



June 15, 2004

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Research and Technology
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TO: ALL ATSC MEMBER COMPANIES

I am writing to you today – as the ATSC's Enhanced VSB (E-VSB) proposed standard moves ahead for final ratification by the ATSC membership -- to ask for your support. We believe that this backwards-compatible standard is critical to ensure that free over-the-air television remains a part of the American landscape.

More than four years ago, the broadcast industry requested enhancements to the RF delivery system to allow them to compete more effectively in a changing marketplace. The E-VSB proposed standard before you is the result of that request and a grueling approval process that included peer review, competitive laboratory and field testing, and an active standards drafting process.

There has been a lot of healthy debate in the standards-setting process and as a result, the potential exists for misunderstandings. The attached brochure provides what we believe is a factual representation of the benefits of approving the E-VSB standard.

Now that the ATSC ballot is going to the membership, you may hear from a vocal minority making unfounded and erroneous claims about E-VSB's performance. The fact is: a comprehensive million-dollar industry program with 240 field test data points shows conclusively that E-VSB technology enables vastly improved indoor reception because of its 6 dB better signal to noise threshold and will enable pedestrian and hand-held receivers.

But the question at stake here is larger than improved indoor reception and potentially new services. If the ATSC is to remain relevant as a standard-setting body it must answer the needs of a changing world. The broadcast industry needs are changing, and the ATSC, as a standards-setting body, has spent four years developing a solution to meet those changing needs.

If in the final hour the ATSC cannot deliver what is needed, then I believe we will have lost our way. Solutions will be developed around us and in the end the need for the ATSC standards setting process will be questioned. The simple positive act of voting **YES** on the E-VSB standard can ensure that we meet the emerging needs of our industry as well as cement the position of the ATSC as the provider of these solutions.

Thank you for your consideration and if you have questions or would like to discuss this issue further, please feel free to contact me at 1-847-941-8048 (richard.lewis@zenith.com) or Wayne Luplow at 1-847-941-8263 (wayne.luplow@zenith.com).

