



# Fact Sheet

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## FACT SHEET ON ADVANCED TELEVISION

Advanced Television (ATV) refers to any system for distributing programming that results in improved television audio and video quality. Broadcast methods to effect such improvements could constitute an entirely new system or could simply enhance the National Television System Committee (NTSC) system currently in use in the United States. ATV systems can be described as High Definition Television (HDTV) and Enhanced Definition Television (EDTV). HDTV refers to systems that use new technology and provide a major improvement in television quality. The goal of such systems generally is to offer approximately twice the horizontal resolution and twice the vertical resolution of NTSC receivers, and to provide picture quality approaching that of 35 mm film and sound quality rivaling that of compact discs. EDTV, on the other hand, refers to systems that are an improvement over NTSC, but somewhat less of a step forward than HDTV systems.

In order to establish a basis for selecting the best system for providing ATV to American viewers, certain technical and legal issues must first be examined. Foremost among these are the provision of additional spectrum and the selection of a transmission standard. The Commission, in 1987, took two steps aimed at resolving such issues. First, in July 1987, the Commission opened a proceeding (MM Docket No. 87-268) and invited public comment on these questions. The Commission took the second step in November 1987 by establishing the Advisory Committee on Advanced Television Service (Advisory Committee), with the purpose of advising the Commission on the technical and public policy issues concerning ATV. The Advisory Committee, chaired by Richard Wiley of Wiley, Rein & Fielding, consists of twenty-five members, a Steering Committee, and three Subcommittees. The Committee members are appointed by the Chairman of the FCC. Membership in the Subcommittees is open to all interested parties.

The Planning Subcommittee is chaired by Joseph Flaherty of CBS Inc., and consists of seven working parties and two advisory groups. Its goals are: (1) to define the desirable characteristics of advanced television service; and (2) to review the technical planning factors for the existing television service and recommend planning factors for advanced television service.

The Systems Subcommittee is headed by Irwin Dorros of Bellcore and consists of four working parties. That Subcommittee's aims are: (1) to evaluate, on technical and economic bases, advanced television systems now under development for the purpose of determining feasibility for

implementation in the United States; (2) to recommend advanced television systems now under development as candidates for implementation, or specify the design of an appropriate system; and (3) to advise on the appropriate transmission/reception technical standards and spectrum requirements for the recommended system or systems.

James Tietjen of SRI International and George Vradenburg III of Fox, Inc. co-chair the Implementation Subcommittee. That group is made up of two working parties and its tasks are: (1) to develop a transition scheme for implementation of advanced television service in the United States; and (2) to recommend appropriate FCC policies and regulations to oversee implementation of advanced television service.

The Advisory Committee submitted the first Interim Report of the FCC Advisory Committee on Advanced Television Service on June 16, 1988, the Second Interim Report of the FCC Advisory Committee on Advanced Television Service on April 26, 1989, the Third Interim Report of the FCC Advisory Committee on Advanced Television Service on March 22, 1990 and the Fourth Interim Report of the FCC Advisory Committee on Advanced Television Service on April 1, 1991. These documents, as well as all Commission decisions on advanced television can be purchased from the Commission's copy contractor, Downtown Copy Center, 1919 M Street, N.W., Room 246, Washington, D.C. 20554 (Telephone: 202/452-1422.)

A Tentative Decision and Further Notice of Inquiry (Further Notice) in this proceeding was adopted on September 1, 1988. That Further Notice summarized the Commission's tentative findings concerning ATV:

- (1) Terrestrial broadcast use of ATV techniques would benefit the public.
- (2) The benefits of this technology could be realized by the public most quickly if existing broadcasters are permitted to implement ATV.
- (3) Spectrum capacity for broadcast ATV systems will be obtained from the spectrum now allocated to broadcast television, and use of any frequencies not already allocated for terrestrial television broadcasting will not be considered.
- (4) Existing service to viewers with NTSC receivers must be continued irrespective of the actual manner in which ATV services are delivered, at least during a transition period. This could be accomplished either by transmitting ATV signals that can be received directly by NTSC receivers, or by simulcasting NTSC and incompatible ATV signals on separate channels.
- (5) Because the Commission is predisposed to preserve the utility of existing NTSC receivers, and because of the scarcity of suitable spectrum within the existing allocations, systems requiring more than 6 MHz to broadcast a noncompatible signal will not be authorized for terrestrial broadcast service.
- (6) It is in the public interest not to retard the independent introduction of ATV in other services or on non-broadcast media, but there are benefits to compatibility among equipment associated with the various video delivery methods.

