

Ballot Comment Resolution: EVSB (T3 Level)

- Notes: 1) Full text of comments is available on the ATSC members-only web page at http://www.atsc.org/sg/T3/evsb_ballot_comments/
 2) Table organized alphabetically by comment documents on ATSC web page (note that "short_comments_12.pdf" included comments from Broadcom, CEA, Dolby, Harmonic, Linx, Microsoft, NAB, NBC, Philips, Samsung, Warner Brothers, and XFSI)
 3) Proposed actions by ballot comment resolution group indicated in **Bold text**

No.	Commenter	Comment	Response
1	CBS (#1)	Field test results suggest that robust stream does not achieve original claim to improve the reception of the normal 8VSB signal. Washington field test data showed 4-5% decrease in receivability of standard 8VSB.	<ul style="list-style-type: none"> • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. Receivability numbers claimed by CBS are of the order of measurement uncertainty and may have been affected by time variability and different sample sizes. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/.
2	CBS (#2)	Robust stream field test data showed that pedestrian and mobile reception was spotty and not a viable application.	<ul style="list-style-type: none"> • While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. • Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
3	CBS (#3)	Rapid approval of robust stream by ATSC without a fully defined system (e.g., audio/video compression format) would make it impossible for receiver mfgs. to incorporate technology.	<ul style="list-style-type: none"> • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.

No.	Commenter	Comment	Response
4	CBS (#3)	Service model that defines what information will be conveyed on the robust stream is not yet established.	<ul style="list-style-type: none"> • This is not unusual - standards are commonly developed in advance of specific applications or service models. Some applications have been defined by AS and the Board. • Note that FCC rules would prohibit a U.S. broadcaster from going to full-channel robust (contrary to example given by CBS) but that other countries using the ATSC standard might want this as an option. • Data rate required for HD is subjective and should be a business decision as in the satellite and cable industry.
5	CBS (#4)	Proposal is premature and requires further testing by ATSC. No need to rush to implement since service is backwards compatible with standard 8VSB.	<ul style="list-style-type: none"> • T3 and its subgroups have been pursuing expeditious consideration of potential improvements to the standard at the direction of ATSC's Board. • Consensus of participants in T3/S9 process was that the time frame over which proposals were considered and tested was appropriate, and that the hardware submitted was appropriate for this effort. • There are widely divergent views on when is the best time to implement robust mode service. • [RECOMMENDATION #2] Comment resolution group recommends that T3 urge the industry to rapidly construct advanced EVSB hardware consistent with advances in receiver design including substantial exploitation of potential normal mode improvements.
6	CBS (#5)	Receivers adhering to the present standard are improving at a rapid rate, meaning there is less need for robust stream mode. Standard modification should be delayed until other receiver improvements have been fully explored and developed	<ul style="list-style-type: none"> • Robust stream receivers will always have an approximately 6 dB improvement in sensitivity over normal 8VSB receivers. • Robust stream technology is expected to complement other receiver improvements – they are not mutually exclusive. • Suggesting that the standard should only be modified after other improvements have been “fully explored” is unrealistic since the technology is always going to be improving.
7	CBS (#6)	Change in the ATSC transmitted signal will slow down the DTV rollout.	<ul style="list-style-type: none"> • Others argue that <i>not</i> changing the transmitted signal (to accommodate improved signal reception etc.) will slow down DTV rollout – this is a matter of opinion. • [RECOMMENDATION #3] Comment resolution group recommends that T3 ask the ATSC board to carefully consider the best way to communicate the capabilities of this new technology.
8	CBS (#7)	Cable industry will not voluntarily carry the robust channel.	<ul style="list-style-type: none"> • This comment is conjecture – fact is that cable carriage is an issue for normal channel as well. • Carriage of robust channel would not be necessary if it were being used to “back up” the normal channel.

