

sequence test materials. The revised test schedule will also be finalized at this same session.

2. Distribution and Ownership of Test Materials

The issue of whether, and under what conditions, source materials produced and/or used under the auspices of the Advisory Committee could be accessed by proponents (and presumably other entities as well) has been considered in both the Planning and Systems Subcommittees. Two different conclusions were reached in those two bodies.

The consensus of the Systems Subcommittee members present at its November 28, 1989 meeting, was that all source material should be made available to proponents. The consensus view of persons attending the December 6, 1989 meeting of PS/WP-6 was that no materials should be released. Instead, it was suggested that proponents be permitted to attend one or more viewings of the test sequences.

This is clearly an issue upon which reasonable minds may differ. On the one hand, because availability of source material (and especially motion sequences) would be beneficial to proponents in the design of their system, there would appear to be advantages in providing the material to the public. On the other hand, such action could severely complicate, and potentially compromise, the activities and testing schedule of both the Advisory Committee and ATTC.

Making these materials available prior to testing, for example, would present the potential for staging unsanctioned "tests" by other organizations, using "official" test sequences, which might compromise the decisions of the Advisory Committee. Moreover, because release of the materials would create some unfairness between proponents that are able to use the test sequences for many months and those that are not, pressures might be presented to further delay the start of testing as a means of equalizing this discrepancy. Finally, distributing these materials could present significant practical and administrative problems (copying, recordkeeping, managing unauthorized distribution, etc.) which neither the Advisory Committee nor any other entity is prepared to assume.

The Advisory Committee Chair has concluded (see his letter to ATV system proponents, Attachment D) that the benefits of releasing the source materials do not outweigh the sizeable disadvantages of such action. On balance, the Advisory Committee agrees with this assessment for the reasons stated above. Therefore, the recommendations of PS/WP-6 are adopted,¹³ and the Working Party is directed to

¹³ Although the original footage of the motion sequences is completely within the control of the Advisory Committee, the original still images were generously donated, and remain owned, by either Eastman Kodak or the National Aeronautics and Space Administration. Members of the
(continued...)

schedule a briefing for the proponents, in advance of the commencement of testing, at which still and motion sequences will be viewed. Further, at his forthcoming meeting with system proponents, the Committee Chairman may wish to explore whether the desire of some proponents to have access to a portion of the motion sequences may be accommodated without either delaying the testing program or incurring considerable additional expense.

C. Canadian Participation

The Canadian Advanced Broadcast Systems Committee ("CABSC") has generously offered to devote the resources of the Communications Research Centre ("CRC") to participate with the Advisory Committee in conducting the psychophysical tests of advanced television systems. A joint working arrangement between the Advisory Committee and the CABSC could offer two important benefits.

First, since the CABSC and the CRC both have engaged previously in this type of research, such a joint arrangement would bring valuable experience and expertise to the subjective testing portion of the Advisory Committee's work.

13 (...continued)

Planning Subcommittee are now coordinating with both of these institutions to ensure that, for the testing period, the photographic source of the still images will be shared only with the Advisory Committee and ATTC.

Second, the involvement of a respected Canadian organization would help ensure the development of a North American broadcast ATV standard,¹⁴ thereby encouraging the adoption of the same standard in all other countries of the world where NTSC is in use today. Such a result could have positive economic implications for U.S. program producers and equipment manufacturers.

While the Advisory Committee recognizes the important benefits inherent in a joint program of subjective testing, it is also essential that 1) any psychophysical tests performed in Canada be in strict accordance with the test plans approved by the Committee; and 2) a significant part of the various tests should be conducted in each country under joint supervision. To these ends, the Advisory Committee (through its Chair and, as appropriate, Steering Committee) intends to work toward a mutually acceptable agreement. If one can be achieved, the Advisory Committee would intend to accept the CABSC's gracious offer subject to review and approval by the FCC.

¹⁴ It is suggested that the Commission may wish to initiate a formal dialogue with Mexico so as to ensure compatibility with our neighbor to the south.

