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July 11, 2006

**EX PARTE**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW, Portals  
Washington, DC 20554

**RE: Implementation of Section 304 of the Telecommunications Act of 1996, Commercial  
Availability of Navigation Devices, CS Docket 97-80**

Dear Ms. Dortch:

On July 10, 2006, Verizon filed the attached Petition for Waiver of the Set-top Box Integration Ban, 47 C.F.R. § 76.1204(a)(1), and the attached companion Declaration of Brian H. Whitton. Please also include this letter and its attachments in the above mentioned docket.

If you have any questions about this matter or need more information, please do not hesitate to contact me directly.

Sincerely,

A handwritten signature in black ink that reads "Paul Brigner". The signature is written in a cursive, flowing style.

**Before the  
FEDERAL COMMUNICATIONS COMMISSION**

Verizon's Petition for Waiver )  
of the Set-Top Box Integration Ban, )  
47 C.F.R. § 76.1204(a)(1) ) MB Docket No. \_\_\_ - \_\_\_

**VERIZON'S PETITION FOR WAIVER OF THE SET-TOP BOX  
INTEGRATION BAN, 47 C.F.R. § 76.1204(a)(1)**

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July 10, 2006

## INTRODUCTION & SUMMARY

Verizon<sup>1</sup> respectfully requests a waiver of the Federal Communication Commission's ("FCC" or "Commission") rule banning the distribution of integrated set-top boxes, which takes effect July 1, 2007. *See* 47 C.F.R. § 76.1204(a)(1). A waiver of this rule is necessary to facilitate the rapid deployment of innovative service offerings that will provide important new competition to the video market.

Both Congress and the FCC have made clear that the rules designed to implement Section 629 of the 1996 Telecommunications Act, which was meant to assure the commercial availability of set-top boxes, must not be permitted to trump the larger policy imperative of promoting competition and innovation in the provision of video services. Thus, when Congress passed Section 629, it specifically included a provision that requires the Commission to grant a waiver of the navigation device rules where doing so is necessary to assist the development of new video programming or other services offered over multi-channel video programming systems. The Commission has also expressly recognized that waivers may be needed to facilitate the deployment of innovative and competitive services and, indeed, has categorically exempted DBS from the integration ban on this very basis. Thus, both the statutory and regulatory scheme make plain that the set-top box rules must not become the tail that wags the dog of competition; for without competition in the market for video services themselves, the availability of set-top boxes at retail would mean little to consumers.

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<sup>1</sup> The Verizon companies participating in this filing (collectively, "Verizon") are the regulated, wholly-owned subsidiaries of Verizon Communications Inc.

Verizon's FiOS TV, which will bring both a raft of new and unique services and new competition in existing services to the video marketplace, is *precisely* the type of innovative offering to which the waiver provision was designed to apply. Verizon is in the process of carrying out an unprecedented network deployment that will bring fiber-optic facilities directly to the door of millions of Americans. Offering tremendous speed and vast data capacity today, and even more through upgrades as fiber transmission technology evolves, Fiber to the Premises ("FTTP") was for many years considered a distant goal. Now, Verizon customers in a number of communities are already beginning to experience the benefits that fiber brings, and the company is aggressively expanding the reach of its fiber network every day. FiOS TV, offered over Verizon's FTTP network, is a unique and creative new service that combines digital television with IP services. This offering will bring, for the first time in most places, direct wireline competition to cable – a critical and long-standing aim of our federal communications policy – with respect not just to existing video services but also other brand-new services. The promise of that competition places Verizon squarely within both the language and fundamental purpose of the waiver provision.

Moreover, the best way to further the goals of Section 629 and promote competition in the set-top box market is not to force new entrants to engage in inefficient and expensive physical separation of security components, but instead to ensure the creation of an open, software-based, downloadable conditional access system ("DCAS"). While DCAS is now on the horizon, it cannot be implemented by July 2007. Requiring Verizon to comply with the existing integrated set-top box ban – and thus effectively forcing it to implement a security solution for set-top boxes not once but *twice* – would

have a number of adverse effects for consumers. First, because an open DCAS solution is not yet finalized, Verizon would have to devote substantial resources to the development of a physically separate conditional access system (“CAS”). Those costs will ultimately hurt consumers in the form of more expensive set-top boxes. Indeed, such a system is unlikely to be of full practical use to FiOS TV subscribers; it is doubtful that Verizon’s customers will want generic, non-IP enabled boxes that would provide access only to the Quadrature Amplitude Modulation (“QAM”) portion of Verizon’s network. Second, avoiding these costs would allow more resources to be devoted to the expeditious deployment of FiOS TV. Given that the technology to provide DCAS is presently maturing, Verizon can bring a truly open, technology-neutral, set-top box solution to the consumer electronics market together with its important new video services, such as IP-enabled video features. Mandating compliance now with the separation ban will delay the delivery of these new services to consumers. In sum, a waiver would benefit consumers by avoiding the need to develop a costly, complex, inefficient and ultimately superfluous physical separation solution that will only delay the provision of important new services.

Granting a waiver would not jeopardize the ultimate goals of Section 629. Verizon’s relatively small existing customer base and unique combination of QAM and Internet Protocol (“IP”) means that it is unlikely that consumer electronics manufacturers will build Verizon-specific boxes until a common standard can be developed that would allow such equipment to work for other providers as well. And a waiver is unlikely to have any impact on the development of generic boxes because: (i) Verizon is in no position in the market to stifle such development; and (ii) Verizon’s customers are

unlikely to want generic, non-IP enabled boxes that do not provide them with full functionality, as noted above. Indeed, the QAM/IP-hybrid boxes that Verizon currently offers, which allow for greater bandwidth and thus more and faster services and functionality, will bring consumers new innovation and new choice for their set-top box. Moreover, Verizon already offers CableCARDs (the commercial name for the point-of-deployment modules used to achieve physical separation) for those customers that wish to use generic devices. Finally, granting a waiver of the integrated set-top box ban would be consistent with the Commission's prior exemption for DBS carriers, and a waiver would also aid in efforts to promote broadband deployment.

For all these reasons, the FCC should grant a waiver of the integrated set-top ban for Verizon until an open DCAS system can be implemented. The Commission should also take immediate action to further ongoing industry efforts to develop and adopt an open, interoperable DCAS system that is technology agnostic, fully interoperable and does not favor legacy technology over innovative service offerings such as Verizon's. The unnecessary costs that would be imposed by adherence to the separation ban at this critical juncture, and the delay that would be occasioned in the offering of Verizon's vital new services, run directly counter to Congress' goals in Section 629.

**I. A WAIVER OF SECTION 76.1204 IS REQUIRED BECAUSE SUCH ACTION WOULD ASSIST THE INTRODUCTION OF NEW AND IMPROVED VIDEO PROGRAMMING SERVICES AND SERVE THE GOALS OF SECTION 629 BY PROMOTING AN OPEN, TECHNOLOGY-NEUTRAL CONDITIONAL ACCESS SYSTEM.**

The competition and innovation that Verizon's new FiOS TV video services would bring to the MVPD market is *exactly* the sort of competition and new technology that Congress had in mind when it adopted the waiver provision for the navigation device rules. Without a waiver of the integration ban, the introduction of this new and

innovative service will be hampered, and the full potential of the competition, innovation, and consumer benefits created by the service thereby lost. Furthermore, granting a waiver would promote the goals of Section 629 – ensuring competition in the market for set-top boxes – by advancing the implementation of DCAS, a truly open, technology-neutral, and consumer-friendly security solution. Requiring Verizon to comply with the integration ban now, before DCAS has been realized, and create a physical separation solution would only delay the ultimate implementation of that open video network for the benefit of consumers. Such action would also impose needless costs on Verizon, and thus ultimately harm consumers, by forcing it to create not one but two security systems - the first of which will be rendered obsolete once DCAS is implemented.