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9	CBS (#8)	Robust stream not viable for broadcaster's use unless all or most of the DTV receivers in service area are equipped with robust mode	<ul style="list-style-type: none"> This comment is conjecture and also ignores possible PC-based data broadcasting applications. Same argument could also be made regarding other DTV services (e.g., supported by DASE) which have already been approved by ATSC. Robust mode is an option for both broadcasters and receiver manufacturers – neither feasible nor desirable to make it mandatory.
10	CBS (#9)	A 3 Mbps or greater robust channel transmission will limit number of multiplexed SDTV channels available.	<ul style="list-style-type: none"> This is true for other services as well e.g., data broadcasting. ATSC Standard is flexible by design allowing individual broadcasters to decide how best to allocate bits in the data stream. [RECOMMENDATION #4] Comment resolution group encourages T3 to move forward with development of a "Recommended Practice" to advise broadcasters of various options available (and potential pitfalls) when using robust mode.
11	CBS (#10)	Robust stream will not meet viewer expectations.	<ul style="list-style-type: none"> This comment is conjecture. Broadcasters will have numerous options as to how robust channel is utilized.
12	CRC	Proposed revision provides some improvements to reception but only limited pedestrian and mobile reception capability.	<ul style="list-style-type: none"> While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
13	JVC	Adoption of the EVSB proposal will cause a major disruption to the DTV transition.	<ul style="list-style-type: none"> Others argue that <i>not</i> changing the transmitted signal (to accommodate improved signal reception etc.) will slow down DTV rollout – this is a matter of opinion. [RECOMMENDATION #3] Comment resolution group recommends that T3 ask the ATSC board to carefully consider the best way to communicate the capabilities of this new technology.
14	JVC	Believe that only a very small percentage of viewers will ever have use for an enhanced bit stream. Would like to learn about some firm applications, audio and video coding methods that broadcasters will use with robust channel. Revised Annex D should be frozen and tabled until all answers, solutions to open issues resolved.	<ul style="list-style-type: none"> Regarding percentage of viewers having use for an enhanced bit stream, this comment is conjecture. Broadcasters will have numerous options as to how robust channel is utilized. [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.

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15	Motorola	Concerned that proposed standard will bring severe degradation to video quality.	<ul style="list-style-type: none"> Broadcasters may choose what services to offer at appropriate data rates (including HDTV).
16	Motorola	Do not see clear benefits that compensate for loss of bandwidth.	<ul style="list-style-type: none"> Broadcasters may choose what services to offer at appropriate data rates (including HDTV).
17	Motorola	6 dB improvement in EVSB does not justify loss of video quality. Some unknown percentage of viewers will benefit.	<ul style="list-style-type: none"> Broadcasters may choose importance of 6 dB improvement to individual station based on business model. This comment is conjecture. Broadcasters will have numerous options as to how robust channel is utilized.
18	Motorola	Broadcasters' requirement of ease of reception with simple indoor set-top antennas is not completely met by this technology.	<ul style="list-style-type: none"> Goal was to improve ease of reception (in robust stream) which has been achieved; improvement obtained vs. data rate is a matter of opinion. Ease of reception as exemplified by antenna range of rotation was significantly increased by EVSB (both robust and normal streams). See figure 24, and the Zenith plots in Attachment 3 in the Washington report, and Figure 16 and Zenith plots in Attachment 3, in the New Haven report. While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
19	Motorola	Increased complexity for encoders and decoders will significantly increase cost.	<ul style="list-style-type: none"> There will be a cost associated with EVSB modulation/demodulation due to complexity. Potential increase in complexity was an important factor in the deliberations of T3/S9; it was the conclusion of T3/S9 that expected receiver complexity increase due to EVSB would be minimal. Application (e.g., video and audio) encoders and decoders not dealt with in this standard.
20	Motorola	Adoption of EVSB will limit future opportunities at ATSC to use emerging technologies with more aggressive compression schemes.	<ul style="list-style-type: none"> It is not clear how proposed standard would limit future opportunities. No determination has yet been made as to what compression schemes will be used nor that EVSB would limit future opportunities.
21	Motorola	If EVSB becomes the only solution for providing compatible robust services, recommend use be limited to 1 Mbps.	<ul style="list-style-type: none"> [RECOMMENDATION #4] Comment resolution group encourages T3 to move forward with development of a "Recommended Practice" to advise broadcasters of various options available (and potential pitfalls) when using robust mode.