On August 24, 1990, the Commission adopted a First Report and Order (First Report) in MM Docket 87-268, which first stated, without taking a position on the merits of any particular system, that the Commission will select as a national standard a high definition system which employs design principles independent of the existing NTSC technology for ATV service and can operate totally within a 6 MHz wide channel. The record in the proceeding to date indicates that such an approach offers the potential for significantly greater improvement in the quality of television picture and audio performance than-NTSC compatible systems. However, the First Report did not foreclose the consideration of an EDTV system, although the Commission will not consider an EDTV standard prior to reaching a decision on an HDTV standard. The First Report stated that the Commission intends to be flexible enough to consider any new technical designs that are in a sufficiently concrete state of development to be considered along with the existing candidate systems. Finally, the First Report reiterated the Commission's goal of selecting a system as promptly as possible. To assist in completing this goal, Commission staff will work closely with the testing laboratories throughout the testing process. The Advisory Committee has been asked to support this effort by making any test data it generates available to Commission staff as soon as it is produced. The First Report established a goal of the Advisory Committee completing a final report with recommendations by autumn 1992.

The Commission adopted a Notice of Proposed Rule Making (Notice) on October 24, 1991, which proposed policies and rules for implementing ATV service. Specifically, the Notice first proposed to limit initial eligibility for ATV frequencies to existing broadcasters. As proposed, once initial ATV assignments are made, eligibility for ATV frequencies would become unrestricted. The Notice further proposed to limit the period of time during which existing broadcasters would have the right to apply for a particular ATV channel to three years from the time that an ATV allotment table is adopted. After that time existing broadcasters would forfeit their priority status and ATV channels would be opened to all qualified applicants. Also, all applicants would have two years from the date of issuance of the construction permit to build their facilities or forfeit the permit. The Notice proposed to allot ATV channels to each community of license currently listed in the television Table of Allotments in the Commission's Rules. All ATV channels would be considered equivalent, and, providing that there are sufficient channels available to accommodate all existing licensees, applications for ATV channels within a market would not be considered mutually exclusive.

The Notice described several possible approaches to assigning channels on that basis. First, the Notice suggested establishment of a Table of Allotments which not only allots ATV channels to each community, but also randomly matches particular ATV channels to existing NTSC channels listed on the table. A second option would be to follow a procedure of allotting particular ATV channels to a community and then assigning these channels to qualified ATV applicants, by a process of "random ranking." This random ranking procedure would rank applicants so that the top-ranked applicant would be granted its first choice, and the next-ranked applicant its highest choice that would not

conflict with the first-ranked applicant, and so on. Further, the Notice invited comment on whether to adopt a financial qualification showing as a condition for awarding an ATV channel. The Notice also sought comment on a proposal to permit parties within the same market to negotiate among themselves after they have been awarded an ATV channel, on the condition that any proceeds from such an exchange would be used for operation of the station's ATV facility.

The Notice also detailed several options for choosing among competing NTSC applicants in case of insufficient spectrum. First, the Commission might employ decisional criteria such as coverage area or financial qualification. Second, a lottery, pursuant to 47 U.S.C. § 309(i), could be held to determine which applicants are entitled to a channel assignment.

The Notice tentatively concluded that, for the most part, the Commission will be able to offer an additional 6 MHz of spectrum to existing stations for ATV without using vacant spectrum now reserved in specific communities for noncommercial stations. Moreover, in the majority of cases, associating an additional 6 MHz channel with these existing vacant noncommercial allotments will also be feasible. Thus, the Notice proposed only as a last resort to use the noncommercial reserve for ATV service, and only in exceptional cases to omit pairing an ATV channel to a vacant noncommercial channel. The Notice next proposed continuing low-power and translator stations' secondary status vis-a-vis full-service stations.

As proposed in the Notice, broadcasters would be required to convert entirely to ATV when ATV becomes the prevalent medium. The Notice invited comment on three possible methods to determine when conversion should occur: (1) schedule conversion a specific number of years after a nationwide penetration rate for ATV receivers is received; (2) modify the first option to require conversion after penetration rates reach a certain level on a market-by-market basis; or (3) simply establish a date for conversion, which date in itself allows consumers sufficient time to purchase new receivers and adjust to this new transmission form. The Notice finally sought comment on whether simulcasting would be an appropriate means of protecting existing consumer investment in television equipment.

Six system proponents have received at least preliminary certification from the Advisory Committee and are participants in the test schedule. System testing began at the Advanced Television Test Center in July 1991. The six systems, and their proponents are:

SYSTEM

PROPONENT

ACTV	Advanced Television Research Consortium
Narrow MUSE	NHK
DigiCipher	American Television Alliance
Digital Spectrum	
Compatible HDTV	Zenith/AT&T/Scientific Atlanta
Advanced Digital Television	Advanced Television Research Consortium
ATVA Progressive System	American Television Alliance

The Commission issues a weekly ATV meeting notice announcing upcoming meetings of the Advisory Committee, its subcommittees and their working parties and advisory groups. The notice is updated and released every Wednesday, and is available on the FCC Laboratory Public Access Link (PAL). Pal can be accessed at 301/725-1072 at either 300 or 1200 baud for five minute intervals, 8:00 a.m. - 8:00 p.m. (EST) and for fifteen minute intervals, 8:00 p.m. - 8:00 a.m. (EST). After connection, PAL is accessed by striking one or more "carriage returns." The schedule of meetings is accessed through item 6 of the user menu.

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