ADVANCED TELEVISION RESEARCH CONSORTIUM

Real-World Conditions

CONSORTIUM MAKES HISTORY WITH FIRST LIVE HDTV SIMULCAST AS WRC BROADCASTS "NEWS4 AT FIVE" IN ADVANCED DIGITAL HDTV

WASHINGTON, September 30, 1992 --- Breaking new ground in the competition for high-definition television (HDTV) in the United States, the Advanced Television Research Consortium (ATRC) today successfully presented the nation's first live simulcast over a major-market TV station, transmitting its Advanced Digital HDTV system under "real-world broadcast conditions."

A gathering of journalists and policymakers witnessed the history-making event as NBC's station, WRC-TV, simultaneously transmitted the "News4 at Five" program from its northwest Washington studios and tower in both Advanced Digital HDTV on Channel 38 and conventional over-the-air signals over Channel 4. Those assembled at the Park Hyatt Hotel watched the newscast on an HDTV widescreen (16x9) monitor as well as an NTSC (4x3) receiver, and were able to experience the startlingly clear images and CD-quality sound of Advanced Digital HDTV.

"This live demonstration, along with the results of extensive field tests we've conducted in recent weeks, confirms that AD-HDTV delivers outstanding picture and audio

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quality, over a wide area with excellent resistance to noise and interference, in the all-important arena of real-world broadcasting," said Michael J. Sherlock, President, Operations and Technical Services, NBC. "Our HDTV system is ready to lead the U.S. into a new era of telecommunications technology, with capabilities extending to computing, multimedia and interactive TV."

Allan Horlick, President and General Manager of WRC-TV, Channel 4, NBC's owned and operated station in Washington, said that "WRC is proud to have played a key role in this landmark simulcast, which moves our industry one step closer to making HDTV a broadcast marketplace reality."

System Performs Under Challenging Conditions

The Advanced Digital HDTV system, which completed testing August 14 at the Advanced Television Test Center (ATTC) in Alexandria, Va., has been subjected to a variety of realistic broadcast field tests in recent weeks and has consistently delivered impressive performance, particularly in the key areas of picture quality and resistance to NTSC interference.

In addition to the first live simulcast, videotapes were shown at today's press conference made during extensive field testing at various locations in and around Washington. Demonstrations of Advanced Digital HDTV at 30, 55 and 70 miles from the WRC tower were compared with NTSC pictures from the same tower and at the same distances.

"Living up to all expectations," said NBC's Sherlock, "the AD-HDTV pictures at 70 miles were spectacular."

Advanced Digital HDTV's unique robustness under real-world conditions was confirmed when its signal was transmitted more than 70 miles and received clearly using only a consumer rooftop antenna raised to the level of a two-story home. At the same distance, the conventional NTSC signal could not be picked up even though its transmission power and tower height were much greater than those of the HDTV transmission.

The new-generation HDTV images must fit the same size channel as today's NTSC pictures. Advanced Digital HDTV meets this challenge by building upon the internationally accepted Moving Picture Experts Group (MPEG) compression standard. Furthermore, due to its unique approach to data prioritization and spectral shaping, Advanced Digital HDTV is extremely robust and far less susceptible to what is known as the "cliff effect" -- total loss of the video and audio -- near the edge of the coverage area. This effect is, however, a characteristic of other digital systems.

Another major issue of importance to broadcasters -- co-channel interference -- is addressed by Advanced Digital HDTV with unique spectral shaping. Advanced Digital HDTV avoids the stronger parts of the NTSC signal and thus is less sensitive to interference. As a result, the ATRC's system achieves greater immunity to interference and therefore offers the clearest pictures to the largest service

area. This too was established in field tests this month on Channel 38 in the Washington, D.C. area.

In addition to its robustness and co-channel interference attributes, Advanced Digital HDTV's design will create exciting new programing opportunities by delivering a dynamically-reallocatable combination of video, audio and auxiliary data to receivers. This extreme flexibility will provide broadcasters, cable operators and multimedia participants the freedom to offer many new services such as viewer interactivity.

Other members of the ATRC, in addition to NBC, include the David Sarnoff Research Center, Princeton, N.J.; Philips Laboratories, Briarcliff Manor, N.Y., and Philips Consumer Electronics Company, Knoxville, Tenn. (units of North American Philips Corp.); Thomson Consumer Electronics, Inc., Indianapolis, Ind.; and Compression Labs, Incorporated of San Jose, Calif.

Advanced Digital HDTV is one of five proposed high-definition systems being considered by the FCC as the official standard for HDTV transmission in the U.S. The FCC is scheduled to adopt an HDTV standard next year, and it is widely expected that the winning standard will be used by the broadcasting, cable and other industries for decades to come.

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