AUDIO VIDEO INTERIORS
August, 1996

EDITORIAL

by Maureen E. Jenson

HDTV: WHERE ARE WE?

It is said that all good things come to those who wait, and in the case of High Definition Television (HDTV) it has truly been wait and wait and wait. For at least eight years HDTV has been looming on the horizon; repeatedly, progress seems to commence and then comes to a stuttering halt. HDTV is the next generation of television technology that promises to bring sharper pictures to the TV screen as well as superior digital sound and wide-screen formats. The current U.S. NTSC standard is 40 years old and provides a maximum of 525 scanning lines; the proposed HDTV standard will potentially supply the viewer with more than 1,000 scanning lines (i.e. a far superior picture). O.K., so much for HDTV 101. Where is the proposed new U.S. standard now?

Well the good news is that a model HDTV station project (implemented by the David Sarnoff Research Center) will commence in January at station WRC-TV (owned and operated by NBC) in Washington, D.C. The three-year project is being sponsored both by broadcast TV stations in the United States and the professional and consumer electronics industries. WRC-TV will serve as a source for encoded digital signals to aid equipment manufacturers in the development of their new lines of pro and consumer electronics. It will also provide broadcast demos to permit the public to view High Definition TV and to train broadcast station personnel in the new technology. Besides the revolutionized viewing experience for consumers, there are far more practical reasons why HDTV should succeed:

Tell the FCC to move on HDTV

- Expand America's global lead in digital television technology.
- Create and maintain thousands of high-tech American jobs.
- Preserve the availability of free over-the-air television.

I urge all *AVI* readers to write the Federal Communications Commission and their congresspeople to help move HDTV forward. Otherwise we might be waiting another eight years.

Maureen Jenson

P.S. You can access, via the internet, a copy of the Notice of Proposed Rulemaking regarding adoption of the FCC Advisory Committee recommendation at www.access.gpo.gov/su_docs/

By Stephen A. Booth

Get Set for Futurevision

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Until the products and services arrive, no one knows if the buzz will go bust. It's unlikely that people will want to perform work-like tasks at couch distance from a large-screen TV. But research indicates there is an appeal in pursuing the more leisurely aspects of computing from the recliner.

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Besides the communications aspects of armchair computing, there's Digital Versatile Disc to consider. The first application for the DVD will be video, for movies. But soon after, such passive, linear entertainment will be complemented by multimedia DVDs with interactive performance far superior to today's CD-ROMs.

CHOOSING UP SIDES

For all these reasons, major players in PCs, TVs and delivery media are betting there's a future in convergence. This faith has forged some interesting alliances across industry lines, as companies with specific core-competencies (another buzzword du jour) attempt to assemble what pieces they lack to complete the convergence puzzle.

Noteworthy joint ventures include recent cooperative agreements between Compaq Computer and the RCA division of Thomson Consumer Electronics; Sony and Intel and Zenith Electronics and U.S. Robotics. That's just the hardware side. On the communications front the deals include Microsoft and DirecTV (Hughes' direct-broadcast satellite service), and Intel has partnered on a variety of projects with broadcast and cable TV entities such as NBC, some PBS stations and General Instrument.

What might emerge from the RCA/Compaq venture (see story, page 128) won't be known until next year, but RCA's own Genius Theater prototype (page 26) gives a good indication.

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So much for the bricks and mortar. What ties the system together is software—a graphical, menu-driven operating system for what Lou Lenzi, Thomson's vice president for design, calls "entertainment management." As Lenzi sees it, this software has to facilitate seamless and simple navigation among prerecorded entertainment stored in the home, telecast programming, and data services from the Internet.

