CCITT SGXV
Working Party XV/1
Experts Group for ATM Video Coding

Document AVC-402
November 10, 1992

Working Party XV/1
Geneva, 5-10 November 1992

Source: Working Party XV/1
Title : Meeting report *(Excerpt)*

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1. General

The interim meeting of Working Party XV/1(Audiovisual) was held on 5-10 November 1992 in Geneva, under the chairmanship of Mr.M.Yamashita (NTT, Japan), Vice-chairman of Study group XV.

2. Objectives of the meeting

2.1 To continue ongoing discussions
- authentication and key management
- channel aggregation
- call control
- terminal procedures
- JPEG still image transmission
- PSTN videophone

2.2 To discuss new inputs

2.3 To provide inputs to the editorial work by the SpR on the draft recommendations to be submitted to the Plenary;

3. Discussion points and documentation

3.0 General
- TD5 AV systems harmonization: Status report (SpR Q4/XV)

3.1 Privacy/authentication and key management
- TD19 Report of the experts meeting
- D510 Endorsement for removing authentication from H.KEY(USA)
- D511 Proposal to delay H.233 (USA)
- D512 Proposal to reorganize key management preference list (USA)
- D513 Comments to experts recommendation (USA)

3.2 Channel aggregation
- D480 Synchronized channel aggregation (BT)
- D497 ISO liaison on channel aggregation (Australia)
- D506 G-WAY function to support interworking of 6B-H0 (USA)
- D526 Proposal for channel association (France)
- TD12 Channel aggregation for use in public/private integrated services networks (JTC1/SC6)

3.3 Call control
- TD6 Call set-up procedures for videotelephony (SpR Q4/XV)
- D487 Comments and proposals on AV.420 (Japan)
- TD4 HLC for videotelephony/videoconferencing (WP XI/6)

3.4 Terminal procedures
- D484 Reply to questionnaire on terminal behavior (Japan)

3.5 JPEG still image transmission
- D486 Protocols for JPEG transmission through LSD/HSD (Japan)
- D508 JPEG directions in the H-series (USA)
- D543 Use of JPEG still image transmission (PKI, BT)
- TD17 Work items to define JPEG transmission (SpR Q3/XV)

3.6 PSTN videophone
- D479 Standardization of PSTN videophone (UK)
- D483 Interworking between PSTN and ISDN videophones (Japan)
- D507 Comments on PSTN videophone (USA)
- D548 PSTN videophone standardization (PTT Netherlands)
- TD8 Liaison from WP I/3

3.7 H.242/243 related new proposals
- D469 Change of video bit-rate in multipoint operation (France Telecom)
- D498 Miscellaneous H.200-series features (USA)
- D509 Clarifications for the next study period (USA)
- D516 Audio side conferencing (USA)
- D517 Remote video quality controls (USA)
- D521 Dialogue between basic terminals and servers/MCU (France Telecom)
- D522 Additions to H.243 (France Telecom)
- D557 Introduction of V.14 data rate adaptation (Matra)
- TD7 Liaison from WP I/3 (tokens in multipoint svs.)
- TD13 Generic aspects of MCU (WP I/3)

3.7.1 MLP matters
- D471 H.DLL using H.243 broadcast capability (USA)
- D472 H.FECC (USA)
- D488 Comments on MLP (NTT)
- TD1 H.DLL and H.FECC proposals (SpR Q23/VIII)
- TD2 Bit positions to derive an MLP serial stream (Q23/VIII)
- TD3 MLP - Bitrate flexibility (Q23/VIII)

3.8 ATM videocoding
- D482 Application of video coding for B-ISDN (Japan)
- TD14 Traffic control and resource management (WP XVIII/8)
- TD15 IVS activities (WP XVIII/8)
- TD16 B-ISDN AAL matters (WP XVIII/8)
- TD21 Liaison statement from ISO/IEC JTC1/SC29/WG11 (MPEG)
- TD23 Progress report (CM of Experts Group)

3.9 Quality matters
- TD9 Automatic quality of service fall-back (JAHG)
- TD10 RDTD of 50msec (JAHG)
- TD11 Study project on video performance assessment (WPXII/2)
- TD20 Liaison statement from Task Group 10/2

3.10 Inputs to the editorial works
- D485 Comments on H.231/243/230 (Japan)
- D505 Editorial changes to H-Recs. as frozen at Geneva (USA)
- D523 Clarification of sequence A in H.242 (France Telecom)
- D524 Contradiction between H.221/230/243 (France Telecom)
- D525 Comments on H.230/231/242/243/320 (France Telecom)

4. Agreements

4.1. General

A status report was presented by the Special Rapporteur for Q4/XV. In addition to introducing the progress made under Q4/XV, he stressed the need to clarify the relationship between audiovisual systems and the so called multimedia, and drew the attention of the meeting that almost required standards work is already in the CCITT and ISO work plans. he stressed the need to publicize the "multimedia/audiovisual" program as much as possible.

