

BEFORE THE  
Federal Communications Commission  
WASHINGTON, D.C.

In the Matter of	)	
	)	
Implementation of Section 304 of the	)	
Telecommunications Act of 1996	)	CS Dkt. No. 97-80
Devices	)	
	)	
Commercial Availability of Navigation Devices	)	
	)	
Compatibility Between Cable Systems and	)	PP Dkt. No. 00-67
Consumer Electronics Equipment	)	

**COMMENTS OF MOTOROLA, INC.**

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**COMMENTS OF MOTOROLA, INC.**

Motorola, Inc. (“Motorola”) respectfully submits these comments in response to the Further Notice of Proposed Rulemaking (“FNPRM”) in the above-captioned proceedings regarding proposed modifications to the Commission’s CableCARD rules.<sup>1</sup> Motorola welcomes this opportunity to comment on the specific proposals in the FNPRM.

**I. INTRODUCTION AND SUMMARY**

Motorola agrees with the Commission’s statement in the FNPRM that the current CableCARD regime has not been successful in producing a marketplace for retail navigation devices. There are a number of possible explanations for this situation. Consumers may prefer leasing, rather than buying, set-top box equipment. The

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<sup>1</sup> *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Fourth Further Notice of Proposed Rulemaking, 25 FCC Rcd. 4303 (2010) (“FNPRM”).

CableCARD technology is also being superseded in the marketplace by Digital Rights Management (“DRM”) and other security solutions. Motorola supports the launch of the separate AllVid proceeding to examine fresh approaches in this space. In the interim, the Commission has launched this proceeding to consider possible modifications to the CableCARD regime. Motorola takes this opportunity to comment on several proposals in the FNPRM.

Motorola strongly supports efforts to give cable operators and set-top manufacturers greater flexibility in the outputs included in operator-supplied high-definition (“HD”) set-top boxes. The 1394 output, which is mandated under the current plug-and-play rules, is largely unused today and has been superseded in the marketplace by Ethernet, Universal Serial Bus (“USB”), Media over Coaxial Cable (“MoCA”), and other Internet Protocol (“IP”) interfaces. Motorola welcomes the Commission’s proposal to expand the range of interface options for HD boxes, but urges the Commission to avoid mandating particular technologies or functionalities given the rapid pace of innovation in this area. Cable operators are already responding to marketplace demand by deploying home-networking and other solutions that enable customers to access video content on different devices in the home. In light of these developments, and the Commission’s previous experience with 1394, the Commission should refrain from imposing particular technical requirements, but rather explore options that can fully and flexibly accommodate and encourage marketplace innovations. Furthermore, during the pendency of this rulemaking, the Commission should grant waivers of the 1394 requirement.

Motorola supports the Commission's proposal to exempt all digital terminal adapters ("DTAs"), including HD DTAs, from the integration ban. Such an exemption would help advance the Commission's broadband goals. The standard-definition ("SD") DTAs that have been deployed to date are playing an important role in cable's digitization efforts, and are helping to make more bandwidth available for faster Internet speeds, more HD channels, and other digital services. However, SD DTAs no longer provide an adequate solution for consumers in light of the rapid growth of HDTVs in the home. As the Commission concluded in its *Cable One Waiver Order*, HD is "commonplace" in the video marketplace today. HD DTAs would provide a low-cost option for consumers to access HD channels on their HDTVs, and would likely be a particularly attractive option for secondary HDTVs in the home. Exempting the HD DTAs (and other DTAs) from the integration ban for all cable systems, not just small-capacity systems, would ensure scale economies for these devices and thereby provide cost savings to all operators and their customers. Furthermore, such an exemption would have no adverse impacts on the retail marketplace for navigation devices given the retail focus on devices with more advanced features, such as DVR and broadband access capability.

Motorola also urges the Commission to affirm its current policies of promoting the deployment of switched digital video ("SDV"). SDV provides another tool for cable operators to make more efficient use of their plant, and also advances the Commission's goal of freeing up more cable bandwidth for faster Internet. With respect to potential impacts on unidirectional digital cable-ready products ("UDCPs"), Motorola believes that the Tuning Adapter provides an adequate solution for UDCPs to access SDV channels.

Motorola questions the need to develop an entirely new solution for UDCPs, particularly given the very limited marketplace for UDCPs and the Commission's recognition that the CableCARD regime should be phased out.

