AVC-583

ITU-T SG15
Working Party 15/1
Geneva, 7-17 September 1993

Temporary Document 65(p)

Source: Working Party 1/15
Title : Meeting report (Part 1)

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1. General

The first meeting of Working Party 15/1(Audiovisual) was held on 8-15 September 1993 in Geneva, under the chairmanship of Mr.M.Yamashita (NTT, Japan), Vice-Chairman of Study group 15.

2. Objectives of the meeting

i) Set objectives for the study period
ii) Initiate study on the above
iii) Finalize H.KEY(H.23X) and H.Agg
iv) Continue ongoing studies
- multipoint (H.231, 243)
- H.DLL, FECC

v) Give guidelines to the work of JCG on AVMMS (Joint Coordination Group on Audiovisual/Multimedia Services)

3. Documentation

3.1 General

- COM 15- 1: Texts of Questions
- COM 15- 2: Res. Nos. 1 and 2

3.1.1 JCG on AVMMS

- COM 15- 2, p10: JCG
- D37 : Division of effort between SG15 and SG8 (USA)
- TD29(p) : Terms of reference for AVMMS JCG
- TD14 : Participation in the AVMMS JCG (SG13)
- TD15 : Participation in the AVMMS JCG (SG2)
- TD19 : Liaison on framework for Recs. for audiovisual services (SG8)
- TD26 : Exchange of information on Multimedia issues (SG1)
- TD36 : Participation in the AVMMS JCG (SG7)
- TD40 : JCG AVMMS (MPEG)

3.1.2 Other JCGs and ICGs

- TD2(p) : Report of ICG on satellite matters (ICG on Satellite matters)
- TD7(p) : ICG on FPLMTS (SG1)
- TD25(p) : JCG on B-ISDN (SG13)

3.2 Q1/15

- COM 15- 1 : Question

- TD55 : Request for information on signalling aspects for sound programme channel (Rap.Q21/15)

3.3 Q2/15

- COM 15- 1: Question

3.3.1 ATM video coding

- TD10 : VBR video coding advantage (WP13/8)
- TD12 : AAL Type 1 timing recovery issues (WP13/2)
- TD13 : Error correction method for delay sensitive signal transport of AAL Type1 (WP13/2)
- TD16 : IVS Baseline document (SG13)
- TD37 : MPEG-2 Systems working draft (Rapporteur (Mr.Okubo))
- TD38 : MPEG audio (MPEG audio sub-group)
- TD39 : Draft H.26x (Rapporteur (Mr.Okubo))
- TD42 : ATM video experts meeting report (Rapporteur (Mr.Okubo))
- TD46 : Liaison from MPEG (Rapporteur (Mr.Okubo))

3.3.2 LBC

- D119 : Selection of video coder for LB video telephony (MCI)
- D120 : LB video telephone testing on the PSTN (MCI)
- D121 : Marketing influence on development of LB standards (MCI)
- D131 : Multiplex and control for LB video telephony (Marconi)
- D132 : Video coding for LB video telephony (Marconi)
- D133 : Contribution on modem standardization (Marconi)
- D134 : Speech coding for LB visual telephony (Marconi)
- D135 : Support for MCI test plan (Marconi)
- TD7 : LBC Report (Rapporteur (Mr.Schaphorst))
- TD17 : Achievable audio quality for LB mobile video tel. (SG1)
- TD22 : FPLMTS program and harmonization and regional activities (TG8/1)
- TD27 : User requirements on PSTN/mobile videotelephony (SG1)
- TD28 : Very low bitrate coding for visual telephony (SG12)
- TD32 : Annex D of H.261 and very low bitrate (SG8)
- TD44 : V.FAST (WP14/1)
- TD45 : Draft Rec. V.id (WP14/1)
- TD54 : Use of speech coder for LBC (Rapporteur for Q7/15)

3.4 Q3/15

- COM 15- 1: Question

3.4.1 Interim activities

- TD5 : May 1993 Rapporteur's meeting report (Rapporteur(Dr.Kenyon))

3.4.2 H.KEY

- COM15-38 : Draft Recommendation H.KEY (Rapporteur (Dr.Kenyon))
- D77 : Comments on Draft H.KEY (Japan)
- TD2 : Significant changes to H.KEY (Rapporteur (Dr.Kenyon))

3.4.3 H.Agg

- COM15-39: Draft Recommendation H.AGG (Rapporteur(Dr.Kenyon))
- D5 : SM-comp/6B-H0 comp code points (AT&T)
- D106 : Comments on H.AGG (France)
- TD8 : Channel aggregation functionality (WP13/2)
- TD9 : Restricted differential time delay (SG13, Q18/13)
- TD11 : Liaison statement concerning channel aggregation (Rap. Q11/14)
- TD34 : Channel aggregation (SC6)
- TD35 : Digital channel aggregation (ISO/IEC)