He also emphasized the urgent need for a joint plan to be accepted at the management level of CCITT and ISO in the standardization of audiovisual systems, in order to clarify the responsibilities of SG XV and MPEG in the areas of overlapping interest. In order to draw the attention of ISO/IEC JTC1/SC29, the higher body of MPEG, on the standardizing of system aspects a liaison statement was prepared.(Annex 1)

4.2 Channel aggregation

The activities in ISO/SC6 for establishing a new international standard for digital channel aggregation was noted in their liaison to WP XV/1, asking comments on the need for a standard and how the work can be coordinated between the two groups.

In the light of the desirability of having a harmonized specification, and the fact that H.221 already exists, which is capable of catering for their requirements if some enhancements are made, it was decided to send a liaison statement as contained in Annex 2, asking them to consider use of H.221 for their purposes. This liaison will also be sent to SG XVII to seek their views on this proposal and the associated requirements (Annex 3a). At the same time it was agreed to rename Gateway-Box to CAU (Channel Aggregation Unit) to avoid misunderstanding that provision of this box is the responsibility of the network providers. The proposal to enhance H.221 is contained in Annex 3.

It is the will of WP XV/1 to enhance H.221 at the earliest possible timing, which would be to freeze the modifications at the September 1993 meeting and to put to Resolution No2 procedure in May 1994.

(Annex 2) *omitted*
(Annex 3, 3a) *omitted*

4.3 Editorial changes to May 1992 draft Recommendations

Errors and inconsistencies in the draft Recommendations frozen at the May 1992 SG XV meeting were pointed out. Annex 4 contains a list of agreed editorial changes.

With regard to the proposal to add specifications for Identity Information to H.243 and 230, which were believed by the proponent to have been inadvertently omitted at the May meeting, was considered to be too big a change for being editorial. Therefore, it was agreed that the meeting would freeze the texts contained in Annex 5 and that the texts be included in the relevant Recommendations at their next occasion of revision.

(Annex 4- see TD25 rev.) *omitted*
(Annex 5) *omitted*

4.4 Privacy/authentication and management Recommendations

The results of the experts meeting on authentication and management held in Washington D.C. in July was introduced by the chairman of that meeting, Mr.G.Roelofsen (PTT, the Netherlands). Based on their recommendations and other inputs, the following was agreed.

4.4.1 H.233

i) H.233 will be editorially changed to reflect the policies on encryption method standardization. The draft as modified was agreed to be put forward to the CCITT Plenary for adoption. There was a discussion for clarification whether the unsent IV is loaded or not when the previously sent IV is in effect; it was concluded the matter is encryption algorithm dependent and that it should be defined in each encryption description.

ii) In the light of progress made in ISO registry of encryption methods, i.e. BCRYPT was registered in August of this year and is now ready for use, it was agreed to reserve a codepoint in H.233 for the Algorithm Identifier codepoint "0000 0101" for ISO/IEC 9979 Algorithm register, registration number 000001. Information on this registration in contained in Annex 6

The editorial changed to H.233 are contained in Annex 4
(Annex 6 ---- will reproduce part of ISO registration) *omitted*

4.4.2 H.KEY

i) The proposal to reorganize the key management preference list (D.512) was agreed. The preference now is first ANSI X9.17, then Diffie Hellman, then RSA/X.509, and finally Manual.

ii) D510 endorsed the observations made by the experts and proposed to remove personal authentication from the scope of the recommendation: there was expressed a reservation to this proposal saying that this function is important. Since it was noted that no specifications are currently provided nor proposed for personal authentication in the draft, it was felt sufficient to reflect the discussions in the future drafts of H.KEY as appropriate.

ii) Due to time limit, a revised text for H.KEY could not be drafted during the meeting. It is expected that an improved text be developed by correspondence and that this could be frozen at the next meeting of SG XV.

iii) It was reported by the Special Rapporteur that Public Key Partners has expressed in a letter its willingness to make its intellectual property in this area available for license on fair, non-onerous and non-discriminatory terms.

