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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
Advanced Television Systems)
and Their Impact upon the)
Existing Television Broadcast)
Service)

MM Docket No. 87-268

COMMENTS OF ZENITH ELECTRONICS CORPORATION

Zenith Electronics Corporation is a leading manufacturer of color television and cable products and, together with AT&T, is a digital HDTV system proponent. Accordingly, Zenith has a very strong interest in the outcome of these proceedings and is pleased to submit comments in response to the Commission's Second Report and Order/Further Notice of Proposed Rule Making dated May 8, 1992.

The breadth of comments received by the Commission in response to prior Notices reflects the tremendous level of interest in these proceedings and in the work of the Commission and its Advanced Television Advisory Committee. Zenith commends the Commission and the Advisory Committee in this undertaking.

Our comments are relatively brief. Being a leading manufacturer of consumer electronics and cable equipment, we have focused on the Commission's requests for comments regarding introduction of receiving equipment and compatibility with alternative media, especially cable.

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I. Timetable for Conversion to HDTV

At Paragraph 53, the Commission seeks comment on the timetable for conversion to HDTV, and related issues.

We are in general agreement with the reasoning that led the FCC to its recommended 15-year conversion date. In our experience, consumers purchasing new TV sets expect to get about 7 to 10 years of use from them; so, we can assume that shoppers continuing to purchase NTSC sets during the early transition years will get satisfactory usage of those receivers up to the broadcast conversion date. We also concur with the assumption that HDTV-to-NTSC downconverters will become available, thus offering consumers the extended use of their NTSC receivers after the conversion date.

In addition, it is likely that NTSC programming will continue to be available via cable, DBS, videotape and/or video disc, after the broadcast conversion to HDTV has been completed. These factors should serve to lessen concerns about the premature obsolescence of NTSC sets.

II. HDTV Receivers

Regarding timing, availability and pricing of HDTV receiving equipment during the transition period (Paragraph 54): Zenith's HDTV industry adoption forecast assumes that the first receivers on the market will be projection TV and the "direct view" receivers

having up to 35-inch CRT displays. In these "giant-screen" sizes, the performance benefits of HDTV will be most apparent and the price premium as a percentage of the overall product price will be most palatable. Zenith expects these receivers to be available approximately 2 years after the Report & Order establishing the standard, and as outlined in our comments of December 19, 1991, we anticipate immediate acceptance of these products, which yield significant HDTV penetration. Initial prices of these receivers may be 50% to 100% above today's NTSC equivalents.

If the Zenith/AT&T system is selected, the scalable nature of the system design will permit development of lower-cost TV chassis implementations for smaller screen sizes, thus offering the consumer substantial performance improvement over NTSC with resolution levels consistent with the size of display. Such developments will enable manufacturers to introduce HDTV products in the "big screen table model" market segment where the sets measuring 25-to-27 inches diagonal, constitute more than 25% of industry sales today. The entry of HDTV in this higher volume category in the years shortly following the giant screen launch, will accelerate market penetration.

We further estimate that within just a few years more, the increasing availability of HDTV programming, combined with the spreading presence of HDTV receivers in the stores and in consumers' homes, will establish in the public mind that the HDTV receivers are the "state of the art" or "contemporary" products,

while the NTSC sets will begin to be regarded as "dated." As this sentiment starts to influence the consumers' buying decisions, a market will develop for HDTV sets even in the smaller table model segment, where 19- to 20-inch sets today constitute fully 45% of industry sales. Even though the prices of these HD receivers may limit the sales mix to single-digit percentages in the early years, the HDTV volume generated will nonetheless be substantial due to the sheer magnitude of this mid-size category.

III. 1998 Review

These forecasts are, of necessity, based on numerous assumptions regarding implementation of this new technology and the public's reaction to it. We agree with the Commission's observations, (at paragraph 55) that the HDTV implementation may proceed more or less swiftly than we envision; therefore, we endorse the proposed 1998 review of the 15-year conversion date.

IV. Simulcasting

To assess the impact of various simulcasting approaches, the Commission requests further comment from consumer electronics manufacturers on availability of down-converters and dual-mode receivers (at paragraph 66).

As indicated earlier, Zenith believes that it is likely that HDTV-to-NTSC downconverters will be produced. While it is difficult to predict consumer acceptance of these devices, owners

of larger, more expensive NTSC receivers will be most likely to consider such products, which we estimate would start at prices of more than \$500. Again, the scalability of the Zenith/AT&T system would facilitate creation of more affordable downconverters, and with maturing semiconductor costs, these prices could fall by half over time.

Regarding dual-mode receivers, we expect that all HDTV receivers designed and manufactured for sale within the transition time period will be dual HDTV/NTSC receivers. We estimate that the premium required to implement NTSC capability in an HDTV set will be about \$50 to \$100 at retail, a modest amount relative to the total price of the product. The NTSC capability will provide great utility in the early years as HD programming is beginning to ramp up and in the later years for NTSC programming delivered via non-broadcast means.

V. Compatibility

The Commission is forward looking in recognizing that the HDTV standard, while directly applicable to terrestrial transmission, must also be suitable for use with other delivery media. Cable is the dominant means of reception today, with over 60% of television households connected and growing. While the focus on terrestrial transmission is highly appropriate, it is important that the consumer electronics, broadcasting and cable industries participate fully in the process of advancing HDTV.

The Commission correctly recognizes that extension of compatibility to other media is a desirable attribute of the HDTV standard. Zenith believes, however, that mandating hardware interfaces for future applications should be determined by market forces and consumer demand. This is necessary to avoid burdening hardware with excessive costs that will be borne by the consumer, for little incremental value.

VI. Alternative Media

A. Spectrum Availability. The requirement to simulcast both NTSC and HDTV programming on cable from terrestrial and satellite delivered providers will require additional cable channel availability. Cable systems will be able to expand channel capacity, either by bandwidth extension or digital compression. This transition will take time. We urge the Commission to be sensitive to the issue of cable system channel capacity.

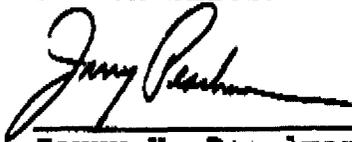
B. User Friendliness. The cable environment will have several transmission formats: NTSC, digitally compressed NTSC and HDTV in non-scrambled and scrambled format. In certain environments it will be necessary to have hardware to implement conditional access technology to secure programming. It is important that the Commission encourage consumer electronics and cable industries to work together to develop standards and to make available products that allow consumers to enjoy fully the benefits and features of both the hardware and the programming, while

providing revenue opportunities for cable operators and program providers.

We appreciate this opportunity to share our views with the Commission. As an HDTV system proponent and active participant in many of the Advisory Committee's Working Parties, Zenith will continue to support the Commission's efforts to promote the timely introduction of HDTV service.

Respectfully submitted,

ZENITH ELECTRONICS CORPORATION

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