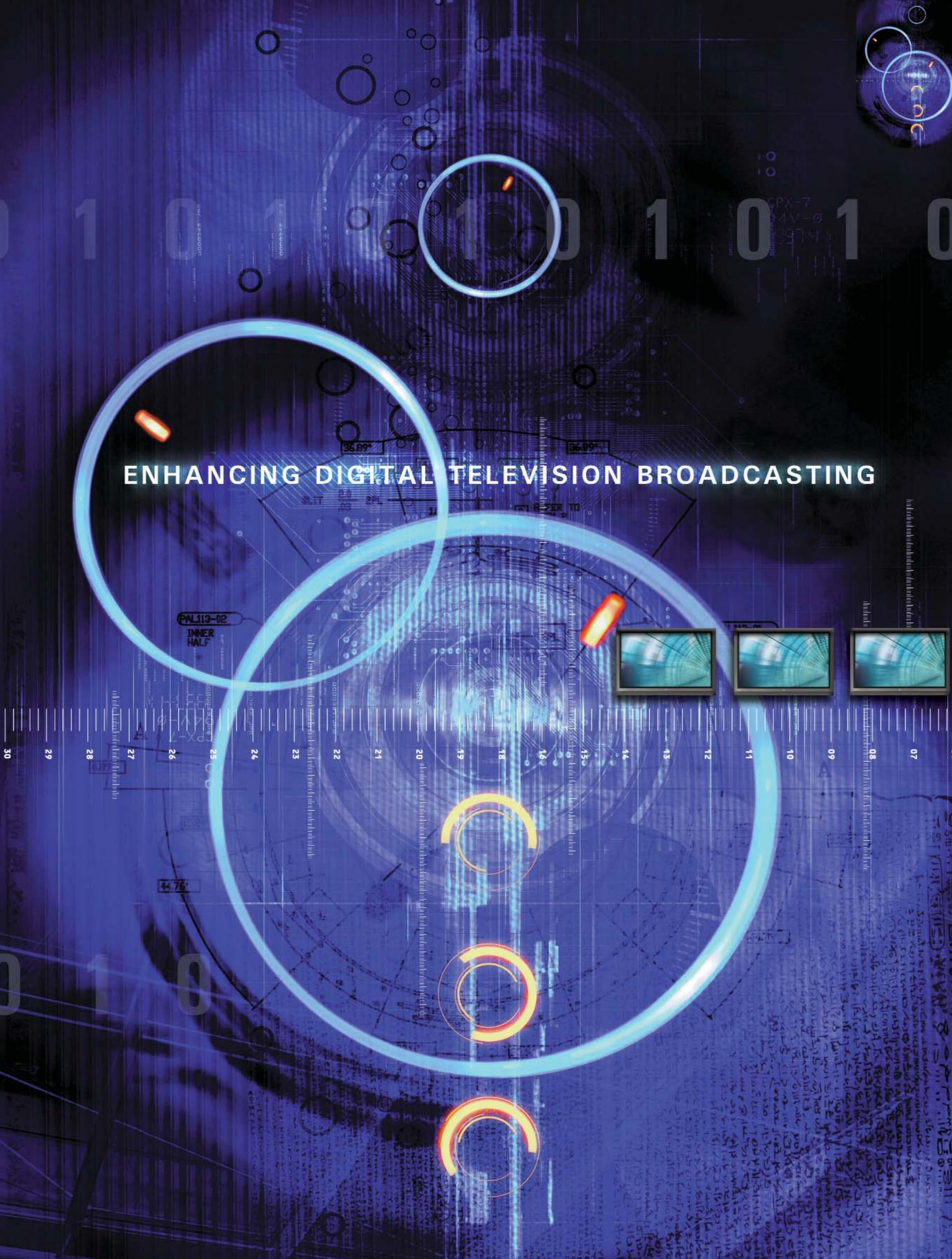
Sincerely,

ZENITH ELECTRONICS CORPORATION

zenith

2000 MILLBROOK DRIVE LINCOLNSHIRE, IL 60069

ENHANCING DIGITAL TELEVISION BROADCASTING



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Next-generation digital television (DTV) technology, designed to enhance both the transmission and reception capabilities of the Advanced Television Systems Committee (ATSC) DTV Standard, is nearing final approval. Its adoption by a majority of voting ATSC member organizations will mark the culmination of an extensive, four-year, standards-setting process, during which this innovative set of DTV improvements has been thoroughly tested, evaluat-

Endorsed by the National Association of Broadcasters (NAB) and the Association for Maximum Service Television (MSTV)—the two most influential U.S. broadcast trade groups—Enhanced VSB (E-VSB) is a direct, carefully crafted response to the broadcasters’

“The NAB Television Board supports the standardization of E-VSB...and expresses enthusiasm for the new DTV receiving devices and broadcast services facilitated by the technology’s implementation.”

—National Association of Broadcasters

request for greater flexibility in the transmission system and improved over-the-air reception, particularly in signal-challenged locations. This package of enhancements, it must be emphasized, is purely optional. It provides additional choices for those broadcasters who want them, and in no way prevents broadcasters from delivering high-definition television (HDTV) programming.

Advancing DTV Technology

E-VSB’s technical refinements to the ATSC DTV Standard are designed to give digital TV broadcasters the flexibility to choose between bit rate and added robustness without impeding HDTV. Its “backward compatibility”—ensuring that the installed base of ATSC receivers will not be rendered obsolete—builds

on the strengths of the digital TV standard adopted by the Federal Communications Commission (FCC).

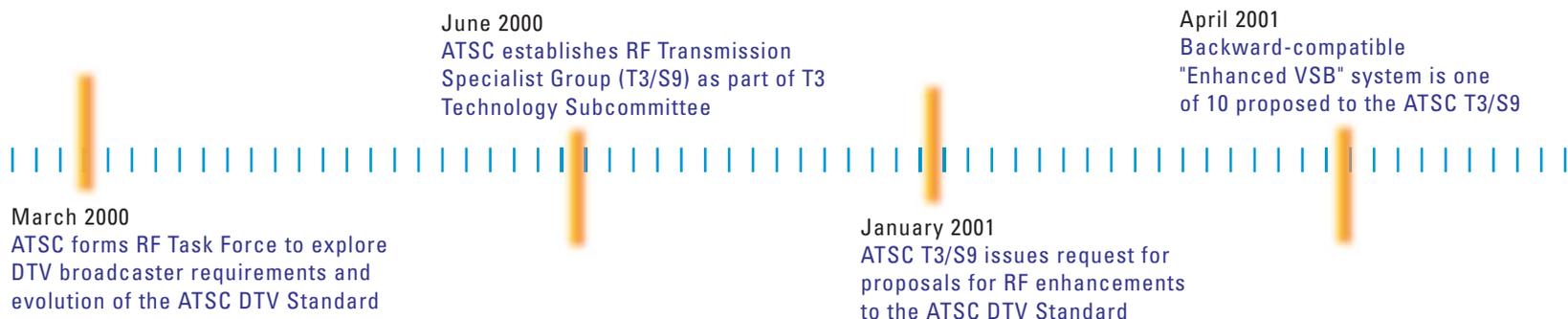
Enhanced VSB’s transmission system uses a “robust mode,” adding a lower data rate stream to a DTV transmission that is more rugged than normal 8-VSB. An E-VSB transmission has some of the 19.4 megabits per second (Mbps) data allocated to the robust mode and most allocated to the normal 8-VSB mode. The amount of delivered data—the payload—is reduced for the robust mode, however, because part of the payload is used for additional error correction bits to further improve reception under weak-signal and strong-multipath (ghost) conditions. The robust stream can employ more efficient video and audio coding to provide quality services in the smaller payload. That means Enhanced VSB will allow broadcasters to use new dig-

