR: Liaison Representative

Annex 2

Source: Experts Group for ATM Video Coding in SGXV
Title : Liaison statement to SGXVIII on requirements for B-ISDN network model as it impacts on video coding

The Experts Group for ATM Video Coding as established at the July 1990 meeting of Study Group XV has initiated its activities by holding the first meeting in The Hague (13 - 16 November 1990).

Since this Group is intending to make Recommendation(s) for video coding in B-ISDN environments, we need correct understanding of the ATM network characteristics. For this purpose, we have formulated a list of questions at the first meeting as attached which are expected to be answered by SGXVIII at the earliest occasion.

The Experts Group would welcome the participation of a liaison representative from SGXVIII to assist in clarification of the B-ISDN definition and performance. This would be particularly valuable at the second meeting (tentatively scheduled for 12 - 15 March 1991), since multiplexing of variable rate sources under certain cell loss conditions, and refinement of our network model, is expected to be discussed in detail.

Liaison to SGXVIII: Requirements for B-ISDN network model as it impacts on video coding

Abstract

The SGXV Experts Group on Video Coding for ATM held its first meeting in The Hague, 13-16 November 1990. An important outcome was the recognized need for a realistic model of the target B-ISDN to permit progress in the definition of suitable video coding methods. This liaison statement outlines the impact of various network parameters on video coding issues, and requests guidance from SGXVIII concerning parameter values. To permit advancement of video coding work, an initial network model is offered for comment by SGXVIII.

Introduction

The Experts Group for ATM Video Coding was established by SGXV to investigate new possibilities for video coding offered by service support on the B-ISDN, and to develop appropriate coding algorithms. There is a significant impact on video coding as a result of ATM transport, and on multimedia system design as a result of virtual connections. The impact of certain network parameters on approaches to video coding and video service provision are outlined below. The intention is to both obtain guidance from SGXVIII regarding suitable parameter values to allow video coding work to progress, and to provide SGXVIII with some input that may influence aspects of network design. The first section briefly itemizes the main issues and the addenda will give a more comprehensive explanation.

Issues

1. Cell loss ratio:

- What will be the expected values, for both priority levels?

2. What is the cell loss burst behavior?

3. How is the CLP bit used?

- Will there be separate negotiations for the two priority levels?
- When will the service provider set this bit?
- What are the restrictions for the use of this bit?
- Is the quality of service selectable?

4. Usage parameters:

- What parameters will be used for policing and admission control?
- What policing mechanism will be used?
- What averaging intervals can be used to measure mean, peak, etc.?

5. Multimedia connections:

- How will the admission and monitoring of an ensemble of VC's be handled?
- What is the limit on differential delays between different VC's?

6. Bit Error Rates:

- What is the expected rate?
- What is the impact on the AAL?

7. Cell delay jitter:

- What values are expected?

8. Network model for hardware experiments:

- What will be maturity of the B-ISDN network by mid '93?

9. AAL

The Experts Group for ATM Video Coding is willing to collaborate with SGXVIII in defining the AAL for video services, and will forward appropriate input to SGXVIII.

Addenda

Ad.1 Cell loss ratio

Various cell-based video coding systems have been developed or simulated, collectively capable of satisfactory performance in the face of a variety of cell loss ratios. However, the actual figure to be expected from the network for a particular video service application and bit rate will determine both the need for cell loss protection or recovery and the method to be used. The Experts Group expects to identify appropriate cell loss ratios for video services on the B-ISDN, and will input this information to SGXVIII when available.

The cell loss ratio has fundamental implications for the video coding strategy and its efficiency. If, for example, layered video coding systems are to be used, exploiting the availability of the cell loss priority indicator, an indication of the cell loss rate for each priority level is necessary. Figures for expected cell insertion rates are also required.

Ad.2 Cell loss burst characteristics

The question of whether cells are lost in isolation or in bursts is fundamental for the video coding approach. Some coding schemes are proposed which provide a means of protecting against bursts of cell loss, but they may not be necessary if cells are lost in isolation (i.e. if cell losses are uncorrelated).

- Will cell loss be dominated by network congestion?
- Will bursts of cell loss result from network congestion?
- Will the cell loss burst length be service rate dependent?
- Will high priority cells be affected by network congestion?

Clarification of these points is sought from SGXVIII, and additional guidance to an appropriate statistical model to characterize bursts of cell loss would be welcome.

Ad.3 Use of CLP indicator

The use of CLP is useful for some coding schemes to provide tolerance to cell loss.

- Under what circumstances would the service provider set the CLP indicator?
- Could the CLP be changed by the service provider after a user has set it?
- Will the usage monitoring structure encourage the use of both high and low priority cells?
- Will the rate of high and low priority cells be negotiated independently with the network?