A. **Verizon Is Aggressively Deploying FTTP That Allows It to Offer Innovative Video Services and Offerings and Create Meaningful Competition to Entrenched Cable Operators.**

Since 2004, Verizon has been rapidly rolling out Verizon's FTTP network, which brings fiber-optic cable directly to customer homes. By the end of 2006, Verizon expects to pass six million homes with its FTTP facilities. The increased bandwidth and digital capability of the FTTP network allows Verizon to offer, among other things, television and other video applications via a service known as FiOS TV. Currently, Verizon offers FiOS TV to more than fifty communities in seven states, and plans to offer service to many more consumers as it obtains approval from local franchising authorities.<sup>2</sup>

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<sup>2</sup> Consumers are responding favorably to Verizon's entry into the video market. In markets where FiOS TV has been available at least four months, penetration rates are already between nine and twelve percent. Notably, in Keller, TX, Verizon was able to achieve over a twenty percent penetration among FiOS eligible customers within just four months.

Verizon's entry into the video business brings meaningful wireline video competition and an exciting new choice to the market for existing video services. The result of this competition has been and will continue to be improved customer service, competitive pricing, and enhanced service offerings from both Verizon and the incumbent cable operators. The Commission has noted that in areas where two or more wireline cable companies compete for customers, subscriber rates are approximately sixteen percent lower.<sup>3</sup> Similarly, the General Accounting Office ("GAO," now the Government Accountability Office) has found that, in addition to improved customer service and advanced services, consumers in markets with wireline competition enjoy "substantially lower prices" for cable service.<sup>4</sup> Competition from direct broadcast satellite companies has not resulted in equivalent price decreases.<sup>5</sup> Recent experience bears out the findings of the FCC and GAO. In a January 2006 study, Bank of America found significant price decreases by incumbent cable operators following Verizon's entry into the markets of Keller, TX, Herndon, VA, and Temple Terrace, FL.<sup>6</sup>

In addition to providing services similar to those currently offered by other high-end digital cable operators, Verizon's FTTP network will allow it to offer entirely new

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<sup>3</sup> *Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992: Statistical Report on Average Rates for Basic Service, Cable Programming Service, and Equipment*, Report on Cable Industry Price, 20 FCC Rcd. 2718, 2727 (¶ 29) (2006).

<sup>4</sup> U.S. Gen. Accounting Office, Report to the Subcommittee on Antitrust, Competition Policy and Consumer Rights, Committee on the Judiciary, U.S. Senate, *Telecommunications: Wire-Based Competition Benefited Consumers in Selected Markets* 12 (Feb. 2004).

<sup>5</sup> *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Twelfth Annual Report, MB Dkt. No. 05-255, FCC 06-11, at 4 (¶ 5) (Mar. 6, 2006).

<sup>6</sup> *See Battle for the Bundle: Consumer Wireline Services Pricing*, Bank of America: Equity Research, 9-10 (Jan. 23, 2006).

video services to consumers. Unlike traditional Hybrid Fiber Coaxial (“HFC”) cable systems, which connect end-users to the fiber plant using standard, conductive coaxial cable, Verizon’s network uses true, end-to-end fiber-optic plant. By connecting each customer to the network using ultra-high capacity fiber-optic lines, Verizon’s network offers an immense amount of bandwidth compared to a traditional cable operator.

Verizon’s fiber-optic plant, and the high-speed two-way data network it supports, thus allows the company much greater flexibility in designing and providing service.

For example, while part of Verizon’s service offering is the transmission of digital cable services downstream to customers using QAM modulation, much like traditional digital cable companies, Verizon is able to send substantially more video programming than a company using HFC facilities. This allows Verizon to carry more high-definition and digital channels than incumbent cable companies, allowing it to offer creative programming packages such as its Spanish language package, La Conexión.<sup>7</sup>

Verizon’s high-speed two-way data network also allows the company to deliver innovative IP services through the set-top box.<sup>8</sup> Verizon offers video on demand (“VOD”) services using IP technology, allowing the customer to select and watch video services at his or her convenience that are streamed as IP data to the customer’s home. The IP functionality of Verizon’s network also permits the company to integrate other

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<sup>7</sup> Verizon also transmits an “analog tier” of programming over its system for those customers who do not wish to use a cable box with their televisions. Both the digital QAM and analog signals are carried over Verizon’s fully optical FTTP network, and converted back to electrical signals at the customer’s Optical Network Terminal (“ONT”). These signals are then distributed using coaxial cable throughout the customer’s premises.

<sup>8</sup> While Verizon uses IP as a protocol for VOD, its interactive programming guide, and other features, these features do not come through the public Internet via the customer’s high speed data service.

data applications into the customer's television experience. For instance, Verizon recently announced the launch of FiOS TV Widgets, which allows subscribers to check weather and traffic reports directly on their television screens through their set-top box. Future Widgets implementations may include real-time, on-demand sports scores and news. These innovations are just some of the many that Verizon hopes to introduce using its state-of-the-art network.

**B. A Waiver is Compelled by Section 629(c) and the Commission's Waiver Rules Because Such Action Is Needed to Assist the Introduction of the Innovative Video and Other Services Offered by FiOS TV.**

Section 629 of the 1996 Act directed the FCC to “adopt regulations to assure the commercial availability” of “converter boxes, interactive communications equipment, and other equipment used by consumers to access multichannel video programming and other services offered over multichannel video programming systems.”<sup>9</sup> The Commission implemented Section 629 of the 1996 Act, in part, by promulgating Section 76.1204, which requires that all multichannel video programming distributors (“MVPDs”) using conditional access make available separate conditional access devices, and further provides that, as of July 1, 2007, all MVPDs must refrain from placing into service any navigation devices that “perform both conditional access and other functions in a single integrated device.”<sup>10</sup>

At the same time, Congress made clear that the goal of promoting a separate market for navigation devices must *not* be allowed to trump the broader objective of encouraging competitive entry and innovation in multichannel video services themselves.

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<sup>9</sup> 47 U.S.C. § 549(a).

<sup>10</sup> 47 C.F.R. § 76.1204(a)(1).

Specifically, Congress provided in Section 629(c) that the Commission “*shall* waive” regulations adopted to implement Section 629

upon an appropriate showing by a provider of multichannel video programming and other service offered over multichannel video programming systems, or an equipment provider, that such waiver is necessary to assist the development or introduction of a new or improved multichannel video programming or other service offered over multichannel video programming systems, technology or products.<sup>11</sup>

Consistent with Congress’ desire that the larger interests in innovation and competition for video services not be subordinated to the rules regarding the availability of navigation devices employed in connection with those services, the Commission adopted a waiver provision that mirrors Section 629(c).<sup>12</sup> As the Commission recognized, the waiver provision exists to ensure that regulations passed pursuant to Section 629 of the 1996 Act do not have “the effect of freezing or chilling the development of new technologies and service.”<sup>13</sup> Accordingly, the Commission

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<sup>11</sup> 47 U.S.C. § 549(c) (emphasis added).

<sup>12</sup> See 47 C.F.R. § 76.1204. The Commission has applied its waiver rule by simply requiring a proper showing under Section 629(c). See *BellSouth Interactive Media Services, LLC and BellSouth Entertainment, LLC*, Memorandum Opinion and Order, 19 FCC Rcd. 15607, 15608-09 (¶ 3) (2004); *Cox Communications, Inc. Petition for Temporary Waiver of Requirement to Support Plug and Play Through Provisioning of Point of Deployment Modules for Cox Cable Systems Serving Pauls Valley and Chickasha, Oklahoma*, Memorandum Opinion and Order, 19 FCC Rcd. 13054, 13055-56 (¶ 3) (2004). To the extent the Commission wishes to grant Verizon’s waiver on an service provider-wide basis, Verizon submits that the waiver should apply to those service providers who, like Verizon, are providing service using a hybrid QAM/IP system over FTTP architecture.

