

Institute of Electrical & Electronics Engineers
Broadcast Technology Society
G-2.1 Audio/Video Techniques Committee
G-2.1.4 Video Distribution Measurements Subcommittee

Charleston Place
205 Meeting Street
Charleston, SC 29401
Monday, January 29, 2001
8:00 – 11:00 AM

DRAFT MEETING RECORD

Numbers refer to items on the approved meeting agenda.

1. The meeting was called to order at 8:15 AM by the interim chair, Rick Redford.
2. The following were present:

Dave Fibush	Tektronix
Alan Godber	Consultant, G-2.1 Chair
John Grigg	Quest
Doug Lung	Telemundo
Aidan Moore	Gennum
Michel Poulin	Leitch
Rick Redford	ABC
Alexander Wörner	Rohde & Schwarz
3. Mr. Redford made an audio transcription of the meeting, which is the basis for this record.
4. The revised handout draft agenda for this meeting was approved, after removal of item 14, Revision of Std. 208-1995, Measurement of Resolution of Camera Systems (this item did not appear on the agenda posted on the Subcommittee's web page). The G-2.1.3 Imaging Measurements Subcommittee is presently dormant, but plans are to reform it to engage in this work.
5. Draft meeting minutes from San Antonio on 30 October 2000 were approved. Mr. Godber, as chair of the parent G-2.1 Audio/Video Techniques Committee, and sponsor, reported that the timetable for the three project authorization requests (PARs), for which he had applied for two year renewal, were questioned by IEEE headquarters, but that these issues have now been resolved.
6. Mr. Moore reported that the recirculation ballot for the few minor changes (intended as editorial, but questionably substantive) made to P205, Draft Standard on Television

Measurement of Luminance Signal Levels, has been mailed (not E-mail) from Piscataway to all of the original balloting group. Further, that only objections need to be returned (affirmative votes are not required), so that if no negative votes are received by the end of the first week in February, the P205 revision will go forward for final approval by RevCom. To date, only two of the packages have been received amongst those present who were in the original balloting group. Therefore, this major revision to Std. 205 will likely be approved for publication at the next quarterly cycle. Mr. Moore will keep up on the progress.

7. The new standard P1521, Measurement of Video Jitter and Wander, which is ready for ballot, will be voted electronically (via E-mail). Mr. Redford needs to finalize the balloting group in light of the recent requirements for IEEE and Standards Association membership. Several potential members (based on their participation) have yet to reply with their membership numbers. Some attendees stated that they need to check on their membership status and the likelihood of future IEEE participation by their organization. Mr. Redford suggested that the IEEE mentor for this project, Geo. Thompson, might be contacted to help determine the intent of the "invited experts" provision in the balloting rules. Mr. Godber stated that we should fight strongly not to exclude participants from the balloting group solely because of membership issues.

8. A draft revision of Standard 206-1960 (reaffirmed 1978) "Measurements of Differential Gain and Differential Phase" was distributed by Mr. Poulin to now include hybrid analog/digital systems. An additional paragraph has been added to the Scope section, and a new section added for hybrid systems. This information was mainly from the appropriate section of Std. 746-1984, "Measurement of A/D and D/A Converters for PCM Television Video Circuits." Mr. Poulin pointed out that there are few, if any, currently available test signal generators which allow unlocking the chrominance subcarrier from horizontal sync, or allow the addition of dither, such as is specified in ITU-R BT.1204. An informative appendix might also be included, such as table 1 of BT.1204, which gives theoretical maximum values of the fluctuations of DG and DP due to quantizing error for eight and ten bit systems. It was proposed that this section be simply referenced in the IEEE revision.

It was also suggested that something be included on the cover page to warn users that new procedures have been added for hybrid analog/digital systems, and that the title include the word "chrominance," as, "Differential Chrominance Gain," etc. The word "hybrid" may need to be defined for this standard if this meaning is not clear in the IEEE Std. 100 Dictionary. Also, some mention of the possible necessity for "custom" equipment for carrying out these measurements should be included. Possibly, something should be said about the appropriateness of these techniques versus the magnitude of the errors expected to be measured. A reference to FCC Rules in footnote 9 should be updated. Mr. Poulin will attempt to rework the initial draft of this revision for the next meeting.

9. Mr. Poulin asked Mr. Fibush for help locating a soft copy of the figures for Std. 511, "Measurement of Linear Waveform Distortion." Scanning the figures from the printed document itself has not been successful. Mr. Moore reported that many different formats can be used to submit figures, so long as they are editable in MS Word. Mr. Lung suggested the portable network graphics (PNG), a lossless format similar to GIF, but with improved color depth, and no patent concerns. Mr. Poulin asked for help locating the latest (ITU) version of CCIR Rec. 421, which is referred to in Std. 511 as showing several tolerance masks. Dan Baker is also revising a section for the revision of this document. A section concerning component measurement needs to be added. Mr. Poulin asked for help locating a copy of the Tektronix TSG-300 component signal generator manual, which has a discussion of the "T" values for reduced bandwidth chrominance signals. Mr. Redford said he could probably locate one.