Other information concerning call admission control and usage monitoring that would impact on the user's choice of a combination of high and low priority cells would be welcome.

Ad.4 Usage parameters

Ad.5 Multimedia connections

The ability of the B-ISDN to perform the multiplexing task provided by the terminal on circuit-switched networks makes it attractive to consider cell-by-cell multiplexing (by use of different Virtual Channels, or possibly on a single VPI/multiple VCI's) for the provision of multimedia connections.

However two issues arise here, as discussed below:

- Will the network be capable of providing connection admission and monitoring based on the group of VC's constituting a multimedia connection? If not, would users see a penalty in the use of multiple VC's, and be encouraged to perform multimedia service multiplexing at a higher layer? SGXVIII should be aware of this possibility and consider whether this capability can be accommodated. Previous

experience with multimedia services suggest that a group of at least seven VC's may be necessary, but we would like to know if there is an upper limit.

- Differential VC delay. If multimedia connections (video and associated audio in particular) are supported over multiple VCs, there exists the possibility of differential delay. If excessive, this may require end-to-end signalling overheads to add time-stamps and permit resynchronisation. What is the expected limit on differential delay between VCs?

Ad. 6 Bit error rates

We assume that cell payloads are subject to a small probability of transmission bit errors. The statistics of such errors will determine the need for, and type of, error correction mechanism and the overhead necessary to achieve this. It could also influence approaches to, and efficiency of, video coding and choice of code word assignment schemes.

What is the expected probability of transmission bit errors, and are these errors likely to be uncorrelated or bursty? Draft Rec.

I.363 notes (section 2.3 and 3.3) that one of the functions of type 1 and 2 AALs is the '...monitoring of user information field or bit errors and possible corrective action...'. The Experts Group wishes to work with SGXVIII to further clarify the functionality of the AAL in this respect.

Ad.7 Cell delay and jitter

The fixed component of end-to-end delay is an important factor for conversational video services. It will impact on the choice of coding method and allowable buffering within the encoder and decoder.

What is the expected maximum B-ISDN delay, including processing and queuing within the B-ISDN switching equipment?

The variation in delay, or jitter, determines the size of receive buffers necessary for its removal, and therefore again influences the total end-to-end delay. What are the expected statistics of cell delay jitter? Is a hypothetical reference connection available or planned, that would assist in these matters?

Ad.8 Network model for hardware experiments

It is the initial intention of this Experts Group to target hardware trial of ATM video codecs for the second half of '93. Success of such trials will depend on the availability of network equipment or simulators. Would these be expected in this timeframe?

Ad.9 AAL

Draft Rec. I.363 describes AAL type 1 & 2 structures which could be used for real-time video services. To make progress, the experts group intends to distinguish between:

- an AAL suitable for existing video services (e.g. H.261), that could be standardized in the relatively short term.
- for future ATM video coding standards, an AAL matched to the specific

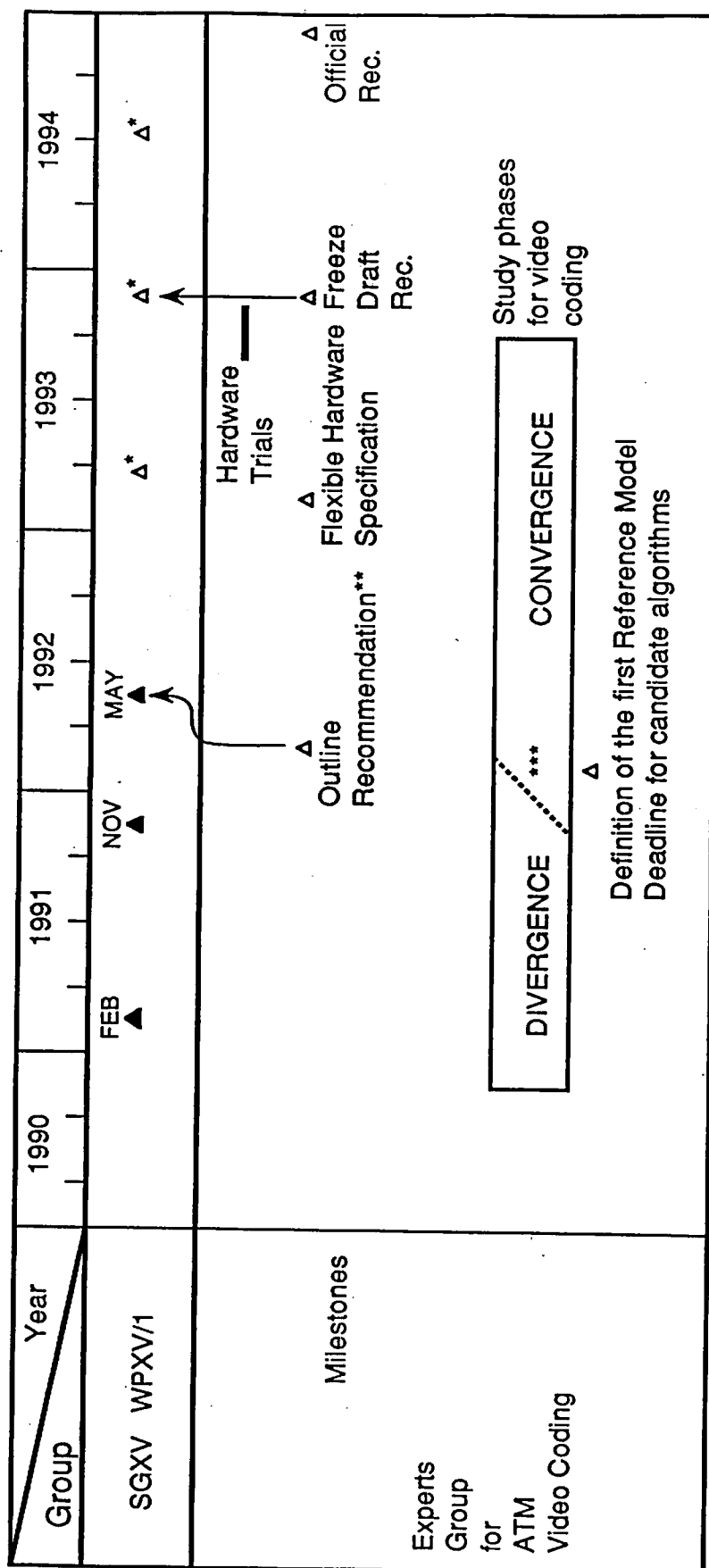
coding algorithms will be necessary. It is premature to define an AAL for these applications at this time.

