MINUTES OF THE IEEE G-2.1 Audio Video Committee -
IEEE G-2.1.4 Subcommittee meeting on Video Distribution Measurements

May 03, 1999

- List of attendees:

Alan Godber	Eng. Consultant
Doug Lung	Telemundo
David Fibush	Tektronix
Dick Streeter	Consultant/CBS
Lorence Brown	Ameritech
Michel Poulin	Leitch

- Revision of standards:
P205 - Measurement of luminance signal levels. The document is ready to be sent to the standard committee. Aidan Moore will be contacted to verify if any comment or liaison remains to be done prior distribution.

P1521 - Measurement of Wander and Jitter. The document is ready to be sent for ballot. The vectorscope diagram has not been added. It was decided that a letter be sent to ono-members of the subcommittee G2.1.4 for comments. Then the document will be sent for ballot to active participants to this subcommittee. An e-mail will also be sent to them for confirmation of this action. SMPTE RP-184 may need a change regarding the jitter/wander demarcation frequency to be consistent with the IEEE standard.

P618 - Measurement of Chrominance S/N. Alan will provide a copy of the document to the chairman.

P206 - Measurement of Differential Gain and Phase. Members of the subcommittee will be polled by email to determine if the document should be revised, reaffirmed without changes, or remain as dropped from the IEEE approved list.

P511 - Measurement of Linear Waveform Distortion (K factor). Following Dan Baker's comments, the sub-committee has decided that they would not be implemented to the document. Members of the subcommittee will be polled by email to determine if the document should be revised, reaffirmed without changes, or remain as dropped from the IEEE approved list

P746 - Measurement of the performance of A/D and D/A. This document will be read and up-dated, amended if necessary for the next meeting by all attendants.

Pxxx - Measurement of Amplitude/Frequency response - A test signal generator may be available soon from a test equipment manufacturer. It would provide an accurate sine wave voltage source that could be traceable to the NIST. More detail will be available for the next meeting. We may be able to start elaborating a procedure for accurate measurement of the amplitude/frequency response of analog video systems.

- *Measurement of linear waveform distortion of analog video signal (IEEE standard 511) using 2T pulse and bar test signal. A special note has been added to the existing standard document stating that the accuracy of any linear distortion measurement is often affected by the presence of non-linear distortions which are difficult or impossible to separate from the measurement. This problem has increased in significance due to two converging trends in video signal processing. Firstly, the levels of linear distortion have decreased demanding improved measurement resolution. Secondly, non-linear distortions due to digital conversion of the video test signals and data compression increase the levels of non-linear distortions over those experienced in the past. Consequently, equipment measuring linear distortions according to the IEEE standard 511 document may experienced some inconsistencies in results.*

- *12.5T mod sine-square pulse decoded to component and then re-encoded to composite: Depending of the subcarrier phase, clipping may occur (yellow and blue phases) in the component domain. Magenta phase is recommended (about 60 deg.) and is consistent with PAL and ITA standards. This recommendation may affect our digital composite test signal generator.*

IEEE G-2.1.6 Subcommittee meeting on Compression and Processing

1- ITU VQEG work report on planned tests:
Four methods are still in consideration.
The cable industry is standardizing methods for objective quality evaluations. They did not agreed to put the VQEG methods in their appendix in their recommendation.
The SG-9 committee may wait until VQEG publish their test results in September.

2- Defining a unit of measure and a means of calibration for video impairment.
A new draft document has been discussed. A set of video sequences must be developed with induced artifacts typical of those resulting from DCT-based compression systems. This set will be used to calibrate objective video quality analysis tools.

3- Selecting test material and test labs for a unit of measure and a means of calibration for video impairment. When comparing original and degraded pictures on the same monitor, a fast sequential switching might be too sensitive than the difference used to define a JND (according to Dave Fibush). A minimum duration might be required. The Rec. 500 is more suitable to evaluate picture performance in the living room.

Next meeting: in Mineapolis, Monday 26 July 1999.

T1A1.5

Tektronix has distributed a report on comparative tests performed by IRT between the Tektronix PQA (Picture Quality Analysis) objective measurement system and subjective testing as described in the CCIR-500-7 standard. The correlation is very good for most of the test sequences used (bit rates between 2 and 10 Mbps) and decreases when pictures of very poor quality are assessed.

An IRT report has been submitted describing subjective testing under similar to home conditions in order to find the bit rate needed for digital TV. Results showed that 3 Mbps is judged as equivalent to PAL quality. But the same tests performed using conventional method (DSCQS), in an evaluation room, showed that a bit rate of 6 Mbps is necessary.