At this point, the chair remarked that there is still some quandary with the procedure to formally withdraw Std. 618-1984, "Measurement of Luminance Signal-to-Noise Ratio in Video Magnetic-Tape Recording Systems." It was agreed that a note will be composed, and forwarded to Mr. Lung for conversion to HTML format for posting on the Subcommittee's web site. Mr. Godber will explore having the note inserted in the IEEE Transactions on Broadcasting.

10. The discussion of agenda item 12 was combined with that of Std. 746-1984, "Performance Measurements of A/D and D/A Converters for PCM Television Video Circuits." Mr. Poulin envisions a revision to include separate measurements for A/D and D/A converters. The present document describes three methods, but all three involve back-to-back conversion (calibrated analog input with measured analog output). But, it has been difficult to find a commercial device to measure an analog sine wave sweep to an accuracy of 0.02 or 0.01 dB. To characterize reconstruction or anti-alias filters to such accuracy would require finding an off the shelf digital/analog converter which is of reference quality. The search will continue for such a device. A good definition of "non-useful DC component" has been located in an ITU document.
11. P948, "Measurements of Chrominance Signal-to-Noise Ratio in Video Magnetic Tape Recording Systems," is a proposed standard from 1986, which never achieved final approval, but has essentially become the de-facto industry standard. The G-2.1.5 Subcommittee is inactive, so the parent G-2.1 Audio/Video Techniques Committee has asked G-2.1.4 to carry this work through to publication so that the expertise will not be lost to the industry. Because there had been some disagreements over certain filter details, Mr. Poulin has attempted to contact representatives from equipment manufacturers to verify their satisfaction with the present document.

Mr. Takashi Ikenaga from Asaca/ShibaSoku replied that he had taken part in both IEEE and IEC discussions on this subject, and had recommended that the IEC adopt the methodology outlined by the IEEE. This was subsequently done to produce IEC Standard 60883 (1987-04), "Measuring Method for Chrominance Signal-to-Random Noise Ratio for Video Tape Recorders." Mr. Ikenaga recommends that the IEEE now adopt the published IEC standard. It is noted that IEC 60883 covers 525 and 625-line working, whereas IEEE P948 covers only the 525-line system. Also learned is that IEC 60883 is due for renewal this year, and IEC Subcommittee SC100B, Audio, Video and Multimedia Information Storage Systems, under Technical Committee TC100, is scheduled to meet in Florence on 14 October.

Mr. Redford has compared the two documents, and found that the ripple specified by the IEEE for all the low- and high-pass (but not the band-pass) filters is ± 0.25 dB, whereas in the IEC document, it is ± 0.5 dB. An optional 1-kHz high-pass filter, detailed in IEC 60883, is not shown in IEEE P948. Further, IEEE says the flat field signal for the 525-line system must be a 21.5 IRE pedestal modulated with 100 IRE P-P subcarrier, to minimize the effects of moiré when using a 1-MHz LPF with direct color recording systems. This is different from "color bars" red, which is a 28.3 IRE pedestal modulated with 88 IRE P-P subcarrier. The IEC document allows either.

Replies are needed from Tektronix and Rohde & Schwarz, possibly Magni, and other former members of G-2.1.5 might be contacted. Neil Neubert of SMPTE has also been contacted. Mr. Godber was familiar with the G-2.1.5 deliberations, and wanted to know why the ripple tolerances were greater in the IEC document, as this could cause discrepancies between various manufacturers' designs. Mr. Wörner will inquire of Rohde & Schwarz about the differences in these standards.

12. The discussion of the Proposed Standard for Swept Frequency Measurement was combined with agenda item 10, above.
13. Mr. Poulin reported that the revision of European Telecommunications Standards Institute (ETSI) Technical Report ETR-290, "Measurement Guidelines for DVB Systems," which has still not been published, explains the theory of packet measurements, but does not contain a measurement procedure. A measurement document needs to be drafted. Dan Baker has written guidelines for such a measurement. It was agreed that a standard is needed. Anyway, ETR-290 is a report, and not a standard. Relevant manufacturers should be contacted and notified of these discussions. A project authorization request (PAR) will be opened as soon as an outline of the work can be agreed. Mr. Wörner offered to assist with this work.
14. Discussion of the Revision of Std. 208-1995, "Measurement of Resolution of Camera Systems" had been removed from the agenda at the start of the meeting.

15. There was no new business
16. The next meeting was announced as 30 April in Tucson, AZ. [This has been changed to FRIDAY, 11 May in Boulder, CO.] The meeting adjourned at 10:55 AM.