**II. MOTOROLA APPLAUDS THE COMMISSION'S EFFORTS TO EXPLORE NEW APPROACHES TO FULFILLING THE GOALS OF SECTION 629.**

Motorola agrees with the Commission's tentative conclusion in the FNPRM that "CableCARD is not a viable long-term solution"<sup>2</sup> and supports the launch of a separate proceeding to examine new approaches to the navigation device issue.<sup>3</sup> As Motorola has explained previously, CableCARD has not fulfilled the goals of Section 629.<sup>4</sup> Less than 500,000 CableCARD-enabled retail devices are deployed today by the ten largest cable operators. This figure constitutes less than 1% of all cable customers. In contrast, cable operators and their customers have incurred substantial costs as a result of CableCARD requirements. Beyond the costs associated with developing the CableCARD solution and redesigning headends and equipment to support CableCARDs, cable operators have now deployed almost 20 million CableCARD-equipped set-top boxes from a wide and growing number of suppliers, including Motorola, Pace, Samsung, Panasonic, Cisco, Evolution Broadband, and TiVo.<sup>5</sup> This disparity makes crystal clear that the costs of the

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<sup>2</sup> FNPRM ¶ 12.

<sup>3</sup> See *In the Matter of Video Device Competition*, Notice of Inquiry, 25 FCC Rcd. 4275 (2010) ("NOI").

<sup>4</sup> See Motorola Comments, GN Dkt. Nos. 09-137, 09-51, 09-47, CS Dkt. No. 97-80, at 4-6 (Dec. 22, 2009) ("Motorola PN#27 Comments").

<sup>5</sup> See *Ex Parte* Letter from Neal M. Goldberg, General Counsel, NCTA, to Marlene H. Dortch, Secretary, FCC, CS Dkt. No. 97-80, at 1 (Mar. 31, 2010) ("NCTA CableCARD Report").

current regulatory regime -- which may now exceed \$1 billion -- far outweigh any public interest benefits.<sup>6</sup>

There are a number of possible explanations for this situation, such as consumers' preference for leased equipment. Leasing a set-top box:

- offers an attractive way for consumers to enjoy advanced services without significant upfront equipment costs;
- allows consumers to upgrade easily to newer model devices and thereby avoid the risk of equipment obsolescence; and,
- enables consumers to switch from cable to other MVPDs without being inhibited by the sunk cost of purchased equipment.<sup>7</sup>

Furthermore, CableCARD technology is becoming outdated in a video marketplace that is migrating to IP-based networks and non-CableCARD security solutions.<sup>8</sup> For example, many IPTV providers utilize DRM solutions for their security. The Commission's NOI on AllVid Adapters and Smart Devices will provide a useful forum for exploring new alternatives to the CableCARD that might accommodate rapid technological change in the video marketplace.<sup>9</sup>

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<sup>6</sup> See *In the Matter of James Cable, LLC et al., Requests for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, Memorandum Opinion and Order, 23 FCC Rcd. 10592, ¶ 9 n.30 (MB 2008) (noting that CableCARD adds about \$56 in cost to a set-top box).

<sup>7</sup> See NCTA Comments, GN Dkt. Nos. 09-137, 09-51, 09-47, CS Dkt. No. 97-80, at 5-7 (Dec. 22, 2009) ("NCTA PN#27 Comments"); DirecTV Comments, GN Dkt. Nos. 09-137, 09-51, 09-47, CS Dkt. No. 97-80, at 10-12 (Dec. 22, 2009).

<sup>8</sup> See Motorola PN#27 Comments at 5; NCTA PN#27 Comments at 30.

<sup>9</sup> In the legislative history accompanying the navigation device statute, Congress instructed the Commission to "avoid actions which could have the effect of freezing or chilling the development of new technologies and services." S. Rep. No. 104-230, at 181 (1996); see also Further Reply Comments of NCTA, MB Dkt. No. 07-269, at 17-19 (Aug. 28, 2009) (noting that the Commission's navigation device policies reflect "a flexible regulatory approach that promotes innovation in networks, services, and devices to the benefit of consumers").

While the Commission is working with stakeholders on new approaches, the FNPRM seeks comment on a series of proposals that, in the interim, aim to make adjustments to the CableCARD regime and certain other cable equipment rules.

Motorola takes this opportunity to comment on several of these proposals.

