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Ms. Marlene Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Re: Ex Parte Presentation, CS Docket No. 97-80, CSR-7131-Z

Dear Ms. Dortch:

Through this *ex parte* letter the Consumer Electronics Association (“CEA”) responds to the National Cable and Telecommunications Association’s (“NCTA’s”) purported “technical” criticisms of the DCR+ element of the CEA Proposal for enabling bi-directional cable plug-and-play devices.¹ As explained in detail below, none of these criticisms is valid. They reflect, primarily, the unwillingness of NCTA and its members to acknowledge even the most basic elements of DCR+, and thereby to make it appear complicated or difficult to implement, rather than any good faith effort to identify true technical shortcomings. In any even, NCTA’s assertions about DCR+ reflect a host of incorrect assumptions.

Most essentially, NCTA seeks to obscure what is inarguable: that DCR+ is an incremental modification to existing and well-established standards and protocols, not, as it claims, a reformulation of the bi-directional host interface. NCTA should know full well that many elements it cites as omissions from the DCR+ proposal are in fact defined or mandated by the underlying standards on which DCR+ relies, and many are already in use by proprietary two-way devices. In citing these areas as purported “omissions,” NCTA is, in actuality, recognizing the extent to which DCR+ is based on existing standards that need no reinvention and little supplementation.

If *bona fide*, such misunderstandings could have been resolved by the parties in private negotiations and without the Commission’s involvement. Yet such detailed discussions never occurred, even when the parties otherwise were engaged on matters of detail, because NCTA and its members declined to engage in any – just as they declined to discuss licensing changes.

In the balance of this letter, CEA addresses NCTA’s misconceptions point by point:

¹ *Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, CS Docket No. 97-80, PP Docket No. 00-67, Reply Comments of the National Cable and Telecommunications Association, Appendix A (Sep. 10, 2007) (“NCTA Appendix A”).

1. *NCTA Misconception: Standards Do Not Exist in the Form Proposed By CEA*

The DCR+ proposal, by definition, includes necessary, incremental supplements to existing standards: ANSI/SCTE 28 (CableCARD Host Interface), ANSI/SCTE 41 (CableCARD Copy Protection), ANSI/SCTE 65 (Service Information Delivered Out-of-Band for Digital Cable Television), ANSI/SCTE 90-1 (OCAP Software Platform). These supplements are the minimum changes needed to implement additions in functionality in competitive devices. The CEA Proposal includes the actual text necessary to enact such supplements. The “[2008]” designation in the CEA Proposal was meant to merely indicate the expected designation for the standard, after it has been amended to include the supplements necessary to implement DCR+. While NCTA is technically correct that SCTE has not yet promulgated “2008” standards, NCTA’s attempt to paint the necessary incremental changes as “major revisions” is misleading. CEA and its members believe that they, and the Commission, have a right to expect the development of private sector technical standards to ensure competitive entry, as directed and anticipated by the Congress, irrespective of the business reluctance of cable operators.

ANSI/SCTE 65 (Service Information Delivered Out-of-Band for Digital Cable Television): An obligation to support advanced video codecs such as AVC/MPEG-4 is included in the latest version of this standard, and this obligation would certainly benefit cable operators by decreasing channel bandwidth requirements. No cable operator, however, has yet announced system-wide support for such codecs, and such support is likely not forthcoming in the foreseeable future, because it would require operators to replace existing proprietary set-top boxes with devices that can receive and decode advanced codecs. Thus, NCTA’s complaint amounts to an argument that DCR+ devices do not support functionality that cable operators do not use today, and cannot deploy for the foreseeable future. However, the DCR+ approach defines *minimum* standards, and in no way precludes a manufacturer from including AVC support in future host devices if the market demands.

The CEA proposal does not mandate the use of SCTE-65 Profile 4 as infrastructure (but it is already in use by cable operators for CableCARD support so in any event would not be a major change to infrastructure). Rather, the DCR+ approach requires that this standard be used to deliver program metadata between the DCR+ CableCARD and a DCR+ compatible Host Device. The function of the DCR+ CableCARD would be to translate the network-specific and proprietary data format already deployed on an existing system into SCTE-65 Profile 4 for delivery to the Host. No changes at the headend are necessary.