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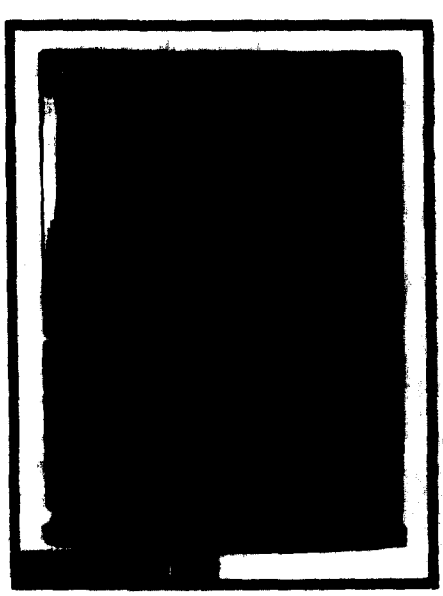

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The **Destination System** (page 24; $3,499 to $4,699) from computer-maker **Gateway 2000** (*800/846-5235*) is already on the market. Later this year, **Zenith** (above; *847/391-7000*) will bow its **NetVision Interactive System** ($3,500) in a 35-inch TV under the **Inteq** brand name. **Sony**, like the RCA/Compaq team, is looking to 1997 for its hybrid smart-tube.

Meanwhile, this fall Dallas-based **Curtis Mathes** (*888/803-5300*) cuts the ribbon on its access ramp to cyberspace, called **UniView** (below). It will be offered first as an add-on, set-top box ($399), and later built into 31-, 35- and 50-inch TVs priced from about $1,200 to $3,000. Another set-top solution comes from Chicago-area **Multimedia Systems** (page 28; *847/405-0771*). The company's **TVLink** ($399) connects any TV to on-line services via telephone. A wireless keyboard is a $150 option for folks who'd like to generate text and e-mail from the Barcalounger.

While TV and PC companies build the locomotives of convergence, big barons in the software and communications field are developing the right of ways that media content will travel.

In yet another bid for real estate on the increasingly-crowded computer screen, **Microsoft** (*206/882-8080*) and broadcaster **DirecTV** (*800/347-3288*) will collaborate to deliver video entertainment and data programming to PCs via satellite. Service is slated to begin early next year and will reach PCs through the same 18-inch dish antenna now used to feed DirecTV's 175-channel signal to TV set-top Digital Satellite System (DSS) receivers.

The launch will coincide with the sale of new PCs equipped to decode the DSS signal, as well as add-on boards to retrofit existing multimedia PCs—or connect them to DSS systems already installed in more than 1.3 million U.S. households.

Besides beaming DirecTV's entertainment lineup for viewing on PC monitors, the companies plan to offer data services that could include statistical information, selected Web-site pages and other graphics-rich programming enhanced by audio and full-motion video—the oft-touted multimedia magazine. The partners note that the broad bandwidth satellite signal (400 kilobits per second) will enable subscribers to download such files at high speed—a matter of seconds compared to hard-wired telephone modems running at 28.8 kilobits per second. The downloaded data would be stored on the PC's hard disk.

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For some time now businesses have been able to subscribe to DirecPC, which transmits data and full Internet content by satellite to PCs equipped with a decoder board and 21-inch dish antenna. Soon, the service will be available to individuals and homes. There even will be a hybrid system that combines pickups for DSS entertainment programming and DirecPC data on the same 21-inch antenna. Price is expected to be less than the approximately $1,300 cost of purchasing separate systems.

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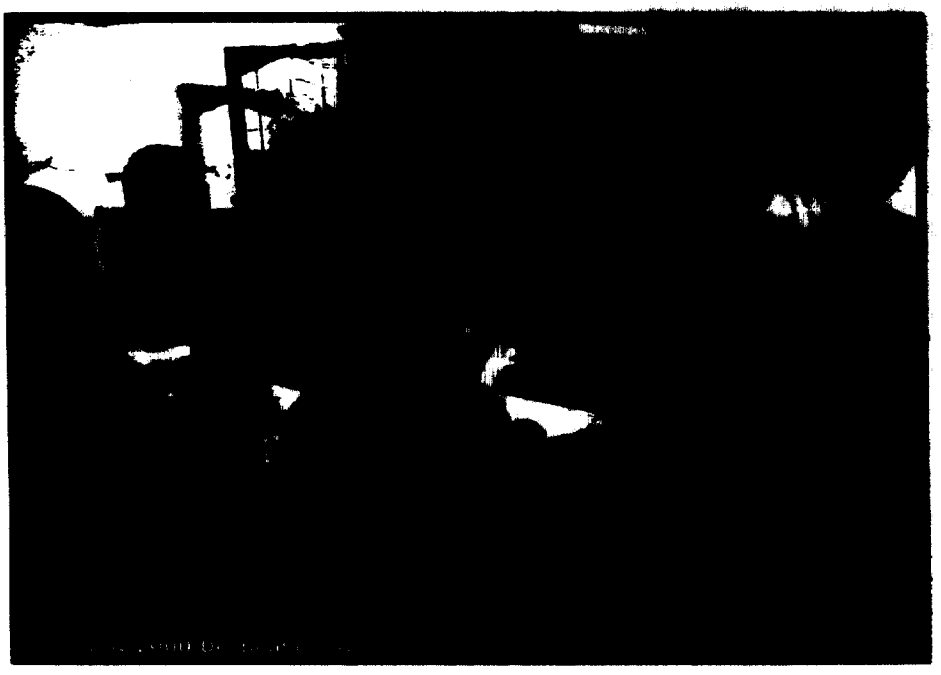