D. Channel Allotment and Assignment Plans

Data on the inherent interference and noise performance of ATV transmission systems will be developed as part of the testing program. This information will then be used to formulate definitive planning factors in order to finalize a channel allotment plan. Nevertheless, sufficient information is available now to allow creation of preliminary allotment and assignment plans that would offer insights into the tradeoffs posed by various spectrum options.¹⁵

The possible resolution of some spectrum issues, concurrent with other Advisory Committee activities, would speed implementation of ATV service. Therefore, the Planning Subcommittee, through its Working Party 3, is directed to undertake the development of preliminary ATV channel allotment plans and assignment options.¹⁶

¹⁵ One such option which is of particular interest to the Advisory Committee, consistent with federal policy toward public television, concerns vacant non-commercial educational allotments. Accordingly, the Advisory Committee directs the Planning Subcommittee, in its spectrum studies, to determine the feasibility of both maintaining these channel reservations and holding ATV spectrum for them.

¹⁶ It should be noted that this project has been funded by the broadcast members of the Advanced Television Systems Committee.

E. Audience Tests

A final issue presented to the Advisory Committee concerns the testing of audience reactions to various advanced television attributes.¹⁷ Working Party 7 of the Planning Subcommittee (PS/WP-7) has made a substantial effort in designing an audience test plan and has developed reasonably solid estimates of the cost and time required for these studies. The questions before the Advisory Committee are whether some, all, or none this research will be undertaken and, if so, how it will be funded. With regard to the issue of financing, PS/WP-7 has identified three possible sources: 1) the Advisory Committee; 2) system proponents; 3) other sources (e.g., foundations).

It is evident that information regarding consumer reaction to various aspects of ATV could be useful in the Committee's deliberations. Nevertheless, the Committee itself is not in a position to fund these studies. Therefore, the Advisory Committee endorses the Working Party's efforts to find other financing sources for their research projects.¹⁸ The Working Party should be mindful,

¹⁷ These tests should be distinguished from subjective evaluations which are part of the Test Procedures Plan and are intended to help rank viewer preference for various systems.

¹⁸ These activities must follow strict guidelines. See, FCC Directive (FCCINST 1126.1), effective date of May
(continued...)

however, of the need for all of the Committee's activities to be concluded expeditiously. These studies should not be permitted to slow down the overall work of the Advisory Committee.

IV. FUTURE ADVISORY COMMITTEE EFFORTS

As indicated above, there are two important projects that must be completed before tests can begin. First, the procedures for testing audio performance and dynamic resolution must be developed, reviewed and approved. This work should be completed by July 31, 1990.

Second, motion sequence test material must be produced, edited and delivered to the ATTC. This project can only be completed after a decision on production methodology is made following the June 1990 demonstration.

In addition to these immediate tasks, there are three other important assignments which should be completed over the course of the next several months. First, based on attributes and specifications developed in PS/WP-1 and PS/WP-2, procedures to govern field tests will be developed by SS/WP-2. Second, PS/WP-3 will create one or more preliminary channel allotment plans and sets of assignment options for

18 (...continued)
10, 1988, regarding Federal Advisory Committees seeking private funding (pp. 10-11).

further review by the Advisory Committee. Finally, attention will be placed on developing a report format and a framework for analyzing the large amount of data developed throughout the activities of the Advisory Committee. In addition to developing analytical methodology, this project will comprehensively assess the importance of various attributes and other factors of each proponent system. It will also specify the information which should be developed and reported in each phase of work -- laboratory, subjective and field testing.

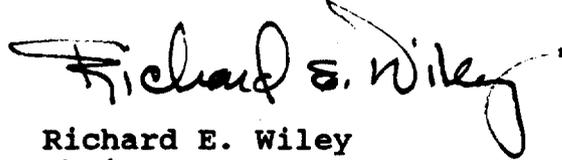
V. CONCLUDING OBSERVATIONS

The issues presented by the development of an advanced television transmission standard are myriad and complex. Nevertheless, because of the voluntary and cooperative efforts of hundreds of firms and individuals working under the auspices of the Advisory Committee, testing of proponent systems will soon be ready to begin. The Committee commends those efforts and encourages continued active participation.