3.4.4 MLP/LSD/HSD related issues (including H.DLL, H.FECC)

- COM15-29: Integration of Group 3 facsimile with H.320 video teleconferencing systems (USA)
- COM15-30 : Revised proposal for H.DLL (USA)
- COM15-31 : Revised proposal for H.FECC (USA)
- COM15-40 : A method of using LSD within H.221 framed signals to emulate V.24 modems (Norwegian Telecom)
- D126 : Policy on data applications within H.221-framed signals (BT)
- D32 : Multipoint audiovisual control using the MLP channel (USA)
- D37 : Division of effort between SG15 and SG8 (USA)
- D38 : The use of LSD/HSD and MLP (USA)
- D78 : Protocol for JPEG-based still picture transmission (Japan)
- TD5 : May 1993 Rapporteur's meeting report (Rapporteur(Dr.Kenyon))
- TD20 : Liaison on still image application (Rap. Q10/8)
- TD29 : Simplex protocols for use on LSD/HSD with H.243 (SG8)
- TD30 : MLP codepoints in H.221 and coexistence with LSD (SG8)
- TD31 : Progress of Recs. for multipoint/multimedia services (SG8)
- TD32 : Annex D of H.261 and very low bitrate (SG8)
- TD33 : Progress and work programme for the MLP (SG8)
- TD47 : Rapporteur's Report (Rapporteur (Mr.Skran))

3.4.5 BAS related issues

- COM15-24: Requirements on terminals and MCUs Regarding the use of BAS symbols (France)
- D4 : Comments on COM15-24 (AT&T)
- D21 : Transmission of keypad characters (USA)
- D36 : Maximizing participation in video-teleconference (USA)
- D45 : Audio/video capabilities and modes (Bellcore)
- TD4 : Proposal for "Dummy MLP" provision in H.221 (Rapporteur(Dr.Kenyon))
- TD23 : Extension of H.221 to include MPEG audio program transmission (CMTT-C)

3.4.6 H.233

- D20 : Use of 64 kbit/s Output Feedback Mode of DES (USA)
- TD1 : Future changes to H.233 (Rapporteur (Dr.Kenyon))
- TD56 : Audiovisual privacy communication procedures (Drafting Group)

3.4.7 Multipoint

- COM 15-22: Multipoint 4 QCIF to CIF video mixing (USA)
- D3 : Directions for proprietary video in the H.221 frame (AT&T)
- TD25 : Harmonization of the role of MCU (SG1)
- TD43 : Comments on 4QCIF to CIF mixing (Rapporteur (Mr.Okubo))
- TD47 : Rapporteur's report (Rapporteur (Mr.Skran))

3.4.8 AV.420

- TD5 : May 1993 Rapporteur's meeting report (Rapporteur(Dr.Kenyon))
- TD6 : Draft report AV.420 (Rapporteur(Dr.Kenyon))
- TD18 : ISDN videotelephony call establishment (SG11)
- TD24 : Videotelephony and audiovisual call establishment (SG1)

3.4.9 Others

- TD3 : Audio level standardization (Rapporteur(Dr.Kenyon))

3.5 Q6/15

- COM15- 1 : Question
- COM15-37 : Proposed applications, requirements and objectives for a wideband speech coder (USA)
- TD38 : MPEG audio (Rapporteur Q2/15(Mr.Okubo))

4. Results

4.0 General

i) The meeting briefly discussed the objectives for the study period as laid out in templates contained in TD.45. There were comments on the criteria for the priority of the work. It was agreed to update the templates by the end of the WP meeting reflecting the work achieved in this meeting. The updated templates are contained in TD...52 (P)

ii) Presentation of MMCOI (Multimedia Community of Interest) was made by Dr.Kenyon.

4.1 Q1/15

i) No contributions were received on this Question.

ii) In the absence of contributions, there was some discussion on the need to continue this Question. It was discussed that, now that CMTT is about to become Study Group 9 of ITU-T, relationship with SG9 may be reconsidered, including future transfer of Question. Another observation was made that this may be a matter for the JCG on AVMMS.

Comment was made that one of the study points, specifically, equipment specifications for multiplexing data and sound or video signals, has to be further studied under this Question.

It was agreed to keep the issue of the continuation of the Question open, and to await contributions at the next meeting. Administrations are urged to provide with necessary inputs.

iii) A request from Rapporteur for Q21/15 on the information on signalling aspects for sound

programme in G.797 was noted, however, no immediate information was available in the meeting. The Chairman asked the delegates to bring back the request back home and come with contributions to the next meeting.