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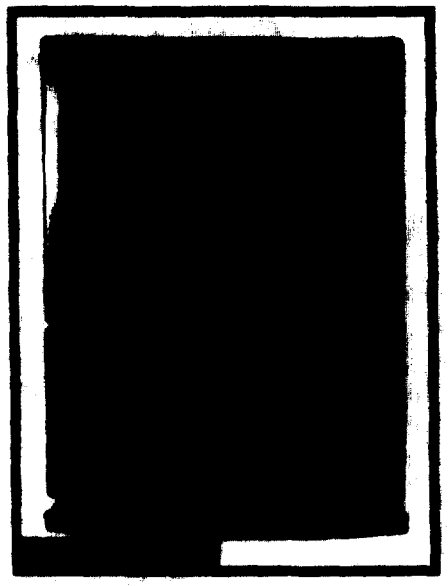

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ROBERT B. REICH

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government to block foreign investors from obtaining a controlling interest in an American company. A high-level Committee on Foreign Investment in the United States, comprising the heads of eight federal agencies and chaired by the Secretary of the Treasury, could thereafter decide that a proposed purchase threatened to "impair the national security."

On the surface, this requirement seems quite sensible. Why *shouldn't* high-level officials screen out purchases that threaten national security? Probe a bit deeper and the problem becomes apparent. What does "national security" mean? Congress did not say. In principle, a nation sacrifices a bit of "security" when it becomes dependent on foreigners for anything. Albania, which refuses trade with the West and eschews money, technology, and everything else the rest of the world has to offer, is quite secure, in its own curious way. Then again, its citizens transport their wares in oxcarts and live in hovels. Complete security is equivalent to autarky. But autarky deprives a nation's citizens of all of the advantages of economic interdependence with the wider world. You cannot have it both ways.

Upon what evidence, then, should the committee base its decision? On how much money the foreigners are willing to sink into a risky American venture, which, presumably, American financiers have shunned? Or on how desperate Americans are for this foreign aid? Or, perhaps, on how much wealthier the foreigners will be in the event that the venture succeeds? If foreigners are not dissuaded from pursuing American investments by the sheer uncertainty and complexity of such a proceeding, they may still lose heart when they consider the fees they will have to pay Washington lawyers to help them run this gauntlet.[3]

Other nations have erected their own barriers to foreign investment, of course, based on similarly misguided notions about national security and the meaning of corporate "ownership" in the global economy. Many of these barriers are falling, however. By the start of the 1990s, places as diverse as Mexico and China, which had long limited foreign direct investment, were actively courting it. Even Japan's traditional wariness of foreign investors

[3] According to one government official involved with the committee, "We could become the ultimate takeover defense." *The Wall Street Journal*, March 8, 1989, p. A16.

was starting to give way, although slowly. In any event, that other nations handicap themselves by discouraging foreign investment is not a compelling argument for following their lead.

