

DRAFT SAMPLE DATA LIST : typical data to be taken/output for a test

10/19/90

Test Director _____ Date _____
Proponent representative _____
Expert observers _____

1.3.1. Luminance Static Horizontal Resolution Test Schedule Sequence # _____

Type of test: EO&C, 5 expert observers Test signal(s): _____
(Test pattern, photo, motion sequence, etc.)

PICTURE MONITOR:

[OUTPUT DATA]

Limiting horizontal resolution of the center area, in C/APH [1 to 5] Agreed or mean _____ C/APH
____ C/APH _____ C/APH _____ C/APH
____ C/APH _____ C/APH

ZPG coefficients [10]
(1) _____ (2) _____ (3) _____ (4) _____ (5) _____
(6) _____ (7) _____ (8) _____ (9) _____ (10) _____

Limiting resolution of the side panels, in C/APH. [1 to 5] Agreed or mean _____ C/APH*
____ C/APH _____ C/APH _____ C/APH
____ C/APH _____ C/APH

ZPG coefficients [10]
(1) _____ (2) _____ (3) _____ (4) _____ (5) _____
(6) _____ (7) _____ (8) _____ (9) _____ (10) _____

PHOTOGRAPH: All conditions under which data were taken [2]
1. ID # _____ 2. ID # _____*

VIDEO TAPE RECORD: All conditions under which data were taken [2]
Time code 1 _____ Time code 2 _____*

WAVEFORM MONITOR:

Half-amplitude resolution response of the center area, in C/APH [1 to 5] Agreed or mean _____ C/APH
____ C/APH _____ C/APH _____ C/APH
____ C/APH _____ C/APH

ZPG coefficients [10]
(1) _____ (2) _____ (3) _____ (4) _____ (5) _____
(6) _____ (7) _____ (8) _____ (9) _____ (10) _____

Half-amplitude resolution of the side panels, in C/APH. [1 to 5] Agreed or mean _____ C/APH*
____ C/APH _____ C/APH _____ C/APH
____ C/APH _____ C/APH

ZPG coefficients [10]
(1) _____ (2) _____ (3) _____ (4) _____ (5) _____
(6) _____ (7) _____ (8) _____ (9) _____ (10) _____

PHOTOGRAPH: All conditions under which data were taken [2]
1. ID # _____ 2. ID # _____*

VIDEO TAPE RECORD: All conditions under which data were taken [2]
Time code 1 _____ Time code 2 _____*

* Data taken only where side panels are transmitted differently from center.

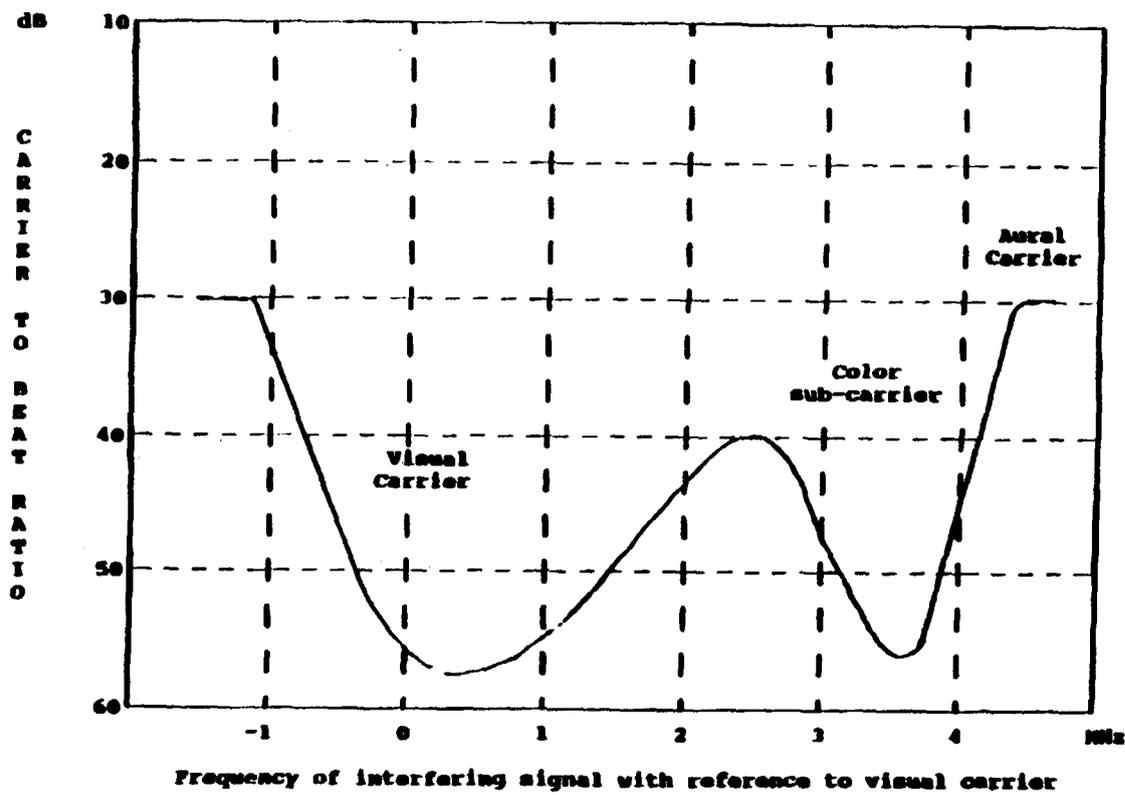
Test Date _____ ATV Carrier Freq. _____ Hz. Video Tape No. _____ Test Data Accepted by: _____
 ATV Systems _____ NTSC Carrier Freq. _____ Hz. Time Code: _____ Test Engineer: _____

