

MEETING RECORD
Video Compression Measurements Subcommittee G-2.1.6
Audio Video Techniques Committee G-2.1
Broadcast Technology Society
Institute of Electrical and Electronics Engineers
Conference Call
August 17, 2001

Item 1 – Identify and introduce people on the call

The conference call started at 12:05 PM EDT. The following people participated in the call:

Andrew Watson – NASA
Phil Corriveau – Intel
John Grigg – Qwest
James O'Neal - USIA
David Fibush – Tektronix
Leon Stanger – DirecTV
André Vincent – CRC Canada
Alexander Woerner – Rohde and Schwarz
Alan Godber – Consultant & Chairman G-2.1.6
Doug Lung – Telemundo & Secretary G-2.1.6

Item 2 – Clarify any meeting/organizational questions from those on the call

There were no questions.

Item 3 – Review the Agenda for the meeting

No changes were proposed.

Item 4 – Review the status of the Draft Standard

Andrew Watson reported that file P1486-3, the latest version of the draft standard, incorporated all the corrections discussed at the full G-2.1.6 meeting in July. In response to a question, Dr. Watson said that the program code he provided would run exactly as submitted on Mathematica software if certain extra libraries are available. These libraries include routines from Dr. Watson and an optimization library that has to be purchased separately. He agreed to provide information on the version of Mathematica used and a list of libraries required to be included with the standard. In addition to the EASE code, a separate software package is needed to run the experiment – fetching video files, etc.

Two issues need to be resolved. One is the use of expert versus non-expert viewers. The other is whether manufacturers' names can be included in the informative annex.

There was opposition to including observers with 20:30 vision. It was noted that this issue had been debated in VQEG and the decision was to require 20:20 vision. Requiring 20:20 vision would exclude only a few percent

of the observers used in the NASA tests and should not be a problem. The consensus of the group was 20:20 vision should be required in Section 8.3.3 of the standard.

Other changes to the draft standard were discussed. It was agreed that the word "draft" be removed in references to the standard. All time related items need to be removed unless there is a specific need for them to be there.

Discussion about the number of observers and the definition of non-experts was postponed until item 5.

Item 5 – Review results of the meeting at NASA Ames Research Center

The tests conducted at NASA on July 23 were described. Details are available in the minutes for the meeting and in Andrew Watson's August 14, 2001 *Report of demonstrations of JNDVIS method for G-2.1.6 Committee at NASA Ames Research Center*. See <http://grouper.ieee.org/groups/videocomp>.

The results from the visitors were close to those from the "normal" NASA observers, except for those from Phil Corriveau. Phil Corriveau has extensive experience in video quality testing and was familiar with the sequence, "mobile and calendar", that was used in the test. The theory is that with this sequence, the artifacts are in one location, making it easier to pick them out. The visitors were also more motivated to pick out artifacts.

The effect of an observer's age on the results was discussed. It was suggested that placing an upper age limit on observers could reduce the variability. Andrew Watson, however, said that the effect of age is subtle – it is not a strong discriminator. There was some agreement that age isn't much of a factor. However, if it turns out to be more powerful than expected, how do we deal with that? Possibilities include excluding observers above a certain age or insist that statistics on the age of observers is with the results of the tests. The previously agreed upon requirement that observers have 20:20 vision may automatically include older subjects with presbyopia. Visual acuity could also be checked at the viewing distance, although this isn't a conventional measure.

It was agreed to defer the discussion of age until we had more data. The age issue should not hold up circulation of the draft standard.

The definition of expert and non-expert observers was considered. It was agreed that non-expert observers should be used. It was agreed that non-expert observers be defined as those who had "no expertise in television technology."

The appropriate number of observers to specify in the standard was debated. The standard currently specifies four observers. This number was chosen because the resulting magnitude of error and the amount of work required are acceptable. It was pointed out that four observers is the minimum number specified – a lab could use more. However, Andrew Watson said there would be no major benefit to increasing the number to five and not a significant number with eight. The error is defined by statistics. The variance will go down by the square root of the number of observers. You can calculate how many observers you need to reach a specific tolerance, but the costs for less error become significant.

It was pointed out the people publish reports where only one observer was used. There was agreement that four is a typical number needed to get a sense of the variance within a population. It was also noted that this is a much more rigorous method than DSCQS, where three or four subjects would not be acceptable.

It was agreed to stay with a minimum of four observers. Andrew Watson will provide an indication in an informative annex describing the error with four subjects.

