

Docket  
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ADVISORY COMMITTEE ON  
ADVANCED TELEVISION SERVICE  
PLANNING SUBCOMMITTEE

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Minutes of the Tenth Meeting

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

1. The meeting was held on April 2, 1993, at the Federal Communications Commission Training Room, 2000 L Street, N.W., Washington, D.C. The meeting opened at 2:05 p.m., and adjourned at 4:40 p.m.
2. The meeting was presided over by:  
  
Joseph Flaherty, Chair, Planning Subcommittee  
Margita White, Vice Chair, Planning Subcommittee
3. The designated Federal employee was William Hassinger, Assistant Chief, Mass Media Bureau. Paul Misener, representing Richard Wiley, Chair of the Advisory Committee on Advanced Television Service was also in attendance.
4. Chairman Flaherty started the meeting at 2:05 p.m. The minutes of the ninth meeting (March 11, 1992) were adopted without modification.
5. Chairman Flaherty and Mr. Misener welcomed those in attendance.
6. Chairman Flaherty reported that, although testing of the proponent systems has been completed since the last Planning Subcommittee meeting, retesting has been scheduled in consideration of improvements made in the systems since original testing was conducted. Planning Subcommittee Working Party 3 on ATS Spectrum Utilization and Alternatives (PS/WP3) has been involved in the retesting process, along with Systems Subcommittee Working Party 2 on System Evaluation and Testing (SS/WP2), and Planning Subcommittee Working Party 6 on ATS Systems Subjective Assessment (PS/WP6). Chairman Flaherty stated that Narrow Muse, which is an analog HDTV system, has been eliminated from consideration as a proponent system due to technical difficulties, particularly in transmission.
7. Chairman Flaherty further summarized the activities of the Planning Subcommittee Working Parties, noting that, in addition to the work of PS/WP3 and PS/WP6 described above, PS/WP3 submitted a "Final Report" which found unacceptable levels of interference to NTSC broadcasts. Chairman Flaherty said that Planning Subcommittee Working Party 1 on ATS Technology Attributes and Assessment (PS/WP1) and Working Party 2 on ATS Testing and Evaluation Specifications (PS/WP2) have been jointly concentrating on new technology; PS/WP3 has completed and is currently

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refining its study on spectrum use; Planning Subcommittee Working Party 4 on Alternative Media Technology and Broadcasting Interface (PS/WP4) finished its interoperability report; Planning Subcommittee Working Party 5 on Economic Factors and Market Penetration (PS/WP5), in conjunction with Systems Subcommittee Working Party 3 on Economic Assessment (SS/WP3) completed the latest round of economic analysis; and PS/WP6 continued its work on test materials.

8. Renville McMann, Chair of PS/WP1, presented the joint activity report of PS/WP1 and PS/WP2, noting that, although PS/WP1 has been in a "stand-by" mode, that group and PS/WP2 continue to monitor the activities of other working parties to ensure that no important technical attributes are overlooked in the rush to review the proponent systems without delay. PS/WP1 has continued its ongoing revue of new technologies and thus far has found no new ATV systems which are developed enough to be tested. However, Chairman McMann added that the COFDM system is to be tested in 6 MHz in Canada this summer, and its progress should be monitored.
9. Additionally, Chairman McMann stated, a professor from Columbia University has proposed a 16-64 QAM system which could be used to improve an ATV picture or possibly to send additional 525-line pictures. Chairman McMann noted that this innovation could be added to any of the four proponent systems at a later date. Chairman McMann said that Working Party 1 will meet, possibly in early summer, when more information is available to evaluate the significance of these new developments. Chairman Flaherty emphasized that individuals who believe Working Party 1 should meet to evaluate new system attributes or to modify their work in that area should contact Chairman McMann. He stated that PS/WP1 and WP2 have not disbanded and can be called upon if the need arises.
10. Dale Hatfield, Chair of PS/WP3 spoke about the Working Party's report (alluded to above by Chairman Flaherty) specifically analyzing spectrum utilization characteristics of the proposed systems. The focus of that Report, said Chairman Hatfield, was a comparison of the proposed systems based on accommodation statistics. He stated that, inherent in the process of analyzing accommodation statistics is preparation of a table of allotments or assignments. Chairman Hatfield underscored, however, that such a table of allotments is only an interim step in the spectrum use analysis, and is not intended as the final recommendation or product. He reiterated Chairman Flaherty's comments describing the concern generated by the Report about ATV interference to

NTSC stations. Chairman Hatfield explained that system improvements cited by Chairman Flaherty above are intended to alleviate this concern and have led to the current cycle of system retesting.