See Annex 4 to AVC-578R

4.2 Q2/15

4.2.1 Video coding in ATM environment

i) Report of the experts group as contained in TD42 was presented. The report is reproduced as Annex 1 (reproduce TD42 with corrections in TD79(1/15)) The work on H.26X for Generic Video Coding is proceeding as planned and its first draft was presented to the meeting. The Recommendation is developed as a common text standard between ITU-T and ISO/IEC. The draft is attached to Part IIA (TD 39 (1/15)) of this report. Members are requested to advise the ITU-T until the next meeting of SG15 in May 1994 of known patents relevant to the content of the draft and to provide their patent statements ~~according to~~ according to Clauses 1 and 2 of ITU code of practice regarding intellectual property rights. A point was made that in informing the ITU with the relevant patents, the holding organizations are requested to provide with the patent titles and their numbers as well. A liaison statement to JTC1/SC29 and WG11 was prepared to request their cooperation in the patent statement collection procedures. (TD) A4 — Attached as p. 12 of this report

The WP intends to submit H.26X to approval according to Res.1 at the March 1995 SG15 meeting. The WP thanked the Experts Group for their excellent job and hard work.

ii) As for the "Systems" Recommendation, for which the experts group has collaborated with the MPEG, agreement was not reached as to make it a common text but to further examine which parts of it are applicable to our system and what should be further worked out. It was the common view that the work already achieved should not be duplicated in this group. A reply to the liaison statement from JTC1/SC29/WG11(MPEG) suggesting common text approach for systems and audio as well, was prepared to explain our indecision. (TD) A5 — Attached as p. 13 of this report

iii) In order to make the whole system work, it was stressed in the report that, together with the video coding, audio coding, multimedia multiplexing, communication procedures, call control and terminal configuration specifications are indispensable and should be established in proper time. A WP plan for these developments was prepared taking into account the urgency of each (Annex 2).(TD 68..) (1/15) — Attached as pp. 14-15 of this report

iv) In view of the progress made in the experts group and also the new stipulation made in Res.1 in terms of the role of Rapporteurs, it was agreed to modify the work area and the working methods of the experts group. The guidance given to the rapporteur in carrying out the work is contained in Annex 3 (TD 74) (1/15) — Issued as AVC-584

4.2.2 Very low bitrate visual telephony

i) The report of the Rapporteur on low bitrate videotelephony was presented. An extract of the report is reproduced as Annex 4. (Reproduce Sections 1 and 2 of TD7(1/15), excluding Table 2-1 and reference to it in the text--- *exact text will be provided to TSB*) Based on the recommendation of the Rapporteur, the WP agreed to the needs to immediately initiate the study on very low bitrate visual telephony and to hold experts

meetings to carry on the work. It was also agreed that the work by the experts will be focused on establishing relevant Recommendations in two phases, namely, near-term Recommendations aimed at around 1995 and long-term Recommendations targeted for around 1998. The work on long-term video coding work will be conducted in collaboration with the MPEG-4 (video), WP 2/15 (speech) and organizations standardizing digital transmission in the mobile radio environment. Guidance for the Rapporteur to carry out his work was elaborated and is now contained in Annex 5 (TD/...) The decision to progress the work on very low bitare video telephony is sent to MPEG for information and to ask their collaboration. (A1 at the end of this document) 73— (Attached as pp. 16-18 of this report.)

ii) For the speech coding, the report proposes to select a method from among existing coding algorithms by an appropriate selection process for the near-term standardization. There is a possibility to develop a dual-rate speech codec providing toll quality at around 8 kbit/s. For the long-term, it suggests the use of 4 kbit/s speech coding which study has just been initiated under Q7/15. This coding scheme is expected to give toll quality at 4 kbit/s. It was confirmed in the Q7/15 work plan that the target date for the 4 kbit/s speech coding specification meets the target date set by long-term specification.

iii) In the course of discussion, a point was raised that the requirements for the low bitrate videotelephony should be clearly be stated and be given to the experts. It was agreed to send, together with our plan for the work on very low bitrate visual telephony, a liaison to SG1 requesting their comments and suggestions so that a technical requirement document can be prepared jointly with SG1. (~~Annex / /~~ (TD.61..)) Annex 6 to Q15

iv)The WP thanked the Rapporteur and the experts for their excellent job and hard work.

4.3 Q3/15

4.3.1 Finalization of H.234(H.KEY) and H.22Y(H.agg) 58, 59 (P) (P)

- The drafts of H.234 and H.22Y were finalized and were agreed to put forward to approval by Res.1 at the May 1994 SG15 meeting. The texts are contained in Part IIA (TD) of this report. The meeting endorsed the Rapporteur (Dr.Kenyon) to carry out the final editorial polishing by the end of January 1994 and submit the drafts as white Contributions.

  Liaisons will be sent to JTC1/SC6/WG6 and SG13 to inform them of our completion of H.22Y(agg) which meets their requirements. (~~Annex~~ (TD A7 ~~and~~))

4.3.2 Use of LSD/HSD and MLP channels

i) H.DLL and H.FECC based on the use of LSD/HSD channels were proposed. There were oppositions to these proposals to avoid duplication of standards, and proposed that MLP should be rather used in the case of far end camera control.