4.5 MLP and JPEG related issues

Documents addressing protocols for use of LSD and HSD channels, and the particular case of remote camera control for videconferencing, were presented. It was said that for the camera control the protocol must be fast-acting, so the use of MLP, even if it were fully defined, would be inappropriate because of likely delays during message exchanges - the camera control requires only unidirectional transmission. However there was also a strong desire expressed for lightweight protocol to be available also for use of the LSD and HSD channels; this is urgent to meet present user demands, while the MLP will not be available for some considerable time. Also, the use of MLP is unworkable for use with LSD and HSD channels for multipoint operation as specified in H.243. It was felt useful to have a joint discussion of WP XV/1 experts and SG VIII experts to exchange views and divide the work. A draft containing the views expressed by the delegates was prepapred for further discussions in this Working Party and with SG VIII experts. (Annex 7)

(Annex 7) omitted

Concerning the JPEG matter, three contributions were presented and a comparison made. It was decided to proceed on the basis that the required stack would be presented to SG VIII for approval, but that for the definition of the relevant codepoints in H.221 (Table A3) a single profile would be selected, such that all terminals declaring the capasbility value would be able to interwork at least with the parameters of that profile.

It was emphasized that provision of profile for JPEG transmission is urgent and delegates were asked to bring back the proposal in D486, which contains a workable profile set for JPEG transmission, and consider the acceptability of the proposal and to seek agreements through correspondence at the earliest possible occasion.

In reponse to the liaison from Special Rapporteur's Group Q23/VIII to allocate codepoints in H.221 to give more flexibity for MLP, a liaison statement saying that we intend to provide for that capabilities and showing possible MSP rates and reserve values (Annex 8).

(Annex 8) omitted

4.6 PSTN videophone (very low bitrate visual telephony)

Standardization of PSTN videophones was addressed. A suggestion was made to phase the standardization work into short term and long term, and to set up an Experts Group to deal with the short term standards. There were two distinct proposals for the short term. There were some questions expressed as to the practicality of achieving the short term standard. The proposal to set up an Experts Group was considered impractical from the view point of CCITT working rules. Therefore, it was agreed that the work be progressed from this meeting to the next by appointing Mr.D.Schaphorst as Special Rapporteur on this subject and by correspondence and possibly holding meetings with the experts in video, audio coding and systems. The terms of reference for this work is contained in Annex 9. It is requested that experts willing to participate in this correspondence contact the Special Rapporteur.

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It is anticipated that no more than three meetings (January, March and July 1993) would be required prior to the next SG XV meeting. The agenda for these meetings is to

gather information in accordance with the terms of reference and the preparation of a status report in September, 1993.

(Annex 9)

4.7 Call control

On the basis of contributions addressed to this subject, a revised version of AV.420 was drafted. A concern was expressed with respect to possible overlap of work with Q.939 in SG XI with AV.420. This led to a discussion as to the appropriate group to establish this recommendation, i.e. SG XV or SG XI. It was agreed to send a Liaison statement to SG XI seeking comments on our developing AV.420. (Annex 10) It was felt urgent to establish a Recommendation on call control, and pending the comments from SG XI in September, SG XV will finalize this draft recommendation in that meeting.

(Annex 10) *omitted*

4.8 ATM video coding and B-ISDN

Fourth progress report of the Experts Group for ATM video coding (Rapporteur's Group on part of Q3/XV) was reported by the Special Rapporteur. The report appears as Annex 11 of this report. The Experts group sought the considerations of the Working Party on the work plan for broadband audiovisual Recommendations and the common text approach for H.26X|MPEG-2. The meeting endorsed the common tsext approach taken by the Group, and also drafted an updated standardization timetable under the responsibilities of SG XV by collecting work plans projected in QC/XV.

The proposal to set up an Experts Group on very low bitrate visual telephony was discussed under section 4.6 of this report.

It was agreed to send liaison statements to MPEG and SG XVIII informing our activities. (Annexes 12, 13)

(Annex 11 --- TD23) *see AVC-401*
(Annexes 12, 13)

4.9 New proposals on H.242 and 243 and related Recommendations

Various proposals on enhancing the Recommendations were subitted. The meeting considered these proposals and decided that these will be kept for further considerations

The meeting agreed to ask Mr.D.Skran(AT&T,USA) to take the associate Rapporteurship for coordinating the prposals made in this meeting concerning multipoint audiovisual systems (H.243, H 231 and relevant C&I in H.230) and to work for future enhancements to there Recommendations.