### **III. THE COMMISSION SHOULD GIVE OPERATORS GREATER FLEXIBILITY WITH RESPECT TO THE OUTPUTS INCLUDED IN HD SET-TOP BOXES.**

The Commission's existing plug-and-play rules require cable operators to include the IEEE-1394 interface on the high-definition ("HD") set-top boxes that they provide to their customers ("1394 Rule").<sup>10</sup> In the FNPRM, the Commission seeks comment on a proposal to revise the 1394 Rule to give cable operators "greater choice in the specific interface they include in their set-top boxes."<sup>11</sup> Motorola and several other companies have already filed for waiver of the 1394 Rule with respect to HD set-top boxes that include IP connectors.<sup>12</sup> Motorola supports efforts to give operators greater flexibility in this area. In the interim, Motorola urges the Commission to grant its waiver request.

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<sup>10</sup> 47 C.F.R. § 76.640(b)(4)(ii). The rules also require that the 1394 interface support certain remote control commands. *See id.* § 76.640(b)(4)(iii).

<sup>11</sup> FNPRM ¶ 20.

<sup>12</sup> *See In the Matter of Motorola, Inc.'s Request for Waiver of 47 C.F.R. § 76.640(b)(4)*, Request for Waiver, CSR-8251-Z, CS Dkt. No. 97-80 (Nov. 25, 2009) ("Motorola Waiver Request"); *see also In the Matter of Intel Corporation's Petition for Waiver of 47 C.F.R. § 76.640(b)(4)*, Petition for Waiver, CS Dkt. No. 97-80, CSR-8229-Z (Oct. 7, 2009) ("Intel Petition"); *In the Matter of TiVo Inc.'s Petition for Clarification or Waiver of 47 C.F.R. § 76.640(b)(4)*, Petition for Clarification or Waiver, CS Dkt. No. 97-80 (Nov. 6, 2009) ("TiVo Petition").

The Commission adopted the 1394 Rule as part of the 2003 Plug-and-Play Order.<sup>13</sup> At the time, the 1394 interface was the *only* digital connector in the marketplace for enabling the recording of copy-protected digital cable content. Since the 1394 Rule became effective, Motorola has manufactured millions of HD-capable devices that include the 1394 interface.<sup>14</sup> These include HD set-top boxes with and without digital video recording (“DVR”) functionality.

However, the 1394 output is largely unused today and has been superseded in the marketplace. Most home networks today rely on commonly-used IP interfaces, such as Ethernet and wireless IP, rather than 1394.<sup>15</sup> Network routers, PCs, and networked consumer electronics devices all use IP. As Intel advised the Commission, “[v]irtually none of the other home entertainment products that receive content from [set-top boxes] and other consumer electronics entertainment products relies on IEEE 1394 ports for recording or home networking.”<sup>16</sup> Likewise, TiVo explained to the Commission that the HD DVRs it sells at retail do not include a 1394 interface.<sup>17</sup> To the extent that the 1394 interface continues to be used by consumers, such use is generally limited to the transport

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<sup>13</sup> See *In the Matter of 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 and Second FNPRM, 18 FCC Rcd. 20885, ¶ 24 (2003).

<sup>14</sup> According to Texas Instruments, which owns IP in the 1394 technology, the cable industry has deployed over 25 million 1394-equipped set-top boxes. See Texas Instruments Opposition, CSR-8251-Z, CS Dkt. No. 97-80, at 2 (Feb. 22, 2010).

<sup>15</sup> See Motorola Waiver Request at 4-5.

<sup>16</sup> Intel Petition at 6; see also *id.* at 5 (“IEEE 1394 is not used as a networking technology on common consumer electronics products intended for the living room.”).

<sup>17</sup> TiVo Petition at 2.

of data files from camcorders and other electronics devices to personal computers, and even in that context, the 1394 interface has been largely replaced with USB and other far more commonly used IP connectors.<sup>18</sup>

Beyond these marketplace developments, the 1394 interface imposes significant costs on set-top box manufacturers, their cable customers, and consumers, as compared to the costs of the most commonly used IP connectors, such as Ethernet. Intel reported to the Commission that “the implementation costs of IP are a few cents per device, as compared to more than \$5 for a chip that supports IEEE 1394.”<sup>19</sup> TiVo noted that complying with the 1394 Rule would add significant costs to its DVR products, which currently utilize Ethernet and optional Wi-Fi interfaces.<sup>20</sup> In sum, as CEA has said, the 1394 Rule is “an obsolete prescriptive measure” and “has not resulted in appreciable and continued use of the 1394 interface.”<sup>21</sup>

The Commission notes in its FNPRM that waiver applicants “made compelling cases that IP connectivity will provide consumers with the functionality that the IEEE

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<sup>18</sup> See Scott Stein, *Does Losing FireWire on a MacBook Bother You?*, CNET, Oct. 21, 2009 (noting that “USB 2.0 is pretty much the universal standard for all data transfer, and it’s hard to find any peripheral that doesn’t use it”); see also Steven Levy, *An Ode to Vintage Ports*, Wired, at 40-41 (March 2009) (“In retrospect, FireWire was doomed when Apple dropped the technology from its video iPods several years ago, embracing the high-speed version of USB.”).

