However, the cable industry as a whole has been reluctant to endorse and adopt the standards. The lack of response to CEMA's proposals addressing cable ready digital receiver standards delays the day when such consumer-friendly sets can be manufactured and sold.

If voluntary processes continue to be insufficient, this Fall the Commission should initiate a review of its compatibility rules to require that cable systems use standards sufficiently detailed to permit digital television sets purchased by consumers to provide their full array of functions. If consumers are to receive the full benefits of digital broadcasting, television sets and cable systems must operate in a manner that permits all features broadcast to be received by the consumer. Specifically, the Commission should not countenance cable operators blocking, modifying, or otherwise impairing any features of broadcast signals with which digital television sets interoperate. Cable system operators should be required to retransmit digital broadcast signals in a manner that permits receivers to operate with their full functionality.

2. Multiple Options Exist For Digital Television Receivers to be Fully Functional With Cable Systems

To ensure the means for cable/television compatibility, CEMA has proceeded to work on technical solutions to link cable systems and consumer equipment without impairing functionality. These options are as follows.

• **Pass through**. The digital broadcast signal can be retransmitted without alteration on an analog cable system within an existing 6 MHz channel. At the consumer's television set the signal either could be bypassed through the cable box without change and connected to the DTV input jack on the receiver, or the cable can be directly connected to the DTV jack and the television set tuned to the appropriate channel. All functions of the digital

signal will be processed to the full capability of the television set. This option is inexpensive for the cable system and uses a complete 6 MHz channel, the same as an analog signal. This method will be necessary for the legacy DTV receivers that will be for sale to consumers in 1998 or 1999.

- **Remodulation**. Alternatively, the complete digital broadcast 8-VSB signal can be converted at the headend to the digital standard used by the cable system -- whether 256-QAM, 64-QAM, or 16-VSB -- and transmitted to the cable subscriber; at the cable set-top box it can be remodulated back to its original 8-VSB signal and fed to the DTV receiver through the antenna input jack. As in the case of pass through, *supra,* all functions of the signal and the television set will operate the same as with direct over-the-air reception. One advantage of this method over simple pass-through, *supra*, is that the cable transmission can utilize only 3 MHz of bandwidth on the cable, yet maintain full functionality of the broadcast signal and television set.

CEMA has published a voluntary standard (EIA-762) to connect devices to DTV receivers. The interface can be used to translate a valid ATSC transport stream obtained from any source (such as could be obtained from a QAM RF signal) and modulate it into 8-VSB for delivery to the DTV receiver input. The standard consists of baseband input and 8-VSB RF output on either channel 3 or 4. The standard details output signal levels required to receive either high definition television (HDTV) or standard definition television (SDTV). Current technology will support both the ATSC 8-VSB and 16-VSB transmission, although EIA-762 addresses only the 8-VSB version. CEMA R.4 Video Systems Committee has begun work to standardize the 16-VSB version, and also is addressing copy protection for VCR applications. As with the pass-

through method, this method will be necessary for legacy DTV receivers and until such time as a workable "cable-ready" standard is defined and incorporated into consumer television sets.

• **Component Video.** CEMA also has published a voluntary standard for component video connections. The standard addresses cable-to-television connection for analog NTSC broadcasts (EIA-770.1), digital standard definition (EIA-770.2) and digital high definition (EIA-770.3). This standard can support analog copy protection technology to safeguard copy protected works. Like remodulation, using component video connections permits the cable system to retransmit broadcast signals in 3 MHz of bandwidth and the television receiver to fully operate with all the digital features supported by the broadcast signal.

• **IEEE 1394 Interface.** The 1394 interface creates a 2-way digital bus architecture. Using it, digital multiple devices can be daisy-chained together (as opposed to using point-to-point connections) so that DVD players, D-VHS players, and other digital consumer electronic devices can be connected each to the other for a complete integrated and interoperable system. Other organizations also are near completion on other related standards, and companies now are creating "suites" of protocol to implement these standards and specifications.

Standards work based upon the IEEE 1394-1995 (and IEC 61883) interface standard is proceeding. CEMA's R.4.8 1394 Interface Subcommittee is aiming to complete industry specification by November 1, 1998, on this standard that can be utilized to connect cable set-top boxes to the new DTV receivers.

CEMA also is studying copy protection methods related to the 1394 standard and their impact on receiver design. As the Commission is aware, copy protection issues have yet to be

resolved, and until then the 1394 interface will connect equipment only for purposes of viewing unencrypted signals. While this would include over-the-air broadcast programming, it would exclude copyrighted programming carried on cable networks.