THRESHOLD OF VISIBILITY OF INTERFERENCE

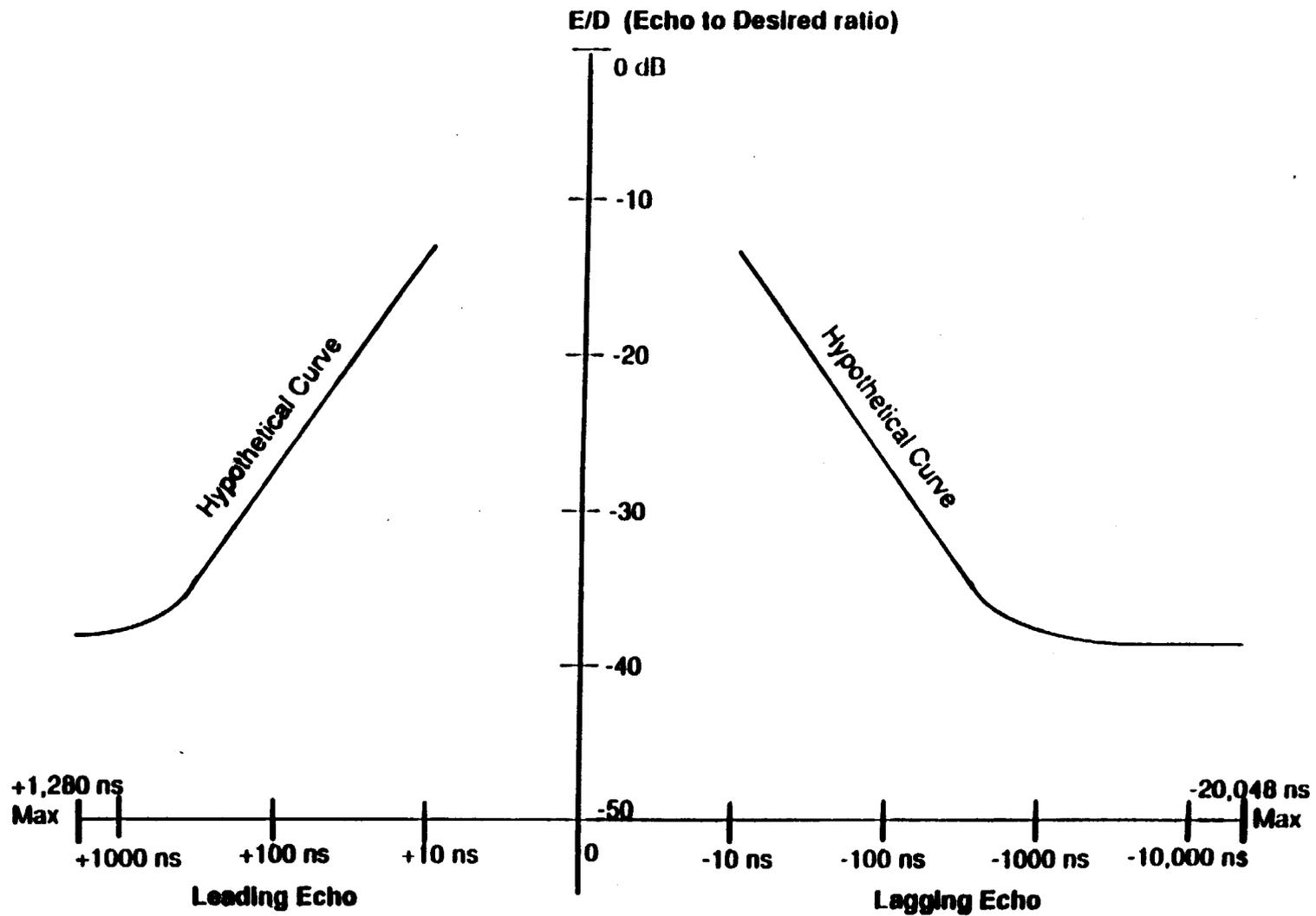
	D Level		U Level				Notes
	NTSC	ATV	NTSC (U) Into NTSC (D)	NTSC (U) Into ATV (D)	ATV (U) Into NTSC (D)	ATV (U) Into ATV (D)	
1 Co-Channel	-35 dBm	M*					
	-55 dBm	W*					
2 Upper Adj. Ch.	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
3 Lower Adj. Ch.	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
4 UHF Taboos							
n - 5	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 4	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 3	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 7	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 4	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 2	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 2	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 7	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					
n - 3	-15 dBm	S*					
	-35 dBm	M*					
	-55 dBm	W*					

Note: S, M and W denote Strong, Moderate and Weak signal levels, respectively

Figure 19-8 - Example of Data Reporting Format



(Example of Presentation Format for Discrete Frequency Interference Data)



**STATUS REPORT
of the
TASK FORCE ON THE RECOMMENDATION METHOD**

The Task Force met once since the 10 August 1990 meeting of Systems Subcommittee Working Party 4. The Task Force met on the next business day Monday, 13 August 1990. There were 8 new participants for a total of 14 at the meeting.