ital video and audio compression technologies for more robust signals transmitted simultaneously with the ATSC DTV Standard’s 8-VSB/MPEG-2 signal.

Enabling New Applications

The enhancements made possible by E-VSB will give broadcasters the ability to compete more effectively with rival delivery media and improve local service.

While continuing to serve large-screen HDTVs with high-definition programming, broadcasters using E-VSB would reach more digital sets with simple indoor antennas in kitchens and bedrooms. This is important because 79 percent of U.S. households have at least one terrestrial broadcast-only TV set (not connected to cable or satellite). One New York broadcaster estimates that E-VSB would reach 1.5 million more



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—David L. Donovan, President, MSTV

people viewing smaller-screen DTVs.

At a time when some broadcasters are exploring new business models, Enhanced VSB offers the technological tools they need to make these new applications a reality. And to the extent that this creates new revenue streams for broadcasters and new services for consumers, it can only accelerate the ongoing transition to digital television.

A number of innovative ways that E-VSB might be used have been outlined by the ATSC Applications Subcommittee:

- **Robust/Fallback Audio**

An attribute of analog TV transmission is that the sound will usually continue to work when the picture suffers from interference. In the digital world, viewers will tolerate a momentary freeze or

loss of picture from transmission errors, but loss of sound is more objectionable. A potential application of the robust DTV stream is that it could provide an audio service unlikely to be affected by momentary reduction of the received signal level.

- **Secondary Program Service**

The robust mode can provide real-time standard-definition television (SDTV) service, which may or may not be synchronized with the normal stream. For example, this could be used by a small digital set (such as a kitchen DTV) that typically would receive signals using a simple indoor antenna.

- **Non-Real-Time Transmissions**

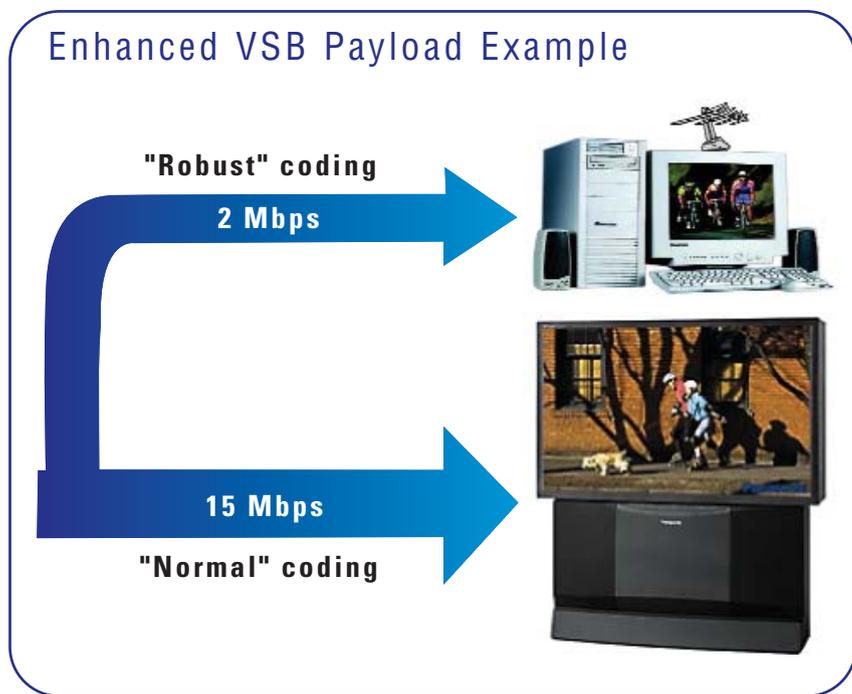
The system could be used to send non-real-time transmissions of file-based video and audio to pedestrian and mobile receivers capable of storing that information. An example: repetitive transmission of news, weather and traffic information.