Item 6 – Discuss next steps, including the possibility of other labs running similar tests to the ones run at NASA Ames

Three laboratories may run similar tests. Vittorio Baroncini was planning to run tests at FUB in October. Planning for the tests has already started. Phil Corriveau indicated he was trying to secure funds to purchase

the Mathematica software to run tests at Intel, but couldn't commit yet. André Vincent said CRC Canada is considering it. The equipment setup is the issue, specifically the amount of RAM available. One condition with 20 sequences at 200MB per sequence requires 4GB of RAM. The RAM requirement may be an issue at FUB and Intel as well. There may be ways to use equipment with less RAM if some of the sequences can be transferred from disk to RAM fast enough. Andrew Watson will work on this off-line and report on it at the next G-2.1.6 meeting.

Item 7 – Review Liaison with other standards bodies, IEEE protocols, etc

Alan Godber's email (see Attachment A) of August 17, 2001 outlining IEEE copyright and liaison requirements was reviewed.

Alan Godber and John Grigg will have an off-line discussion with Claudio Stanziola to coordinate liaison with T1. The publishing of material submitted to T1 on a public web site is a problem for IEEE. SMPTE has a private web site with the ID and password given out to anyone who asks for it, similar to the G-2.1.6 private site. At this time, however, it was reported there is no real interest in this at SMPTE. For ITU coordination, Alan Godber will send the standard to Vittorio Baroncini and Arthur Webster for dissemination to the appropriate people.

It was also noted that the EASE code could not be submitted carrying an IEEE copyright. To avoid this problem, Andrew Watson will provide an informative reference to the code that links to a permanent web site.

Item 8 – Review what we expect to achieve at the September 24 meeting at NTIA in Boulder CO

It was agreed that the subcommittee would vote on sending the standard to ballot. While some issues came out during the NASA visit, but they have been resolved, with the exception of additional work on the age issue and the informative annex.

Some work remains to be done on the standard:

- 1) Remove the word "draft"
- 2) Fix typos
- 3) Add the IEEE required copyright notice
- 4) Add the informative annex

Vittorio Baroncini needs to receive a copy of the standard by early in the first week in September.

Item 9 – Any other business

There was no other business.

Item 10 – Adjournment

Thanks were given to Andrew Watson for his work on the standard and to John Grigg for arranging the telephone conference.

The meeting was adjourned at 1:53 PM

Submitted by:

Doug Lung
Secretary, G-2.1.6

ATTACHMENT A

Date: Fri, 17 Aug 2001 11:35:42 -0400
From: Alan Godber <agodber@earthlink.net>
Subject: IEEE G-2.1.6 - IEEE Copyright and Liaison with Other Standards Organizations.

Dear Members,

As you know, in the past we have always had liaison with other Standards organizations, in order to give them opportunity to provide input to our proposed standards, and to better coordinate uniformity and avoid duplication in these Standards.

In the era of e-mail and paperless written communications, new approaches need to be crafted. After communicating with the IEEE balloting organizer, Mr. Kahofer, and then with the IEEE Manager of Licensing and Contracts, Mr. Claudio Stanziola, the following are the procedures which are requested.

Draft Standards must have the following information added to every page of the Draft Standard, preferably at the bottom of the page.

Copyright © <current year> IEEE. All rights reserved.

This is an unapproved IEEE Standards Draft, subject to change.

The chair of the IEEE Committee should send a list (e-mail OK), to Mr. Claudio M. Stanziola, with a list of the Standards organizations to be sent a copy of the Draft Standard for review. For each Standards organization to be contacted, a contact person at the Standards organization with details of that contact information is to be supplied, in case there is a need for Mr. Stanziola to contact that person.

The Standards organizations contacted are requested to distribute the Draft Standard only to those who need access to the document, or to provide a private web site for the members who need access. Publication on an open web site is not acceptable.

The following information is also supplied to define protocols for dealing with the ISO or IEC.

This is an unapproved draft of a proposed IEEE Standard, subject to change. Permission is hereby granted for IEEE Standards Committee participants to reproduce this document for purposes of IEEE standardization activities. If this document is to be submitted to ISO or IEC, notification shall be given to the IEEE Copyright Administrator. Permission is also granted for member bodies and technical committees of ISO and IEC to reproduce this document for purposes of developing a national position. Other entities seeking permission to reproduce portions of this document for these or other uses must contact the IEEE Standards Department for the appropriate license. IEEE is the sole entity that may authorize the use of certification marks, trademarks, or other designations to indicate compliance with the Y materials set forth herein. Use of information contained in the unapproved draft is at your own risk.

ATTACHMENT A (continued)

IEEE Standards Department
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I hope that we can make this procedure function satisfactorily with the Standards organizations with whom we must have liaison contact.

Regards, Alan S. Godber,
Interim Chair, IEEE G-2.1.6