The Task Force undertook to carry out the direction given to it by SS/WP4:

Since there is sufficient interest in the Working Party in pursuing the direction of voting, the Task Force should look further into the values of votes for particular industry segments and whether or not the segments are the proper ones, and further are there missing segments.

During the meeting various points of view were expressed on the fundamental principle of voting. Some continued to support the methodology of voting. Some felt that consensus was the only method to be used and that voting had no place. Others were concerned about the acceptability of voting by higher level bodies of the Advisory Committee.

The Task Force was able to reach consensus on little more than drafting the following request, which was included in a letter to Dr. Hopkins, Chairman of SS/WP4:

Systems Subcommittee Working Party 4 is considering a voting procedure as an option to select a system for recommendation to the FCC. In this connection, the SS/WP4 Task Force on the Recommendation Method requests the Chairman of SS/WP4 to obtain guidance from the Steering Committee of the Advisory Committee on the appropriateness of this method.

Subsequently, the Chairman of the Advisory Committee, Richard Wiley, made known his feelings on the matter of voting through Dr. Hopkins, without the question actually having been put to the Steering Committee. Mr. Wiley expressed the opinion that consensus is the method to be used by the Advisory Committee in arriving at a selection of an ATV system for recommendation. He would be uncomfortable with other methods.

Boston
Los Angeles
New York

30 July 1990

SS/WP4-0041
30 Jul 1990

Mr. Richard Wiley
Chairman, FCC Advisory Committee on
Advanced Television Service
Wiley, Rein & Fielding
1776 K Street, NW
Washington, DC 20006

Dear Mr. Wiley:

Closed captioning has become vital to millions of America's hearing-impaired viewers. Today, practically all prime-time programming is closed captioned, as are many local news programs and most major home video releases and pay TV movies. Currently, a bill before Congress will require that all TV receivers over thirteen inches have the capability of receiving and displaying closed captions. This bill would also require that advanced television systems support closed captioning.

125 Western Avenue
Boston
Massachusetts 02134

617 492-9225
voice and TDD

A service of the
WGBH Educational
Foundation

We believe that the FCC Advisory Committee on Advanced Television Service should consider closed captioning when testing and analyzing proposed systems. Enhanced NTSC systems should be tested for compatibility with the line-21 closed captioning system. Analysis of simulcast systems should include the attribute of closed captioning. The attached list of features would be included in this analysis. The Caption Center will be delivering a paper on this topic at the upcoming SMPTE convention in New York.

The Caption Center at WGBH Boston is a major supplier of closed captioning for today's broadcasts, cable and home video. In the interest of maintaining the service's compatibility and effectiveness, we also act as a clearing house for technical information. We look forward to working with you and the members of the Advisory Committee to be sure that closed captioning capability is incorporated into new advanced television.

Sincerely,



Larry Goldberg
Director

enclosure

cc: Irwin Dorros, Systems Subcommittee; Joseph Flaherty, Planning Subcommittee; Birney Dayton, SS/WP1; Mark Richer, SS/WP2; Robert Hopkins, SS/WP4

A preliminary list of features proposed for HDTV closed captioning and subtitling:

- **multi-lingual:** At a minimum, all the Roman alphabets should be supported, including special characters and diacritical marks. Other character sets should be included as decoder technology permits, with provision for eventual inclusion of very large character sets for languages such as Japanese. As a practical matter, the character sets used for routine captioning and subtitling should be resident in the decoder, rather than having to be downloaded. In the electronic environment of the future, HDTV teletext decoders should be able to display captions and subtitles from a variety of multinational programming sources.
- **downloadable characters:** The decoder should be able to receive specifications (such as bit maps or outlines) for special characters. This will allow captions/subtitles to contain special notations when needed, such as other languages, music, scientific symbols, pictograms, etc. Although a broadcaster might not routinely download an entire alphabet "on the fly", this eventuality should be provided for.
- **variable background masks:** The captioning/subtitling agency should be able to specify a title's background mask (the rectangular box which surrounds the title and sets it off from the main video). Mask options should include translucent, opaque, and various sizes, colors and shapes.
- **multiple text styles:** Within practical limits, captioning/subtitling agencies should be able to specify character size, attributes (color, italics, bold, underline, etc.) and spacing rules (proportionality, kerning).
- **variable placement:** The agency should be able to specify each title's position anywhere in the video image.
- **pop, paint, scroll options:** At the agency's discretion, titles should pop on (appear all at once), paint on (add or replace characters one at a time), or scroll on (roll/crawl into view, pushing previous text upwards) anywhere on the screen.
- **fast data rate with multiple channels:** Within practical limits, the agency should be able to specify multiple language or titling streams (to be selected by the viewer) at a sufficiently high data rate to keep up with a fast-paced program.
- **can be readily separated from perishable teletext data:** When a video feed is to be recorded (by the viewer, for instance), the recording device should automatically record all channels of captioning and subtitling data. As a practical matter, this might mean that such data will occupy their own lines of the VBI (nearest active picture) so that tape machines, etc., can handle them the same as other video. Perishable (time-sensitive) data, such as teletext magazines, should be physically separate from the program-related data so that they can be easily omitted from the recording/playback process.
- **compatible with all proponent HDTV systems:** While somewhat oriented to the structure of the VBI, the format of captioning/subtitling data should be readily adaptable to various HDTV video standards.
- **can include hypermedia data and/or subtitles:** The concept of program-related data should be expanded to include not only closed captions (for hearing-impaired viewers) but also subtitles (for viewers of varying linguistic groups) and hypermedia information. The latter, while not normally displayed on a

