

Accomplishments of ADTV

During the past six months, the concept of digital HDTV has moved from a few small technology development activities to a major development program. Setting the stage for this transition were advances in both data compression and RF transmission that showed the basic feasibility of a digital approach. In RF transmission, two independent efforts (at Sarnoff and Thomson-LER) showed that data rates on the order of 20-30 Mbps could be transmitted in the 6 MHz broadcast channel. In data compression, independent computer simulations (at Sarnoff, Philips-Briarcliff, TCE-LA, TCE-Hannover, and Philips-Paris) showed that both DCT-based and SubBand-based compression approaches could achieve HDTV picture quality within the bit rate of the RF transmission. By August 1990, it became clear that digital was the right way to achieve HDTV.

During the intervening months, parallel development efforts were arranged within the ATRC framework. In December 1990, an intensive four day series of meetings was organized with key technical and executive representatives from the ATRC. The purpose of these meetings was to: 1) review and compare the technical performance of the alternative approaches, 2) to deliberate any strategic consequences that might accompany a particular approach, and 3) to reach a consensus on the fundamental technical approaches that would form the basis of the ATRC's proposal to the FCC. All of the approaches presented in December were credible alternatives, and the choice was not easy. The approach finally decided upon was to use QAM modulation and MPEG-based data compression (but modified with clever features developed in the other ATRC efforts).

Since January 1991, the entire ATRC team has been rapidly developing a system specification and designing the hardware architecture for Advanced Digital Television.