The Advisory Committee also is grateful for all of the continuous direction, oversight and support provided by the FCC (including by its Chairman and key staff officials). The Committee looks forward to an active role by the Commission

staff in all the Committee's undertakings, especially the critical testing of ATV proponent systems.

Respectfully submitted,

A handwritten signature in black ink that reads "Richard E. Wiley". The signature is written in a cursive style with a large, sweeping initial 'R' and a long, trailing flourish at the end.

Richard E. Wiley
Chairman

**FCC ADVISORY COMMITTEE ON
ADVANCED TELEVISION SERVICE**

Richard E. Wiley *, Wiley Rein and Fielding (Chairman)
Frank Biondi, Viacom International, Inc.
Joel Chaseman, Post-Newsweek
Bruce Christensen, Public Broadcasting System
Joseph Collins, American Television Communications Corporation
Barry Diller, Fox Broadcasting Company
James Dowdle, Triune Broadcasting Company
Robert Hansen, Zenith Corporation
Melvin W. Harris, Paramount Pictures Corporation
Stanley S. Hubbard, Hubbard Broadcasting
Donald F. Johnstone, Philips Consumer Electronics Company
James Kennedy, Cox Enterprises, Inc.
James T. Lynagh, Multimedia Broadcasting Company
James C. McKinney, Advanced Television Systems Committee
Thomas S. Murphy, Capital Cities/ABC, Inc.
F. Jack Pluckhan, Quasar
Ward Quaal, The Ward L. Quaal Company
Richard D. Roberts, TeleCable Corporation
Burton Staniar, Westinghouse Broadcasting Corporation
Laurence Tisch, CBS, Inc.
Neil Vander Dussen, Sony Corporation of America
Robert Wright, National Broadcasting Company
Joseph Flaherty*, CBS/Operations and Engineering
Irwin Dorros*, Bell Communications Research
James Tietjen*, David Sarnoff Research Center

EX OFFICIO MEMBERS

Bradley P. Holmes, Department of State
Janice Obuchowski, NTIA/Department of Commerce
Wendell Bailey*, National Cable Television Association
Greg DePriest*, Association of Maximum Service Telecasters
Tyrone Brown*, District Cablevision
John Abel*, National Association of Broadcasters
Henry L. Baumann*, National Association of Broadcasters
Brenda Fox*, National Cable Television Association
Craig Fields, Defense Advanced Research Project Agency

* Denotes member of Steering Committee

March 21, 1990

ATTACHMENT B

**REPORTS OF THE PLANNING, SYSTEMS AND
IMPLEMENTATION SUBCOMMITTEES**

ATTACHMENT C

TEST PROCEDURES PLAN

ATTACHMENT D

LETTER FROM RICHARD E. WILEY TO
ATV PROPONENTS DATED FEBRUARY 7, 1990

WILEY, REIN & FIELDING

1776 K STREET, N. W.
WASHINGTON, D. C. 20006
(202) 429-7000

RICHARD E. WILEY
(202) 429-7010

FACSIMILE
(202) 429-7049
TELEX 248349 WYRN UR

February 7, 1990

Dear ATV Proponents:

The purpose of this letter is to bring you up to date on developments relating to our FCC's Advisory Committee. I also would like to suggest that we hold another meeting in the near future (see paragraph 4 below).

1. Next Advisory Committee Meeting - March 21

Enclosed is a copy of my letter to the Advisory Committee announcing our next meeting, together with an agenda for the session. You will note that I envision a 3rd Interim Report to the FCC being adopted on March 21, one that would finalize all test-related issues.

2. Delay in the Testing Schedule

My letter also makes clear that we will have to delay the start of proponent testing until early fall. A revised and, hopefully, final schedule will be announced at or shortly after the March 21 meeting. The primary reason for this delay surrounds the thorny issue of test materials which I need to discuss with you directly.