teletext/captioning decoder, could include text and software related to the program topic. Shows with embedded hypermedia data could be viewed in the conventional manner and/or used as source material for multimedia databases.

- **robust in all environments, including home video:** Consumer recording devices, pay-cable systems and other video-handling equipment should be completely transparent to the program-related data.

- **interconvertible with existing captioning systems:** Several closed-captioning systems are already in widespread use, including the line-21 system (for NTSC), World Standard Teletext (for PAL and some NTSC broadcasters), ANTIOPE (for SECAM), and NABTS (the NTSC system used by CBS ExtraVision). The HDTV captioning/subtitling system should be designed so that agencies, by observing transitional restrictions, can prepare titles which can be batch-converted to/from an existing standard. To the extent feasible, automated equipment should be available to broadcasters for converting captioning on the fly from one standard to another.

- **extensible:** The HDTV captioning/subtitling system should allow for future enhancements which are downward-compatible with the existing population of HDTV teletext decoders.

- **non-proprietary:** Experience has shown that nothing is gained if broadcasters adopt incompatible systems, or if one captioning/subtitling agency claims proprietorship, or if one manufacturer "owns" the equipment designs. Since the proposed HDTV captioning system is based primarily on the need to serve hearing-impaired viewers, the industry should proceed as quickly as possible to a unified standard which is open to all. And as more TV programming crosses national boundaries, a universal titling technology can open new channels of communications among peoples.

Advisory Committee on
Advanced Television (ATV) Service

SS/WP4-0042
11 Sep 1990

SS - 0267
11 Sep 90

Irwin Dorros
Chairman, Systems Subcommittee

Mailing Address:

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

11 September, 1990

Mr. Richard E. Wiley, Esq.
Wiley, Rein & Fielding
1776 K Street, NW
Washington, DC 20006

Dear Dick:

As I've consistently reported to you, I am in full agreement with you that consensus conclusions are the only practical means to operate under for working parties and subcommittees. I am formally communicating your views to Bob Hopkins for his use with WP4.

Sincerely,

Irwin/R

Irwin Dorros
Chair,
Systems Subcommittee

Attachment

Copy to
Joe Flaherty
Bob Hopkins
Bruce Sidran

WILEY, REIN & FIELDING

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

SS - 0266
11 Sep 90

RICHARD E. WILEY
(202) 429-7010

September 4, 1990

FACSIMILE
(202) 429-7049
TELEX 248349 WYRN UR

9/4/90
Dr. Irwin Dorros
Executive Vice President - Technical Services
Bell Communications Research, Inc.
290 West Mt. Pleasant Avenue
Livingston, New Jersey 07039

Dear Irwin:

Please review Mr. Pearlman's letter which I have enclosed. I spoke to Bob Hopkins several weeks ago, expressing my own concern about the nature of his proposed procedure.

I would appreciate the benefit of your views on this issue.

Best regards.

Sincerely yours,

Dick

Richard E. Wiley

REW:spg

Enclosure

cc: Joe Flaherty



ZENITH ELECTRONICS CORPORATION □ 1000 MILWAUKEE AVENUE □ GLENVIEW, ILLINOIS 60025-2483

JERRY K. PEARLMAN
CHAIRMAN AND PRESIDENT
(708) 381-8082
FAX: (708) 381-8584

August 22, 1990

Mr. Richard Wiley
Wiley, Rein & Fielding
1776 K Street, NW
Washington, D.C. 20006

Dear Dick:

Based on a Wayne Luplow recent update, I am concerned about a proposed voting procedure for eventual ATV standard recommendation by the Advisory Committee.

The Systems Subcommittee Working Party #4 (System Standards) is charged with recommending a standard or standards to the parent System Subcommittee and ultimately the Advisory Committee itself. Thinking that a consensus agreement may not be reached at the conclusion of the testing activities (as well as other inputs regarding economics, spectrum utilization and legal questions), they have drafted a voting procedure which, as we understand it, is as follows:

<u>Industry Segment</u>	<u>Votes</u>
Television Broadcast Networks and Stations	5 - Independently*
Cable Television Operators	1
Television Receiver Manufacturers	3 - As a Unit
Program Producers	1
Broadcast and Cable Equipment Manufacturers	1

*ABC
CBS
NBC
PBS
NAB/MSTV

It is our expectation that a consensus will be reached at the conclusion of the testing procedures, and a voting procedure will not be required. However, should a voting procedure indeed be required, we cannot subscribe to a system wherein broadcasters heavily out weigh all other parties that have technical and financial interest in ATV.

