Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Closed Captioning of Video Programming	)	CG Docket No. 05-231
	)	
Telecommunications for the Deaf and Hard of Hearing, Inc.	)	PRM11CG
Petition for Rulemaking	)	
	)	

COMMENTS OF THE CONSUMER ELECTRONICS ASSOCIATION

The Consumer Electronics Association ("CEA")[1] respectfully submits these comments on the Further Notice of Proposed Rulemaking ("*FNPRM*")[2] in the above-captioned proceeding, which raises some technical issues regarding the closed-caption capabilities of digital television ("DTV") receivers. CEA recognizes the importance of ensuring that closed captions are available to the television viewers who rely on them. Hence, CEA has actively engaged with the Commission during its efforts to ensure that video programming is accessible to individuals who are deaf and hard of hearing through the provision of captioning.

The *FNPRM* raises the issue of captions sometimes being obscured by other on-screen visual information, and asks about current practices and capabilities for closed captioning of

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[1] CEA is the principal U.S. trade association of the consumer electronics and information technologies industries. CEA's more than 2,000 member companies lead the consumer electronics industry in the development, manufacturing and distribution of audio, video, mobile electronics, communications, information technology, multimedia and accessory products, as well as related services, that are sold through consumer channels. Ranging from giant multinational corporations to specialty niche companies, CEA members cumulatively generate more than $208 billion in annual factory sales and employ tens of thousands of people in the United States.

[2] *Closed Captioning of Video Programming*, Report and Order, Declaratory Ruling, and Further Notice of Proposed Rulemaking, 29 FCC Rcd 2221, 2291-2312 ¶¶ 121-67 (2014) ("*FNPRM*").

three-dimensional ("3D") and ultra-high definition ("Ultra HD") television programming. As explained below, the caption obstructions cited in the *FNPRM* appear to be caused by overlays in the video stream, not by devices. The questions raised in the *FNPRM* regarding the display of closed-captioned 3D and Ultra HD television programming have already been addressed by industry. Television viewers will continue to have access to closed-captioned programming on 3D and Ultra HD television sets, as they do on other television sets.

I. RECEIVERS ARE NOT THE CAUSE OF THE CAPTION OBSTRUCTIONS CITED IN THE *FNPRM*

The *FNPRM* seeks comment on whether captions are blocked sometimes by other on-screen graphics, stating that "[w]hen an overlay obscures captions, it would appear that the problem lies with the consumer's video apparatus."[3] However, the specific concerns cited in the *FNPRM* relate to overlays in the program stream; they are not examples of a receiver issue.[4]

Receivers position closed captions on the screen based on placement data already provided in the caption stream. Receivers have no control over the placement of crawls, promotional graphics, or visual information that may impact the legibility of captions, such as textual information placed at the bottom of the screen. The receiver will render the captions according to color and character background formatting data provided in the caption stream. If the captions are authored with transparent character backgrounds, legibility will often be negatively impacted.

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[3] *Id.* at 2310 ¶ 162.

[4] *See id.* at n.574. The term "receivers," as used these comments, refers to both television receivers and over-the-top devices.

II. THE INDUSTRY HAS ALREADY TAKEN STEPS TO ACCOMMODATE THE DISPLAY OF CLOSED CAPTIONS ON 3D TELEVISION PROGRAMMING

The consumer electronics industry has already moved to ensure that closed captions can be displayed legibly when 3D television programming is shown on 3D-capable television sets. The industry considered the issues raised in the *FNPRM* with respect to the provision of closed-captioned 3D television programming[5] and addressed those issues in ANSI/CEA-708.1, *Digital Television (DTV) Closed Captioning: 3D Extensions*, published in October 2012.[6] This standard specifies signaling to allow ANSI/CEA-708 caption services to be rendered with stereoscopic 3D program content.

ANSI/CEA-708.1 is intended to allow caption authors to specify how caption windows are positioned in the visual depth plane when rendered, to improve their legibility and ensure that they are placed so they are perceived to be in front of any objects in the 3D scene. To do so, ANSI/CEA-708.1 associates a specific measurement, called the "disparity" value, or a series of disparity values that change over time, with a given caption window within a given caption service.

The principle of stereoscopic 3D TV involves displaying different views of a scene to the left and right eyes. The difference between the right- and left-eye views of the horizontal position of a given object is called the disparity. Negative values of disparity cause the object to be perceived in front of the plane of the screen. Positive values of disparity cause the object to be perceived behind the plane of the screen. Zero disparity causes the object to appear at the plane of the screen.

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[5] *See id.* at 2310-11 ¶ 165.

[6] CEA, *Digital Television (DTV) Closed Captioning: 3D Extensions*, CEA-708.1 (ANSI) (Oct. 9, 2012).

ANSI/CEA-708.1 is intended to help manufacturers maintain the proper disparity values for closed captioning to work properly. Thus, television viewers have access to closed-captioned programming on 3D television sets, as they do on other television sets. The customizable features made available through the CEA-708 display standards will continue to work on 3D-capable televisions when viewing 3D programming that has been formatted in accordance with ANSI/CEA-708.1. Moreover, captions will display properly when the user switches between 2D and 3D modes.

III. CAPTIONS WILL CONTINUE TO APPEAR LEGIBLY WHEN TELEVISION PROGRAMMING IS SHOWN ON ULTRA HDTV TELEVISION SETS

DTV receivers render captions independent of display resolution, so captions will continue to appear legibly when programming is shown on Ultra HDTV sets.[7] Caption font size is a function of screen size, not pixel count. Thus, the increased resolution on Ultra HDTV sets does not prevent these sets from displaying captions legibly in various font sizes. Similarly, the remaining CEA-708 capabilities are independent of display resolution and will continue to be available to consumers when viewing television programming on Ultra HDTV sets.

[7] *See FNPRM*, 29 FCC Rcd at 2311-12 ¶ 167.

IV. CONCLUSION

CEA requests that Commission consider the issues raised in the *FNPRM* consistent with the facts set forth in these comments.

Respectfully submitted,

CONSUMER ELECTRONICS
ASSOCIATION

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