<sup>19</sup> Intel Petition at 5.

<sup>20</sup> See TiVo Petition at 6.

<sup>21</sup> CEA Comments, CSR-8251-Z, at 2, 4 (Feb. 22, 2010); see also Verizon Comments, CSR-8251-Z, at 2 (Feb. 22, 2010) (“The implementation costs of IP are a few cents per device, as compared to more than \$5 for a chip that supports IEEE 1394.”). 1394 has been a marketplace failure both in the U.S. and abroad. International trade press has listed 1394 as one of the top 10 most disappointing technologies. See Iain Thomson & Shaun Nichols, *Top 10 Disappointing Technologies*, PC Authority.com, May 18, 2009, at <http://www.pcauthority.com.au/News/145271,top-10-disappointing-technologies.aspx> (“Outside of a few models of high-end video cameras, FireWire isn’t seen much these days.”).

1394 interface requirement was intended to provide,” and tentatively concludes that “allowing manufacturers greater choice in the specific interface they include in their set-top boxes will serve the public interest by enabling connectivity with the multitude of IP devices in consumers’ homes.”<sup>22</sup> In light of this tentative conclusion, the Commission proposes new rules in this area that would, among other things, specify that one of four different connectors be included in operator-supplied HD set-top boxes: (1) 1394, (2) Ethernet, (3) WiFi, or (4) USB 3.0.<sup>23</sup>

Motorola strongly supports the Commission’s efforts to give manufacturers and operators more flexibility with respect to the interfaces included on HD boxes. However, Motorola urges the Commission to avoid mandating particular technologies in its rules and let operators deploy the connectors of their choice on HD STBs. Given the rapid pace of innovation in this space, there is a substantial risk that any new technological mandates -- even mandates that offer specific connector options as being considered here -- would fast become obsolete, as occurred with the 1394 connector. As an example, the proposed options do not include MoCA, which is growing as a home-networking technology in the cable industry.<sup>24</sup> In the event that the Commission elects to adopt a new interface rule, at a minimum it should include MoCA on the list of specific

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<sup>22</sup> FNPRM ¶¶ 19-20.

<sup>23</sup> *See id.* ¶ 20.

<sup>24</sup> *See* Motorola Waiver Request at 7 (noting that Motorola boxes for QAM and QAM/IP cable networks include an optional MoCA capability). DLNA approved MoCA for incorporation into its next version of guidelines. *See* DLNA News Release, *DLNA Approves MoCA for Inclusion in its Network Device Interoperability Guidelines*” (Dec. 16, 2008), at [http://www.dlna.org/news/pr/view?item\\_key=e63d0cef875537d34bf7694efdd39cd8961aa8eb](http://www.dlna.org/news/pr/view?item_key=e63d0cef875537d34bf7694efdd39cd8961aa8eb).

interfaces, and also permit cable operators the flexibility to include any other interface in their HD set-top boxes that can enable distribution of video content in the customer's home.

The FNPRM also proposes that the outputs on the HD boxes should (1) be able to receive remote-control commands from a connected device, and (2) deliver video in any industry standard format “to ensure that video made available over these interfaces can be received and displayed by devices manufactured by unaffiliated manufacturers.”<sup>25</sup> In general, Motorola believes that the Commission should refrain from imposing functional requirements on box interfaces. The poor experience with the 1394 Rule amply illustrates the point. The Commission adopted remote control commands for the 1394 port as part of its 2003 order implementing the one-way plug-and-play agreement between the cable and CE industries.<sup>26</sup> Motorola's HD set-top boxes that have been deployed by cable operators since the 1394 Rule went into effect support these commands. However, as demonstrated by the failure of 1394 in the marketplace, these technical requirements have had no apparent impact on consumer interest in, or use of, the 1394 port itself.

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<sup>25</sup> FNPRM ¶ 21. The Commission references MPEG-2 and MPEG-4 as two widely accepted industry standard video formats. *See id.* n.51.