3. Availability of Test Materials

I am enclosing letters from Planning Subcommittee Chairman Flaherty and Systems Subcommittee Chairman Dorros on the issue of making subjective test material available to ATV system proponents in advance of testing. The differing viewpoints reflected in their correspondence will not surprise you. They reflect an issue that has been one of the most difficult that our various Subcommittees and Working Parties have yet confronted. Obviously, a decision on how to proceed is needed.

My recommendation is to not distribute such material prior to testing and, instead, to make still and motion picture sequences available for viewing at a detailed pre-test briefing for proponents. My position in this regard is based on considerations of: (a) timing (we simply cannot risk any further delays in our testing program), (b) fairness (not

all proponents would have access to the necessary equipment that would make test material availability useful and, obviously, some proponents would have more time with the material than others due to vagaries of the test schedule); and (c) ownership and control (ATTC has advised me that, if they are not released to proponents, it is willing to assume custodianship of the materials).

This recommendation will be included in the 3rd Interim Report and, naturally, is subject to review by the Advisory Committee. However, I hope that you will appreciate and accept the reasons for my tentative decision in this area.

4. Test Material Expense

I am advised that creation of the static test materials is nearly complete, but that production of the motion sequence test materials needed to evaluate all ATV system proponent concepts will cost over \$2 million. Members of the Ad Hoc Group on Production have generously offered equipment and/or facilities sufficient to cover more than half of this amount. The remainder -- something under \$1 million -- is needed in cash to cover the cost of production professionals, talent, and the like. The testing laboratories have advised me that they will not have funds available to support this effort. Since the Advisory Committee has only a very limited budget (to cover travel, postage and other out-of-pocket expenditures), we must look to the proponents to underwrite the remainder of the funds required for the envisioned subjective test program. Without the necessary funding, these test scenes will not be produced, and subjective assessments will have to be made in some other fashion, perhaps through the use of experts viewing a small set of easily recreatable motion sequences (e.g., a spinning wheel). I am sure that you would agree that such an outcome would be most unfortunate.

Please let me know if you will support production of the test materials. If so, I would like to schedule another meeting of proponents to discuss an appropriate allocation of the funds needed (as well as other matters relating to testing and the schedule for testing).

5. Proponent Identification

With the announced merger of North American Philips and the Sarnoff Laboratories, the number of system proponents has been reduced to six and, as I see it, the number of test slots to eight (one for each proponent, except NHK and Philips/Sarnoff with two each). Requests from new ATV entries are under consideration by the Systems Subcommittee.

6. ATTC Fee Payments

I am authorized by Peter Fannon, Executive Director of ATTC, to advise you that the Test Center has decided to defer payment of the remainder of any test fees due from March 1 to June 1 in light of the delay in our overall test schedule.

In closing, let me again thank you for your pioneering work on advanced television system developments. Please feel free to contact me directly if you would like to discuss any aspect of this letter or the Advisory Committee's program.

Best regards.

Sincerely yours,



Richard E. Wiley

REW:lmb

cc: Subcommittee Chairmen
Peter Fannon, ATTC
Craig Tanner, Cable Labs
Dr. Tom Stanley, FCC
Lauren Belvin, FCC
William Hassinger, FCC

WILEY, REIN & FIELDING

1776 K STREET, N. W.
WASHINGTON, D. C. 20006
(202) 429-7000

RICHARD E. WILEY
(202) 429-7010

January 26, 1990

FACSIMILE
(202) 429-7049
TELEX 248349 WYRN UR

Dear Advisory Committee Members:

I am writing to invite you to attend our next meeting on March 21, beginning at 2 p.m. As always, we will convene in the FCC Meeting Room, 8th Floor, 1919 M Street in Washington, D.C.

Attached is an agenda for the session. You will note that FCC Chairman Al Sikes will be addressing the Advisory Committee. It is my understanding that he will ask for our advice on certain key issues. The Chairman also has graciously invited us to attend a reception in his office following the meeting (at around 5 p.m.).