<sup>13</sup> *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Report and Order, 13 FCC Rcd. 14775, 14816 (¶ 103) (1998) (“First Report and Order”) (quoting S. Rep. No. 104-230, at 181 (1996)).

categorically exempted DBS, at the time a relatively new entrant in the market for video programming, from the requirements of Section 76.1204.<sup>14</sup>

Verizon's request for a waiver of the integrated set-top box security ban in Section 76.1204(a)(1) is *precisely* the circumstance contemplated in Section 629(c) and is in full accord with the goals underlying the waiver provision, *viz.* to ensure that the set-top box rules not be enforced at the expense of competition and innovation.<sup>15</sup> As explained above, FiOS TV will be a significant competitor to cable and other MVPDs in existing video services and will also provide a raft of new and unique services to consumers. The promise of competition and innovation offered by FiOS should not be undermined by mandatory compliance with the regulatory burdens of the separation ban.

Requiring Verizon to comply with Section 76.1204's integrated set-top box ban will create a chilling effect on Verizon's ability to expand and develop the FiOS TV service and have a corresponding negative impact on Verizon's ability to bring more competition and innovation to the MVPD market, forcing customers to wait longer to enjoy these benefits and thus ultimately harming consumers. Accordingly, granting a waiver is necessary to assist the deployment of this innovative new service. It is exactly in a situation like Verizon's, where an emerging MVPD service provider needs relief from Commission rules to develop innovative services and become a competitive force in the marketplace, all to the public good, that Congress envisioned the waiver provision to apply.<sup>16</sup>

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<sup>14</sup> *See id.* at 14800-01 (¶¶ 64-65).

<sup>15</sup> *See id.* at 14816 (¶ 103).

<sup>16</sup> Verizon's request also meets all three requirements for a waiver under the Commission's general waiver rule, 47 C.F.R. § 1.3, which is appropriate "when the relief

C. **Mandating Physical Separation Now, Before DCAS Has Been Implemented, Would Be Wasteful, Inefficient, and Harmful to Consumers.**

The best way to comply with the Commission's integrated set-top box ban is a properly implemented, open, and interoperable DCAS solution,<sup>17</sup> which, among other major benefits, allows conditional access software to be transmitted from the video provider to the customer's device without the use of separate physical cards or other equipment. Because implementation of interoperable DCAS will obviate the need for physical separation and fully comply with the requirements of Section 76.1204(a)(1), as well as providing other important public interest benefits, the Commission should waive its integrated set-top box distribution ban for Verizon until interoperable DCAS can be rolled out.

The Commission has already recognized the technological and economic benefits that a DCAS solution provides, and recently chose to extend the integration ban deadline

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requested would not undermine the policy objective of the rule in question, special circumstances warrant a deviation from the general rule, and such deviation will serve the public interest," *Telephone Number Portability; BellSouth Corporation Petition for Declaratory Ruling and/or Waiver*, Order, 19 FCC Rcd. 6800, 6806 (¶ 11) (2004) (citing *Ne. Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969)). As detailed below, granting Verizon's waiver will not undermine the policy objective of Section 629 or Section 76.1204 because the market for the commercial availability of non-integrated devices will remain largely unaffected. Additionally, special circumstances exist in Verizon's case. Verizon's FTTP network and the video services it provides over that network have the potential to revolutionize the MVPD marketplace by using the expanded broadband capabilities of an IP-based service to offer consumers more programming and more advanced services. Verizon's FiOS TV is the first totally new service offering to the MVPD marketplace in well over a decade. FiOS TV has already resulted in competitive benefits where Verizon has been able to deploy the service, and as FiOS TV comes to additional communities it will undoubtedly continue to exert pressure on incumbent cable providers to improve their own services and lower their prices. Finally, granting Verizon's waiver would clearly be in the public interest – the waiver will allow Verizon to expand its FiOS TV service offering and in turn create a more competitive MVPD market.

<sup>17</sup> See *infra* pp. 25-33 (describing value of DCAS and steps Commission should take to ensure its adoption in proper form).

to allow for the development and deployment of a DCAS solution.<sup>18</sup> The Commission also has found that, because DCAS could allow set-top box interoperability and result in the conditional access function being performed outside the physical set-top box, a properly implemented DCAS solution would also comply with Section 76.1204 without requiring physical separation.<sup>19</sup>

However, DCAS is not yet ready for deployment, and likely will not be prior to the July 2007 deadline.<sup>20</sup> In the absence of an open and interoperable DCAS solution, in order to comply with the deadline Verizon would likely have to design and implement a solution involving physical separation between the conditional access functionality and the rest of the device. Physical separation has a number of serious disadvantages compared to a properly implemented DCAS solution. Further, because of the unique characteristics of Verizon's network, the standard protocol for separate security that has been developed by the incumbent cable industry would not be adaptable to FiOS TV. Thus, Verizon's set-top box manufacturer would need to create a unique solution that will ultimately be more expensive for consumers and have little impact on navigation devices available in the retail market.

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<sup>18</sup> See *Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Second Report and Order, 20 FCC Rcd. 6794, 6794-95 (¶ 3) ("Second Report and Order") (2005).

<sup>19</sup> *Id.* at 6795 (¶ 3).

<sup>20</sup> NCTA has proposed a DCAS solution that it says can be deployed by mid-2008. As explained below, NCTA's DCAS proposal is neither open nor interoperable, and is designed by and for incumbent operators using legacy technology. While Verizon believes that a truly open DCAS can be deployed in an expeditious manner, there does not appear to be any prospect of such a system being ready by mid-2007.

1. DCAS Will Not Be Implemented By July 2007.

While DCAS holds great promise as a means of furthering the goals of Section 629 and the Commission's separations requirement, an open, interoperable DCAS system is not yet ready for widespread deployment. There is very little chance that any DCAS system, let alone a properly designed one, can be effectively implemented by July 2007. At this point, DCAS is in the planning stages, and there are many steps that need to be taken to define the technical specifications and processes necessary in order to make DCAS a reality.

NCTA has submitted a proposal for DCAS roll-out that envisions making DCAS available to incumbent cable subscribers by July 2008.<sup>21</sup> As explained in more detail below, Verizon believes that any DCAS specification adopted by the FCC must be truly open, universally interoperable, and network-agnostic.<sup>22</sup> For a variety of reasons, the proposal advanced by NCTA, in its current form, does not meet these criteria. But Verizon believes that a truly interoperable DCAS solution can be developed and implemented without substantial delay. In any event, even a moderate delay to develop an open, interoperable DCAS is preferable to rapidly implementing a system, such as that propounded by NCTA, that calcifies innovation and resolutely favors legacy systems.

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<sup>21</sup> See Letter from Daniel L. Brenner, NCTA, to Marlene H. Dortch, Sec'y, FCC, "Report of the National Cable & Telecommunications Association on Downloadable Security" (Nov. 30, 2005) (on file with FCC in CS Docket No. 97-80) ("DCAS Letter").

<sup>22</sup> See *infra* pp.26-33 (explaining steps necessary to create a truly interoperable DCAS).