ANSI/SCTE-79-2 (2002) (DOCSIS 2.0 Operations Support System Interface), J.128 (Set-top gateway for transmission systems for interactive cable television services), and ANSI/SCTE 107 (2005) (Embedded Cable Modem Device): The CEA Proposal would require compatibility with the DOCSIS Set-top Gateway (DSG), and includes this requirement in its proposed regulations. A requirement for DSG compatibility implicitly includes all of the standards necessary to implement DSG, much in the same way that the

purchase of a car necessarily includes purchase of the engine and tires. **Indeed, OpenCable also requires DSG.**

ANSI/SCTE 79-1 (2003) (DOCSIS 2.0 Part 1: Radio Frequency Interface), and ANSI/SCTE 106 (2005) (DOCSIS Set-Top Gateway): Though CableLabs has completed work on the substance of these standards, designated as CableLabs standards CM-SP-RFIV2.0-I11-060602 and CM-SP-DSG-I10-070223 respectively, the cable industry has not undertaken the formality of updating the SCTE equivalents. Given that this update process involves no changes to the substance of the standard itself, it can take place in very little time, *provided* that the cable industry does not impede the process. More importantly, the CEA Proposal accepts the DSG standards “as-is,” with no changes, and will thus implement DSG without restriction as defined by the cable industry. CEA has merely requested that FCC rules mandating such implementation reference a fixed ANSI-accredited standard, rather than a specification that CableLabs may change at will.

“SDB Resource defined in SCTE 28”: Although there is no “SDB Resource” in SCTE 28 today, CEA’s proposal includes an amendment to the existing SCTE 28 standard to include an SDB Resource. The CEA Comments include all of the modifications to SCTE 28 necessary to create such a Resource, and amply illustrate that these modifications are not “extensive.” Finally, while the CableCARD will require some additional processing power over the current model in order to support the proposed new “SDB Resource,” adding a faster processor to an existing chipset is hardly a complicated endeavor. As described in Point 5, *infra*, processing power requirements in the CableCARD will remain minimal, with the bulk of processing occurring in the host device.

“Generic IPPV Support Resource defined in SCTE 28”: This standard currently exists, but because it has been “deprecated,” cable operators are not obligated to support it. In this instance, there is no additional work that needs to be done to create the standard. Simply, business or technical preferences to date have precluded its deployment. Thus, the question here is not whether a standard exists in the form proposed by CEA, but whether cable operators will support it.

2. *NCTA Misconception: DCR+ Undermines the Security of DOCSIS, Video, Data and Voice and Fails to Account for Diverse Network Infrastructure*

DOCSIS Set-Top Gateway (DSG): The CEA proposal does require DOCSIS/DSG to provide OOB information. It eliminates only the older legacy OOBs which it replaces.

DSG Security: As a general matter, a DCR+ device would implement the DSG standards in precisely the manner dictated by CableLabs for DSG products generally. Thus, implementing a DSG return path in a DCR+ television, for example, should provide the same level of network security that a DSG implementation would provide in a non-OCAP DSG set-top box, or other non-OCAP device. Accordingly, a DCR+ TV would use identical methods for public key management, traffic encryption and configuration file authentication as those used for other DSG devices such as proprietary leased set-top boxes.

Moreover, under the DCR+ proposal, a DSG modem would transmit only those upstream signals into the cable network that have been processed by the CableCARD and converted into network-specific protocols. No other element of the device would have access to the DSG upstream path, thus eliminating the need for device certificates, secure software download, and device certification testing. Many third party vendors have provided cable modems to operators under the DOCSIS specifications. These devices do not require OCAP or adherence to the CHILA license to meet the operator's security requirements. DCR+ devices will be no different.

Software/Internet-Based Attacks: NCTA seems to fear the possibility, however remote, that a DCR+ device could become infected with malicious code that would somehow cause the DSG modem in the device to deliver harmful data or applications to the cable network. This argument neglects or ignores the fact that a DCR+ device itself does not send any upstream transmissions directly to the DSG modem or, by extension, to the cable network. Rather, all of these upstream transmissions originate from the CableCARD, which takes inputs from the DCR+ device and translates them into network specific protocols. The CableCARD would then output these protocols, and only these protocols, to the DSG modem for upstream delivery. In short, the entire data path – from the CableCARD to the DSG modem to the network – would remain under the control of the cable operator at all times, thus placing all control over, and responsibility for, network integrity where it should be – in the hands of the network provider.