Importantly, our agenda includes consideration of a Third Interim Report, primarily dealing with test procedures and management. Since this will be the last Advisory Committee meeting before testing begins, I intend to address all testing-related issues in this Report. I also hope that we can establish a definitive schedule for proponent testing (to begin probably in the early fall). I plan to send you a draft of the Report around March 1 and, consistent with past practice, will be requesting written comments about 10 days thereafter. A revised (and proposed final) draft will be discussed by the Committee at our meeting.

In addition, I would like to suggest that we devote time on March 21 to a discussion of the appropriate aspect ratio for advanced television systems. Zenith has requested an opportunity to make a brief presentation in this regard, and I am certain that others will want to offer views and perspectives. Finally, the agenda includes reports from our subcommittees, the testing laboratories, and our treasurer.

This will be an important meeting and I sincerely hope that each of you will be with us. As indicated, your personal input on the significant issues to be considered will be valuable. As always, however, we will welcome a representative in the event that your schedule will not allow you to participate.

Thank you for your consideration and best regards.

Sincerely yours,



Richard E. Wiley

January 26, 1990

Advisory Committee on Advanced Television Service

A meeting of the Advisory Committee on Advanced Television Service will be held on:

March 21, 1990
2:00 P.M.
Commission Meeting Room (Room 856)
1919 M Street, N.W.
Washington, D.C.

The agenda for the meeting will consist of:

1. Introduction
2. Approval of Minutes of Last Meeting
3. Remarks by FCC Chairman Sikes
4. Reports of Subcommittees
5. Report of Testing Laboratories
6. Draft of Third Interim Report
7. Testing Schedule
8. Discussion of Aspect Ratio
9. Financial Report
10. Future Work Plans
11. Other Business
12. Adjournment

All interested persons are invited to attend. Those interested also may submit written statements at the meeting. Oral statements and discussion will be permitted under the direction of the Advisory Committee Chairman.

Any questions regarding this meeting should be directed to Richard E. Wiley at (202) 429-7010 or William Hassinger at (202) 632-6460.

**Advisory Committee on
Advanced Television (ATV) Service**

Doc. No. PS-0066

Date January 29, 1990

**Richard E. Wiley
Chairman
Advisory Committee on Advanced TV Service
1776 K Street, NW 11th floor
Washington, DC 20006**

Dear Dick:

At the Systems Subcommittee meeting of November 28, 1989 the System Subcommittee recommended that copies of the unedited footage of the subjective test material be made available to ATV System proponents in advance of testing.

At the Planning Subcommittee Working Party 6 meeting of December 6, 1989 the Working Party unanimously agreed that test materials not be made available to ATV System proponents before testing, but that the still and motion picture sequences be made available for viewing at a pre-test briefing.

As Chairman of the Planning Subcommittee, I believe that PSWP-6 is correct and that the subjective test materials should not be distributed to proponents prior to testing for the following reasons:

- (1) The test materials will not be ready until late summer or early fall 1990, and will, therefore, not be available until just before testing begins. This means that the sample test materials will not be delivered to proponents in time to affect their system developments.
- (2) If proponents are granted a lengthy (90 days) preview of test materials, the overall test schedule will be delayed even further whether or not these materials are the final test materials.
- (3) The test materials cannot be used without a digital HDTV VTR, a format converter, and a PIXAR unit - this equipment is estimated to cost about one million dollars, and I know of only two proponents who intend to purchase such equipment. Other proponents will not be able to use the test materials without this equipment.

- (4) Moreover, several administrative problems will be created if test materials are made available to proponents:
- (a) If the materials are distributed simultaneously to all proponents, a vast disparity will exist in the amount of time each proponent will have the materials prior to testing - some proponents could have the test materials just prior to their testing schedule while others could have the materials for a year or more.
 - (b) The proponents must agree not to redistribute, copy or downconvert any of the test materials or to use them for public display or to conduct any private subjective tests using public audiences.
 - (c) The ATTC has agreed to act as sole custodian of the materials, if they are not distributed to proponents or anyone else. If distribution outside of the ATTC is authorized, I understand that the ATTC will only maintain minimal custodianship.
 - (d) Distribution of test materials outside of the ATTC will severely compromise the integrity of the materials themselves.