2. DCAS Provides Substantial Advantages Over Physically Separating Security Devices.

As the Commission previously has found, DCAS offers substantial benefits over mandated physical separation of the security function of cable access devices.<sup>23</sup> Requiring the inclusion of a CableCARD – the mechanism for physical separation – means that set-top box manufacturers will have to include the physical hardware to accommodate CableCARDS in every device built. This hardware is, on a per unit basis, relatively expensive and complex.<sup>24</sup> The CableCARD is a type of Personal Computer (“PC”) Card, and adheres to the standard for PC Cards promulgated by the Personal Computer Memory Card International Association. The PC Card standard for expansion card construction calls for a sixty-eight pin interface between the card and the device into which the card is plugged. In order to accommodate a CableCARD, a consumer electronics device must therefore have a compatible PC Card slot, which includes gold connectors for the sixty-eight pin card, a slide to hold the card in place, and an ejector device for removing the card. These physical devices add additional complexity to the design and manufacturing of a compliant device. Including these components in the device can increase its wholesale price by as much as \$25 per unit, without factoring in the cost of the CARDS themselves, which can add an additional \$50 to \$70 of cost to the consumer per unit.<sup>25</sup> While economies of scale may drive down the price of the actual CableCARDS, there is little prospect that the cost of the hardware necessary to

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<sup>23</sup> See Second Report and Order, 20 FCC Rcd. at 6794-95 (¶ 3).

<sup>24</sup> See Declaration of Brian H. Whitton ¶ 11 (“Whitton Decl.”).

<sup>25</sup> *Id.*

incorporate the CARDS (which is already used in thousands of other devices) will decrease as the FCC's mandate takes effect.<sup>26</sup>

In contrast, a downloadable software security implementation has the potential to be cheaper and easier to implement and is also more convenient for consumers. Doing away with costly and cumbersome cards and slots will make the manufacture and design of compliant devices simpler, and the solid-state circuitry necessary to implement software-based security is cheaper and less prone to wear than any solution involving physical separation.<sup>27</sup> DCAS also simplifies customer installation and reduces the equipment that a customer must purchase or lease, and would thus improve the customer's experience in activating video service.<sup>28</sup> In addition, as NCTA has correctly observed, DCAS would allow the security system to be upgraded and renewed as technical improvements are developed.<sup>29</sup>

3. Physical Separation Would Be a Wasteful Interim Step that Would Slow Deployment of FiOS TV and Retard the Implementation of DCAS.

With DCAS still at least two years from widespread deployment, in order to comply with the current terms of the integrated set-top box ban in Section 76.1204 that takes effect next year, Verizon would need to design and deploy set-top boxes that utilize physically separate security features. In the end, these physically separate set-top boxes would almost certainly be replaced by a DCAS system, given the cost, customer

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<sup>26</sup> *Id.* ¶ 12.

<sup>27</sup> *Id.* ¶ 14.

<sup>28</sup> *Id.* ¶ 15.

<sup>29</sup> DCAS Letter at 2.

convenience, and technical advantages that DCAS offers.<sup>30</sup> Accordingly, it makes no sense to require Verizon to engage in the burdensome and ultimately pointless intermediate step of implementing a physically separate CAS solution.

Mandating physical separation will harm consumers in two ways, running counter to the Congressional purpose of promoting competition. First, if Verizon is forced to commit the substantial technical and economic resources necessary to design and produce a physically compliant set-top box, the cost and competitiveness of Verizon's service will be adversely impacted. Building these costs into the price of Verizon's service will lead to increased costs to the consumer, and reduce the competitive pressure that Verizon can bring to the MVPD market. Second, building and deploying a physically compliant set-top box will inevitably divert and unnecessarily tie up resources that would otherwise be available either for investment to speed fiber deployment or for research and development into additional services that Verizon could offer over the FiOS network, such as FiOS TV Widgets. Thus, deploying a separate set-top box would jeopardize the company's aggressive roll-out schedule for FiOS TV.<sup>31</sup>

In addition to the negative effects on customers, physical separation would be of dubious benefit to customers even the nature of Verizon's network and set-top boxes. While Verizon's network does have a QAM stream, Verizon's FiOS network also incorporates video over IP elements and, as set forth above, is designed to accommodate further developments and growth in that segment. All Verizon set-top boxes thus architecturally reside on two separate and distinct networks, the QAM network and the IP

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<sup>30</sup> See Whitton Decl. ¶¶ 14-15.

<sup>31</sup> *Id.* ¶ 13.

network. Yet Section 76.1204(a)(1) was developed with the paradigm of a traditional cable network in mind, which assumes the existence of only a QAM network. The CableCARD standard thus does not have any provisions for processing Verizon's IP network data flow. A navigation device that employed a Verizon CableCARD might be technically compliant with the rule but would be of limited utility to customers that wished to enjoy the full suite of Verizon's video offerings, because the separate conditional access system simply would not cover the IP video side of Verizon's system and thus would not allow customers to access those services.<sup>32</sup>

Moreover, Verizon's set-top box vendor has informed it that, due to technological differences between its new fiber-based video system and traditional MVPD systems, developing a set-top box for Verizon with physically separate security functions would be significantly more complex, costly, and time-consuming than is typically the case.<sup>33</sup> A unique set-top box would need to be developed for Verizon because the existing navigation device manufacturing and technical standards ("OpenCable Host 2.0") are based on traditional cable architecture, which differs fundamentally from Verizon's fiber- and IP-based architecture, as described above. Thus, the manufacturer would have to develop brand new specifications for use on FTTP networks. For instance, the current return path for most set-top boxes, which is based either on radio frequency ("RF") or Data Over Cable Service Interface Specifications ("DOCSIS"), would have to be modified to support the IP-centric system employed by FiOS TV.<sup>34</sup> Also, OpenCable

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<sup>32</sup> *Id.* ¶ 9.

<sup>33</sup> *Id.* ¶ 7.

<sup>34</sup> *Id.* ¶ 8.

Host 2.0 has limitations on what ports are supported on the box; Ethernet, among others, is currently excluded. A new device profile thus would need to be added to the specifications that facilitates the types of boxes that Verizon wants to deploy.<sup>35</sup> For these reasons, even if it made sense to require Verizon to develop a physically separate access solution (which it does not), it would be extremely difficult if not impossible for Verizon to achieve compliance with such a mandate by July 2007.

Even assuming that Verizon could deploy a compliant box by July 2007, doing so would force Verizon to commit substantial resources to deploying what is, in essence, a stop-gap solution that will soon be obsolete. This would, in turn, raise costs to customers, force Verizon to divert resources from other programs that would be more beneficial to consumers, and potentially either slow the deployment of its advanced broadband infrastructure or the rapid roll-out of its competitive, innovative video offerings. It would also offer little benefit, as the conditional access separations requirements would not cover the truly innovative IP services that Verizon offers.

Finally, if the FCC does not relax the July 2007 deadline, the focus on deploying physically compliant devices may actually retard the development of an open, interoperable downloadable security solution, which everyone in the industry agrees is superior to physical separation, and which would better further the goal of creating a competitive market for navigation devices.

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<sup>35</sup> *Id.*

**II. GRANTING A WAIVER WOULD NOT JEOPARDIZE THE OVERALL GOAL OF SECTION 629, WHICH IS TO ASSURE THE COMMERCIAL AVAILABILITY OF NAVIGATION DEVICES.**

In its First Report and Order, the Commission found that its obligations under Section 629 to facilitate the commercial availability of navigation devices could be best served by requiring MVPDs to separate the security element from the navigation device.<sup>36</sup> The Commission determined that separation would be the key to making navigation devices commercially available, because separation could increase portability and expand the market for devices capable of receiving cable signals.<sup>37</sup> Point-of-deployment modules, known as “CableCARDS,” developed as the best the means to effectuate the separation requirement.<sup>38</sup> The Commission decided that the goals of Section 629 required it to go a step further and prohibit distribution – the sale, lease or use – of integrated navigation devices.<sup>39</sup>

Verizon is already in compliance with the requirement that an MVPD provide conditional access equipment to its customers. Verizon has CableCARDS available that its customers may utilize in CableCARD-ready consumer electronics equipment to receive Verizon service. The only question presented here is whether the Commission

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<sup>36</sup> 13 FCC Rcd. at 14793-94 (¶ 49).

