

Comments by FCC Commissioner James H. Quello

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It is a pleasure to be in this picturesque, internationally renowned city, home of the Cannes film festival and, now for the second year, home of the annual Intelevent conference.

We can't claim the glamour of the prestigious film festival, but we can claim significant contributions to international telecommunications understanding through a comprehensive interexchange of ideas among the various nations and industries. We all learn from communications developments in other countries. As the international global village evolves from a prediction to a reality, worldwide understanding and co-operation promulgated by Intelevent represents a significant contribution.

The world has changed significantly since we last met only a year ago. The events that were evolving in Eastern Europe have now opened the doors for telecommunication developments unimaginable just a short time ago. Eastern European leaders recognize the vital contribution telecommunication infrastructures provide to the economic rebuilding currently underway. In this context, members of developed and developing nations are more alike than dissimilar. All seek the best telecommunication infrastructure at the best available prices.

Today, my comments focus on two matters directly relating to the infrastructure of the U.S. broadcast industry, high definition television (HDTV) and digital audio broadcasting (DAB). Let's begin with high definition television.

### HIGH DEFINITION TELEVISION

Last year at Intelevent, I outlined the U.S. position on high definition television. As background and as you may recall, in the U.S., the Federal Communications Commission (FCC or "Commission") determined that HDTV or similar services would be offered terrestrially as well as by satellite technology. Furthermore, we determined that the HDTV system eventually selected was not to make obsolete existing television receivers. Finally, the Commission determined that a terrestrially delivered HDTV system would have to be developed within the spectrum currently assigned to the broadcast television service. The likelihood of additional spectrum for HDTV given current spectrum allocations and demands was essentially non-existent. The FCC recognized that by assuring a terrestrial HDTV broadcast delivery system, the U.S. was out of sync with both Europe and Japan where extensive investments have been made to deliver HDTV via satellite.

With these requirements in place, the FCC developed an industry advisory board to assist in developing the standards for a terrestrial HDTV system. The advisory committee consists of

broadcasters, both large and small, cable television and direct broadcast satellite representatives, as well as those from academic and industrial sectors. One of the first acts of this advisory committee was to change the focus of its mandate from a purely HDTV directive to one that would examine a variety of systems designed to improve or enhance the existing National Television System Committee, NTSC, quality television picture. The collection of enhanced or improved television audio and video quality is referred to generically as Advanced Television (ATV). As a point of reference, HDTV is considered to be closest to 35 mm film in quality and is likely to have compact disc quality sound. The enhanced or improved television systems are somewhat less than true HDTV in picture quality and more than current NTSC standards.

The Advisory Committee has been working under the limitation of spectrum availability for HDTV or like systems, while also attempting to develop transmission standards. The basic spectrum concern is how much spectrum is required for the variety of systems proposed. Will 3 MHz or 6 Mhz be required in addition to the current 6 MHz television broadcast channel? Do these additional megahertz of spectrum have to be contiguous with existing broadcast operations? Is there enough unlicensed broadcast spectrum to accommodate all existing broadcasters, especially in large urban areas? These are just some of the spectrum issues faced by the Advisory Committee and the FCC.

Closely associated with the spectrum issues are those issues centered around the development of transmission standards, since the various transmission systems are dependent on spectrum availability. Currently, the Advisory Committee is in the process of developing tests to be conducted with advanced television systems submitted to the Advanced Television Testing Center. As you know, the standards formulation process is difficult. My regulatory approach is to have the minimum threshold standards necessary to achieve transition and reception without interference. The Commission adopted a similar threshold standard approach in the television stereo sound proceeding.

To facilitate the development of HDTV, the FCC recently in March 1990, adopted a major policy statement. The policy statement focused U.S. interests in the direction of simulcasting rather than augmenting the existing NTSC signal. FCC Chairman Sikes indicated at the time the policy statement was released that he anticipated the FCC selecting a standard for HDTV in the second quarter of 1993. Testing of advanced television systems should begin sometime later this year or early 1991.

As an aside, the National Association of Broadcasters will inaugurate an HDTV World Conference and Exhibition running concurrently with its national convention. This conference is scheduled for April 15-18 in Las Vegas.

Such events bring together both national and international experts in the field of advanced television systems.