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22	Motorola	Robust mode applications should use existing tools specified in A/90, A/92, and A/53B.	<ul style="list-style-type: none"> • Comment resolution group agrees that to the degree possible this should be done, and notes that guidance to this effect has been given by T3 to S8 and S6 regarding robust channel-related work items.
23	Motorola	Future extensions to ATSC standards based on emerging technologies should not be explicitly tailored for this modulation scheme only.	<ul style="list-style-type: none"> • Comment resolution group believe that this is how work is currently proceeding.
24	Sharp	Proposed standard does not accomplish goal of improving main mode 8-VSB reception, pedestrian, or mobile reception.	<ul style="list-style-type: none"> • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/. • While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. • Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
25	Sharp	Without defined applications, robust mode approval should wait for development of components	<ul style="list-style-type: none"> • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream. • This is not unusual - standards are commonly developed in advance of specific applications or service models. Some applications have been defined by AS and the Board. • Note that FCC rules would prohibit a U.S. broadcaster from going to full-channel robust (contrary to example given by CBS) but that other countries using the ATSC standard might want this as an option. • Data rate required for HD is subjective and should be a business decision as in the satellite and cable industry.

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26	Sharp	There is no agreement on the purpose of robust transmission. Approving EVSB now as a full ATSC Standard may lead broadcasters to use it for their own business purposes but in the process, divert data capacity from the HDTV services that are at the core of the DTV transition.	<ul style="list-style-type: none"> • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream. • This is not unusual - standards are commonly developed in advance of specific applications or service models. Some applications have been defined by AS and the Board. • Note that FCC rules would prohibit a U.S. broadcaster from going to full-channel robust (contrary to example given by CBS) but that other countries using the ATSC standard might want this as an option. • Data rate required for HD is subjective and should be a business decision as in the satellite and cable industry. • Others argue that <i>not</i> changing the transmitted signal (to accommodate improved signal reception etc.) will slow down DTV rollout – this is a matter of opinion. • [RECOMMENDATION #3] Comment resolution group recommends that T3 ask the ATSC board to carefully consider the best way to communicate the capabilities of this new technology. • This comment is conjecture and also ignores possible PC-based data broadcasting applications. Same argument could also be made regarding other DTV services (<i>e.g.</i>, supported by DASE) which have already been approved by ATSC. • Robust mode is an option for both broadcasters and receiver manufacturers – neither feasible nor desirable to make it mandatory.
27	Sharp	Approving this as a full standard now may signal to consumers that the DTV channels may be diverted to non-HDTV uses, damaging consumer confidence as they consider DTV receiver purchases. This could extend and confuse the DTV transition.	<ul style="list-style-type: none"> • Others argue that <i>not</i> changing the transmitted signal (to accommodate improved signal reception etc.) will slow down DTV rollout – this is a matter of opinion. • [RECOMMENDATION #3] Comment resolution group recommends that T3 ask the ATSC board to carefully consider the best way to communicate the capabilities of this new technology.
28	Sharp	Section 5.2, Figure D5.2 shows several input “MPEG streams”. But these inputs are no longer transports streams, as they would be in the conventional Annex D RF subsystem.	<ul style="list-style-type: none"> • This is an editorial comment. • [RECOMMENDATION #5] Documentation will be clarified to distinguish between “MPEG packet streams” and “MPEG streams.”