3

THE SAME confusion mars government efforts to spur America into "technologies of the future," such as advanced semiconductors and high-definition television. Recall that through the postwar era the Pentagon has quietly been in charge of helping American corporations move ahead with technologies like jet engines, airframes, transistors, integrated circuits, new materials, lasers, and optic fibers. This tacit, however benign, industrial policy accelerated under the Reagan administration, as America's military buildup proceeded apace. And even as the Cold War thawed, Pentagon funding of high technology remained among its most important sources of capital. The Pentagon and the 600 national laboratories that work with it and with the Department of Energy are the closest thing America has to Japan's well-known Ministry of International Trade and Industry.[4]

This system worked reasonably well when American corporations represented the American economy. In the 1950s, the 1960s, and even the 1970s, there was reason to equate the technological advances of American firms with American economic prowess. But by the 1980s the equation was breaking down, with the result that the subsidies now given to American corporations to develop new technologies have less and less bearing on what Americans learn to do.

Consider the fingernail-sized chips on which ever tinier electronic circuits are etched. By the end of the 1980s, Japanese-owned firms were making most of the world's memory chips,

[4] At this writing, the Bush administration has displayed somewhat less interest in, if not hostility toward, several of the Pentagon's more overt efforts to target certain high technologies of the future, like high-definition television. Support for these efforts remains strong in Congress, however. And even if the administration were to reduce or eliminate some of these efforts, the Pentagon (and its sister agency, the Department of Energy) would continue to subsidize much of America's high-technology research and development.

which worried American officials no end.[5] Intent on strengthening America's chip-making abilities, they decided to provide $100 million a year to Sematech, a consortium of American semiconductor companies that would add their own resources as well, in order to design state-of-the-art equipment necessary for making the next generation of chips. Sematech's membership included Texas Instruments, Motorola, IBM, AT&T, and eight others. No foreign-owned firms, however, would be allowed to join. "We must re-establish our technological lead," said an administration official. According to the president of one of the companies involved in Sematech, "[t]his is our last chance. If we lose the ability to make this equipment in America, we might as well fold up the tent."[6]

In evaluating national policy, however, one is immediately confronted by the question posed by Tonto after the Lone Ranger exclaims, "We're surrounded!" To wit: "What you mean *we*, kemo sabe?" When American government and corporate officials use the pronoun "we," they are usually referring to American corporations. Yet, as we have seen, American corporations only tangentially embody "we" Americans.

Even as Sematech got underway, its members were weaving global webs. Texas Instruments (or, more accurately, the strategic brokers in TI's world headquarters) had decided to build a new $250 million semiconductor fabrication plant in Taiwan, which by 1991 would produce four-megabit memory chips and other integrated circuits. (TI's plant in Kywhyu, Japan, already made the firm among the largest semiconductor chip producers in Japan.) TI also had joined with Hitachi to design and produce "superchips" that would store 16 million bits of data. The strategic brokers in Motorola's world headquarters, meanwhile, had decided to seek the help of Toshiba's researchers and design engineers to produce a future generation of chips. Other American chip makers were forging similar global semiconductor links:

[5] "If this vital industry is allowed to wither away, the Nation will pay the price measured in millions of jobs across the entire electronics field, technological leadership in many allied industries such as telecommunications and computers, and the technical edge we depend on for national security." *A Strategic Industry at Risk*, National Advisory Committee on Semiconductors, November 1989.

[6] Interview.

AT&T with Japan's NEC and Mitsubishi Electric; Intel with Japan's NMB Semiconductor Company and Matsushita Group; IBM with West Germany's Siemens.

In other words, Sematech's noble nationalist intentions notwithstanding, the consortium was in fact little more than a partnership among several emerging global webs whose future would be only tangentially related to the future skills of Americans. Even if Sematech became a roaring success, relatively few Americans would be making advanced chips in the United States.

Ironically, just as Sematech was getting organized, the largest advanced-chip fabrication facility in the United States was being built by a Japanese company which hadn't been allowed to join. In June 1989, Japan's NEC announced that it would erect a $400 million facility in Rosevale, California, for making four-megabit memory chips and other advanced devices not yet in production anywhere.