This issue needs to be resolved no later March 21, 1990, the next Advisory Committee Meeting.

Respectfully,


Joseph A. Flaherty
Chairman, Planning Subcommittee

cc: W. Bailey, G. DePriest, I. Dorros, P. Fannon, B. Jones,
C. Tanner



Advisory Committee on
Advanced Television (ATV) Service

SS - 227
26 Jan 90

Irwin Dorros
Chairman, Systems Subcommittee

Mailing Address:
Bellcore
290 West Mt. Pleasant Avenue
Post Office Box 486
Room 1E309
Livingston, NJ 07039

January 26, 1990

Mr. Richard E. Wiley
Chairman
FCC Advisory Committee
on Advanced Television Service
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006

Dear Dick:

As you know, full motion test sequences for the subjective assessment tests are being produced by Planning Subcommittee Working Party 6. The creation of this material is a critical path item which may end up pacing the entire testing process. One issue still enjoying lively debate is this: should these sequences be released to the system proponents in advance of the testing, and if so, how far in advance and in what form? PS/WP6 and the Systems Subcommittee have independently discussed the question and arrived, each by overwhelming consensus, at different conclusions. Your guidance is now needed, Mr. Chairman, to help resolve this important matter.

At the eighth meeting of the Systems Subcommittee, held on 28 November 1989, the issue of releasing subjective test material to the proponents was discussed at great length. Paragraph 4.6, taken from the draft minutes of the meeting, and reproduced here in its entirety for your convenience, summarizes the discussion:

"4.6 The suggestion was made that the material to be used during the subjective tests should not be shared with proponents in advance of their scheduled testing, so as to prevent any special system optimization to improve the test results for the specific test material. This suggestion was discussed thoroughly with the overwhelming consensus that the material should be provided in advance. Birney Dayton suggested that the proponents be provided with a copy of the unedited raw footage from which the actual test material would be culled. This would permit quicker delivery of the material to proponents and would not specifically represent the actual material to be used in the tests. This suggestion was accepted by the group and Dr. Dorros, noting that the subject was not included in the original agenda, agreed to accept the consensus, pending any comments on these minutes. Dr. Dorros noted that the Planning Subcommittee may also have input on the matter and the Advisory Committee may have to adjudicate it."

Another point of view was expressed by the members of Planning Subcommittee Working Party 6 at its meeting on 6 December 1989. The last paragraph on page 6 and the first paragraph on page 7 of the draft minutes of the meeting state:

"Craig Tanner questioned the proponents about their need for the (full motion) test materials. The consensus among proponents was that they want to know what the materials are like. This prompted a proposal that NTSC recordings, downconverted from the 1125/60 test materials, be distributed to proponents. Charlie Rhodes objected to this proposal citing that this would allow analysis of motion vectors and possible optimization of a system to the motion sequences.

"After considerable further discussion a decision was unanimously adopted by the working party recommending that a "briefing" be held for proponent review of the test materials prior to the final assembly of the test materials. All of the materials, both still and motion sequences, would be available for review at the briefing but none of the test materials would be distributed to any party. Copies, outtakes, down-conversions, photos and pixar data are all included in this limit on distribution of test materials. The briefing would occur a minimum of 30 days before testing is to begin and does not preclude the possibility of further briefings in the future if necessary."

This is a highly complex subject, engendering strong feelings on both sides. To help you make a decision, I am enclosing an attachment to this letter which echoes the feelings of the Systems Subcommittee and presents a rationale for releasing the test material to the ATV system proponents. You may expect another letter to arrive shortly under separate cover. That document, written by Mr. Flaherty's office, discusses the reasons PS/WP6 was opposed to such an action. Please review this background material, consider the issue on its merits, and advise us how to proceed.

Thank you.