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29	Sharp	Section 5.4.2.1 states that the input to the preprocessor shall be 188-byte MPEG-2 packets. In fact, three separate streams of packets are required, none of which are MPEG Transport Streams. Additional processing is needed that is not described in the proposed standard.	<ul style="list-style-type: none"> • This is an editorial comment. • Standard as written supports independent services without modifications to the transport standard. • None of the 3 separate packet streams are required to be transport streams. • [RECOMMENDATION #6] Comment resolution group recommends that T3 instruct S8 to develop and document the necessary additional processing for the correct and timely delivery of packets to the EVSB system inputs. • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.
30	Sharp	T3 Architecture Team recommended no robust standard move beyond candidate standard until all robust mode amendments reach candidate standard and the implementation guide is approved by T3.	<ul style="list-style-type: none"> • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.
31	Broadcom	Proposed standard creates unjustified complexity and data capacity penalty with no demonstrated improvement to 8-VSB reception.	<ul style="list-style-type: none"> • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/.
32	CEA	Should be a candidate standard, not a full standard, at this time.	<ul style="list-style-type: none"> • It was the decision of T3 to proceed with a full standard not a candidate standard. • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.
33	Dolby	Would like to see T3/S9 work continue, and for S9 to evaluate additional technology that might ultimately satisfy additional broadcaster requirements.	<ul style="list-style-type: none"> • [RECOMMENDATION #7] Comment resolution group recommends that T3 continue evaluating other potential improvements to the DTV standard.

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34	Harmonic	Concerned that any major change in the ATSC standard could slow or destabilize the current DTV transition.	<ul style="list-style-type: none"> • Others argue that <i>not</i> changing the transmitted signal (to accommodate improved signal reception etc.) will slow down DTV rollout – this is a matter of opinion. • [RECOMMENDATION #3] Comment resolution group recommends that T3 ask the ATSC board to carefully consider the best way to communicate the capabilities of this new technology.
35	Linx	The standard needs a supporting consensus to ultimately succeed. A consensus in favor does not exist. ATSC should consider identifying and addressing concerns to create a consensus.	<ul style="list-style-type: none"> • Comment resolution process is part of ATSC’s process to build consensus; it is hoped that this process will build a strong consensus.
36	Linx	The proposed standard does not meet the broadcaster requirements defined at the start of this process.	<ul style="list-style-type: none"> • While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. • Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
37	Linx	Field test results indicates reception success for normal data was less than for standard data.	<ul style="list-style-type: none"> • No data offered by commenter in support of this claim which is counter to conclusions reached by T3/S9. • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/.
38	Microsoft	Prefer to see more details of other emerging approaches and how they could be incorporated into the proposed standard toward solving mobility and pedestrian problems before a final ballot.	<ul style="list-style-type: none"> • [RECOMMENDATION #7] Comment resolution group recommends that T3 continue evaluating other potential improvements to the DTV standard.

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39	NAB	Editorial replacement of "Normal" with "Main" as the word to describe the un-enhanced stream and processing was not completely done. Related to this the control signal that currently is labeled 'N/E' should be changed to be 'M/E' to reflect the shift in the descriptive word chosen. The dotted line around the right part of Fig. D5.1 which includes the words 'post-mux' is left over from an earlier draft where the group of functions was addressed and is no longer needed. The note in the top part of figure D5.2 which says "NOTE Field Sync carried throughout" should say "Note: Field sync carried through functional blocks up to and including the SYNC MUX", or add dotted line surrounding the blocks through which the signal is carried, or delete the note.	<ul style="list-style-type: none"> • This is an editorial comment. • [RECOMMENDATION #8] Make editorial corrections per comment.
40	NBC	ATSC should coordinate further advancement of EVSB standard with related developments in transport and coding. The draft standards should be put forward as a package for ATSC approval when a complete application is available.	<ul style="list-style-type: none"> • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.
41	Philips	Proposal provides some marginal performance gain at only higher mix ratios. The performance of EVSB system at low mix ratios for which many broadcasters are interested is very poor.	<ul style="list-style-type: none"> • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/. • Performance tests (at 1.5 Mbps and 4.5 Mbps) validated 6 dB enhancement in AWGN - low mix ratio performance was not evaluated by T3/S9. • Proponent claims a threshold improvement decrease of approximately 1.5 dB will occur when mix ratio is less than 1% based on their hardware testing. • Simulations done by commenter suggest threshold improvement decreases when mix ratio is less than 5%.