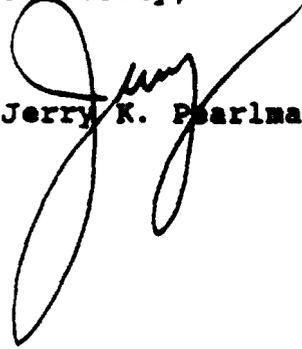
A system, such as that indicated above, would require all other entities to be in agreement to out vote a united vote by the broadcasters. One might expect that the vote of television manufacturers (voting as a unit) would be controlled by the EIA - a trade organiza-

Mr. Richard Wiley
August 22, 1990
Page 2

tion in which Zenith is not a member. Moreover, it seems grossly unfair that one proponent (NBC) would receive a single vote compared to Zenith, which might have a small percentage of the three votes suggested for the television receiver manufacturers, or compared to MIT which would have no voting input whatsoever.

Again, we believe a consensus can be reached and would urge that a procedure towards obtaining consensus is emphasized rather than any voting procedure, and especially a procedure which is completely dominated by a single segment of the "television industry".

Sincerely,



Jerry K. Pearlman

JKP:WCL

cc: W. Luplow

SS/WP4-0043
19 Sep 1990

WILEY, REIN & FIELDING

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

RICHARD E. WILEY
(202) 429-7010

September 19, 1990

FACSIMILE
(202) 429-7049
TELEX 248349 WYRN UR

Dr. Robert Hopkins
Advanced Television Systems Committee
1776 K Street, NW
Washington, D.C. 20006

Dear Bob,

System Subcommittee Working Party 4 ("SS/WP-4") is giving serious consideration to employing some form of weighted voting procedure to assist it in reaching a decision on a recommended advanced television standard. It is my opinion, and that of other Advisory Committee members with whom I have discussed the matter, that such a procedure is not an appropriate one for any Advisory Committee working party to employ.

To the best of my knowledge, no working party recommendations have been developed through any formal voting procedures. All work has been based on consensus. Those issues which have not been resolved by this method have been referred to the parent Advisory Committee for its consideration. I am quite concerned that the use of a weighted voting scheme will subject the Advisory Committee to charges of being arbitrary in the development of the weights used in voting. Moreover, such a procedure could introduce significant delays because disadvantaged parties would re-open the issue at every level within the Advisory Committee.

Therefore, I would find it far preferable if SS/WP-4 prepared analyses demonstrating the rationale for adopting each of the transmission systems which received some support in the working party. These analyses could take the form of majority and minority reports, if appropriate, but in any case the documents should provide sufficient information to allow for informed judgments by the Advisory Committee itself.

Please convey to the members of your working party my sincere appreciation for the diligence and dedication which

WILEY, REIN & FIELDING

Dr. Robert Hopkins
September 19, 1990
Page 2

they have demonstrated under your excellent leadership. If you have any questions regarding the form or format of SS/WP-4's work, please feel free to contact me.

Best personal regards.

Sincerely yours,

Dick

Richard E. Wiley
Chairman, Advisory Committee on
Advanced Television Service

cc: Irwin Dorros
Joseph Flaherty
James Tietjen
Thomas Stanley
Lauren Belvin
Roy Stewart



SS/WP4-0044
20 Sep 1990

GTE Telephone Operations

GREGORY L THEUS
Assistant Vice President
Standards Development

Williams Square - West Tower
5205 N. O Connor Boulevard
P.O. Box 152092 W07104
Irving, TX 75015-2092
214 718-6290

September 20, 1990

Dr. Robert Hopkins
Chairman, Systems Subcommittee, Working Party 4
FCC Advisory Committee on ATV Service
Advanced Television Systems Committee
1776 K Street, NW
Washington, DC 20006

Dear Chairman Hopkins:

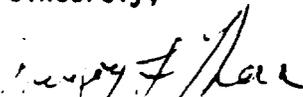
The following comments are offered by GTE Telephone Operations regarding the selection procedure to be used by SS/WP4 to choose an advanced television standard.

GTE strongly favors a procedure where the standards decision is reached by consensus and not by vote. We recommend that you, as Chairman of SS/WP4, strive to achieve consensus within SS/WP4 on the ATV system(s) to be recommended to the FCC. Unanimous agreement is not required but provisions for dissenting opinions should be made. The consensus approach to the standards decision will best allow many industry segments to be fairly represented.

The difficulties in developing a fair and equitable voting procedure make that an undesirable alternative. The very existence of a voting procedure, even if intended as a fall back procedure, will tend to discount the consensus approach and make it more difficult to reach.