4.10 Quality matters

Liaison statements from other groups containing matters related to quality aspects were introduced; however, due to limited time, no action was taken.

4.11 Others

i) Liaison statement from Task Group 10/2 containing information on subjective tests on commentary-quality audio codecs was noted.

ii) It was reported that Sony Corporation has filed a patent statement relevant to still image transmitter in H.261.

iii) Request for information from WP XV/3 on signaling aspects for sound programme channel in G.797 was noted; however, no information could be given.

5. Future activities

5.1 Experts Group for ATM coding (Rapporteur's Group on part of Q3/XV)will meet on:

the 10th meeting	21-29 January 1993	Italy
the 11th meeting	29 March-7 April 1993	Sydney, Melbourne
the 12th meeting	July 1993	New York

5.2 In order to advance the studies of Q4/XV to be continued in the next study period, specifically call procedures, channel aggregation and key management, Special Rapporteur for Q4/XV has been tentatively authorized to hold an experts meeting in the time frame of May-June 1993, if sufficient progress is made through correspondence and pending agreement of the CCITT Director if so decided. Members of SG XV wishing to attend should notify Dr.N.D.Kenyon by the end of February 1993.

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The report of this meeting, if held, will be submitted to SG XV at its September 1993 meeting.

END

ANNEX 1

International Telegraph and Telephone

Consultative Committee

TD 28 (XV/1)

Period 1989-92

Questions 3 and 4/XV

Title: Liaison statement to ISO/IEC JTC1/SC29 concerning Systems Aspects
Source: WP XV/1

Contact point:
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Further to our communication of May 1992, we considered the matter of multiplexing and other systems aspects at our November 1992 meeting. Consequently we wish to add the following comments.

We appreciate that the current impetus for completion of an "MPEG Systems" standard by March 1993 is driven by the requirements of the entertainment-broadcast industry, and note that an essential parameter in this field of applications is "connectionless" transmission. It is likely that TV Transmission Equipment Recommendations prepared under CCITT Question A/XV will incorporate the results of the MPEG work.

Multimedia/audiovisual telecommunication systems using connection-oriented transmission are also of concern to CCITT under Questions B/XV and C/XV, as well as SG VIII (Q23/VIII of the 1989-92 period).

For telecomunications systems carried on fixed bit-rate (single- or aggregated multiple-) channels up to 1920 kbit/s, H.221 frame structure and BAS code syntax has been adopted, with H.242 procedures; this includes provision for communication of an MPEG-1 video stream, or a composite MPEG-1 audio + video stream, and/or an MPEG-1 audio stream. It would be possible to take the same approach to communication of MPEG-2 streams, although it is understood that the application of MPEG-2 video at such low rates is questionable.

However, given the need to define telecommunications sytems operating on higher fixed bitrate channels and on other types of channel such as ATM, it is necessary to develop other system multiplexing. In the interest of harmonisation, WP XV/1 proposes to adopt as far as possible the "core" of the multiplex now under development in MPEG-2, rather than produce an independent multiplex which may cause interworking difficulties.

The requirements which would have to be satisfied in this multiplex are based on our intentions for incorporation into a CCITT Recommendation H.22x, as tabulated.

Requirement on MPEG-2 System	Further development for Rec. H.22x
Assignment of alternative Pack Header for CCITT purposes OR next box below	Assembly of packs containing streams appropriate to CCITT systems, including MPEG-1/2 video/audio streams and others; packet headers assigned by CCITT (MPEG stream values would be identical)

(Alternative) assignment of a range of Packet Headers to CCITT	Specification of packets containing CCITT-standardised information types (audio, video, telematic, various data types, control)
Specification of time-stamps having a range of at least 24 hours	Specification of time relationships between streams in CCITT systems, and control protocols to meet these
Statement of the effects of transmission errors, including any provisions made for detection or correction	Development of further error-treatment schemes as appropriate to CCITT systems
Statement of provisions made for privacy or access-control facilities	Development of privacy facilities for CCITT systems
Variable packet-length structure	Adaptation of information flows to various connection types Specification of interworking between MPEG-2-multiplexed signals and other systems

We ask that these requirements be taken into account, and that the MPEG-2 Systems working group be informed accordingly.