11. Chairman Hatfield described two related areas where PS/WP3 is currently concentrating its efforts. First, the group is supplying SS/WP2 and the Advanced Television Test Center (ATTC) with information regarding retesting issues relevant to the NTSC interference issue. Second, the Working Party is revising and improving the methods and procedures used in the spectrum study to more precisely and realistically assess the NTSC interference question, particularly in the markets where ATV assignments are most difficult to make because NTSC interference is the most problematic. Chairman Hatfield indicated that PS/WP3 has met twice since the Special Panel endorsed retesting the proponent systems, and is scheduled to meet again at the end of April.
12. Chairman Hatfield announced formation of a Specialist Group on NTSC Interference Mitigation within PS/WP3 chaired by Lou Libin of NBC. That group will review and improve the computer-based spectrum utilization model so that the NTSC interference issue can more accurately be evaluated. Chairman Hatfield more specifically broke the Specialist Group's work plan into three areas of activity: (1) review of the spectrum utilization model and the underlying planning factors; (2) revising the spectrum utilization model to reflect the effect of terrain on propagation of radio signals and to assess the actual population which might be affected by NTSC interference; (3) sensitivity analysis to test how the accommodation statistics change with modifications in the assumptions.
13. Chairman Flaherty and Chairman Hatfield stated that the Broadcast Caucus will vote on Tuesday, April 6 on whether to provide an additional \$100,000 to support the Specialist Group's work in refining the spectrum utilization model to ensure the greatest accuracy. Chairman Flaherty put the interference concerns in perspective, noting that a comparatively small number of NTSC stations (160) are threatened with possible interference from ATV, while the remaining stations (1,400) should not be affected. He emphasized that 1600 new ATV stations cannot be added without a degree of interference resulting in some areas. PS/WP3 has the task of minimizing such interference.
14. Finally, Chairman Hatfield announced that a technical tutorial on the computer-based model would be held in early May at the Commission. In that regard, Chairman

Flaherty observed that the intricacies of preparing a computer-based model are hard to fully grasp, resulting in some confusion. He stressed that because the planning factors were initially selected based on some very conservative assumptions they do not represent reality and are therefore under reconsideration. He defined the Subcommittee's intention in this area as to devise an allocation and assignment plan that will indicate whether or not a second paired channel can be assigned to every television station in the country, and to determine which of the proponent systems best satisfies this goal. Chairman Flaherty indicated that final allocations will be decided by the Commission, and may in fact, vary from the Advisory Committee's plan. He emphasized that the computer model is not intended to produce a final allocation scheme which cannot be altered.

15. Chairman Flaherty stated that the retesting plans currently under discussion assume that four proponent systems will participate in the retesting process. However, if the proponents merge their four systems into one, forming a "grand alliance," as is presently under negotiation, the retesting work gathered to date would necessarily have to be reexamined to emphasize one-system retesting.
16. Chairman Flaherty reported on PS/WP4 activities. He said that the group's Final Report was completed, and contained certain recommendations regarding interoperability, extensibility, and scalability, which can now be considered as part of the retesting process. He added that not all of these recommendations require retesting, but that the work of examining these recommendations has begun. The recommendations which can be analyzed without retesting will be returned to PS/WP4 for further work. Chairman Flaherty said that, although PS/WP 4 does not, for the time being, have an assignment involving interoperability, it continues its work with the Electronics Industries Association (EIA) on receiver interface issues.
17. In response to an audience question, Chairman Flaherty indicated that SS/WP2 will determine which of the various parameters need retesting, develop corresponding test procedures, and recommend test materials to PS/WP6 which will continue work on the test materials. PS/WP4 will analyze the parameters in light of their knowledge of the proponent systems. Mr. Donohue of Thomson Consumer Electronics asked whether the results of the interoperability tests would be reviewed by PS/WP4. Chairman Flaherty speculated that the test results would be sent to the Special Panel or Technical Subgroup, or

whatever other group is set up by the Advisory Committee for review. Audience members voiced the need for a meeting of PS/WP4 in the very near future.