   After lengthy discussions it was found out that the performance provided by MLP for such application as FECC, and the interoperability between H.DLL and MLP were the key issues in the decision. The meeting could not come to the point where all the delegates share the same expectation for MLP in terms of delay. However, there were some proposals for allowing interoperability. Although the details of the proposals have to be worked out since the MLP is still under development, the meeting felt that H.DLL can be adopted provided that the details can be worked out before the May 1994 meeting such

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that the concerns expressed in D.126 can be allayed. On this basis, it was agreed to proceed with H.DLL and H.FECC for adoption at the next SG15 meeting in view of the urgent need from the market. The texts of H.DLL and H.FECC appear in Part IIA (TD 57(P)) of this report. The WP endorsed the Rapporteur (Mr.Skran) to take the responsibilities to edit the two draft Recommendations so that the final texts can be made available in time for the TSB Director to make announcement of the intended application of the approval procedure set out in Res.1 (by the end of January 1994).

The following specific changes to H.221 relating to H.DLL/H.FECC were agreeed to:

- A capability(101)[22] indicating support for H.DLL in the LSD channel needs to be added to Table A-3/H.221.

- A capability (101)[23]indicating support for H.DLL in the LSD and the HSD channel needs to be added to Table A-3/H.221.

- A command (011)[22]indicating H.DLL in the currently open LSD channel needs to be added to Table A-3/H.221.

- A command(011)[23] indicating H.DLL in the currently open HSD channel needs to be added to Table A-3/H.221.

It was stated that the proponents, i.e. AT&T and PictureTel hold no known patents relevant to H.DLL and H.FECC.

As a consequence of the agreement to adopt H.DLL and H.FECC, the WP decided to inform SG8 of this decision together with replies to their liaison statements on this topic. The liaison statement is contained in TD A6

ii) The proposal to liaise with SG8 in terms of the still picture profile to ask them to take into account of the high layer protocol contained in D78 was taken note of. There was no opposition to sending the liaison, but it was emphasized that the proponents should make efforts to be represented in the SG8 meeting so that SG8 can give due considerations to this proposal. Joint meeting of experts was felt necessary in case similar issues arise between the two groups. A liaison statement was drafted which contains this proposal together with some comments on the still picture standardization in SG8 (TD) A8

iii) The meeting were in general agreement to the proposal made by Norwegian Telecom to use LSD to emulate V.24 modems. It was agreed that exact allocation of BAS code and its definition will be worked our in the next meeting. It was pointed out that V.24 emulation is limited to point to point operation. It was agreed that there be no change to MLP recommendations (T.1xx Series Recommendations developed by SG8) to provide interworking between MLP and V.24 emulation. Furthermore, in a point to point call, V.24 emulation is superseded by MLP when facilities compatible with T.1xx Recommendations are signalled according to H.221 frame.

It was also pointed out that more detailed conditions in the usage of this function should be spelled out. It was requested that proposing organization give considerations to this

matter and provide input to the next meeting.

4.3.3 BAS related issues

i) Seven relevant documents (see documentation) were reviewed. Since the documents deal with technical details, it was agreed to ask the relevant Rapporteurs to consolidate the various proposals in the form of draft revised Recommendations and to resume discussion on those texts. It was also requested that when preparing the draft revised text distinction is made between clarifications and new proposals. It was mentioned that the revision would involve H.221, 230, 231, 243 and 320.

ii) It was agreed that it is useful to have a Table as contained in COM-24 clarifying the use of BAS symbols be attached to a certain Recommendation to assist the readers, though the actual table in there needs further corrections and discussions. There was a comment that the appropriate location for this Table may be H.230.

iii) In the discussions on D.45, the necessity of allowing users selecting a "preferred receive mode" for video/audio quality was questioned. A liaison statement to SG1 was drafted in order to request their comments from service point of view. (A3)

iv) There was a general recognition to the necessity to include BAS codes for MPEG audio as contained in the proposal from CMTT-C. There were some concerns as to how the codes should be allocated, and a liaison to SG9(CMTT) was prepared. (TD) A10

4.3.4 H.233

i) All three relevant documents were considered as stimulus to the work towards the next meeting. The Rapporteur (Dr.Kenyon) will prepare a draft revised H.233 on the basis of these inputs.

ii) It was noted that point 3 in TD1 was withdrawn. A point was also made that making reference to ISO registry would not allow simple deletion of Appendices for DES and FEAL, but specification on Output Feedback Mode and Initialization Vector should be retained somewhere in the Recommendation.

iii) It was agreed to include informative description of complete privacy procedures in H.233. Based on the material provided at the Rapporteur's meeting in Tokyo and the subsequent discussion, a draft was produced as a basis of further elaboration (Annex 7 (TD-56(1/15))).