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42	Philips	Believe that the proposal cannot do mobile or pedestrian as demonstrated by the VETC results. As a result it would be difficult to provide a much needed mobile service and thus would fail to gain worldwide support.	<ul style="list-style-type: none"> • While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. • Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
43	Samsung	The VSB enhancement activity intended to improve 8-VSB to be able to support mobile and pedestrian reception. Field-tests with proposed revision to A/53, Annex D (Zenith/ATI EVSB) show it cannot support mobile services.	<ul style="list-style-type: none"> • While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. • Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
44	Samsung	EVSB does not readily improve main (Normal) 8-VSB reception.	<ul style="list-style-type: none"> • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/.
45	Samsung	Normal 8-VSB receiver designs have improved significantly and are still improving. The R&D efforts with better understanding of over-the-air reception environment will make normal 8-VSB performance satisfactory. The smart, active antenna technology should even help indoor reception.	<ul style="list-style-type: none"> • Robust stream receivers will always have an approximately 6 dB improvement in sensitivity over normal 8VSB receivers. • Robust stream technology is expected to complement other receiver improvements – they are not mutually exclusive. • Suggesting that the standard should only be modified after other improvements have been “fully explored” is unrealistic since the technology is always going to be improving.
46	Samsung	Better robust schemes which would support mobile services (limited alphabet symbol and/or Transversal R-S coding) should be looked into for 8-VSB enhancement.	<ul style="list-style-type: none"> • [RECOMMENDATION #7] Comment resolution group recommends that T3 continue evaluating other potential improvements to the DTV standard.

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47	Warner Bros.	Further improvements are still encouraged to provide the consumer more reliable access to broadcast digital television in the entire array of possible uses. We further encourage the ATSC and its members to work as a single body in setting a strategy for a planned, generational growth of this digital broadcast technology.	<ul style="list-style-type: none"> • [RECOMMENDATION #7] Comment resolution group recommends that T3 continue evaluating other potential improvements to the DTV standard.
48	XFSI (#1)	Insufficient consideration was given to alternative proposals, such as the 4-VSB system proposed by ETRI.	<ul style="list-style-type: none"> • T3/S9 process stretched over two years and gave full consideration to all proposals submitted. • [RECOMMENDATION #7] Comment resolution group recommends that T3 continue evaluating other potential improvements to the DTV standard.
49	XFSI (#2)	The proposed Enhanced 8-VSB System does not support the needs of reception by mobile receivers.	<ul style="list-style-type: none"> • While some broadcasters are interested in mobile, pedestrian applications, no proposals offered strong support for this. Broadcaster requirements for robust channel also included improvements in service at fixed and portable locations and multi-mode operation which are met in varying degrees by EVSB. • Industry experience throughout the world has demonstrated that mobile applications require multiple system improvements incl. diversity RX antennas to be viable. All DTV mobile systems lower the bit rate to achieve improved S/N performance. EVSB adds this capability to A/53.
50	XFSI (#3)	Insufficient study has been given to the issue of how to integrate video, audio, data, and PSI that may appear in a robust and non-robust transport stream.	<ul style="list-style-type: none"> • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream. • [RECOMMENDATION #6] Comment resolution group recommends that T3 instruct S8 to develop and document the necessary additional processing for the correct and timely delivery of packets to the EVSB system inputs. • Standard as written supports independent services without modifications to the transport standard.
51	XFSI (#4)	Any proposed system should not be published as an amendment to A/53, but should be published as a separate ATSC Standard.	<ul style="list-style-type: none"> • T3 directed T3/S9 to move forward in this fashion, based on a recommendation from the Architecture team..
52	XFSI (#5)	Any proposed system must first go through a Candidate Standard phase of at least 6 months.	<ul style="list-style-type: none"> • There is no such ATSC requirement; T3 made a decision to move forward with a proposed standard prior to balloting. • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.