Or consider high-definition television (HDTV). Since 1970, hundreds of Japanese design engineers have been trying to perfect ways to broadcast and receive far clearer television pictures than possible with current technology; for most of this time, Americans have not been trying. But beginning in 1988, several members of Congress and high-level administration officials decided that America should dive headlong into HDTV. Thus, the Pentagon began to funnel some $30 million annually to American firms wanting to develop it. Japan's Sony, Dutch-owned Philips, and France's Thompson all sought to be involved in this effort, but the Bush administration declined to issue an invitation. Robert Mosbacher, Secretary of Commerce, noted that the subsidies were strictly for American companies. "It is vitally important for *us* to be in the forefront of this emerging technology," he explained.[7]

But here again, the question arises: Whom did Mosbacher mean by "us"? Even if an American version of high-definition television were successfully launched, there is no reason to assume that many of the new televisions would be designed and manufactured in the United States. By 1989, Zenith Electronic Corporation was the only remaining American-owned television

[7] News conference, December 18, 1988. Emphasis added. The Bush administration subsequently expressed less enthusiasm for this project. See above, note 4.

manufacturer. It employed about 2,500 Americans, but many of its televisions were assembled in Mexico.

Zenith's American employees were not, however, the only Americans involved in designing and making televisions in the United States that year. In fact, more than 15,000 Americans were so engaged. The only difference between them and those who worked for Zenith was that the former group worked for Japanese-owned Sony and Matsushita, Dutch-owned Philips, and French-owned Thompson. Furthermore, some of these Americans were involved in researching and developing high-definition television. Philips, for example, had built a $100 million facility in the United States for making HDTV components and had teamed up with America's NBC and French-owned Thompson to develop an HDTV system for the United States. Matsushita also had created a U.S. research institute for HDTV; Sony was developing a prototype HDTV in San Jose, California. Meanwhile, several thousand other Americans were busy designing advanced computer chips for Japanese and European HDTV; they, too, were selling their skills and insights directly to the Japanese and the Europeans.

The point is that many Americans were gaining valuable experience in HDTV technologies—experience which, presumably, would be the foundation for whatever HDTV industry America would possess in future years. Indeed, their emerging skills and insights *were* America's HDTV industry. Paradoxically, however, because they did not work for American-owned corporations, none of these Americans was eligible to participate in the U.S. government program.

4

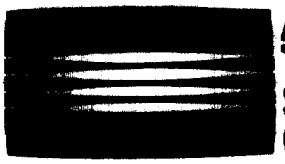
GOVERNMENT policy makers apparently view technologies as things that a nation's citizens "own," like gold mines, machines, or other tangibles. Thus, bolstering "our" technologies has seemed equivalent to enlarging the assets of American-owned firms, wherever on the earth these firms happen to be designing, making, and marketing their newfangled products, or whomever in the world they may contract with to supply such services. Policy makers have failed to understand that a nation's real technological

assets are the capacities of its citizens to solve the complex problems of the future—which depend, in turn, on their experience in solving today's and yesterday's. Thus NEC's move to Rosevale for four-megabit semiconductors is of more lasting value to the nation than any operation that Texas Instruments, Motorola, or AT&T opens in some other nation. NEC's investment will build the technological experience of American engineers, technicians, and manufacturing workers more than an AT&T plant in Spain will build the technological experience of any Americans indirectly involved in that project. So, too, with Philips's HDTV components facilities in America, or Matsushita's HDTV research institute.

Money, plants, information, and equipment are footloose, along with corporate logos. Brains, however, are far less mobile internationally. Government policy makers should be less interested in helping American-owned companies earn hefty profits from new technologies than in helping *Americans* become technologically sophisticated. It makes perfect sense, then, to encourage Sony, Philips, Thompson, NEC, or any other global company to train Americans to design and make advanced semiconductors, high-definition televisions, complex parts for jet aircraft, and other exotica of the future. Invite them in; we need the training. By the same token, make government subsidies for technological development available to any corporation, regardless of the nationality of its owners—so long as the company agrees to undertake research, development, and fabrication in the United States, using American scientists, engineers, and technicians. To make the link even more explicit, the amount of government assistance could be tied to the number of Americans involved in the research, development, and engineering.