<sup>37</sup> *Id.* at 14793 (¶ 48).

<sup>38</sup> *See Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Compatibility Between Cable Systems and Consumer Electronics Equipment*, Second Report and Order, 18 FCC Rcd. 20885, 20888 (¶ 5) (2003).

<sup>39</sup> *See* 47 C.F.R. § 76.1204(a)(1). The Commission concluded that the prohibition on distribution was necessary to allow a market for non-integrated devices to develop. Without the distribution prohibition, the Commission reasoned, MVPDs could “make available” conditional access equipment (*i.e.*, CableCARDS) as the first part of the rule requires, *id.*, but obstruct the goal of the rule, which is the development of a market for non-integrated devices, from coming about by continuing to primarily distribute integrated equipment. *See* First Report and Order, 13 FCC Rcd. at 14793-94 (¶ 49).

should waive the requirement that Verizon comply with CAS separation at the set-top box level in the 2007 time frame.

The granting of such a waiver will not undermine the Commission's goals in adopting Section 76.1204. Granting Verizon's waiver request will have little to no impact on the commercial availability of non-integrated navigation devices. Even if Verizon is permitted to distribute integrated devices, the market for non-integrated devices should remain as vibrant as it would have been absent such a waiver, for two reasons.

First, the relatively small size of Verizon's existing customer base makes it unlikely that, in the absence of a common standard that would also work for other providers, any consumer electronics manufacturer would be interested in developing a set-top box that would perform all of the IP video functions required to take full advantage of Verizon's network.<sup>40</sup> Without such functionality, the generic navigation boxes developed to serve traditional cable networks would be of limited utility to Verizon's customers, even if those boxes complied with the physical separation requirement. A generic, non-IP enabled box using a Verizon CableCARD would work with a portion of Verizon's system and allow customers to access the traditional QAM video that Verizon provides, but it would not be able to interact with Verizon's IP network; thus, the box would not be able to order VOD or display Verizon's interactive programming guide ("IPG") or other new services such as FiOS Widgets that are part of the compelling FiOS TV value proposition. Even absent a waiver, therefore, implementation of the integrated set-top box ban by Verizon is unlikely to have any

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<sup>40</sup> Whitton Decl. ¶ 6.

effect on the development of a separate consumer electronics market for generic set-top boxes, because even without a waiver there is unlikely to be much demand among Verizon's customers for these boxes. Indeed, the IP-enabled boxes that Verizon will offer will allow for greater bandwidth, and consistent with an open DCAS system, will bring innovation to the set-top box and offer customers new choices.

For these reasons, the concerns that motivated the adoption of the ban on integrated set-top boxes simply do not apply in this case. The ban was not intended as a measure that would directly open the set-top box market to competition, but rather as a means of preventing incumbent cable operators from stifling the development of competition in the set-top box market by continuing to distribute boxes that used easier, more effective, or less cumbersome conditional access. Verizon's market share is not yet large enough to impact the development of generic set-top boxes that would work with any cable provider.

Second, even if consumer electronics manufacturers decide that they wish to develop and deploy navigation devices that work only with Verizon's network, grant of a waiver will not harm this effort. This is because Verizon already distributes CableCARDS, and consumer electronics manufacturers can design devices that are compatible with these CARDS if they wish to do so. A waiver of the set-top box ban will not affect the availability of Verizon's supply of CableCARDS.

Finally, Verizon's provision of CableCARDS means that even with a waiver of the integrated set-top box ban, Verizon's customers will still be able to utilize non-integrated consumer electronics, such as televisions or a generic cable box, in those

limited circumstances where they may not need access to the full IP functionality of the company's network (such as a second or third television).

**III. GRANTING A WAIVER WOULD BE CONSISTENT WITH THE COMMISSION'S PAST PRACTICE AND WOULD PROMOTE BROADBAND DEPLOYMENT.**

**A. A Waiver for Verizon is Consistent with the FCC's Policy of Exempting DBS Carriers.**

Many of the same policies that the Commission cited in crafting the exemption for DBS carriers from the set-top box integration ban<sup>41</sup> apply to Verizon's new FiOS TV service and provide additional support for Verizon's waiver request.

In creating the exemption for DBS, the Commission was particularly concerned with the possibility that compliance with the requirement would hamper DBS providers' ability to compete in the marketplace.<sup>42</sup> Like the DBS operators then, the emergence of Verizon's FiOS TV service will provide consumers with the benefits that stem from increased competition. And, like the DBS operators, Verizon's deployment of competitive and innovative services will be hampered if it is forced to comply with the integrated set-top box ban come July 2007.

The Commission also recognized that as relatively new entrants with a smaller market share in the MVPD service marketplace than incumbent cable operators, DBS providers were particularly harmed by regulations that forced them to alter their business model.<sup>43</sup> Verizon is an even newer entrant to the MVPD market than DBS providers were at the time the First Report and Order was issued and, with its currently limited

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<sup>41</sup> See First Report and Order, 13 FCC Rcd. at 14800-01 (¶¶ 64-65).

<sup>42</sup> See *id.*

<sup>43</sup> See *id.* at 14801 (¶ 65).

operations, has an even smaller marketplace share. A waiver of the Section 76.1204's separability requirements is essential for Verizon to continue to develop its innovative video service. As it did in the DBS context, the Commission should side with the development of a competitive marketplace for services, rather than focusing myopically on the market for set-top boxes, by providing Verizon with the requested waiver.

In addition, because DBS providers had a small market share compared to the incumbent cable providers, the FCC recognized that DBS would have substantial market-based incentives to differentiate themselves from the incumbent cable providers through the offering of new services and more advanced equipment.<sup>44</sup> With these incentives in place, the Commission correctly decided that the imposition of a separate security requirement would not “serve the goal of enhanced competition in either the service or equipment markets.”<sup>45</sup> Again like DBS operators, Verizon has the same market-based incentives to differentiate itself from incumbent MVPD providers by offering new and innovative services and equipment and has already begun doing so in the areas where FiOS service is available. Adding a separate security requirement would not change these incentives, but it would hamper Verizon's ability to compete. The fewer regulatory barriers that stand in the way, the quicker Verizon will be able to expand the geographic area of its service.

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<sup>44</sup> *See id.*

<sup>45</sup> *Id.*

**B. A Waiver Will Allow Verizon to More Quickly Deploy Fiber to the Home Infrastructure, Enhancing Broadband Deployment and Furthering the Goal of Section 706 of the 1996 Act.**

Verizon's roll-out of FTTP facilities not only allows the provision of FiOS TV, it also brings immensely powerful broadband data services to Verizon's customers.

Congress recognized the importance of promoting broadband deployment in its passage of Section 706 of the Telecommunications Act.<sup>46</sup> Section 706 directed the Commission to

encourage the deployment . . . of advanced telecommunications capability to all Americans . . . by utilizing, in a manner consistent with the public interest, convenience, and necessity . . . regulatory forbearance, measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.

Verizon's FTTP network upgrade represents a dramatic effort to expand the availability of broadband services that Section 706 addresses. Indeed, FTTP deployment is the brass ring of broadband deployment, offering data speeds and service capabilities that are unmatched by any other type of broadband infrastructure.

Government regulations that hamper Verizon's ability to roll out video services not only deprive customers of competitive video service, they also could undercut further deployment of FTTP and the concomitant spread of ultra-high-speed broadband access. Granting Verizon's waiver request will further the goals of Section 706, as the waiver will allow Verizon to continue to rapidly deploy its FiOS video service and thus allocate additional resources into the continued expansion of its broadband network.