Annex 9

Terms of reference
for
Special Rapporteur for Very Low Bitrate Visual Telephony

The terms of reference for the activity of the Special Rapporteur are listed below. The work will be carried by soliciting contributions and coordinating the various works;

1) to study video coding algorithms applicable to several kbit/s and above including those derived from existing standards such as H.261,

2) to study speech coding at low bit rates around several kbit/s and above,

3) to study multiplexing methods (bit multiplexing and packet technique) for audio, video and other auxiliary signals,

4) to study methods for error correction and/or other error resilience,

5) to study modulation and demodulation methods to transmit the multiplexed audiovisual signal on PSTN, low bandwidth telecommunication networks, and/or mobile environments.

It is suggested to proceed as follows;

1) not to develop a new specific ISDN teleservice because of the severe impact on the network,

2) interworking between new very low bit rate video telephones and ISDN terminals is important, but to achieve it without any modifications of existing standard H.320,

3) not to go below 9.6 kbit/s for the total bit rate of audio and video from service quality consideration,

4) to use existing or emerging CCITT standardized modems,

5) to develop a long term study plan (for the CCITT study period 1993-1996 or beyond) for audiovisual applications at very low bit rates,

6) to develop a work method to collaborate with other standardization groups, particularly ISO/IEC JTC1/SC29/WG11,

7) to prepare a status report for the meeting of SGXV in September 1993.

Annex 12

Questions: 3 and 4/XV
Source: WPXV/1
Title : Liaison statement to SGXVIII (for action)
Subject: IVS activities of WPXV/1

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At its meeting of November 1992, Working Party XV/1 of CCITT Study Group XV reviewed the fourth progress report of the Experts Group for ATM Video Coding, the IVS Baseline Document (COM XVIII-R103-E) as well as the outcome of the IVS Technical Session held in November 1992.

Based on these input, WPXV/1 updated the workplan for CCITT SGXV in the IVS Baseline as attached. Inclusion of this revised table is requested in the next version of the IVS Baseline Document.

For other relevant B-ISDN matters, the Experts Group will continue to keep close liaison with SGXVIII.

STANDARDISATION TIMETABLE 3 - CCITT SGXV

H.26X (video coding)

3. CCITT SGXV ATM Video Coding Experts Group	1992	1994	1994+
	~~Outline Recommendation~~	Recommendation completed	ATM
3.1 STM/ATM		ATM	
3.2 CBR/VBR	~~Decision on CBR/VBR~~	CBR and/or VBR	
3.3 Bit Rate		Range up to several tens of Mbit/s	
3.4 Design Features		- Universal coding (in terms of services, quality resolution, application and bit rate) - extension capability to HDTV quality	
3.5 Service Types		- Conversational - Distribution - Retrieval	
3.6 Other Features		Compatibility with H.261, MPEG 2 and CMTT/2	
3.7 Interworking		Terminal interworking	
3.8 Dependencies		CCITT SGXVIII - AAL Spec CCITT SGXVIII - QOS and network performance CCITT SGI - Stage 1 Service Descp MPEG - Generic Coding CMTT - Secondary Distribn Coding	

Recommendation AV.222 (Conversational system)
223 (Distribution system)
245 (Communication procedure)
25X (audio coding)
321 (Broadband video telephone)
331 (Multipoint system)
42X (Call control)

Annex 13
Questions: Q3 and 4/XV
Source: WPXV/1
Title: Liaison statement to ISO/IEC JTC1/SC29/WG11
Subject: Activities of WPXV/1 on very low bitrate visual telephony and ATM video coding (for information)

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1. Very low bitrate visual telephony

At its meeting of November 1992, Working Party XV/1 of CCITT Study Group XV decided to appoint Mr. Richard Schaphorst (USA) as Special Rapporteur for Very Low Bitrate Visual Telephony Terms of reference is attached. With the help of experts on viseo, audio and systems, he is mandated to coordinate the subject matter as well as to develop a work plan for the long term study. The latter task includes recommendation on an appropriate method of collaborative work with the planned MPEG New Work Item which is described in your liaison statement (N0272).

2. Common text approach to H.26X|MPEG-2

At its meeting of November 1992, Working Party XV/1 of CCITT Study Group XV endorsed the common text approach proposed by the Experts Group for CCITT Recommendation H.26X and ISO standard MPEG-2. We believe this approach is a natural conclusion of the collaborative work between the Experts Group and MPEG since May 1991, and is mutually beneficial. One concern from CCITT point of view, however, is that due to the different time schedules for freezing the MPEG specification, and for B-ISDN standards development, there might happen a situation that unknown requirements are found after the MPEG specification freezing time. This fact should be born in mind and necessary procedures for adding new specifications in the future should be checked against CCITT and ISO/IEC JTC1 rules.

Attachment: Terms of reference for very low bitrate visual telephony