

Institute of Electrical & Electronics Engineers
Broadcast Technology Society
G-2.1 Audio/Video Techniques Committee
G-2.1.4 VIDEO DISTRIBUTION MEASUREMENTS SUBCOMMITTEE

Hyatt Regency, 208 Barton Springs Road, Austin, TX 78704
Monday, October 27, 1997, 8:00 - 10:00 AM

MEETING MINUTES

At the last meeting, where little time was left after the G-2.1.6 Compression Subcommittee ran seriously overtime, it was suggested that reversing the sequence of our consecutive meetings would eliminate that problem. Meeting room directories at the hotel incorrectly identified the start time as 8:30 AM (as do many of the ATIS meetings), so the chair, Rick Redford, called the meeting to order at 8:20 AM after many members had arrived. Present were:

Candy Anderson	NextLevel	San Diego, CA.
Larry Brown	Ameritech	Hoffman Estates, IL.
Dave Fibush	Tektronix	Beaverton, OR.
Alan Godber	Consultant	Milltown, NJ.
John Grigg	US West	Plymouth, MN.
Walt Husak	ATTC	Alexandria, VA.
Doug Lung	Telemundo	Hialeah, FL.
Aidan Moore	Genum	Burlington, ON.
Al Morton	AT&T	Holmdel, NJ.
Wallace Murray	Ameritech	Detroit, MI.
Michel Poulin	Leitch	North York, ON.
Rick Redford (Chair)	NBC	New York, NY
Leon Stanger	DirectTV	El Segundo, CA.
Dick Streeter	CBS	New York, NY.

Mr. Dave Fibush offered to supply the chair with a copy of his notes on disk in lieu of performing as meeting secretary. The chair agreed to review the audio tapes of the meeting and compile the minutes from this summary. The draft meeting agenda and minutes of the previous meeting on August 4 in Kansas City were approved without deliberation.

The chair then asked Mr. Aidan Moore, Chair of the Task Force on Revision of Std. 205, to report on the balloting phase of this project. Standard 205, "Measurement of Luminance Signal Levels", went out for ballot with the first page missing, so it has been resent. Mr. Godber (chair of G-2.1, our parent Committee) said that the balloting department was very embarrassed, and hoped that this error would not delay the vote. The due date for ballot response is November 10th. It is important that ballots be returned as the IEEE has minimum-vote requirements.

A summary of the votes and comments will be sent to the chair, and the Subcommittee must try to reconcile any negative votes or comments from the balloting group or any of the organizations designated for coordination (SMPTE, EIA, ITU, ATTC, G-2.1) to fulfill due process. This Subcommittee then has the final authority to issue, not issue, or further revise the standard (if substantial revision is made, it must be re-balloted). The Task Force chair then coordinates the layout of the document.

The chair pointed out that the IEEE is an international standards organization. Although this revision will qualify as an international standard (it governs 525-line, ITU System M/NTSC television worldwide), according to Mr. David Wood of the EBU, there is no similar document for 625-line PAL systems. At the parent G-2.1 Audio/Video Techniques Committee meeting of 10/13, it was noted that coordination must be done with the EBU since they sanction nearly every standard for 625-line systems. Mr. Fibush (the SMPTE liaison to IEEE) said that in recent years, the EBU is not as active, and that they generally have conceded to SMPTE undertakings. Further, he recommended that in the future, rather than create a new document, Std. 205 could just be expanded.

Mr. Aidan Moore (Gennum), chairman of the task force, then discussed the proposed Standard for Video Synchronization Jitter and Wander. The first draft was presented on August 4, in Kansas City, and is posted in the working documents section (password protected) of the Subcommittee's web site. Mr. Fibush brought some comments of Mr. Dan Baker (Tektronix) for distribution, and reported SMPTE PT20 results. Mr. Baker is re-writing the draft to harmonize it with current SMPTE documents RP-184, "Specifications for Jitter in Bit-Serial Digital Systems," and RP-192, "Jitter Measurement Procedures in Bit-Serial Digital Interfaces." If the new IEEE standard encompasses all of their concerns, and can be produced punctually, SMPTE could withdraw RP-192 in favor of our procedure. Mr. Lung reported that a link to the related tutorial is also available on the Subcommittee's web site.

Mr. Grigg asked for clarification on the need for the wander part of the measurement procedure. Mr. Fibush responded that a specification for wander could be derived from the 0.1 Hz/s drift rate limit of subcarrier of the SMPTE RP170-M studio standard.

Mr. Murray raised a question regarding the latency through a decode that would remove wander from ATM. It is expected this will be much less than occurs at the encoder. As there were no further comments it is requested discussion continue on the E-mail reflector and comments be sent to Mr. Moore by Dec 5th. At that point the revision of the proposed standard can continue. He will make sure everyone on the subcommittee roster is notified of this work. The chair reminded Mr. Moore that a Project Authorization Request (PAR) needs to be initiated with IEEE for this work.