See Annex 3 to AVC-518R

4.3.5 Multipoint issues

i) Relevant documents were presented; they were noted as a stimulus for our future work.

ii) COM-22 and TD43 were noted with interest. A point was made that TD43 needs to give a more equal comparison between the transcoding and 4QCIF to CIF video mixing. It was agreed to continue discussion in the coming meetings on the basis of the information that became available in this meeting and consequent studies. The Rapporteur (Mr.Skran) will also consider the proposal in his Rapporteurship.

iii) It was felt that WP needed more information on the liaison from SG1 on MCU (TD25)

and it was decided to send back a liaison for clarifications. (TD A9)

4.3.6 Audio level standardization

- The proposal in TD3 to ask SG12 to ensure the satisfactory interworking of all audiovisual terminals in terms of audio levels, including those used for non-conversational services was endorsed. It was agreed to send an excerpt of this document together with some information collected from manufacturers, as a liaison statement to SG12 for their consideration.(TD 70)

4.3.7 AV.420

- Draft text for AV.420 by the Rapporteur (Dr.Kenyon) and liaisons from SGs 1 and 11 were reviewed. Since AV.420 is considered to be living document, taking into account specifications made in the respective responsible groups, the ~~text~~ text of AV.420 was noted for further discussions. It was discussed that it is necessary to indicate to SGs 1 and 11 of our opinion on the codepoint allocation, that there be ~~two~~ one general codepoints, i.e. ~~Conversational and~~ Multimedia, and a liaison statement was drafted.

4.4 Q6/15

4.4.1 General

i) Aim of Question Q6/15 "Audio and wideband coding for public telecommunication networks" is the investigation of new standards both for audio signals with bandwidth of 15-20 kHz and for wideband speech with 7 kHz bandwidth. Consequently, the discussion on Q6/15 started trying to identify the most important items to be studied as soon as the objectives of the Question will be clarified. The general feeling of the meeting was that two areas of activity can be identified: wideband speech coding activity and audio coding activity.

ii) Wideband speech coding must mainly allow the transmission of 7 kHz speech signals while no annoying effects should be obtained with music signals, that is high quality with music signal is not guaranteed. Audio coding must provide transparency to voice signals and very high quality music signals with a bandwidth of 15-20 kHz.

At this point in time it has not yet been decided if these two activities are intended to produce two different Recommendations in different study periods or if they can merge in a single activity producing one Recommendation.

It was agreed to start the work by identifying possible applications and a preliminary set of requirements and objectives for each of the above-mentioned areas of activity.

Further studies are nedeed to clarify if a unified approach can be followed in the definition of a single coding algorithm capable of working at a number of selectable bit-rates with different bandwidths and quality associated.

4.4.2 Possible applications, requirements and objectives

i) In the following, preliminary and not complete lists of applications are provided for the two identified areas of activity. These lists are intended as starting point in the work because other applications that are likely to benefit from the availability of low bit-rate wideband and/or audio coding standards can be envisaged.

Possible applications for a wideband speech coder (7 kHz bandwidth):

-- ISDN wideband telephony
-- ISDN videotelephony on 2B channels
-- ISDN video-conferencing on 2B channels
-- PSTN applications (e.g. point-to-point links for business applications)
-- FPLMTS (considering that FPLMTS could provide, in addition to telephony, basic mobile videotelephony services and enhanced mobile videotelephony services, and that the target of the videotelephony service is to support 2-way conversational real-time audio-visual communications of a user across a digital mobile access to another user, either in the fixed network domain like ISDN or PSTN or in the mobile networks, offering compatible videotelephony services.)
-- Commentary channels

Possible applications for an audio coder (15-20 kHz bandwidth):

-- Enhanced ISDN video-conferencing on BRA
-- Enhanced ISDN audiographic-conferencing on BRA
-- Messaging services (e.g. mail box)
-- Retrieval services (e.g. audio on demand)
-- AudioVisual Interactive (AVI) services
-- Distribution services

- Further studies are required to identify what are the characteristics of services and network systems that can impact on the performance requirements and objectives for the wideband and audio coders (fixed or variable bit-rate, type of synchronization, framing, delay, performance under channle errors, error concealment techniques, voice activity detection, etc.).

(1/15) — Attached as pp. 19-20 of this report

- Starting from the information contained on Table 1 of Doc. COM15-37, a preliminary and not complete list of requirements and objectives for a wideband speech coder is presented in Annex 8 (Annex I of TD64). The notes contained in Doc. COM15-37 are also relevant for the requirements and objectives.

- Only after a clear identification of the applications and network constraints a stable list of performance requirement can be obtained.

(1/15) — Attached as p. 21 of this report

- Similarly, Annex 9 (Annex II of TD64) contains a very preliminary and not complete set of requirements and objectives for an audio coder.

4.4.3 Liaison Statements

- It was noted that new references were submitted to SG12 in the last study period for low bit-rate speech codecs. Similar investigations can be focused on low bit-rate wideband speech coders and audio coders. A Liaison Statement is sent to SG12 to ask considerations on new references and methodologies nedeed in subjective tests for low bit-rate codecs. (A2 at the end)

4.4.4 Milestones

- Due to the fact that at this stage a number of possible different objectives related to different scenarios (wideband speech and/or audio coding activity) are under evaluation, a set of specific milestones and associated target dates are not provided for Q6/15. The intention is to provide them as soon as the objectives of the Question will be specified.

5 Future work

5.1 WP1/15 will meet on 17-25 May 1994.

5.2 Experts meeting on video coding and systems in ATM and other networks will be held on;

i) 27 October - 5 November 1993 in Korea
ii) March 1994 in France

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Guidance on the work to be carried in these meeting is given in Annex 3 (TD.~~59 rev~~.)