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<sup>46</sup> See Telecommunications Act of 1996, Pub. L. No. 104-104, § 706, 110 Stat. 56, 153 (reproduced in the notes under 47 U.S.C. § 157).

**IV. THE COMMISSION SHOULD TAKE STEPS TO IMPLEMENT A TRULY INTEROPERABLE DOWNLOADABLE CONDITIONAL ACCESS SYSTEM.**

While DCAS will not be available in advance of the Commission's July 2007 deadline for the offering of integrated set-top boxes, the technology is coming. Such an approach—if handled appropriately—will provide a long-term solution that will achieve the goals of Section 629, while ending many of the thorny technology debates of the last decade. To enable DCAS to be deployed expeditiously, the Commission needs to take a number of steps, in addition to waiving the integration ban for Verizon, to help establish fair and equitable standards for the use of DCAS. The touchstone of these standards should be open standards and true interoperability, *i.e.* a CAS that does not favor one network technology or industry player over another.

**A. “Open DCAS” Will Provide True Interoperability.**

In order to ensure that the benefits of DCAS are available to all video providers, and to avoid favoring one type of technology over another, the Commission should encourage the development of a truly interoperable DCAS system. To fulfill this goal, any DCAS standards adopted by the Commission must adhere to four general principles. Unlike the proprietary, closed proposal that has been advanced by NCTA,<sup>47</sup> an “Open DCAS” system that meets these four criteria will be agnostic as to network technology, will neither benefit nor be controlled by individual competitors in the marketplace, and will allow real innovation in the provision of service and the design and construction of consumer electronics.

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<sup>47</sup> See DCAS Letter at 1.

*First*, Open DCAS must utilize a non-proprietary chipset based on standards developed in an open forum. An open and network agnostic bootloader to load the security chipset is also required. The secure chipset is a set of computer chips that serve as the heart of a DCAS-enabled security system. When a DCAS device is attached to the network of a video provider using the open bootload protocol it automatically downloads the conditional access software that the network provider has selected into the secure chipset. If a customer switches video providers, the goal of DCAS is to allow the customer's device to download new conditional access software from the customer's new video provider into the same security chipset. A standard DCAS chipset that works across all networks and is network agnostic is thus critical to ensuring that customers can continue to use their devices when switching between providers.

Because of the importance of the chipset to DCAS functionality, no single competitor or group of competitors should exercise proprietary control over the design and manufacture of this hardware. Allowing specific competitors this kind of control would give those entities the ability to regulate access to a device that is critical to market entry. The risks of this approach are amply demonstrated by the NCTA proposal, which uses proprietary modifications to generally available chips and requires carriers to adopt a host of unrelated technologies, including DOCSIS and the OpenCable Application Protocol ("OCAP"). In addition, granting specific competitors control over the design and manufacture of this hardware would give them control over the evolution of the device that might favor a particular network technology or architecture.

As a result, the specifications for an Open DCAS chip should be developed by an independent and open standards-setting organization that includes broad participation

from the industry. For example, the Alliance for Telecommunications Industry Solution is currently considering the standards for IP TV, and this organization would be perfectly suited to develop the Open DCAS standard, either as part of the IP TV discussions or as a separate, related issue. Other standards organizations and industry forums that meet the criteria above, and have recognized competence in the development of security standards, could also be considered.

*Second*, Open DCAS must use a transport-agnostic solution such as IP over Ethernet for the return path, rather than a technology that favors any particular type of network architecture such as DOCSIS. The current NCTA DCAS proposal assumes the use of DOCSIS, rather than a neutral technology, for this critical function. In a DCAS environment, the security software in the device must be able to communicate back to the network in order to send security codes for authorization.

The best choice for the return signal is IP over Ethernet. Using an IP over Ethernet model, a device such as a set-top box or a piece of consumer electronics would output its return signal using the standard IP over Ethernet protocol. This signal would then be converted at the customer's premises by the network service provider into whatever format the network used for upstream data transmission (in Verizon's case, e.g., IP over fiber, or in an incumbent system, DOCSIS over coaxial cable) and sent to the network head end for verification.

An IP over Ethernet return output would be cost-effective, as IP over Ethernet is one of the most widely used and understood network protocols in the world, and Ethernet infrastructure for use in the home or office (such as cables, routers, and hubs) is widely

available and low-cost.<sup>48</sup> Moreover, an IP over Ethernet model would be competitively neutral, as both traditional cable providers and other providers such as Verizon would all have to include a device in the customer premises to translate the Ethernet signals into a protocol that could be sent up the network. Converters for use in translating IP over Ethernet signals into DOCSIS for transmission up traditional RF coaxial cable networks are generally available and are relatively low-cost (indeed, those customers that use cable broadband services already have such a device in their cable modems).

This contrasts sharply with a standard that would require carriers like Verizon (that use optical networks) to use DOCSIS for transmission up the network, because DOCSIS requires a RF return path in order to function, which must be transmitted over electrically conductive wire or cable, such as coaxial cable. This is not an issue for the HFC cable systems employed by incumbent cable operators, which use coaxial cable to carry the signal from the customer's premises back to a central location. For a carrier such as Verizon that is deploying fiber optic cable directly to the home, however, DOCSIS simply does not work as a return path. Verizon's network does not have a coaxial cable link between the customer's premises and a central network location, and thus there is nothing that could carry the RF signal employed by DOCSIS. While Verizon's ONTs translate downstream video into the QAM standard for distribution over coaxial plant within the customer's premises, the ONT uses standard IP for upstream transmission and does not have the capability to translate DOCSIS signals into IP packets

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<sup>48</sup> Because of the substantial advantages offered by IP over Ethernet, the Commission should require the adoption of this technology-agnostic return path instead of DOCSIS even if it elects to implement other aspects of NCTA's DCAS proposal.

for upstream signaling. DOCSIS signals can be converted into IP, but to do so requires additional hardware that cannot be cost-effectively deployed to the customer premises.<sup>49</sup>

*Third*, under Open DCAS the root trust authority must be competitively neutral and not beholden to any particular competitor or group of competitors. For any interoperable, downloadable security system to function, a “root trust authority” must be designated to maintain the crypto keys and other security information that allows verification that a device employing the conditional access software is valid and authorized. The entity serving as the root trust authority must, of necessity, have access to a range of highly sensitive competitive information, including lists of every video provider’s customers’ devices public key. In order to ensure that one set of providers does not gain an unfair advantage or have inappropriate access to competitive information, it is critical that the root trust authority be truly independent, and that each provider be able to contract and interface directly with the root trust authority. As the process for selecting the North American Numbering Plan Administrator shows, where it is necessary for all competitors to have access to a collective resource, industry can work together with regulators to select a neutral third party that is entirely impartial and does not favor a single competitor or sector of the industry.<sup>50</sup>

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<sup>49</sup> Incumbent cable operators use a single converter device to serve numerous customers, thereby spreading the cost of this device among customers in a way that a fiber optic provider could not do.

<sup>50</sup> Under NCTA’s DCAS proposal, Verizon understands that CableLabs was originally designated as the root trust authority. It appears that CableLabs has now contracted with a third party to serve this function. To the extent that CableLabs has already selected and contracted with a third-party entity to serve as the root trust authority and the Commission elects to adopt other elements of the NCTA’s DCAS proposal, it may not be necessary to select a different entity to act as the root trust authority. However, at the very least the FCC must require that companies such as Verizon can form independent relationships with this entity in order to maintain the security of customer information.

*Fourth*, and finally, DCAS standards must be limited to the hardware and software truly necessary for conditional access support, and must not require providers or consumer electronics manufacturers to implement extraneous, unrelated technologies. For example, the DCAS proposal offered by NCTA ties the implementation of DCAS in with adoption of OCAP. While NCTA describes OCAP as the “[f]oundation” for two-way digital cable ready products,<sup>51</sup> OCAP has nothing to do with implementing an effective downloadable security regime.