Additionally, GTE wishes to point out that the voting procedure proposed at the recent meeting of SS/WP4 would deny recognition to many entities that will be impacted by this decision. Among those entities having no formal input into the process are satellite broadcasters, VCR manufacturers, and Telco video transporters. While GTE recognizes that the primary focus of this Advisory Committee centers on terrestrial broadcasting, the ATV standards decision will have a far reaching effect on many other groups. The membership of the Blue Ribbon Committee and the affiliations of the Chairs and Vice Chairs of the various Working Parties were carefully chosen to reflect a wide cross section of affected industries. All members of that diverse group must all be given a voice in the decision processes of SS/WP4.

Sincerely,


Gregory L. Theus

GLT;DLH:ds

c: W. D. Wilson - W11E30 - Irving, TX
GTE Service Corporation, A part of GTE Corporation

The logo consists of a black speech bubble shape with the letters 'TV' inside. Above the bubble, the word 'Advanced' is written in a small font.

Advisory Committee on
Advanced Television (ATV) Service

Doc. No. _____

Date October 3, 1990

Dr. Robert E. Hopkins
Executive Director
Advanced Television Systems Committee
1776 K Street, N.W., Suite 300
Washington, DC 20006

Dear Bob:

Attached is the statement on Spectrum Criteria that was agreed to at the last meeting of Planning Subcommittee Working Party 3.

It is forwarded to you for your use in connection with establishing a standard for the advanced television system.

Please let us know if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Dale N. Hatfield for".

Dale N. Hatfield
Chairman, PS/WP-3

cc: Joseph Flaherty, Chairman
Planning Subcommittee
Irwin Dorros, Chairman
Systems Subcommittee
Don Jansky

**SPECTRUM CRITERIA FOR
A NEW TERRESTRIAL ATV SIMULCAST SYSTEM**

Introduction

This paper reflects the view of Working Party 3 of the Planning Subcommittee regarding those spectrum characteristics of a new ATV system intended to operate in the existing bands of VHF/UHF frequencies allocated to the television broadcast service. An Advanced Television System suitable for terrestrial broadcasting must provide not only improved picture quality but must afford also the opportunity for substantially all existing television broadcasters to deliver that improved service to an area comparable to that receiving NTSC service.

Spectrum studies have been directed to determining what minimum cochannel spacing is necessary to accommodate all, or nearly all, of the existing television broadcast stations with an additional 6-MHz channel, permitting simulcast of an ATV system. Those studies have demonstrated the requirement that satisfactory operation must be achieved with ATV-to-NTSC and ATV-to-ATV minimum cochannel spacing in the order of 160 kilometers (100 miles). In the real world of channel allotments, minimum spacing would be required for a relatively small number of television station pairs. However, some stations would have to be located at or near the minimum. Cochannel spacing as little as 160 kilometers places a particularly heavy burden on the ATV system with respect to: (1) its ability to minimize interference to existing NTSC stations, (2) its relative insensitivity to interference from NTSC or other ATV stations, and (3) its capability to provide satisfactory ATV service at a carrier-to-noise ratio lower than that applicable to the NTSC service. Only by satisfying these three criteria can a satisfactory service area be realized while providing virtually all existing television stations the opportunity to achieve the ability of providing a terrestrial ATV broadcast service.

Procedure for Determining Satisfaction of Criteria

Although both the VHF and UHF television bands are expected to be utilized in any simulcast ATV system adopted, studies show that most of the accommodation must come from the UHF band. Characteristics of NTSC receivers have required that restrictions be placed on the use of as many as sixteen channels other than the same or first adjacent channels. Those channels so restricted are referred to as "taboo" channels. Utilization of those taboo channels is essential to

provide the spectrum needed for terrestrial simulcast broadcasting of ATV. Laboratory tests will demonstrate if that threshold requirement is satisfied by any ATV system, or the extent that some taboo restrictions must be retained for the protection of NTSC or ATV reception.

The laboratory will provide data also on the noise-limited service afforded by each proposed ATV system, interference to and from NTSC and ATV-to-ATV interference. For the cochannel case, interference to NTSC will be made at two NTSC receiver input levels corresponding, approximately, to receiver inputs at the Grade B and Grade A signal contours. ATV power levels will be referenced to a common base. Unlike NTSC, where the peak of sync provides a constant reference for power determination, ATV systems are not expected to include comparable capability. Consequently, the selection of a reference for the ATV systems will require a degree of subjectivity. However, the power reference so determined is expected to provide a common base permitting systems to be compared.

Service predictions for each ATV system studied will start with the undesired ATV signal level, above or below the reference power at the receiver input, causing objectionable cochannel interference to NTSC reception. Then, using propagation data appropriate to the television band, and assuming 160-kilometer cochannel spacing and height above terrain similar to that used for NTSC, the permissible transmitted level of power above the reference will be determined. The degree of interference to NTSC permitted will be comparable to that caused by NTSC-to-NTSC at typical cochannel spacing.

Having determined the permissible ATV transmitted effective radiated power, test data on service limitations imposed by noise, and interference from NTSC-to-ATV and ATV-to-ATV, will be applied to predict the extent of the ATV service. Available propagation data pertinent to the television band will be used again, in conjunction with the permissible power level determined as described in the previous paragraph. The calculations will provide a determination of the extent that ATV service will be interference-limited or noise-limited.