5.3 Experts meeting on very low bitrate videophone will be held on;

i) 7-9 December 1993 in Middletown, USA
ii) March 1994 in France

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Guidance on the work to be carried in these meeting is given in Annex 5 (TD.62)

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Temporary Document (15/1)

Question 2/15

Source: ITU-T Study Group 15
Title: Liaison to Convenor of ISO/IEC JTC1/SC29/WG11 (for action) and JTC1/SC29 (for information)
Subject: Patent statements for Recommendation H.26X|MPEG-2 Video Standard
Purpose: For action
Contact: Mr. Makoto Yamashita
Chairman of Working Party 15/1
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At its meeting during 7-17 September 1993 Working Party 15/1 meeting, the progress report of the Experts Group for ATM Video Coding regarding Recommendation H.26X|MPEG-2 Video Standard was presented.

One of the actions requested by the Experts Group to Study Group 15 was for ITU-T to collect necessary patent statements from informed patent holders addressing the TSB Director. We decided to attach the submitted informational Draft Recommendation H.26X to the meeting report and request ITU-T Members to advise the TSB Director of the relevant patents and to file their patent statements.

We fully appreciate your initiative in taking necessary steps for the intellectual property matters for H.26X|MPEG-2 Video and ask you to continue to give us necessary support for the above mentioned patent statement collection.

In particular, we request that patent holders of non- ITU Members should advise the Director of ITU telecommunications Standardization Sector (ITU-TSB) until April 1994, of the relevant patents and file their patent statements according to the attached ITU-TSB patent policy.

Attachment TD 3(p)

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Temporary Document (15/1)

Source: ITU-T WP 15/1
Title: Liaison to Convenor of ISO/IEC JTC1/SC29/WG11 and SC29
Subject: Alignment of ITU-T Recommendations and ISO/IEC Standards for audiovisual communications
Purpose: For information

Contact: Mr. Makoto Yamashita
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At its meeting during 7-17 September 1993, Working Party 15/1 discussed whether MPEG-2 Systems and MPEG-2 Audio should also be of common text between ITU-T and ISO/IEC, based on the progress report of the Experts Group for ATM Video Coding and your liaison statement (ISO/IEC JTC1/SC29/WG11 N0533). Though we also believe that the specifications in these two areas (Systems and Audio) should indeed be aligned in international standardization to facilitate interchanging audiovisual information among different applications, we reached a conclusion that our study is not yet matured to decide to take the common text approach at this meeting.

Some specific deliberations are listed below;

Systems:

ITU-T Study Group 15 intends to make Recommendation H.22X "Multimedia multiplex and synchronization for ATM environments". Study is ongoing regarding the functionalities to be supported by H.22X and their relevance to the AAL specifications defined by ITU-T Study Group 13. Relationship between H.22X and MPEG-2 Packetized Elementary Stream, Program Stream and Transport Stream is also being studied. We have not yet reached a conclusion on which part of the MPEG-2 Systems be included in H.22X and what other specifications should be developed.

Audio:

ITU-T Study Group 15 has just started a new question Q.6/15 "Audio and wideband speech coding in public communication networks" in Working Party 1/15. We expect study of this Question will create new standards both for audio signals with bandwidth of 15-20 kHz and for wideband speech with 7 kHz bandwidth. The former is relevant to MPEG-2 Audio.

We take this opportunity to inform you that in the light of the progress made in the last study period as a result of collaborative work between your experts and our experts, and also in the light of new working methods adopted by the ITU-T, we have updated the work items of our experts on Q2/15 as contained in the attached material. Please note that the work items now include studies on multimedia multiplexing and terminals. We hope that the study on H.26X|MPEG-2 as well as studies on system aspects can be progressed through the collaborative work. As in the past, the mode of collaboration between SG15 (Q2/15) and SC29/WG11 should be by means of "collaborative exchange" as defined in Annex K to ISO/IEC JTC1 Directives (equal to Annex A to ITU-T Rec.A.23).

(Attachment) reproduce TD 15(P)
END

Source: Chairman of WP1/15
Title: Work Plan of Working Party 1/15

* Input of the initial draft to SG15
** Input of the (almost?) frozen draft to SG15, decision by SG15 to apply Resolution No. 1
*** Submission of Draft Recommendation to ballot by SG15