CALEA and Cable Broadband Intercept Specification (CBIS): NCTA makes vague assertions about “existing countermeasures” against “modem hacks.” As noted above, DCR+ devices would implement the DSG modem standards in precisely the same way that these standard are implemented in proprietary cable devices. Just as the DSG implementation in a proprietary leased cable device must have a fixed MAC address, which prevents spoofing as required by CALEA, so must the DSG implementation in a DCR+ device. This requirement is inherent in the use of DSG. Accordingly, a DCR+ device would be no more likely to interfere with lawful government wiretapping than a proprietary device.

National Portability: Cable operators are at least a year along, if not more, in the process of transitioning their outdated out-of-band (OOB) communications path technologies for the flexibility and bandwidth savings that DSG enables.² In fact, CableLabs certified the first DSG-compliant set-top box nearly three years ago.³ Indeed, it appears that DSG technology will be at least as ubiquitous on cable systems throughout the country as OCAP,

² See, e.g., CedMagazine.com “Out of Band, Out of Mind”, July 1, 2006, *available at* <http://www.cedmagazine.com/article.aspx?id=68122> (last visited October 4, 2007) (“The cable industry is on the verge of moving out-of-band (OOB) signaling from a proprietary channel to a DOCSIS channel. The primary means to achieve this is the DOCSIS Set-top Gateway, or DSG.”); Cable Digital News, “Big MSOs Embrace Evolving Digital Set-Top”, February 7, 2007, *available at* http://www.lightreading.com/document.asp?doc_id=116644&print=true (last visited October 4, 2007), (“Comcast Corp. . . . and Time Warner Cable Inc. are rolling out DSG-enabled set-tops this year [2007].”)

³ Spec News and Technology From CableLabs, “CableLabs® Completes First DOCSIS® Set-top Gateway (DSG) Certification Wave, Qualifies Three DSG CMTSs and Verifies One DSG Set-top,” October/November/December 2004, *available at* http://www.cablelabs.com/news/newsletter/SPECS/OctNovDec_2004/ (last visited October 4, 2007).

and likely even more so. Given its inherent benefits, it seems unnecessary to mandate DSG deployment by regulation at this time.

3. NCTA Misconception: DCR+ Fails Billing Integrity

By alleging that hypothetical bugs or efforts in DCR+ device system software could result in billing errors for VOD purchases, NCTA again betrays its rejection of any constructive dialogue about the DCR+ proposal. NCTA incorrectly states that “a CE vendor’s VOD application in the DTV will actually initiate and conclude the VOD purchase transaction” In fact, the DCR+ proposal would do nothing more than deliver user inputs to the CableCARD across a standardized POD-Host interface. The CableCARD would then initiate and conclude the VOD purchase. This distinction is important because it places a cable-operator-controlled resource between the device and the network, and allows that cable-operator-controlled resource the power to initiate – or not initiate – a given billing event. The cable operator maintains complete control over the VOD billing process, while suffering no additional customer service or indemnification obligations.

Further, NCTA neglects to mention that CableCARDS themselves carry MAC addresses, which are registered with the cable network and its billing software at the time of installation. Thus, any billing software driven by MAC address would simply need to obtain that address from the card, obviating any need for the host to reveal its MAC address to the cable network.

4. NCTA Misconception: DCR+ Disables Cable’s Ability to Recover Unused Spectrum by Using Switched Digital Video (SDV)

To the contrary, a major feature of the DCR+ proposal is that would enable entry-level devices – crucial to the DTV Transition – to serve consumers by delivering channels that are moved to Switched Digital Video service. Thus, allowing DCR+ as a market alternative to OCAP ultimately will conserve *more* bandwidth for digital transmission than would reliance on OCAP alone, because it will enable a far greater range of consumers – especially those who resist set-top boxes -- to move to all-digital reception for the channels they prefer.

As a general matter, SDV allows a cable operator to conserve bandwidth by delivering a channel to a subscriber only on request, and then discontinuing that channel stream when the user switches away to a different channel. In some instances, however, the network must query the user before terminating the SDV channel. If, for example, a user leaves an SDV channel on screen for an extended period of time, but does not provide any remote control input to the TV during that period, the network will display a text query on the screen asking whether the user is still watching. If subscriber answers affirmatively, the SDV channel remains on. If the network receives no response, however, it assumes that the subscriber has simply left the channel on unattended, and it terminates the SDV channel.