In the event that the foregoing does not yield an ATV service area at 160-kilometer spacing comparable to the service area provided by NTSC, cochannel spacing will be increased until that objective is achieved. An analysis will then be made of the accommodation statistics applicable to the increased cochannel spacing.

Taboo Consideration

In the event that laboratory testing demonstrates the need to retain taboo restrictions for particular ATV systems, spectrum analyses will be made to evaluate the impact of those restrictions on accommodation.

Conclusion

The studies of Working Party 3 will provide an analysis of the extent that proponents have satisfied the criteria set forth in the Introduction to this paper. The success or failure will be measured by the size of the ATV service provided simultaneously with maximum accommodation, and the effect on accommodation of either increasing cochannel spacing to improve service area size, or limiting channel usage because of taboo restrictions.

Jules Cohen
September 12, 1990

PERCENTAGE OF THE 1760 TELEVISION STATIONS THAT CAN BE PROVIDED WITH AN ADDITIONAL 6 MHZ OF VHF OR UHF TELEVISION BROADCAST SPECTRUM, FOR A SIMULCAST ATV SYSTEM, AS A FUNCTION OF COCHANNEL SPACING.

This scenario assumes that there is no need to provide protection from adjacent channel interference, or, in the case of UHF, protection from taboo-type interference.

<u>SPECTRUM</u>	<u>PERCENT ACCOMODATION</u>	
	<u>ATV-NTSC</u>	<u>ATV-NTSC</u>
	<u>ATV-ATV</u>	<u>ATV-ATV</u>
	<u>100 miles</u>	<u>186 miles*</u>
CONTIGUOUS	60	21
SAME BAND	86	51
EITHER BAND, PREFERENCE TO CONTIGUOUS	96	78
EITHER BAND, NO PREFERENCE	99.6	78

* Approximate existing average minimum spacings for all zones, both VHF and UHF bands.

Design Process

IF NOT ADEQUATE,
REPEAT WITH
REVISED
FACTORS

Coverage
Evaluation

Quality
Standard

START
S/N, %T, %L
↳ % of VIEWERS

Correlation with
Receiver Thresholds

NOISE,
INTERFERENCE
- COCH.
- NOT all.
- TABOO
- Subjective
Tests

Candidate
Plan

Planning
Factors

REFERENCE
TO CHART

DRAFT

SS/WP4-0047
25 October 1990

**FCC ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICE
SYSTEMS SUBCOMMITTEE
WORKING PARTY ON SYSTEM STANDARDS (SS/WP4)**

MINUTES OF THE EIGHTH MEETING

I. Minutes of the Meeting

1.0 Introduction and Approval of Agenda

The eighth meeting of SS/WP4 was held on Thursday, 25 October 1990 in the offices of HBO, 1100 Avenue of the Americas, New York, N.Y. The meeting was called to order by the chair, Dr. Robert Hopkins, at 10:35 am. The proposed agenda was distributed and approved without comment.

2.0 Minutes of the Seventh Meeting

Dr. Hopkins asked for comments on the minutes. Mr. Sidran noted that Mr. Gaggioni's name had been misspelled in Section 3. Dr. Hopkins read a change requested by Mr. Stan Baron, also in section 3.0. Mr. Baron asked that the phrase "when raised as an issue in PS/WP1" be added to the sentence "He reiterated that weighting had been consistently rejected." Mr. Bruce Sidran said that the minutes in section 4.0 should reflect that chapters 4,5 & 6 of the Final Report are input to WP4 and all other chapters are output. Dr. Hopkins approved the minutes with these changes.

**3.0 Report from the Working Party on Spectrum Utilization and Alternatives
(PS/WP3)**

Mr. Robert O'Connor presented a report on spectrum criteria to be applied to a terrestrial ATV simulcast system. A letter from Dale Hatfield with the PS/WP3 statement on spectrum criteria attached (SS/WP4-0045) was distributed. Mr. O'Connor reviewed the document and presented viewgraphs (DOC SS/wp4-0046) illustrating certain points.

In order to provide all current TV Stations with a simulcast channel, Mr. O'Connor pointed out that minimum co-channel spacing of 160 kilometers (100 miles) would be required and that the UHF band would have to provide most of the added spectrum. The permissible transmitted ATV power (at 160 km spacing) will be determined based on ATV to NTSC interference tests and propagation data. The coverage area of this

Minutes of the Eighth Meeting of SS/WP4, cont.
25 October 1990
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ATV signal will be determined based on propagation data and NTSC to ATV interference data, noise etc. If the service area determined is less than that provided by NTSC, the assumed co-channel spacing will be increased until such coverage is provided. The number of channels which can be accommodated with the larger spacing can then be determined.

At the conclusion of Mr. O'Connor's presentation, Dr. Hopkins requested that members review the document fully and make comments. He said that coverage area will be a very important issue deserving the time spent in the meeting. Dr. Schreiber suggested that those TV stations which can't be accommodated must be the primary concern. Even 2% of the 1760 stations could be a serious problem since this would likely involve high population density areas. Bruce Franca of the FCC said that determining the percentage of population served had been considered but no specific plan is expected before the test center results are available. He said that anything less than 100% coverage will be of concern.

