COMMITTEE T1
CONTRIBUTION

Document Number T1A1.5/93- 161

****

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

****

TITLE: An Equivalent Method of Subjective Viewer Randomization

****

ISSUE ADDRESSED: Video Quality

****

Source: Arthur Webster NTIA/ITS
Greg Cermak GTE Laboratories, Inc.

****

DATE: November 8, 1993

****

DISTRIBUTION TO: T1A1.5

****

KEYWORDS: Video Teleconferencing, Video Telephony, Video Quality, Subjective Quality, Objective Quality

****

An Equivalent Method of Subjective Viewer Randomization.

This contribution presents a method of viewer randomization that is equivalent to that proposed in contribution T1A1.5/93-014R5 (Subjective Test Plan). This method will facilitate the laboratory implementation of the VTC/VT subjective video quality test.

Since each lab will now have all 12 subjective viewing tapes at the same time, it is possible to randomize the tape teams (RED, GREEN, and ORANGE) and their respective random orderings (e.g. 1423 2134 3214 etc.) and assign a particular subteam (e.g. G1 G4 G2 G3) to a viewer as he is recruited. This preserves the balance achieved through randomization and allows the labs to go forward with the testing while the recruiting process continues.

The same random numbers that appear on pages 10 and 11 of T1A1.5/93-014R5 will be used. They will now be used to order the subteams, however, instead of the viewers. The viewers will receive numbers from the random tables on page 11 as they are recruited (or scheduled).

The viewers will be assigned a viewer number which will now assign each one to a subteam and seat position. The assignment will be made according to the table on page 11 (for his lab) proceeding down the columns and disregarding any numbers beyond 36 (or beyond the number of viewers). For example, the first-recruited subject for Lab X will be viewer #8 (as specified by the table on page 11) and the second-recruited subject for Lab X will be viewer #3.

Each subteam is composed of three viewers and hence will have three numbers associated with it (one for the viewer assigned to the Left seat, one for the Center seat, and one for the Right seat). Within each subteam of three subjects the first-listed subject will sit in the Left chair in each session, the second-listed subject will sit in the Center chair, and the third-listed subject will sit in the Right chair. For example:

Viewer Numberings for LabX

Viewer Number L C R	Subteam (tape order)
1,2,3	G1G4G2G3
4,5,6	G2G1G3G4
7,8,9	G3G2G1G4
.	
.	
.	
34,35,36	R3R4R1R2

Similarly for LabY:

Viewer Numberings for LabY

Viewer Number L C R	Subteam (tape order)
1,2,3	O3O1O2O4
4,5,6	O4O1O2O3
7,8,9	O1O2O3O4
Etc.	

Accordingly, the first-recruited subject for Lab X (Viewer #8) will be assigned the subteam G3G2G1G4 and will sit in the Center seat. Similarly, the second-recruited subject (Viewer #3) will be assigned to subteam G1G4G2G3 and will sit in the Right seat.

In order to facilitate scheduling subjects, substitutions may be allowed within subteams of the same "color" (R,G,O), but not across "colors." For example, if the viewer assigned to subteam/seat number 2 (i.e. viewer #2), and scheduled to view tapes G1G4G2G3, was not able to make his scheduled showing, the lab could fill the vacant slot with any other viewer who was scheduled to view GREEN tapes. However, no more than three such substitutions will be allowed within any color group.

This simpler and potentially more convenient way to randomize viewers is expected to facilitate completion of the testing in a timely manner.