AV framework	Rec.	Title	SEP 1993 or before	MAY 1994	MAR 1995	NOV 1995	JUL 1996 (?)	1997 or beyond
AV.221	Rev. of H.221	Frame structure for a 64 to 1920 kbit/s channel in audiovisual teleservices	* H.AGG, CMTT	**	***			
AV.222	H.22X	Multimedia multiplex and synchronization for ATM environments		*	**	***		
?	H.22P	Multiplex and error control for H.32P		*	**	***		
?	H.AGG	Synchronized channel aggregation	**	***				
AV.230	Rev. of H.230	Frame-synchronous control and indication signals for audiovisual systems	* H.AGG review(F) R-105	**	***			
AV.231	Rev. of H.231	Multipoint control units for audiovisual systems using digital channels up to 2 Mbit/s	*	**	***			
AV.233	Rev. of H.233	Confidentiality system for audiovisual services	* OFB-64	** Appendix	***			
AV.234	H.234	Encryption key management and authentication for audiovisual services	**	***				
AV.242	Rev. of H.242	System for establishing communication between audiovisual terminals using digital channels up to 2 Mbit/s	*	**	***			
AV.243	Rev. of H.243	Procedures for establishing communication between three or more audiovisual terminals using digital channels up to 2 Mbit/s	* R-105	**	***			
AV.244	H.24X	Communication procedures for storage/retrieval		*	**	***		
AV.245		Communication procedures for conversational systems on B-ISDN						
AV.24P	H.24P	Supervision control for the very low bit rate videophone		*	**	***		
AV.253	G.???	Wideband speech coding at 16/24 kbit/s			*	**	***	
AV.25X	G.???	Audio coding for use on B-ISDN			***(?)			***(?)
AV.25Y	G.???	Speech coding for mobile/PSTN		*	**	***		

Annex 2 to WP 1/15 report

TD 68 (WP1) — Revision to TD-52 (15/1)

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AV framework	Rec.	Title	SEP 1993 or before	MAY 1994	MAR 1995	NOV 1995	JUL 1996 (?)	1997 or beyond
AV.262	H.26X	Video coding for ATM environments	*	**	***			
AV.268	H.26P	Video coding for narrow telecommunication channels at < 64 kbit/s		*	**	***		
AV.26?	H.26P/L	Advanced video coding for narrow telecommunication channels at < 64 kbit/s						***
?	H.DLL	A data link layer protocol for video conferences using the H.221 LSD/HSD channels	**	***				
?	H.FECC	Far end camera control protocol for video conferences using the H.221 LSD/HSD channels and H.DLL	**	***				
?	?	Data interface for the very low bit rate videophone		*	**	***		
AV.320	Rev. of H.320	Narrow-band visual telephone systems and terminal equipment	*	**	***			
AV.321	H.32X	Broadband audiovisual communication (or visual telephone?) systems and terminal equipment		*	**	***		
?	H.32Y	Adaptation of H.320 terminals to B-ISDN		*	**	***		
?	H.32Z	Adaptation of H.320 terminals to LANs		*	**	***		
?	H.32P	Videophone system operating at very low bit rates		*	**	***		
AV.420		Multimedia call-setup	Report					

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Annex 5 to WP 1/15 report

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Temporary Document TD ~~62 (15/1)~~

STUDY GROUP 15
WORKING PARTY 15/1
Geneva, 6-17 September ,1993

Title: Guidance for the Work of the Rapporteur for the Videophone (Very Low Bitrate) Part of Question 2/15

Source: ~~Chairman of~~ Working Party 15/1

1.0 Introduction

At a meeting on 6-17 September 1993, Working Party 15/1 re-appointed a Rapporteur for Very Low Bitrate Visual Telephony. The purpose of this document is to define the guidelines, requirements, objectives and work method for the work of the Rapporteur.

The Rapporteur presented a report (TD 7) at the ~~6~~ 7-17 September meeting outlining work accomplished since the last meeting, tentative technical conclusions, and a recommended work plan. This report may be used as general guidance for the Rapporteur's work, subject to the particular requirements and objectives outlined below.

2.0 Objectives

- The objective is to develop two sets of draft ITU-TS Recommendations for Very Low Bitrate Visual Telephony. The first, (H.VLC/N), employing near term technology would be finalized in 1995. The second, Recommendation (H.VLC/L) employing more advanced technology, would be finalized in approximately 1998.

  H.VLC/N will consist of a number of Recommendations for major functional elements of the videophone system such as those noted below:

  -A Videophone System Operating at a Very Low Bitrate (H.32P)
  -Video Coder for The Very Low Bitrate Videophone (AV.268)
  -Speech Coder for The Very Low Bitrate Videophone
  -Multiplex/Error Control for The Very Low Bitrate Videophone (H.22P)
  -Supervisory Control for The Very Low Bitrate Videophone (H.42P)
  -Data Interface for The Very Low Bitrate Videophone
  -PSTN Modem for The Very Low Bitrate Videophone (V.32bis, V.34/V.8{V.FAST})

H.VLC/L will include additional Recommendations in technical areas requiring more time to develop such as:
- Advanced Video Coding
- Advanced Speech Coding
- Operation Over The Future Public Land Mobile Telecommunications System (FPLMTS)

- o H.VLCN must be prepared for the future and must pave the way for H.VLC/L in such a way that the transition from the near term to the long term standard will be relatively easy. Backward compatibility is required.