18. Audience members expressed concerns about the openness of the process, which involves electronic mail and conference calls, particularly in light of the lack of scheduled meetings currently on PS/WP4's agenda. Mr. Misener replied that, although some work is conducted in this manner, no final decisions are made outside of the open meetings. Chairman Flaherty stressed the private nature of the electronic mail and conference call activities, and added that such means are not Advisory Committee activities. He indicated that any individual or group who has a suggestion can attend an Advisory Committee, Subcommittee, or Working Party meeting and put forth their idea.
19. Rupert Stow, Chair of Working Party 5, reported that consultation with SS/WP3 reflected agreement on the cost estimates produced by PS/WP5. Chairman Stow expressed some concern for what he described as "the economics of complexity." He underscored that the Working Party's main responsibility involved providing terrestrial broadcast service. Chairman Stow indicated that a proposal was recently made suggesting that the provisions of the All Channel Act be strictly applied to the production of all television sets, so that all television sets must be capable of receiving high definition signals. (in comments and reply comments filed in response to the Commission Memorandum Opinion and Order/Third Report and Order/Third Further Notice of Proposed Rulemaking, the Association for Maximum Service Television noted that "the policies inherent in the All-Channel Receiver Act warranted Commission study of ATV receiver penetration as part of its periodic reviews of the ATV implementation deadlines for construction, simulcasting, and ultimate conversion, and, when and if necessary, possible adoption of some form of mandatory ATV-reception capability.") Mr. Stow added that this proposal might be unrealistic for smaller televisions sets. In any case, Chairman Stow indicated that market forces might best resolve such issues.
20. Chairman Stow spoke about the future convergence of television and computer and on interoperability between the two services. He asserted that the resulting panoply of new services would inevitably alter the cost of the sets, but that it would also increase the perceived value of the sets to consumers. Accordingly, Chairman Stow recommended that PS/WP5 conduct further review of receiver penetration estimates to ensure their accuracy. Chairman

Flaherty emphasized that, as interoperability approaches reality, PS/WP5 and SS/WP3 must keep track of the shifting economics of ATV.

21. Chairman Flaherty stated that PS/WP6 has been responsible for producing the existing test material, and the scheduled retesting has required that the group produce new test material to assure that the systems aren't tested only with the same material used during the original testing. Thus, PS/WP6 wants to add some still pictures and some motion sequences. Secondly, the interoperability reviews had revealed some new test material which PS/WP6 must produce. Finally, Chairman Flaherty said that PS/WP6 faces the task of reviewing the existing test material, particularly in the 787 progressive format, to see if the motion sequences shot with a 787 camera could be replaced with transcoded material to improve the source material in that format. Chairman Flaherty noted that retesting is scheduled to start on May 1, 1993.
  
22. Chairman Gaspar of PS/WP6 stated that, since the last Planning Subcommittee meeting, the group has met to discuss production of field test material and found that although the General Instrument (GI) transconverter does not produce the optimum test material, the material is adequate for field tests. At a meeting in March 1993, after dissecting the 23 test sequences to consider substitution, PS/WP6 decided to leave the original test material intact, but some of that material may be replaced by the same sequence from a converted source. Working Party 6 also picked 14 possible new scenes, which, along with some of the original test material, were placed on a second master at ATTC. The Working Party's April 1 deadline for new materials was accordingly met. The next step, according to Chairman Gaspar is conversion.
  
23. Regarding conversion, Chairman Flaherty explained that when the motion sequences for the tests were originally produced, it was in tandem in three formats, 1125, 1050, and 787. The 1050 material derived by standards conversion from 1125 was determined to be superior to the material captured in 1050 format. Thus, new 1050 material will also be transcoded, because new material cannot be shot and the existing material is in the 1125 format. He further stated that the problem is converting the 1125 format material to the 787 format. Chairman Flaherty noted that no single acceptable converter is available. He described three possible alternatives: (1) a GI converter which involved two steps, conversion from 1125 format to 1050 followed by conversion from 1050 to 787; (2) a software conversion by Tectronics; and (3) a similar software conversion by AT&T. Chairman Flaherty pointed

out that both software possibilities involve time constraints.