5

THE RECURRENT demand that foreigners open their markets to American companies suggests the same confusion. Periodically, the U.S. Trade Representative threatens to retaliate against a foreign nation that excludes an "American" product. At first glance, such threats seem appropriate. Why let them exclude us? But here again, it is necessary to examine carefully who is "us." American trade officials see their job as representing the interests of



ATSC CHAIRMAN REFUTES MYTHS SURROUNDING DIGITAL TV DEBATE, PREDICTS FCC WILL ADOPT DIGITAL TV STANDARD BY END OF THIS YEAR

WASHINGTON, D.C., October 9, 1996 --- "Relying on misconceptions and outright falsehoods, doubters and detractors are attempting to scuttle the process that has given our nation the world's first and best digital television technology," the chairman of a key television technical committee declared.

Robert K. Graves, Chairman of the Advanced Television Systems Committee (ATSC), the inter-industry organization that documented and helped develop a proposed standard for digital, over-the-air TV broadcasting based on the "Grand Alliance" high-definition television (HDTV) system, tackled these fallacies in a keynote speech, "Sex, Lies and Videotape," delivered at the 8th Annual Digital Audio & Video Workshop last weekend in Philadelphia. The four-day conference was sponsored by the Consumer Electronics Manufacturers Association (CEMA).

Prominent among the fallacies, Graves said, is the notion that broadcasters are being given "a $100-billion government welfare payment in the form of additional spectrum for digital television." The fact is, he explained that "broadcasters are to be *loaned* a second channel during a transition period so that they can transmit both analog and digital signals while consumers make the change to digital." He called this "the only practical method for broadcasters to upgrade to digital service, including high-definition television, and if broadcasters are denied this migration path, free over-the-air television will become an inferior, second-class service, doomed to extinction."

As for spectrum auctions, Graves urged those genuinely interested in efficient spectrum use and in raising public funds through auctions to "hasten the conversion to digital, then turn off the analog transmissions, repack the digital channels more tightly, and recover upwards of 150 MHz of spectrum in large nationwide blocks."

1750 K Street NW, Suite 800, Washington DC 20006 ◆ 202-828-3130 ◆ FAX 202-828-3131

Another myth, he said, "is that the public doesn't really want HDTV – a claim usually made by those who have never experienced it." Broadcasters and consumer electronics manufacturers know better and "have invested hundreds of millions of dollars, and are champing at the bit to invest billions more, based on their conviction that viewers will want to upgrade their television sets to receive dramatically improved picture and sound quality."

To those who question the need for the FCC to mandate a standard, Graves said that investors, broadcasters, equipment manufacturers, and consumers all need a high degree of confidence that their separate investments will be consistent and mutually compatible. For universal, free over-the-air television service to be successful, consumers must be assured that their sets will receive *all* local broadcast signals anywhere in the country, and broadcasters must be confident that *all* new digital television sets will be compatible with their new digital signals.

As for the claim by some computer companies that the proposed standard would cost consumers billions more than an alternative unimplemented, untested approach they favor, Graves responded that these cost estimates have been shown conclusively to have no basis in reality. "The computer coalition should be embarrassed to have ever presented these ridiculous cost estimates to Congress and the FCC, and they should be ashamed of themselves for repeating them after their flawed methodology has been exposed," he added. "Moreover," he said, "broadcasters need a standard based on a proven, implemented and tested system, and they need full HDTV capability on day one, but the computer companies' counterproposal offers neither, explaining why not a single broadcaster in the country has endorsed it."

One of the greatest fallacies, Graves said, is that the proposed standard is not interoperable with computers. "The truth is that the proposed ATSC standard is without a doubt the most computer-friendly digital television system on the planet, far more interoperable with computers than a competing European standard which these same members of the computer industry have not opposed, and one

member has even endorsed. Even though the computer industry's concerns were fully considered during the eight-year FCC advisory committee process, and the proposed standard was modified and improved to address those concerns, now some want to change the standard further to accommodate their myopic view of interoperability at the expense of other industries that will rely on the standard.

"I would remind our friends in the computer industry that interoperability is not limited to computers, but must also account for archived video material and other video services such as cable and direct broadcast satellite services," Graves said.