Sincerely,



Irwin Dorros
Chairman
Systems Subcommittee

Copy to
System Subcommittee Officers
Joe Flaherty
Tom Stanley
Roy Stewart
Peter Fannon
Craig Tanner

ATTACHMENT

STATEMENT FROM THE CHAIRMAN OF THE SYSTEMS SUBCOMMITTEE ON RELEASE OF SUBJECTIVE TEST MATERIAL TO ATV SYSTEM PROPONENTS

The Systems Subcommittee and Planning Subcommittee Working Party 6 have differing views on whether to release full motion test materials to the ATV system proponents before the testing process begins.

The members at the 28 November 1989 meeting of the Systems Subcommittee agreed overwhelmingly that some of the test sequences *should* be available to the proponents. The material released would be unedited raw footage taken from the production tapes, which would be representative of, but not identical to, the actual test sequences. The justification for this is to prevent a proponent from analyzing the motion vectors and adjusting its equipment to look uncharacteristically good when displaying those particular images. Releasing the unedited footage would not delay the testing process until the final sequences are available.

The members considered, and were unmoved by, the argument that releasing the material would bestow an unfair advantage on the more affluent proponents, since a variety of expensive equipment, including a digital video tape machine costing almost \$300,000.00, would be needed to make use of the tapes. They were also unconcerned that by releasing the material simultaneously to all proponents some companies would have use of it for 30 days, while others would have use of it for as long as 18 months. The fact is, that the extra development time, which some companies would have under any conditions, is a lot more valuable to the system developers than early access to the test material.

Some of the proponents *will* be able to use the material, and the extra development time, to develop a better ATV system. The goal of the Systems Subcommittee, stated many times over the past two years, is to recommend the best possible ATV system for terrestrial transmission to the American public. Keeping that in mind, it makes sense to allow the use of every tool available to those companies able to take advantage of them. It *doesn't* seem to make sense to handicap every proponent to perform at the level of the company with the fewest resources.

There is another very practical consideration for offering the material to the proponents: it may never be created otherwise. On Page 17 of the PSWP6's very fine contribution to the third interim report, it indicates that the full motion subjective test material could cost as much as \$2.2M to produce. Only \$1.4M is currently committed by the Ad Hoc Group on Production Planning. In return for early release of the material, the ATV system proponents might be inclined to collectively contribute the \$800,000 shortfall.

I personally do not have a strong preference for how we should proceed on this matter. There are compelling arguments on both sides. I do, however, feel obliged to represent to you the views expressed by the Systems Subcommittee members at the 28 November meeting.

ID

1/26/90

SSWP2-0390
2 Feb 90
Rev 23 Feb 90

ATV Test Procedures
Subjective Tests

1.0 INTRODUCTION

1.1 General

There are two general types of subjective tests, ranging (which includes threshold) and rating. The purpose of ranging is to establish the threshold of visibility of an impairment, the point where the impairment renders the signal unusable, and some of the steps in between. During rating tests a group of lay observers watch television pictures and decide on their quality or on the effect of an impairment.

1.2 Ranging Tests-General Description

Ranging tests fall into several categories which are described below.

All ranging tests do have several factors in common:

- A. There are five expert observers looking at a single large screen video projector or at a bank of NTSC receivers.
- B. Each observer's vote on the threshold of visibility and on the point of unusability is recorded secretly so that the other observers do not know his decision. Discussion among observers is expected.
- C. For those television systems which do not have program audio, the bit and block error rates of the digital audio capacity will be monitored and recorded during the picture ranging. Additionally the impairment levels which cause bit and block error rates of 10^{-3} and 10^{-4} shall be recorded.
- D. The threshold of visibility and the point of unusability will be recorded as that point when four of the five expert observers so vote. [See Sections 1.4.1 and 1.4.2]
- E. A single ranging test may be part of a larger ensemble of ranging tests for a given variable, e.g., co-channel interference may be measured at several receiver input power levels.
- F. The use of audible cues to signal changes in impairment level will be investigated during the prove-in tests with NTSC. It is expected that audible cues may not be used during the finding of the threshold of visibility, but may be used during the determination of the point of unusability.
- G. Immediately after finding the endpoints (threshold of visibility and point of unusability), the observers will determine the increments to be used in possible future rating tests.