As NCTA explains, OCAP is a “middleware software layer,” founded on a Java Execution Engine.<sup>52</sup> OCAP will most likely initially be used to provide IPGs or VOD services that run on any device. Eventually, it may also be used to offer other applications, such as games. Fundamentally, OCAP will allow cable providers to exercise full control over customers’ consumer electronics by mandating a uniform look and feel no matter which piece of hardware the customer elects to purchase.

But while OCAP offers the promise of universal support for certain types of applications, it is *entirely unrelated* to conditional access. There is no need for a device to support OCAP in order to employ DCAS; so long as the device is DCAS-compatible, it should be able to use downloadable security protocols whether or not it is also OCAP-compatible. NCTA’s insistence that any providers licensing its DCAS technology also employ OCAP functionality is indicative of the trade association’s attempt to leverage DCAS implementation into a broader range of benefits for incumbent cable providers.

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<sup>51</sup> Letter from Daniel L. Brenner, NCTA, to Marlene H. Dortch, Sec’y, FCC, “Report of the National Cable & Telecommunications Association on Two-Way (Interactive) Digital Cable Ready Televisions,” at 9 (Nov. 30, 2005) (on file with FCC in CS Docket No. 97-80).

<sup>52</sup> *Id.*

OACAP—or any other standard developed by and for one group of competitors—would stifle innovation in both software and hardware design, by reducing the ability of hardware manufacturers to differentiate themselves from one another. To the extent that the look and feel of the device is established by a cable provider, there is less room for individual manufacturers to provide innovative features and solutions that may allow these manufacturers to charge a premium for their consumer electronics. As long as the data formats underlying things like IPGs are standardized, the consumer electronics manufacturers can provide IPGs using their own innovative look, feel and feature sets without relying on a broad-based solution like OACAP. DirecTV provides an excellent example of using this type of standardized IPG data to allow consumer electronics manufacturers to develop different features. There is simply no reason for the FCC to weigh in to this debate and write support for OACAP into its regulations. If the consumer electronics manufacturers and cable providers wish to design and market devices that support OACAP, there are no barriers to them doing so.

**B. Concerns Over Potential Delays Should Not Drive the Commission's Decision.**

Adopting a competitively and technically neutral program such as Open DCAS likely would not require substantial delays in DCAS rollout. However, any delay in implementing DCAS is well worth taking if the extra time ensures that the technological standard adopted by the Commission is open, fully interoperable, not designed to give one set of competitors an unfair advantage, and not designed to favor legacy technology at the expense of innovative service offerings.

Moreover, to the extent that the task of developing a standard resides with neutral standards setting bodies, there is no reason to think that the standard will not be

developed expeditiously. Such discussions are already under way with respect to IPTV, and there is no reason to think that these discussions will not come to a rapid, fair and equitable conclusion. And these ongoing processes are not intended for the benefit of just one segment of competitors, but instead are open to competitive and incumbent providers alike. There is still time, if the Commission acts quickly, to set in motion the required standards-setting processes in order to make Open DCAS a reality.

**V. CONCLUSION**

For the reasons set forth above, Verizon respectfully requests that the Commission waive the integrated set-top box distribution requirement as it applies to Verizon until an interoperable Open DCAS solution can be properly developed and deployed.

Respectfully submitted,

  
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July 10, 2006

**Before the  
FEDERAL COMMUNICATIONS COMMISSION**

Verizon’s Petition for Waiver )  
of the Set-Top Box Integration Ban, )  
47 C.F.R. § 76.1204(a)(1) ) MB Docket No. \_\_\_-\_\_\_

**VERIZON’S PETITION FOR WAIVER OF THE SET-TOP BOX  
INTEGRATION BAN, 47 C.F.R. § 76.1204(a)(1)**

**DECLARATION OF BRIAN H. WHITTON**

1. My name is Brian H. Whitton. I am currently Executive Director – Technology for Verizon. I am familiar with the design of Verizon’s network and the nature of the company’s FiOS TV service offerings.
2. The purpose of this declaration is to support Verizon’s request for a waiver of the Federal Communications Commission rule requiring that cable operators cease distributing by July 1, 2007 cable set-top boxes that have an integrated security component.
3. Verizon’s fiber-optic network (Fiber-to-the-Premises or “FTTP”) allows the company to offer many more programming choices and innovative services than incumbent cable operators. Verizon’s network transmits traditional cable services over fiber-optic lines as optical signals. These signals are translated into both traditional digital and analog cable signals by the customer’s Optical Network Terminal (“ONT”), and

are decoded by Verizon's set-top boxes in much the same way as any other cable provider.

4. However, Verizon's network also incorporates an Internet Protocol ("IP") element that provides streaming video over IP on demand, and integrates data applications into the video service offering. All Verizon set-top boxes thus architecturally reside on two separate and distinct networks, the Quadrature Amplitude Modulation ("QAM") network and the IP network. Verizon's IP video service is transmitted via the non-QAM, IP network to the set-top box, which means that the standard for CableCARDs (the commercial name for the point-of-deployment modules used to achieve physical separation) does not have any provisions for processing this IP network data flow. The IP for the video stream is independent of the customer's internet access.
5. The addition of IP capability to Verizon's network and equipment makes Verizon's FiOS network unique, and allows Verizon to provide services over its network that other carriers cannot provide. The IP integration will also allow Verizon to produce additional innovative features as development continues, which will produce substantial benefits for Verizon's customers and place significant competitive pressure on existing video providers.
6. Verizon's share of the video market is relatively small at this point in time. As a result, Verizon's set-top boxes make up a relatively small proportion of the overall number of set-top boxes currently being produced. It appears unlikely that consumer electronics manufacturers will dedicate the substantial engineering and design resources necessary to produce a physically compliant set-top box for the currently

small segment of the overall market served by Verizon in the absence of a common standard that would permit such equipment to also work for other providers.

7. Verizon's set-top boxes vendors have informed the company that, due to technological differences between its new fiber-based video system and traditional MVPD systems, developing a set-top box for Verizon with physically separate security functions would be significantly more complex, costly, and time-consuming than is typically the case. A unique set-top box would need to be developed for Verizon because the existing navigation device manufacturing and technical standards (known as "OpenCable Host 2.0") are based on traditional cable architecture, which differs fundamentally from Verizon's fiber- and IP-based architecture, as described above. Thus, the manufacturer would have to develop brand new specifications for use on FTTP networks.
8. For instance, the current return path for most set-top boxes, which is based either on radio frequency ("RF") or Data Over Cable Service Interface Specifications ("DOCSIS"), would have to be modified to support the IP element of the system employed by FiOS TV. Also, OpenCable Host 2.0 has limitations on what ports are supported on the box; Ethernet, among others, is currently excluded. A new device profile thus would need to be added to the specifications that facilitates the types of boxes that Verizon wants to deploy.
9. The IP side of Verizon's network plays a large role in the overall experience of a Verizon video customer. Generic cable boxes capable of working on any network are unlikely to incorporate the IP technology necessary to interact with this portion of Verizon's network. Thus, for the foreseeable future, a customer using a box other

than the one Verizon makes available would likely not be able to access a significant portion of the content on Verizon's network, whether or not a waiver of the integrated set-top box ban is granted.

