COMMITTEE T1
CONTRIBUTION

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STANDARDS PROJECT: Analog Interface Performance Specifications for Digital Video Teleconferencing/Video Telephony Service

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TITLE: Comments on T1A1.5/92-123

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Introduction

This contribution addresses several of the editorial comments and questions raised in contribution T1A1.5/92-123.

Non-useful DC Component: We feel that it is safe to assume that all codecs are AC coupled and hence are capable of rejecting "reasonable" amounts of DC. If this were not true, then any small DC offset would cause sync problems and intensity shifts and the codec would not be marketable. The limit on DC rejection is the breakdown voltage of the input coupling capacitor. Since this value is much larger than the small DC offsets normally encountered in video systems, we feel that the specification of this "destruction limit" is of very limited use and interest. However, such a specification could be added to the draft.

Non-useful AC Component: The ability to reject power line hum (60 and 120 Hz) superimposed on the video input is clearly a desirable property for any codec to have. A useful specification would indicate the degree of rejection that a codec could perform. The definition that was deleted from the old format of the draft standard was:

> "The non-useful AC component of the input picture signal is additive signals below 600 Hz effecting both luminance and synchronizing signals. It will be present only as a result of distribution equipment after the picture source."

This definition does not seem to lead to any meaningful measurement implementation. In particular, it does not lead to a hum rejection measurement as described above. If a hum rejection measurement is desired, such can be added to the draft. This would require a new definition and method of measurement.

Input and Output Timing Errors: Input and output time base error are still specified (4.2.2.2 and 4.2.3.2). Note that these measures are absolute, rather than referenced to each other. We felt that this was the best choice, since codecs act like time-base correctors: the timing of the output sync train is not dependent on the timing of the input sync train. On the other hand, the size and location of the active picture area within this new sync train is an important question. We have observed a codec that drops 6 full lines and also drops 1 μsec off the front of each of the remaining lines. We have also observed a codec that shifts the active portion to the right by .8 μsec. We feel that these observations are not atypical, and hence some active video area and active video shift specifications are desirable.

Audio Common Mode Rejection Measurements: Return loss measurements can determine the impedance of an audio circuit, but not the degree of balance. No "noise" measurements are currently specified. The CMRR input measurement indicates how well balanced the audio input circuit is and hence, how immune it is to common mode noise. The output common mode noise measurement tells how well balanced the audio output is.

The common mode test voltage required is a function of the common mode specification that is being verified. It is true that it is possible to exceed safe common mode input levels when conducting these tests. We must select a CMRR specification and method of measurement that prevents this situation. This may result in a rather lenient CMRR specification, but a lenient specification will still serve to prevent the use of unbalanced inputs. We feel that this is important.

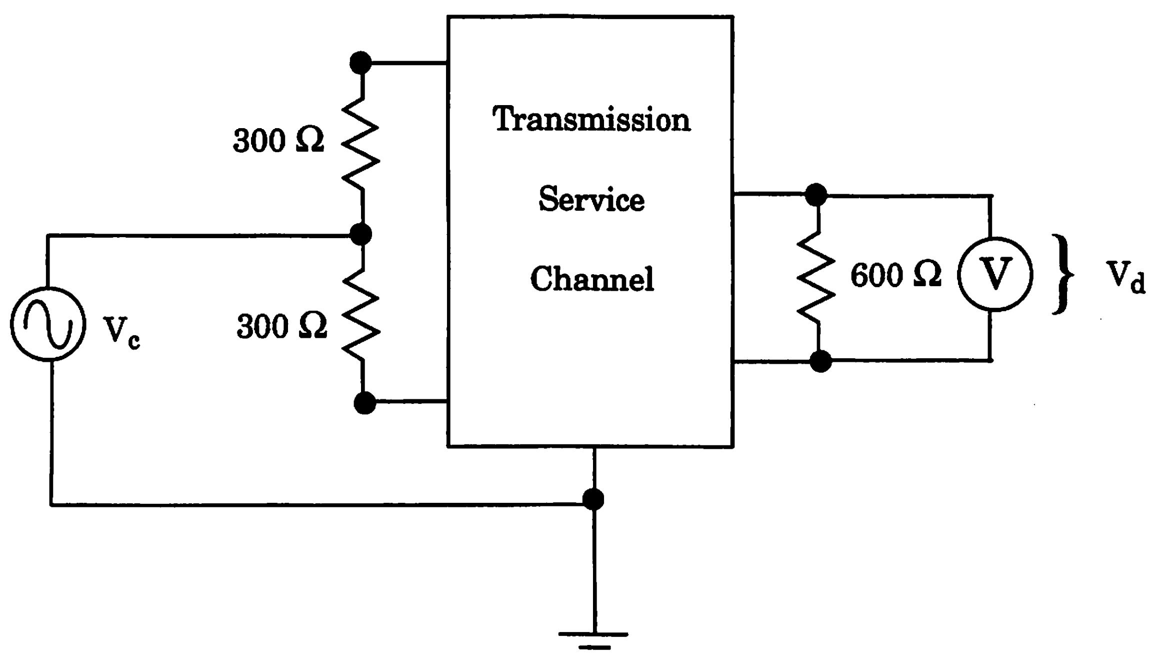
Nomenclature for Longitudinal Balance (page 3, section 3.1): We selected V_c and V_d to refer to common mode and differential mode voltages, respectively. The original terms V_m and V_s are thought to refer to "metallic" and "sheath voltages", which are apparently of some historical significance.

Impedance, Frequency Range of Specification (pages 7 and 8, sections 4.1.1.1.2, 4.1.1.2.2, 4.1.1.3.2, 4.1.1.4.2): The frequency range of the specification should, as a minimum, cover the chrominance information which is centered at the color sub-carrier frequency of 3.58 MHz. We propose that the 4.2 MHz upper bound be maintained.

SNR Calculation (page 9, section 4.2.2.3.3): As indicated in NTC 7 3.16, we are proposing SNR = 20 $\log_{10}$ (V_{p-p} / RMS noise), where V_{p-p} is the peak-to-peak video signal amplitude, and the RMS noise level is measured as given in NTC 7 3.16. We propose that this equation be added to the draft standard.

DC Component in Output Signal (Page 10, section 4.2.3.3.3): We agree that this test is not clearly described and would welcome changes of clarification. It is however, identical to the one described in the DS3 Technical Report (Version of May 1991).

CMRR Technique (page 12, section 4.3.1.1.3): We agree that V_0 should be changed to V_d for consistency. A figure that describes the measurement set up is shown below (this figure should be added to the draft standard). As a rough rule of thumb, if the 300 Ω resistors are of 1% tolerance, then CMRR's up to 40 dB can be measured. If they are .1%, then 60 dB, if .01%, then 80 dB, etc.



Audio-Visual Synchronization for In-Service Measurements (section 6.3.x): We favor the addition of an in-service audio-visual synchronization measurement. We are currently working on a non-intrusive method for measuring this quantity but have not yet fully developed the technique or quantified the accuracy that can be obtained. Note that there is an out-of-service audio-visual synchronization measurement specified in section 5.3.2.