Graves also rejected the fallacy that the standard was developed by "a small club dominated by 'foreign' manufacturers." Participants in the eight-year long FCC advisory committee process included approximately 1,000 volunteers from the computer, motion picture, cable, satellite and telecommunications industries, as well as the broadcasting, broadcast equipment and U.S.-based consumer electronics sectors. "This is home-grown, pioneering technology developed in this country through an open, inclusive process and in close consultation with all affected interests."

"Notwithstanding the fallacies underlying objections to the standard," Graves said, "the television community that is united behind this proposal remains willing to sit down again with those raising objections, as long as the needs of *all* affected industries are reflected. If these members of the computer industry can recommend additions or modifications to the proposed standard that also address the needs of broadcasters and others, we're all ready to listen, but we're all unwilling to accept an inferior broadcast television standard based on unfounded assertions and fallacies."

Prospects Bright

Despite the misinformation, and in some cases disinformation, being spread about digital television, Graves said he remains confident that the decade-long effort to implement world-leading digital TV technology will soon bear fruit. Anticipating a full-court press by broadcasters, manufacturers, consumer groups, labor unions, and others with a direct stake in the preservation of free over-the-air

television, and noting the strong support in Congress and by three of the four FCC Commissioners, he predicted that the FCC will approve the standard "by the end of this year" and will assign the new channels to broadcasters "no later than April 1, 1997." Under this timetable, Graves said, "we can expect the first commercial HDTV broadcasts, as well as the first consumer HDTV receivers, by early 1998."

The Advanced Television Systems Committee is a group of more than fifty corporations, associations and educational institutions developing voluntary standards for advanced television. ATSC has recently expanded to include industry members throughout North and South America.

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For additional information, please contact:

Robert Graves at (202) 828-3130, robertgraves@attmail.com

John Taylor at (847) 391-8181, john.taylor@zenithe.com

Allan Schlosser at (703) 684-8900, ASppr@aol.com

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Advanced Television Systems	)	
and Their Impact Upon the	)	MM Docket No. 87-268
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Service	)	

TO: The Commission

CITIZENS FOR HDTV COMMENTS ON THE FIFTH NOTICE OF PROPOSED RULE MAKING

July 11, 1996

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TO: The Commission

CITIZENS FOR HDTV COMMENTS ON THE FIFTH NOTICE OF PROPOSED RULE MAKING

These comments on the Commission's Fifth Further Notice of Proposed Rule making (FCC 96-207, released May 20, 1996) ("Fifth NPRM" or "Notice") are submitted on behalf of unions, consumer and senior citizens groups, retailers, manufacturers, and media companies, who have joined together in the Citizens for HDTV Coalition ("Coalition"). The members of the Coalition of Americans who have a direct stake in the prompt, orderly, and nation-wide implementation of the new advanced digital television ("DTV") broadcast system, including high definition television ("HDTV"), which is to replace today's analog television broadcasting.

SUMMARY

The Coalition strongly supports the Commission's proposals in its Fifth NPRM to adopt in its entirety the Advanced Television Systems Committee ("ATSC") DTV transmission standard ("ATSC Standard" or "Standard"), and to require the sole use of the ATSC Standard by DTV broadcasting licensees.

The earliest possible adoption of the Standard by the Commission—together with the allotment and assignment of channels to DTV licensees—and adherence to it by the broadcasting industry, will, we believe, unleash tremendous investment and trigger the rapid conversion to DTV by all sectors involved: broadcasting, production and services, advertising, manufacturing, and consumers.

In turn, this conversion will serve the public interest and support the Commission's goals by: 1) effecting the speediest possible transition to a new nation-wide, all-digital broadcast television and information system accessible to all Americans ; 2) providing the opportunity for continued competition from the broadcasting medium to other media (wired and wireless cable, satellite, telephone, etc.); and, 3) achieving greater spectrum efficiency by permitting the earliest recapture of a substantial portion of the TV bands for additional uses.

This transition, and the nature of the new system itself, built on the flexible, extensible, interoperable, and consumer-friendly ATSC Standard

described in the Notice, will:

- Contribute mightily to the lives of all Americans, who already depend on free over-the-air television as their free and ubiquitous source for news, sports, entertainment, education and more;
- Give access to interactive and other information services, realizing a giant step forward in the national information infrastructure, via broadcasting to virtually all American homes, schools and workplaces;
- Retain and create thousands of jobs in the U.S., and support related economic growth domestically and U.S. trade internationally; and,
- Ensure affordable receivers and converters for consumers unable to buy or not interested in having equipment for services beyond television.