24. Mr. Luplow of Zenith spoke of some of the problems and possible solutions involved with converting an interlace format to progressive. He described Zenith's primary approach to conversion as a "hardware/software approach." Mr. Luplow also suggested that conversion might be accomplished with a "piecemeal" strategy where some test sequences would be converted at a later date than others. He emphasized that flexibility must be a key element to whatever method is used for converting source material. There was a discussion of testing, timing, and material production and conversion methods. Mr. Graves remarked that there is some concern at AT&T regarding the piecemeal method of conversion because a fundamental flaw may appear in the conversion of some but not all test material. Mr. Fannon, Executive Director of ATTC, noted that because the quality rating tapes must be made in the first week to accommodate ATEL's testing schedule, the converted test material must also be ready to use in the first week.
25. Chairman Flaherty asked Mr. Fannon to report on ATTC's schedule for preparing retesting material and on other activities. Mr. Fannon reported that there is one new picture, a noise loaded still, that ATTC is undertaking by itself. He added that a tape had been given to ATTC to use for testing system interoperability, but that it is an 8-bit tape while a 14-bit tape is required. Additionally, he said that there has been some discussion about motion sequence testing for interoperability, but that issue is undecided. Mr. Fannon emphasized the importance of meeting the April 9th deadline as the material must be remastered into two formats. He indicated that this reformatting must be done for a quality rating tape, two interference tapes, and a system specific tape. The reformatting must be completed before the beginning of the first interface period on May 3, 1993.
26. Chairman Flaherty noted that Advisory Committee Chairman Wiley reaffirmed that system retesting will begin on May 3. Chairman Flaherty described two possible approaches to meeting that starting date. The first alternative would be to start the retesting with the two interlace systems and test the two progressive systems last. This alternative provides 10-11 weeks of time for conversion of test material to the 787 progressive format, but still requires that final test material in 1125 and 1050 formats be in hand when the first system starts testing. The second alternative would start off the retesting with the MIT system, with two options for addressing the conversion problem. The first option would

be to use only the existing test material with no new scenes. The second option would be to include new material and to convert the 1125 material to 787 with a GI converter.

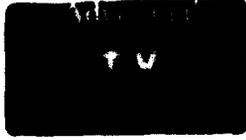
27. Chairman Flaherty indicated that, for the first alternative, GI would need to be asked to change their retesting slot and go first, but that they would not be approached until the conversion strategy and schedule are firm and the sanity check (as discussed below) is completed. Mr. Graves said that AT&T would not object to swapping retesting slots with GI under such circumstances, or to an extension of the schedule to assure the reliability of the test material and that the retesting is conducted fairly and without ambiguity, raising no future questions. Mr. Krauss indicated that such a delay in test schedule or change in the order of the retesting slots is more appropriately discussed with Chairman Wiley than in this forum. Mr. Misener observed that slot swapping or the apparent reluctance of Tectronics to be involved in the conversion process is not the cause of the existing problems. The problems, particularly the flaws in the test material, have been evident for some time, Mr. Misener said, and could have been faced earlier. Therefore, the suggestion that the process be delayed now because solutions to these problems are finally being considered is unacceptable. Chairman Flaherty assured Mr. Misener that the schedule could be followed.
28. Chairman Flaherty stated that the transfer of the test material from 1125 to 1050 and from 1125 to 1050 to 787 will take place the week beginning April 4, 1993, using a GI converter. At the same time, Zenith will convert some of the test material using its process. Once that is done, Chairman Flaherty said a sanity check will be done on how the GI conversion compares with the Zenith conversion. Chairman Flaherty indicated that only if it was agreed that the Zenith conversion was clearly superior would he suggest to Chairman Wiley that GI be asked to change test slots. Mr. Graves noted that, as an alternative, the proponents might be given the choice of how the material is converted. Mr. Misener said that Chairman Wiley might not be willing to wait until after the National Association of Broadcasters convention the week of April 19 to decide on a final conversion approach and retesting schedule. He suggested that GI needed to be considering what its response would be if it were asked to change retesting slots back to the original order with the GI interlace system first.
29. Mr. Lim noted that MIT had concerns about 787 system comparisons referenced to the original 1125 source

material as opposed to the converted source material. Chairman Flaherty said that this objection should be discussed with Chairman Wiley. Mr. Lim also clarified that MIT's willingness to change retesting slots with GI was based on concern for the national interest, and that MIT received no money in return.

30. The meeting adjourned at 4:40 p.m.

Submitted: William Hassinger  
William Hassinger

Approved: J. A. Flaherty  
Joseph Flaherty, Chair  
Planning Subcommittee



7/14/55 PLAN SUBJECT

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Advisory Committee on  
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4/2/93



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