The SDV element of the DCR+ proposal simply replicates the functionality of a cable-delivered OCAP SDV application without requiring such an application to be

downloaded from the cable headend. Under the DCR+ implementation of SDV, an SDV channel, once selected, would remain on for a minimum of four hours after the last subscriber input (e.g., volume change, EPG selection, etc.). As with the cable SDV implementation, the DCR+ device would signal the network, via the CableCARD, to discontinue the SDV channel. If, however, the consumer does not switch away to another channel, at the end of that four hour period, the device would query the consumer about continued use of the channel. If it receives no response, would signal the CableCARD to tell the network to discontinue the SDV channel. In short, the SDV solution proposed under DCR+ provides all of the functionality of cable SDV, but without OCAP or the inconvenience and unnecessary cost of an external SDV attachment.

In Appendix C to its Comments on the Third FNPRM, CEA detailed, in its entirety, the resource that would need to be added to SCTE 28 to enable SDV in a DCR+ device. On its face, this description demonstrates that enabling SDV in a DCR+ device would not require extensive modifications to the standard, complicated revisions to SDV applications, or massive processing by the CableCARD. For cable to suggest otherwise reflects either inattention or obfuscation.

5. *NCTA Misconception: DCR+ Requires Major Redesign of CableCARD to Support Services in a Redundant Manner*

NCTA's argument that the DCR+ proposal would require substantial revisions to the CableCARD architecture is misguided and suggests a lack of good faith consideration of CEA's proposal on its merits. The claim that the DCR+ proposal "essentially moves all of the OpenCable Platform functions of electronic program guide data reception, VOD, SDV, and IPPV into the CableCARD itself, rather than relying on the Host"⁴ is fundamentally incorrect. Because the NCTA argument is based on faulty assumptions, its conclusion is equally flawed.

VOD service requires two fundamental elements. The first is the VOD application itself, which handles the on-screen display of available VOD titles and other elements of the graphical user interface, the reception of user inputs, the translation of those inputs into network-specific protocols that can be understood by a particular cable system, the delivery of those inputs to the cable headend, and the reception and translation of network-specific data describing the available VOD choices. The second element is the network-specific data about the available VOD programming (e.g., title, cost, etc.) that the application uses to populate the VOD guide. Because cable systems allocate all of the application functionality described above in the Host, all proprietary, network-specific functionality of the application must be downloaded into the Host from the network.

The DCR+ proposal does not change this. It does not, as cable claims, involve moving this functionality from the Host to the CableCARD. Rather, it would keep the most resource-intensive elements – relating to the display of a graphical user interface, the reception and processing of user inputs – in the Host. The CableCARD, however, would function as a *translation* mechanism, by receiving user inputs from the Host in a

⁴ NCTA Appendix A at A-6.

standardized fashion, translating these inputs into network-specific protocols, transmitting these translated inputs to the cable headend, receiving any response from the headend, translating this response into standardized protocols, and delivering these standardized protocols to the Host. This is an obvious extension of the current CableCARD’s role in handling network-specific conditional access.

In short, the CableCARD does not take over any Host functions; it is an “interoperability translator” so as to allow standardized Host functions to work on disparate systems, without disturbing the infrastructure of those systems. Such limited functionality will require dramatically less power, processor capability and memory, and generate far less heat, and involve far less cost, complexity and engineering time, than cable claims.

Functionality	Cable Proposal	Cable’s Mischaracterization of DCR+	DCR+ In Reality
Graphical User Interface Display	Host	CableCARD	Host
Reception of User Inputs	Host	CableCARD	Host
Translation of User Inputs into Network-Specific Protocols	Host	CableCARD	CableCARD
Transmission of Translated User Inputs to Network	Host	CableCARD	CableCARD
Reception of Network-Specific Data	Host	CableCARD	CableCARD
Translation of Network-Specific Data into Host-Specific Data	Host	CableCARD	CableCARD
Arrangement and Display of Translated Network-Specific Data on Screen	Host	CableCARD	Host

Finally, while NCTA correctly claims that high-value content requires 3DES protection when delivered across the CARD-Host interface, adding this capability to a Host device is hardly a difficult task. CEA has never claimed that manufacturers could implement DCR+ without modifying the existing DCR hardware architecture. Finally, CEA has always made clear that DCR+ would not support “Start Over” or as-yet-unannounced interactive services designed by the cable industry. Instead, DCR+ devices will use EPG data, VOD, SDV, and IPPV as the essential building blocks of other innovative applications – such as

integration with other programming sources within a single user interface – that will be true competitive alternatives to the cable industry’s applications. Given the lack of cable assurances as to exactly what will be supported, in headends or in devices, in competitive OCAP-reliant devices, and the great divergence and variety among the devices fielded by the operators themselves, there is no assurance whatsoever that a purchaser or even a lessor of an OCAP-reliant device will enjoy more cable services than an owner of a DCR+ device. If the Commission implements CEA’s proposal to allow OCAP and DCR+ devices to compete in the marketplace, consumers will of course decide which platform supports the features they want.