To complicate the issue of HDTV for terrestrial broadcasters is the fact that in the U.S. nearly 60% of the television households receive their broadcast signals over cable television systems. The ability to transmit advanced broadcast television signals through the wired technology of cable has public policy, as well as competitive business implications. Cable systems are not bound by the same channel bandwidth or spectrum problems confronting broadcasters. Many cable systems have their own channel problems, since there are more services available to cable operators than number of channels available on their systems. Therefore, cable operators also have the desire to minimize the channel band width needed for advanced television technologies so as to maximize the number of programming options they are able to sell to the consumer.

Broadcasters and cable operators are concerned that if two different standards for HDTV or ATV are developed, one for broadcasting and one for cable, the technical capabilities of the cable systems will not be able to make the two standards indistinguishable to the eyes of the consumers. The result could be one standard being superior to the other.

The issue of different technical quality between broadcast signals carried on cable systems and other cable programming becomes more complicated when you consider that 70%-80% of cable television viewing consists of viewing broadcast channels carried on the cable system. Therefore, cable operators have the incentive to assure that all signals are technologically equal.

I would like to add as a footnote to the issues of spectrum scarcity and cable system channel capacity. Work is progressing rapidly on video compression technology. Direct Broadcast Satellite licensees and others are particularly interested in compressing video signals primarily as a means to provide more programming services to consumers. Such compression technology may eventually benefit broadcast and cable video providers.

With that footnote aside, I would like to mention another player in the HDTV public policy debate, the telephone company. Telephone companies in the U.S. are spending billions of dollars to rebuild their networks with fiber optics. Such technology does not suffer from the spectrum limitations faced by broadcasters or the channel limitations faced by cable operators. In the U.S. current law severely restricts the ability of telephone companies ability to provide video program services. The agreement reached by the Justice Department and AT&T prohibits the regional telephone companies from providing video programming within their service area.

Telephone companies are allowed under the law to build cable systems, however they must lease the system to another non-telephone company entity for the provision of programming services. Current law also allows telephone companies to provide cable programming services in rural areas not served by cable television.

The regional telephone companies would like to provide programming service to the American public. The ability to do so would provide an incentive to deploy fiber optic technology eventually to the home. Fiber would provide the relief from spectrum and capacity problems associated with HDTV delivered by broadcasting and cable respectively. Bell South in the last Presidential convention provided convention attendees with HDTV video coverage of convention center events. The technology to provide video to the home is currently available. As the cost of fiber optics is reduced, telephone companies are deploying such technology and especially in newly built areas.

The main stumbling block in the road to provide consumers with video programming offered by telephone companies is current public policy. Proposed, hotly contested, legislation in Congress would allow telephone companies to become video program providers. Furthermore, the Administration favors allowing telephone companies the opportunity to compete with cable television services and to provide video programming.

Eventually, telephone companies may be allowed to provide video programming. Telephone companies will have to provide the capability to deliver local broadcast signals to the consumer. The same issue facing cable television operators regarding the quality of broadcast HDTV signals carried over the telephone system compared with non-broadcast programming services exists for telephone companies. The FCC must assure that standards developed for terrestrial broadcasting advanced television systems does not disadvantage broadcasters once their signal is carried over coaxial cable or fiber optics.

To you, the public policy issues facing the development of HDTV must sound as challenging as those issues addressing HDTV's technical development. They are! These challenges will provide opportunities for the American consumer to receive comparable HDTV quality video programming via a variety of alternative distribution systems.

#### **DIGITAL AUDIO BROADCASTING**

The second significant infrastructure matter facing broadcasters in the U.S. is digital audio broadcasting (DAB). DAB for radio broadcasters is comparable to HDTV for television broadcasters. Growing penetration of CD and the impending introduction of digital audio tape recorders are conditioning consumers to prefer or demand quality sound.



DAB advantages include compact disc quality sound, better frequency response compared to conventional FM, less interference, low power and spectrum efficiency. Like HDTV, DAB can be delivered terrestrially and by satellite. Since satellite delivered DAB would provide competition to existing terrestrial broadcast stations, as well as to provide regional and national service, terrestrial broadcast radio stations with their all important local service have a stake in this issue. The introduction of DAB will have significant repercussions on both the regulatory framework for radio broadcastings and the business of radio as we know it today.

From a policy perspective, the Commission adopted a Notice of Inquiry on DAB last month (August, 1990). The bottom line of this initial inquiry is to determine if DAB is needed in the U.S. and the potential spectrum requirements. Currently, there are over 10,700 radio stations on air with another 1400 construction permits issued. Is there sufficient spectrum for all radio stations to provide DAB? Perhaps, but where? Will AM Daytime-only stations be comparable in audio quality and range with full power FM Stations? If so, what does this mean in the regulatory and business contexts? Will DAB obviate the AM improvement proceeding at the FCC? These are just some of the questions that my colleagues and I will have to answer as we develop the regulatory context for DAB?