CEMA notes that the Motion Picture Association of America (MPAA) filed early comments in this docket addressing the importance of copy protection to the release by its members of copyrighted programming for digital broadcasts. CEMA has been working productively with the MPAA to address the issue of digital video copy protection for more than four years. We recognize the importance of copy protection to the success of DTV and are confident that solutions are being developed.

CEMA's work with MPAA began with an important framework agreement that recognized that the rights and customary expectations of consumers were also important and must be taken into account in any copy protection regime. Since the Supreme Court's Betamax decision[23] the right of consumers to record programming in their homes for time shifting and other purposes has been widely recognized and accepted. Indeed, the advent and popularity of the VCR has opened huge new markets for the motion picture industry.

The CEMA/MPAA agreement recognizes these important consumer interests. Under that agreement, free, over-the-air broadcasts and basic cable service may not be subjected to any copy protection. Further, to permit time shifting, subscription pay television services (such as HBO and Showtime) may only be protected in a manner that prevents first generation copies from being copied. Conversely, pay-per-view, video on demand, "near video on demand," and prerecorded

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[23] *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417 (1984).

media may be protected in a manner that prevents any copying, if the copyright owner so chooses. These same important principles have been accepted and embodied (with respect to analog NTSC television) in the Digital Millenium Copyright Act, H.R. 2281.[24/]

One point should be stressed. The Commission should not delay the implementation of digital television on the basis of copy protection concerns. The industries are working together to develop a solution. Further, much of what will be available on DTV, including over-the-air broadcasts and basic cable services, will not be subject to any copy protection. CEMA remains willing to work aggressively with all interested parties on this issue.

3. The Commission Should Refrain From Imposing Minimum Performance Requirements or Other Mandatory Standards on Digital Television Receivers

In the Notice,[25/] the Commission asks whether any issues in this proceeding suggests the need for mandatory industry receiver standards. CEMA believes that such standards are clearly unnecessary. As the analog television's ubiquitous presence in American homes demonstrate, the intensely competitive consumer electronics marketplace has effectively ensured that receiver manufacturers produce high-performance products. CEMA expects that the effect of market-driven quality competition will be no different in the digital environment. Put simply, it would be economically foolish for any consumer electronics manufacturer to introduce into the marketplace a digital television receiver that does not meet and exceed customer expectations. Furthermore, receiver standards that would require regulatory action to amend in order to incorporate better

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[24/]H.R. 2281, 105th Cong. 2d Sess. (1998) (pending in conference).

[25/]*See, supra*, Not 1 at ¶ 1.

designs would delay technological improvements to receivers that otherwise could be quickly incorporated.

CEMA is aware that some parties have recently raised questions about the ability of commercially available DTV receivers to access over-the-air signals within FCC service areas. These concerns are unfounded, and they are largely based on misinterpreted findings from a statistically insignificant number of field tests using prototype DTV receivers that do not reflect the level of technology and sophistication of the DTV receivers to be available to the public this Fall.

CEMA is committed to ensuring that retailers and the public have the information necessary to optimize over-the-air reception with DTV receivers. As part of this ongoing effort, CEMA has developed a comprehensive antenna mapping guide that will be furnished to over 30,000 retailers across the United States. This mapping guide divides every television viewing market into five color-coded regions, and will ensure, to the greatest extent possible, that every consumer is outfitted with an antenna appropriate to their location.

While innovation in DTV receiver performance will of course continue, CEMA is confident that DTV receivers will be capable of receiving and displaying off-the-air signals with excellent picture quality.

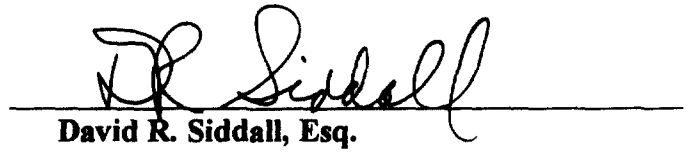
VI. CONCLUSION

For the reasons stated above, CEMA urges the Commission to require cable operators to retransmit digital broadcast signals in their entirety, and to deliver these signals to their customers in a form with which consumer television receivers operate. Cable carriage of analog NTSC

broadcast signals long has been governed by such carriage and compatibility requirements. For a public that is dependant upon cable for delivery of video programming, carriage also of the digital signals and compatibility with the new digital television sets is essential to the Commission's objectives of a rapid and smooth digital transition.

Respectfully submitted,

CONSUMER ELECTRONICS MANUFACTURERS ASSOCIATION



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