The effects of directional antennas on coverage was discussed by several members. While directional antennas are probably a reasonable expense for the ATV set owner, such a requirement for existing NTSC set owners would seem unreasonable. An increased incidence of restrictions against rooftop antennas was also cited.

The working party reached the following Point of Agreement:

The information and form proposed by the Planning Subcommittee/Working Party 3 in the document PS/WP3-0140 (SS/WP4-0045) seems to be acceptable for use by Systems Subcommittee/Working Party 4. However, some future additions may be requested by SS/WP4.

4.0 Report of the Task Force on the Recommendation Method

Mr. Ron Gnidziejko distributed a Status Report (SS/WP-0040) and reported on the last meeting of this task force. This meeting was attended by a somewhat larger group than earlier meetings. There was a range of opinion but no consensus on a method. The task force requested that Dr. Hopkins obtain guidance from the steering committee. Subsequent communication from Chairman Wiley stated that the working party should continue to seek a recommendation through consensus.

Several letters of opinion were distributed along with Chairman Wiley's letter (SS/WP4-0042,0043,0044).

Dr. Hopkins reiterated the Point of Agreement of 11 April 1989 which stated that the working party would base its recommendations on consensus. He said the task force had

been established because many SS/WP4 members had expressed a concern that we should have an alternative if consensus was not achieved. He said the task force has determined that there are no alternatives.

Following discussion, the working party reaffirmed their support for the Point of Agreement of 11 April 1989.

Since this task is complete and the secondary task of certification for field test will not be needed for some time, the task force was dissolved. Dr. Hopkins and the members of the working party expressed their appreciation for the work of Mr. Gnidziejko and the members of the task force.

5.0 Report of Task Force on Report Drafting

Mr. Bruce Sidran distributed the following documents:

SS/WP4-0029 (revised 19 Oct 1990)	Report Outline
SS/WP4-0032 (revised 9 Sep 1990)	Project Schedule
SS/WP4-0038 19 Oct 1990	Letter from Bruce Sidran

Mr. Sidran reviewed his letter in detail. Each paragraph was considered. Dr. Hopkins expressed the importance of careful review to assure broad agreement with the conclusions and underlying philosophy.

The letter stated that we will be recommending a technology and that the task will be simplified if the technology is realized by one vendor's hardware. The letter also stated that there is the possibility that the best system will come from a combination of sub-systems from several proponents and this synthesized system would form the basis of the recommendation.

Several members commented on synthesis. Mr. Luplow of Zenith said synthesis was possible if there was no clear choice. Practical constraints in pulling such a system together would not be trivial and would require several months. Mr. Hurst of Sarnoff said that synthesis could offer advantages. Mr. Donahue of Thomson stated that synthesis might offer some system improvements but that it would be a difficult and time consuming task. He suggested that a proponent might be asked to adjust the tradeoffs in their system based on the test evaluation to achieve a better system. He said that the objective is to get the best system. Mr. Otto of Philips agreed that we should seek the best system. While advance agreement of proponents to cooperate is not practical, they should receive comments as early as possible. Dr. Schreiber expressed agreement with synthesis with the reservation that some would be easy but others difficult. Mr. Franca of

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the FCC said that the benefit of a particular synthesis should be weighed against the cost and risk associated with it.

The working party's conclusion as expressed by Dr. Hopkins is that there is sentiment for recommending a technology rather than simple approval of a system but that careful consideration of problems must be made.

Mr. Gaggioni asked where alternate media are covered. Mr. Sidran said that section 7.4.5 "Inter-operability Considerations" would be added to the outline.

There was some concern that section 7 "Selection Criteria" appeared to be a set of predetermined selection criteria in terms of numeric values. Mr. Sidran said that the section would contain general discussion of what is important but no hard numbers. Dr. Lum suggested that a title change might be helpful in clarifying the intent. Dr. Hopkins said the task force would review the title. Mr. Nicholls pointed out that an introductory paragraph would also express the intent.

The group voiced support for sections 7,8 & 9. Dr. Hopkins and the working party expressed thanks to Mr. Sidran and his task force. There was discussion regarding whether sections 4,5 &6 or section 7 should be worked on first. The conclusion was that the task force should make that determination. Dr. Hopkins agreed that it was appropriate for Mr. Sidran to invite participation by specific individuals to gain the necessary experts.

The meeting was adjourned for the lunch provided by HBO.

6.0 Report of Task Force on Data Format

The meeting was reconvened after a short lunch break. Mr. Gaggioni distributed a Status Report of The Task Force on Data Format (SS/WP4-0039) and reported on their activity. He said that the work had centered on a review of output expected from ATTC. This output would consist of written material, computer data, photographs and tape recordings. The task force reviewed some of the data forms and made recommendations to ATTC for changes and additions which would make the forms more easily read, understood and identified as to test and system tested. Specific examples of recommendations were cited by Mr. Gaggioni. The data will be presented as average value and statistical measure such as standard deviation for multiple measurements. All data supporting the reported averages will be available from ATTC should they be required.