Conclusion

Close liaison between the Experts Group for ATM Video Coding and SGXVIII will be necessary to harmonize and optimize B-ISDN network design and video service provision. It is the Experts Group's intention to provide input to SGXVIII on requirements for network performance and to assist SGXVIII in the definition of the AAL for type 1 & 2 service categories.

In the first instance, however, the Experts Group requires guidance to provide bounds for certain network parameters crucial to the development of appropriate video coding methods. The main issues have been highlighted in this document. A model of the network is necessary to permit commencement of video coding studies. The parameters of such a model, along with some estimates of possible parameter values, is provided in the Appendix. This is a first attempt, to initiate studies. Refinements will be made at future meetings. SGXVIII is invited to comment on, or correct this model.

END



* Meeting schedules for the next study period (1993-1996) are not yet decided. These are copied from those of the current study period.

******* This outline Recommendation includes scope, list of contents, such parameters as picture formats, framework of coding scheme, etc. which are agreed by that time.

*** This demarcation may vary according to the progress of the coming year.

Annex 4

SOURCE : CCITT SGXV Experts Group for ATM Video Coding
TITLE : Letter to Dr. L. Chiariglione, Convenor ISO/IEC JTC1/SC2/WG11
PURPOSE: Liaison statement

In its liaison letter to ISO/IEC JTC1/SC2/WG11, CCITT SGXV Working Party XV/1 has stated its recognition of the importance of close collaboration between the two groups as invited in the liaison letter of July 1990 from the WG11 convenor.

At its first meeting, 13 - 16 November 1990, the CCITT Experts Group for ATM Video Coding discussed this further, in particular the exact manner in which this collaboration could be best achieved.

The scope of work of the Experts Group will initially cover video coding at bit rates between 64 kbit/s and several tens of Mbit/s, for transmission over Asynchronous Transfer Mode networks. This range encompasses that of the next phase of ISO/MPEG. Furthermore as already envisaged by MPEG in its preliminary requirements documents, the transmission of MPEG-2 encoded signals over telecommunications networks, especially ATM based ones will be very important. Consequently it would indeed be of great mutual benefit if commonality of standards or parts of standards could be achieved.

To this end the CCITT group proposes that joint meeting sessions be arranged in the areas of overlapping interest and responsibility, namely:

- source video coding algorithm and video multiplexing,
- system issues concerning multimedia multiplexing and synchronization,
- implementation considerations.

The aim would be to maximize the effort applied to common areas while recognizing that other aspects will remain the sole responsibility of the individual organizations, for example matters relating solely to storage media or telecommunications networks.

The exact nature of the joint meetings will require joint consultation and it is suggested that this be accomplished so that the first joint meeting would occur at the beginning of March 1991. Both MPEG and CCITT have meetings scheduled at this time.

The CCITT work plan is attached and it shows a high degree of consistency with the MPEG work plan. As an early input to the joint effort, a document is also appended listing some provisional recommended requirements for the proposed joint activity.

END