10. However, Verizon has already implemented CableCARDS in accordance with FCC rules and made these devices available to those of its customers who wish to use separate security devices in cable-ready consumer electronics instead of a set-top box.
11. CableCARD hardware is relatively expensive and complex on a per unit basis. The CableCARD is a type of PC Card, and adheres to the standard for PC Cards promulgated by the Personal Computer Memory Card International Association. The PC Card standard for expansion card construction calls for a sixty-eight pin interface between the card and the device into which the card is plugged. In order to accommodate a CableCARD, a consumer electronics device must therefore have a compatible PC Card slot, which includes gold connectors for the sixty-eight pin card, a slide to hold the card in place, and an ejector device for removing the card. These physical devices add additional complexity to the design and manufacturing of a compliant device. Including these components in the device can increase its wholesale price by as much as \$25 per unit, without factoring in the cost of the CARDS themselves, which can add an additional \$50 to \$70 of cost to the consumer per unit.
12. Economies of scale may drive down the price of the actual CableCARDS. However, there is little prospect that the cost of the hardware necessary to incorporate the CARDS will decrease as the FCC's mandate takes effect. This is because the hardware necessary to incorporate PC Card slots is already used in hundreds of

thousands of devices, and any economies of scale possible with the manufacturing of these components have likely already been achieved.

13. Incorporating the CableCARD into existing devices is time-consuming and complex, and will increase customer costs still further. If Verizon is forced to commit the substantial technical and economic resources necessary to design and produce a physically compliant set-top box, the company's aggressive roll-out schedule for FiOS TV will be jeopardized. Moreover, such action will force Verizon to divert resources from other projects that would be more beneficial to consumers.
14. In contrast to costly and complex hardware associated with physical separation, a downloadable software security system, such as downloadable conditional access ("DCAS"), has the potential to be cheaper and easier to implement, and is also more convenient for consumers. Eliminating costly and cumbersome cards and slots makes the manufacture and design of compliant devices simpler, and the solid-state circuitry necessary to implement software-based security is cheaper and less prone to wear than any solution involving physical separation.
15. DCAS also simplifies customer installation and reduces the equipment that a customer must purchase or lease, and would thus improve the customer's experience in activating video service. Further, downloadable conditional access would allow the security system to be upgraded and renewed as technical improvements are developed.
16. An open, interoperable DCAS system is not yet ready for widespread deployment. There is very little chance that any DCAS system, let alone a properly designed,

interoperable system, can be effectively implemented by July 2007. NCTA believes that, if adopted, its proposed system (which, while biased toward incumbent cable technology, is relatively far along in development) would not be available for widespread deployment until 2008. At this point, DCAS is in the planning stages, and there are many steps that need to be taken to define the technical specifications and processes necessary in order to make a properly designed DCAS system a reality.

17. To avoid favoring one type of network technology over another, an open and interoperable DCAS system (or “Open DCAS” system) must have at least four characteristics that the current NCTA DCAS proposal does not have.
18. First, the standard host for the conditional access software must be a non-proprietary, generally available chipset. An open and network agnostic bootloader to load the security chipset is also required. The secure chipset is a set of computer chips that serve as the heart of a DCAS-enabled security system. When a DCAS device is attached to the network of a video provider using the open bootload protocol it automatically downloads the conditional access software that the network provider has selected into the secure chipset. If a customer switches video providers, the goal of DCAS is to allow the customer’s device to download new conditional access software from the customer’s new video provider into the same security chipset. A standard DCAS chipset that works across all networks and is network agnostic is thus critical to making sure that customers can continue to use their devices when switching between providers.
19. Allowing specific competitors control over the chipset or chipset technology would give those entities the ability to regulate access to a device that is critical to market

entry. In addition, granting specific competitors control over the design and manufacture of this hardware would give them control over the evolution of the device that might favor a particular network technology or architecture. For these reasons, the specifications for an Open DCAS chip should be developed by an independent and open standards-setting organization that includes broad participation from the industry. For example, the Alliance for Telecommunications Industry Solutions is currently considering the standards for IP TV, and this organization would be perfectly suited to develop the Open DCAS standard, either as part of the IP TV discussions or as a separate, related issue. Other standards organizations and industry forums that meet the criteria above, and have recognized competence in the development of security standards, could also be considered.

20. Second, Open DCAS must use a transport-agnostic solution such as IP over Ethernet for the return path, rather than a technology that favors any particular type of network architecture such as DOCSIS.

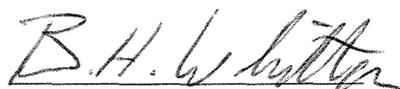
21. In a DCAS environment, the security software in the device must be able to communicate back to the network in order to send security codes for authorization. The best choice for the return signal is IP over Ethernet. Using an IP over Ethernet model, a device such as a set-top box or a piece of consumer electronics would output its return signal using the standard IP over Ethernet protocol. This signal would then be converted at the customer's premises by the network service provider into whatever format the network used for upstream data transmission (in Verizon's case, *e.g.*, IP over fiber, or in an incumbent system, DOCSIS over coaxial cable) and sent to the network head end for verification.

22. An IP over Ethernet return output would be a cost-effective solution. IP over Ethernet is one of the most widely used and understood network protocols in the world, and Ethernet infrastructure for use in the home or office (such as cables, routers, and hubs) is widely available and low-cost. An IP over Ethernet model would also be competitively neutral, because both traditional cable providers and other entities such as Verizon would have to include a device in the customer premises to translate the Ethernet signals into a protocol that could be sent up the network. This contrasts sharply with a standard that would require carriers like Verizon (that use optical networks) to use DOCSIS for transmission up the network, because DOCSIS requires a RF return path in order to function, which must be transmitted over electrically conductive wire or cable, such as coaxial cable. This is not an issue for the Hybrid Fiber Coaxial cable systems employed by incumbent cable operators, which use coaxial cable to carry the signal from the customer's premises back to a central location. For a carrier such as Verizon that is deploying fiber-optic cable directly to the home, however, DOCSIS simply does not work as a return path. Verizon's network does not have a coaxial cable link between the customer's premises and a central network location, and thus there is nothing that could carry the RF signal employed by DOCSIS. While Verizon's ONTs translate downstream video into the QAM standard for distribution over coaxial plant within the customer's premises, the ONT uses standard IP for upstream transmission and does not have the capability to translate DOCSIS signals into IP packets for upstream signaling. DOCSIS signals can be converted into IP, but to do so requires additional hardware that cannot be cost-effectively deployed to the customer premises.

23. Third, under Open DCAS the root trust authority must be competitively neutral and not beholden to any particular competitor or group of competitors. For any interoperable, downloadable security system to function, a “root trust authority” must be designated to maintain the crypto keys and other security information that allows verification that a device employing the conditional access software is valid and authorized. The entity serving as the root trust authority must have access to a range of highly sensitive competitive information, including lists of every video provider’s customers and the devices that they use to access the cable provider’s services. If the root trust authority is not fully independent, one set of providers could gain an unfair advantage or have inappropriate access to competitive information.
24. Fourth, Open DCAS standards must not require providers or consumer electronics manufacturers to implement extraneous, unrelated technologies. For example, the DCAS proposal offered by NCTA ties the implementation of DCAS in with adoption of the OpenCable Application Platform (“OCAP”). However, there is no need for a device to support OCAP in order to employ DCAS; so long as the device is DCAS-compatible, it should be able to use downloadable security protocols whether or not it is also OCAP-compatible.
25. OCAP—or any other standard developed by and for one group of competitors—would stifle innovation in both software and hardware design, by reducing the ability of hardware manufacturers to differentiate themselves from one another. To the extent that the look and feel of the device is established by a cable provider, there is less room for individual manufacturers to provide innovative features and solutions that may allow these manufacturers to charge a premium for their consumer

electronics. As long as the data formats underlying things like Interactive Program Guides are standardized, the consumer electronics manufacturers can provide these guides using their own innovative look, feel and featuresets without relying on a broad-based solution like OCAP.

I declare under penalty of perjury that the foregoing is true and correct.

A handwritten signature in cursive script that reads "B. H. Whitton". The signature is written in black ink and is positioned above the printed name.

Brian H. Whitton

Dated: July 7, 2006