- o Follow the guidance from SG 1 outlined in their TD 27 Liason Statement. (Annex A) – TD 27 (Y15)

- o Follow the guidance from SQEG outlined in TD 28. (ANNEX B) ~ TD 28 (Y15)
- o As an objective, an optional data channel would be included to be multiplexed with the audio and video signals. Provision for high resolution still images using the JPEG standard (ITU-T T.81) will be provided. It is a goal to interwork with other related ITU-T Recommendations.
- o The speech coder objective for H.VLC/N is to achieve as near toll quality as possible given the bit-rate budget. In long term H.VLC/L it is expected to achieve toll quality at 4kbps. This work has been referred to the speech experts within Working Party 15/2

- o The objective for H.VLC/N is to achieve a picture quality significantly better than H.261 when operating with the corresponding parameters.

- o The objective for H.VLC/L is to achieve picture quality considerably better than H.VLC/N.

- o Full audio mixing in multipoint

3.0 Requirements

- o Cater ~~Consideration~~ for multi-point operation.

- o A flexible, robust multiplex structure to maximize the utility of the available transmission bit rate.

- o Use of V.32bis and V.FAST (V.34) modem technology for H.VLC/N to maximize the transmission bitrate while providing adequate error resilience.

- o Interoperability with H.320 terminals.

4.0 Work Method

1. In order to achieve good results, the Rapporteur will convene experts wishing to contribute to the work.

2. Work should be accomplished through correspondence as much as possible.

3. The Meeting of Experts between meetings of the WP 15/1 must be approved by the WP 15/1.

4. The Rapporteur must coordinate the work with other Study Groups and other appropriate standards bodies. Study Group 15 will transmit official requests for cooperation to other Standards Groups and Standards Bodies when required.

5. Work jointly with SG 1 to develop a detailed set of Technical Requirements for all functional elements of the Very Low Bitrate Videophone.

6. Collaborate with ISO/IEC JTC 1/SC29 WG11 (MPEG4), particularly in the area of advanced video coding.

7. The Rapporteur will provide progress reports at all meetings of Study Group 15 and/or Working Party 15/1.

Annex A TD 27 (1/15)

Annex B TD 28 (1/15)

ANNEX I

Parameter	Requirement	Objective
Bit-rate	16-24 kbit/s	For further study
Audio quality in error-free conditions		
1) at 16 kbit/s	No worse than CCITT G.722 at 56 kbit/s	No worse than CCITT G.722 at 64 kbit/s
2) at 24 kbit/s	No worse than CCITT G.722 at 64 kbit/s	For further study
Subjective quality with random channel errors: 0.1% BER		
1) at 16 kbit/s	No worse than CCITT G.722 at 56 kbit/s under similar conditions	For further study
2) at 24 kbit/s	No worse than CCITT G.722 at 64 kbit/s under similar conditions	For further study
Subjective quality with frame erasures (percentage to be specified)	For further study	
One-way coder/decoder delay Frame size:		
Mode A Mode B	less or equal to 10 ms	less or equal to 5 ms
Total codec delay: (algorithmic delay+processing delay)		
Mode A Mode B	less or equal to 20 ms	less or equal to 10 ms
Audio quality dependency on input signal level (levels to be specified) and on speakers	No worse than G.722	For further study
Encoder-decoder synchronization	Provided externally	
Capability to transmit voice-band data	For further study	
Capability to transmit signaling	For further study	

Tandeming capability: 1) at 16 kbit/s	No worse than G.722 at 56 kbit/s for 2,3 and 4 asynchronous tandemings	Good transcoding between Mode A and Mode B
2) at 24 kbit/s	No worse than G.722 at 64 kbit/s for 2,3 and 4 asynchronous tandemings	Good transcoding between Mode A and Mode B
Transcoding with CCITT G.722 or other standards	For further study	
Effect of switching	For further study	
Convergence time	For further study	
Complexity	For further study	
Implementation	For further study	
Idle noise	Better than G.722(less than 66 dBm0)	
Sampling rate	16 kHz	
A/D and D/A converter accuracy	16 bit linear PCM (others for further study)	
Nominal frequency range (3 dB bandwidth)	as per G.722	
Overload point of the A/D and D/A converters	as per G.722 (as preliminary indication)	
Attenuation/frequency response of encoder and decoder analog circuitry	as per G.722 (as preliminary indication)	
Timing requirements	For further study	
Digital transport compatibility	CCITT Rec. H.221	

Requirements and objectives for an audio coder 6

ANNEX II

Parameter	Requirement	Objective
Bit-rate	less or equal to 64 kbit/s	Different bit-rates in the range 16-64 kbit/s
Audio quality in error-free conditions	Very high quality for speech and music at least at 64 kbit/s (reference quality to be specified)	Quality increasing when the bit-rate increases.
Audio quality with random channel errors: 0.1% BER	No significant impairments (reference quality to be specified)	
Sampling frequencies	in the range 32 kHz - 48 kHz	Different sampling rates between 16 and 48 kHz
One-way codec delay	For further study	Different modes of operation with different delays associated
Tandem capability	For further study	Tandem operation without loss of quality for the different bit-rates and modes of operation of the codec. Good transcoding with other standards.
Scalability	For further study	Needed
Error concealment and error protection	For further study	