Since the matter of communicating with other participants had been brought up, the chair decided to address item 10 of the agenda. He asked if anyone was having difficulty getting on the E-mail

Reflector, as only about 15 persons have subscribed so far. One of the attendees cited old hardware as a roadblock. It was noted that we have the E-mail addresses of all but two of the nearly 50 names on the participation list. The chair also notified the Subcommittee that Dennis Wallace, lately of Larcan, and now at MSTV, had requested to be dropped from the list, and Dr. Hans Hoffmann, of IRT in Munich has asked to join. Mr. Fibush noted that Dr. Hoffmann had contributed to the work on the SMPTE Jitter standards.

Comments sent by Mr. Baker on revision of Standard 511, "Measurement of Linear Waveform Distortions," were discussed. A hard copy has previously been distributed and a scanned-in version will be on the web site soon. It had been mentioned previously that there was no standard subcarrier phase specified for the modulated 12.5T pulse in the original document, although 60.7 degrees (magenta) has been used widely, and for VITS inserters. Some generators use a rotating phase of subcarrier which makes illegal values in the component domain. One suggestion was to lower the amplitude rather than fix the phase. Another was to specify two appropriate phases considering conversion to component.

Rotating phase may be difficult for today's digital generators and changing amplitude would not be appropriate for many instruments calibrated to the present standard.

The fact that linear distortion levels have steadily decreased, while digital conversion and compression have increased non-linear distortions was mentioned in Mr. Baker's contribution. Non-linear distortions often mask linear distortions, and make measurement difficult. The suggestion to include non-linear distortions in the revision was presented. Mr. Godber said that in the [distant] past, the Subcommittee had been reluctant to tackle non-linear distortion measurement standards. The possibility of an annex detailing the interaction could be an answer.

Another concern of Mr. Baker's is the band limiting and resulting aliasing of T or 2T sin-squared pulses from digital generators or when passed through digital processing. The spectral content cannot be accurately defined using samples at clock rates of 13.5 or 14.3 MHz and the accompanying anti-aliasing filters. The analog representation is also affected by sampling phase. The chair recommended discussion of these comments with other members of the Subcommittee by the E-mail reflector and/or postings to the web site and then appropriately revise the standard. No due date for comments was determined because the jitter/wander document has priority. According to copies of slides provided by Mr. Godber, and used at the IEEE Broadcast Symposium last month, the projected completion for this and Std. 618 is during 1998.

Standard 618, "Measurement of Luminance Signal-to-noise Ratio in Video Magnetic Tape Recording Systems," needs updating not to be VTR specific and to add the use a shallow ramp instead of a flat field. The G-2.1.5 Subcommittee on Video Magnetic Recording Measurement (currently inactive) developed the original standard, and had done some work using shallow ramp signals. Some members voiced concern that except for camera evaluation, it is not clear that revision of the standard is appropriate with the widespread use of digital recorders and systems. This is also true of other standards that could be revised or developed but do not represent a real need in the industry.

Mr. Godber noted that two years ago, the Subcommittee thought it advisable to revise these older standards rather than simply reaffirm them. He suggested that the Subcommittee should be asked again what action it wished to take. Mr. Stanger said that reaffirmation should not be considered a bad thing where considerable effort would be necessary to derive only limited improvement. The chair agreed to bring copies to the next meeting of Std. 618, and also Std. 746, "Performance Measurements of A/D and D/A Converters for PCM Television Video Circuits," and the question of reaffirmation or revision will be raised again.

The chair asked if anyone would like to propose a parameter for new standards work. He noted that Michel Poulin and Michael Robin have written a book on digital television systems which mentions performance parameters for digital signal distribution. Mr. Poulin said that accurate frequency response to 0.1 dB at high frequencies is not defined. Measurement to 0.02 dB is considered possible. In today's digital systems people would like to measure the resulting analog signal to 0.1 dB at 5 MHz for multiple generation operation. Automated techniques today are no better than 0.5 dB above 3 MHz. Mr. Poulin will prepare a proposed methodology for swept-frequency measurement for the next meeting.

Electronic communication was discussed next. One member had difficulty obtaining the password to the protected area on the web page because the site administrator (Mr. Lung) is not authorized to reveal the password. Mr. Moore asked the purpose of the protected area. Mr. Godber responded that the IEEE requires that unpublished draft standards and certain other working documents be protected for copyright purposes. He proposed that the chair delegate to Mr. Lung authority to give the password to anyone on the participation list. Mr. Streeter seconded the motion. The Subcommittee voted unanimously to authorize Mr. Lung to reveal the password for the protected area on the web site to anyone on the participation list.

The next meeting date and site was later discussed at the G-2.1.6 Video Compression Measurements Subcommittee meeting, which immediately followed. It will be at ATTC in Alexandria, VA. on either Friday, January 9, or Monday, January 26, at 8:00 AM.