As a former broadcaster, a firm believer in the public trustee concept, and a staunch advocate of local broadcast service, I believe DAB will be carefully reviewed for its positive or negative ramifications on overall radio service. Spectrum efficiency and the efficiencies of digital technology should reduce the energy costs of operating a radio station. Competition, on the other hand is likely to increase. There will be less differentiation on the basis of sound quality and reach. AM stations will be comparable to FM stations to the listening ear. The advent of regional and national or "super-stations" could further divert advertising revenues and probably provide even greater redundancy in format styles. I do believe that new technologies provide for new opportunities that in this case will translate into new services to the consuming public. For example, a small community may not be able to sustain an all-news format radio station; however, an all-news format offered to several small communities in a region or nationally is likely to be viable. Ultimately, DAB allocations should be determined by the best service to the public not merely based on advanced technology for technology's sake.

Currently, in the U.S. the Commission is reviewing three proposals for DAB. Our inquiry into DAB is, in part, responding to these proposals. Strother Communications, Inc., has applied for experimental authorization from the FCC to test the Eureka-147 DAB system in the Boston and Washington, D.C. markets using

spectrum already allocated to UHF broadcasting. Strouther predicts all existing radio stations could be accommodated within 40 MHz of spectrum.

Another applicant, Satellite CD Radio filed an application for a national service delivered by satellite. This proposal provides for a combination of 100 local, regional and national audio channels delivered by satellite and local area transmitters. The applicant requested 60 MHz of spectrum for 66 super-station channels. It also requested 10.2 MHz of spectrum in urban areas and 4.2 MHz in rural areas to provide 34 channels for local digital radio service. The company also has applied for authority to construct, launch and operate satellites to provide this service.

Another player is Radio Satellite Corporation. It seeks authorization for an earth station to provide near CD quality radio and other mobile services on a non-common carrier basis using American Mobile Satellite Corporation's (AMSC) satellite. This satellite has not been constructed at this time. I believe a 1994 launch is possible by AMSC.

In the U.S., an independent group of broadcast engineers called the Committee for Digital Radio Broadcasting (CDRB) has formed and its written goal is "to provide the listening public with radio broadcasts having a sound quality comparable to

compact discs in a cost-effective manner. This group intends to address the technical issues of DAB and the potential barriers to DAB implementation. CDRB intends to examine the spectrum in an effort to find a new band to support DAB or possibly in the FM band co-existing with analog radio stations. This group's next announced step is to formulate working groups to study specialized aspects of DAB service. The FCC is looking forward to receiving practical proposals from this group of highly qualified engineers.

In a different context, industry and government representatives are currently working on preparations for the 1992 World Administrative Radio Conference (WARC). The agenda for this conference includes an allocation between 500 MHz and 3000 MHz for Broadcasting-Satellite Service (Sound). Preparations include an examination of the possible spectrum bands capable of supporting DAB. This advisory group has identified seven bands as potential "homes" for broadcasting-satellite sound. These bands include: 500-608 MHz, 614-806 MHz, 1460-1530 MHz, 1710-1850 MHz, 1850-1990 MHz, 2200-2290 MHz and 2500-2655 MHz. It is safe to say that none of these bands is unencumbered and that any attempt to reallocate spectrum to DAB will generate a significant degree of controversy. The Commission recently adopted a Second Notice of Inquiry relating to the preparations for the 1992 WARC. This proceeding will

allow us to examine the spectrum proposals for DAB and hopefully arrive at some viable proposals.

### THE FUTURE

Both HDTV and DAB are technical advancements that offer a new vastly improved generation of video and audio services. Such technological advancements are presented in the environment of well established broadcast services. To fully implement these improvements, the very infrastructure of the broadcast industry, as it exists today, will be at stake. Such advanced technologies challenge existing regulatory and communications structures. I am convinced that the American regulatory and business structures can meet these challenges, and American consumers will expect it. I believe those that have either pioneered or invested substantially in radio and TV service to the public should receive priority consideration in bringing these improved services to the public. Each challenge offers opportunities to all parties -- manufacturers, broadcasters and viewers and listeners. I look forward to the opportunities that HDTV and DAB will provide to the American public. I hope nations can learn from one another as we develop improved communications services both for our own individual countries and for the oncoming communications global village.