I. REASONS TO ADOPT THE STANDARD & MANDATE ITS USE

The Commission's tentative conclusions to adopt the Standard and require its use in DTV broadcasting would represent the best possible conclusion for this portion of the nine-year process—launched, encouraged, and guided by the Commission itself—to seek a new, advanced television ("ATV") transmission standard for broadcasting.

In this Notice and earlier ones, the Commission has indicated several compelling reasons for adopting and mandating use of the new transmission

Standard for broadcast television. The Coalition concurs with these reasons, which we believe far outweigh suggestions by some, either to adopt no broadcast transmission standard, or to change the one recommended unanimously after detailed and lengthy consideration by the Commission's own multi-industry Advisory Committee.

These reasons include: the unique 'open' and 'universal' nature of the Nation's broadcasting system, as distinguished from other media; the appropriate role of government (the Commission) in adopting and mandating this Standard; the certainty and confidence which the Standard affords for investments by consumers, manufacturers, and service providers; and the importance of the Standard to DTV compatibility with today's NTSC broadcast system and the Commission's planned recapture of part of the TV bands after the transition is completed.

The Coalition wishes to comment on these points, and others, as follows:

a. ***Broadcast Ubiquity Demands the ATSC Standard.*** Unlike any other communications mechanism, terrestrial over-the-air broadcasting is a transmission medium accessible to nearly 100% of the population, whose service is free (given a TV receiver), and whose role as the most pervasive and powerful tool for the dissemination of news, information, entertainment, and, perhaps, other services is undisputed.

It is built upon thousands of interconnected elements for production, recording, signal management, routing, transmission, reception, and display, all of which are based on a set of technical design criteria—transmission standards—so that the thousands of organizations involved in manufacture of hardware and production of software can successfully provide Americans with choice in service, capability and price.

The success—*i.e.* reach, utility, accessibility, and demand—of this broadcast 'system' is built upon the certainty of the transmission standards developed by industry, recommended to the FCC, and adopted by government as in the public interest.

Currently, broadcast television transmission is based on analog technology, the elements of which have been regularly enhanced over some 50 years of general operation. Now, with the substantial advances in capability afforded by digital design, broadcast television transmission requires a new transmission Standard, *i.e.* the ATSC Standard recommended by industry, through ACATS, after eight years of work under the aegis, encouragement, and direction of the FCC.

b. Adoption of the ATSC Standard for Broadcast Transmission is the Proper Role of Government. There is nothing wrong with the federal government setting the technical framework—*i.e.* transmission standard—for broadcast television, within which significant marketplace competition can thrive. Government standards-setting for broadcast transmission is a

necessary and appropriate mechanism, which has proven its value to the country, and remains key to the opportunity for success of broadcast DTV, including HDTV. Such action has nothing to do with the content of what is transmitted, does not limit the flexibility or utility of home, school, or office receiving devices, and does not interfere with the transmission or content choices of other media.

The Commission can and should, and as it does in part in this NPRM, determine that the ATSC Standard for broadcast transmission is vital to: 1) the confidence of makers and users in a working, nation-wide system, *i.e.* everything sent can be received, anywhere; 2) the viability of broadcasting, *i.e.* 'broadcasting' has the opportunity to enter and participate in the superior digital domain; 3) the maintenance of competition in the television and information industries to the benefit of consumers, *i.e.* let 'broadcasting' provide service and price alternatives and/or extensions to wired or recorded media; and, 4) the retention and creation of jobs in America for thousands who work directly in the field, and millions more in related enterprises.

Models presented as alternatives by the Commission to adoption of the DTV transmission Standard are not based on an open 'broadcast' framework. Where systems are closed, and consumer penetration and reliance on them is limited, government adoption of underlying standards may not be necessary. In an open broadcast system, on the other hand, where there, for all intents and purposes, universal public reliance, the federal government has a distinct