- **Robust Data Broadcasting**

Delivering data to desktop computers, laptops, personal digital assistants and other wireless devices that use small, simple antennas represents another compelling application of E-VSB. The nature of data broadcast applications and related receiving devices make them excellent candidates for use of the robust mode.

- **Antenna Pointing and Diagnostic Information**

Use of the robust stream can improve digital television “ease of use” for consumers. As an example, diagnostic information could be displayed to help consumers with antenna pointing or, in conjunction with the CEA Antenna Control Interface Standard, facilitate automatic antenna pointing.



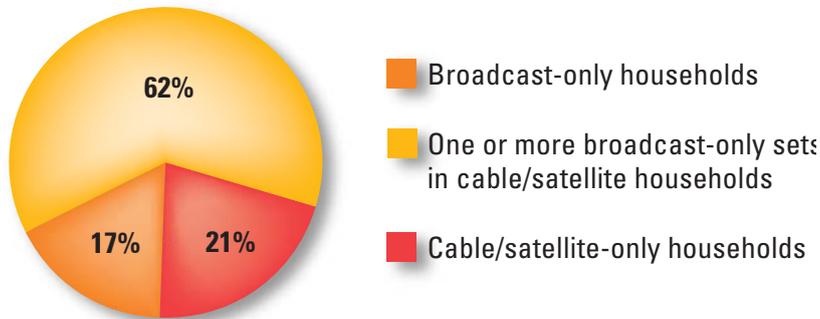
September 2002
Results of industry laboratory and field testing show performance attributes of E-VSB system jointly proposed by ATI/NxtWave and Zenith/LG

May 2003
E-VSB approved as "ATSC Proposed Standard"

December 2001
Broadcasters launch comprehensive field testing of three proposed systems

March 2003
ATSC T3/S9 Specialist Group approves E-VSB

Broadcast-only TVs in 79% of U.S. Households



Attracting Broad Support

Without wavering in their commitment to HDTV—regarded by most observers as digital television’s primary driver if not “killer application”—the overwhelming majority of U.S. television broadcasters strongly support the prompt adoption and implementation of E-VSB. In addition to earning official endorsements from both NAB and MSTV, Enhanced VSB enjoys the enthusiastic backing of nearly every leading U.S. television station group.

In its resolution of support for E-VSB, the NAB Television Board notes that broadcasters need flexibility “to provide new services and more robust reception,” that E-VSB “allows broadcasters, at their option, to create a new, more robust signal that coexists compatibly with their current digital signals,” and that the Enhanced VSB system “is fully backward compatible with and does no harm to reception on existing DTV receivers.” The NAB resolution concludes by underscoring its support for “the standardization of E-VSB as an ATSC Standard and the subsequent grant of authority from the FCC to deploy this technology...”

The board of directors of MSTV, which counts among its members the top TV station ownership groups as well as the major networks, also unanimously approved its own resolution of support for E-VSB. Speaking at its

most recent HDTV Update Conference, MSTV President David L. Donovan said, “E-VSB is expected to further strengthen the overall performance of digital TV broadcasting and reception. It should give TV stations the versatility to improve indoor reception and pursue new business models.”

Now, a distinguished cross-section of the nation’s television broadcasters is urging ATSC members to vote in favor of E-VSB. Enhanced VSB provides “a powerful option,” the group emphasized in its June 2004 letter. “For the first time, we will be able to extend over-the-air coverage—wireless coverage—in homes and deliver new and specialized services. The benefits are clear: enhanced coverage, new services, cost efficiencies.

“Broadcasters,” the letter concludes, “are committed to delivering HDTV and other value-added services to our viewers. We need enhancements and flexibility in the ATSC standard to achieve these goals. Enhanced VSB will provide that needed flexibility.”

Vote YES on E-VSB

More than four years have passed since the ATSC began its consideration of VSB enhancements. E-VSB has been fully vetted and has cleared every stage of that long and deliberative process, including its designation as an ATSC Proposed Standard in May 2003.

The time has come for Enhanced VSB to be ratified by the ATSC membership. Vote YES on this issue so vital to the future of digital television broadcasting.

June 2003
NAB TV Board adopts resolution strongly supporting rapid adoption of E-VSB standard

June 2004
ATSC issues ballot for members to ratify E-VSB, as final step in four-year standardization process

June 2003
ATSC begins exploring advanced video and audio CODECs for E-VSB’s robust stream

April 2004
MSTV Board of Directors adopts recommendation of technical committee, urging ATSC adoption of E-VSB



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