6. *NCTA Misconception: DCR+ Requires New Headends and VOD, SDV, and iPPV Applications*

As explained above, the DCR+ proposal does not require the CableCARD to itself run full-blown VOD, SDV or IPPV applications in order to support these services. No applications would need to be downloaded into a CableCARD, because it would function only as a simple protocol translator. Cable providers would not need to modify their headends or engage in a wholesale re-write of applications. Moreover, translation applications like those that would need to be included in a CableCARD are well understood by program developers and would require little time and effort to implement.

7. *NCTA Misconception: DCR+ Fails to Support Advanced Codecs*

Content encoding and decoding techniques have nothing to do with the conditional access and protocol translation functionality of a DCR+ CableCARD. Rather, these functions are handled within the Host device in a separate chipset, just as they are in leased set-top boxes. Most televisions today only support MPEG-2 decoding, because no cable system delivers content in any other format.

If a cable operators ever do begin to encode content in other codecs, TV manufacturers would almost certainly respond to market pressures and include decoding circuitry to match. Indeed, even today, integrated chipsets that allow decoding of the MPEG-2, MPEG-4 and WMD video formats, as well as the AC3, MPEG-1 and other audio formats, are becoming much more cost effective. In any event, the odds are slim that cable will begin delivering content using advanced codecs like MPEG-4 in the near future, because cable has a large installed base of set-top boxes that only support MPEG-2. Thus, changing part or all of a system to another codec would require a very costly replacement of these obsolete set-tops. DCR+ will in no sense be an obstacle to this technical progression. To claim otherwise betrays either a core misapprehension or a desire to divert the Commission.

8. *NCTA Misconception: The DCR+ Proposal Seeks Navigation Not Supported By PSIP*

The CEA Proposal has nothing to do with PSIP, and is thus not constrained by PSIP’s limited scope. Rather, the CEA Proposal asks that DCR+ devices have the ability to access the same rich metadata, no more and no less, that cable provides to its own set-top boxes. This access to metadata for all content delivered over cable, and not just for the broadcast

content covered by PSIP, is necessary to provide consumers with a device that can navigate all available cable channels in the same manner as a proprietary set-top box.

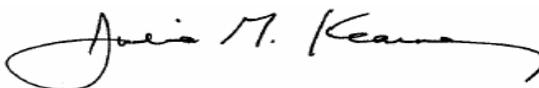
9. NCTA Misconception: CEA Contains No Specifications Governing Access to Upstream Network Capacity

NCTA's argument assumes that DCR+ devices would have an unfettered ability to transmit upstream into the cable plant. This is another assumption that reflects a core misunderstanding at best. As explained above, all upstream transmission activity would be controlled not by the DCR+ Host, but rather by the DCR+ CableCARD, which would be designed by the network provider, and which could transmit only a limited set of predefined requests or commands to the cable headend. Thus, the cable operator, not the DCR+ device manufacturer, would have exclusive control over the substance, frequencies, levels and timing of signals transmitted upstream.

10. NCTA Misconception: The DCR+ Proposal Requires Redundant Features

This is not a technical objection. Redundancy is in the eye of the beholder and depends on one's assumptions. Above, we have demonstrated that NCTA's assumptions are flawed. CEA has explained the efficiencies for consumers wrought by the DCR+ alternative, the many new services that it will allow consumers to integrate at their own discretion (thus providing some escape from the redundancy of program tiering), and its role in limiting and ultimately eliminating the reliance on redundant transmission of content to consumers in the analog TV format. DCR+ integrates the operation of network devices and Host devices far more efficiently than would a set-top box, while allowing consumers to judge the extent to which they will wish to rely on fully integrated OCAP technology. CEA believes, as the Congress did in enacting Section 629, that consumers should have real competitive alternatives to cable industry prescriptions.

Respectfully submitted,



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