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553	XFSI (#6)	Any proposed system must be accompanied by compliance testing materials.	<ul style="list-style-type: none"> • There is no such ATSC requirement.
54	XFSI (#7)	Any proposed system must be accompanied by explicit patent disclosures from all relevant IP holders.	<ul style="list-style-type: none"> • This is governed by ATSC patent policy. From the beginning of the RFP process, proponents were advised of and required to follow ATSC patent policy procedures.
55	Sony (#1)	Proposed standard has not undergone proper test evaluation to show claimed 6 dB improvement.	<ul style="list-style-type: none"> • Prototypes tested demonstrated the expected 6 dB improvement in an AWGN environment.
56	Sony (#2)	Complete testing and analysis to show failure mechanisms and shortcoming of the proposed system was not done. Further improvements were not explored. Test criteria definitions were poorly defined leading to ambiguous conclusions.	<ul style="list-style-type: none"> • Test plans and processes were well-vetted within T3/S9; tests were performed by a major industry consortium. These activities were reported to T3 on a regular basis.
57	Sony (#3)	Proposed standard does not achieve goals relating to improved reception of main 8-VSB signal.	<ul style="list-style-type: none"> • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/.
58	Sony (#4)	Proposed standard is inefficient by trading bits for a few dB in reception coverage. The whole payload has to be utilized for robust modulation to obtain the advertised 6 dB gain.	<ul style="list-style-type: none"> • 6 dB improvement was observed in tests at 1.5 Mbps and 4.5 Mbps which contradicts commenters claim that full bit rate is required for this level of improvement. • Data analysis recognized improvement in normal reception under some circumstances due to the presence of the robust stream. • In particular, for sites where the signal was receivable, there was some improvement in antenna rotation performance due to the presence of the robust stream. • There was no improvement in the number of sites with successful reception due to the presence of the robust stream. • For additional information refer to T3/S9 evaluation reports at http://www.atsc.org/sg/S9/.

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59	Sony (#5)	Viable end-to-end solutions for fallback service have not been provided. Other possible applications have not been developed and there are uncertainties regarding transport issues. It is therefore premature to adopt this standard.	<ul style="list-style-type: none"> • This is not unusual - standards are commonly developed in advance of specific applications or service models. Some applications have been defined by AS and the Board. • [RECOMMENDATION #1] Comment resolution group will recommend to T3 that the final EVSB ballot (to membership) be held no later than January 9, 2004 so that other ATSC specialist groups can have a chance to advance their work on audio, video coding and transport for the robust stream.
60	Sony (#6)	Proposed standard will destabilize the DTV transition by signaling to consumers that DTV is not a viable system.	<ul style="list-style-type: none"> • Others argue that <i>not</i> changing the transmitted signal (to accommodate improved signal reception etc.) will slow down DTV rollout – this is a matter of opinion. • [RECOMMENDATION #3] Comment resolution group recommends that T3 ask the ATSC board to carefully consider the best way to communicate the capabilities of this new technology.
61	Sony (#7)	Proposed standard will make future enhancements more difficult due to backward compatibility issues, and new approaches to improved reception will be constrained.	<ul style="list-style-type: none"> • T3/S9 determined that the benefits of EVSB were sufficient to proceed with standardization at this time.
62	Zenith	<p>5.4.2.1.1.2 first sentence says "group of 16 VSB frames"; change to "group of 16 of the VSB frames" to eliminate confusion with the high-data-rate VSB mode (16-VSB);</p> <p>5.4.2.1.1.2 second paragraph, last sentence missing "T" in "The";</p> <p>Two typos in table D5.3 (total greater than available bit rate):</p> <p>111 010101 entries should be 16, 26;</p> <p>111 110101 entries should be 26, 16;</p> <p>(these table entries are supposed to add up to complete usage of frame; numbers that were entered in the table represent more data than is physically available in the frame),</p> <p>Section 5.8.1 Placement of Enhanced Mode Packets, Mode 2 Equation: "M=round(156/P)": should read "M=roundup(156/P)".</p>	<ul style="list-style-type: none"> • [RECOMMENDATION #9] This is an editorial comment: • For the first proposed correction, spell out the word "sixteen;" • For the second proposed correction, make editorial corrections per comment; • For the third proposed correction, make editorial corrections per comment; • For the fourth proposed correction, change text to read "the function ROUND means round up to the next integer value."