<sup>26</sup> *See* 47 C.F.R. § 76.640(b)(4)(iii) (requiring that the 1394 output support tune function, mute function, restore volume function, power on, power off, and status inquiry). NCTA advised the Commission earlier this year that “[t]he cable industry included 1394 connectors in operator set-top boxes exactly as promised, as a video output with simple controls like on/off,” but consumers have still shown little interest in the technology. NCTA Reply Comments, GN Dkt. Nos. 09-51, 09-47, 09-137, CS Dkt. No. 97-80, at 38 (Jan. 27, 2010).

As is the case with the connectors themselves, the Commission should let consumer preferences and marketplace demand dictate the types of functionality that are supported by these connectors. MoCA, DLNA, and other voluntary industry consortia have developed, or are working towards developing, solutions to meet consumer interest in the home-networking of MVPD content, consistent with the Commission's goal in this proceeding. And those solutions are being implemented in cable networks today. For example, Verizon and other cable operators are utilizing Motorola's MoCA-enabled whole home DVR solution to deliver video content between and among networked set-top boxes in subscribers' homes,<sup>27</sup> and Motorola is working on a MoCA-enabled solution to network content from the DVR to other devices in the home. Likewise, in this evolving marketplace, there is no need for the Commission to mandate that operator-supplied HD boxes output content in particular video formats. Cable operators already have every incentive that their set-top boxes communicate with networked devices using MPEG, IP, or whatever standard video formats may develop in the future.

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<sup>27</sup> See, e.g., Verizon Communications, Inc., *About Verizon FiOS TV Home Media DVR*, <http://www22.verizon.com/residentialhelp/fiosTV/receivers/multi-room+dvr/multi-room+dvr.htm> (last visited May 28, 2010); *Moto Tunes Up Multi-Room DVR*, Light Reading Cable, May 11, 2010, available at [http://www.lightreading.com/document.asp?doc\\_id=191791&site=lr\\_cable](http://www.lightreading.com/document.asp?doc_id=191791&site=lr_cable); Press Release, Motorola Inc., *Motorola Continues to Expand Industry-Leading Set-Top Portfolio with New All-Digital, High-Definition Dual-Tuner MR-DVR* (May 11, 2010), available at <http://mediacenter.motorola.com/content/detail.aspx?ReleaseID=12800&NewsAreaId=2> (describing home-networking capabilities of Motorola's newest line of MoCA-equipped set-top boxes). Verizon also has launched a service that delivers YouTube content from the PC to the TV set via MoCA. See Glen Dickson, *Verizon FiOS TV Boosts Internet Content*, Broadcasting & Cable (Apr. 27, 2010), available at [http://www.broadcastingcable.com/article/451920-Verizon\\_FiOS\\_TV\\_Boosts\\_Internet\\_Content.php](http://www.broadcastingcable.com/article/451920-Verizon_FiOS_TV_Boosts_Internet_Content.php) ("YouTube functionality isn't achieved by just plugging an Ethernet cable into the Verizon HD set-top. Instead, the YouTube . . . content is driven by Verizon's Media Manager software, which is loaded onto a Windows-based PC or laptop within the home network that Verizon creates as part of a typical FiOS TV installation."); see also Jim Barthold, *Competition Watch: Verizon Adds YouTube, DirecTV-Dish Ally*, Fierce Cable (Apr. 27, 2010), available at <http://www.fiercecable.com/story/competition-watch-fios-adds-youtube-directv-dish-ally/2010-04-27>.

To the extent the Commission adopts rules in this area notwithstanding these market-based incentives, Motorola believes that developing consensus standards for remote control or other capabilities for the interfaces specified in the proposed rules would likely extend well beyond the Commission's proposed effective date of January 1, 2011. As noted, the remote control commands for 1394 were negotiated by industry stakeholders as part of the 2002 plug-and-play agreement. Similar inter-industry negotiations would presumably have to occur in order to develop new consensus solutions for the interfaces on the Commission's list, and then cable operators and their vendors would need additional time to implement any such solutions. It seems highly improbable that all of this activity could take place in six months or less. Furthermore, the Commission should be mindful of how any cable-centric mandates in this proceeding run the risk of prejudging the home-networking issues that the Commission has raised in its companion AllVid proceeding.

Finally, Motorola asks that, during the pendency of the CableCARD rulemaking, the Commission grant Motorola's waiver request.<sup>28</sup> The Commission made clear in the FNPRM that the Media Bureau "should act on [pending] waiver requests for waiver of

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<sup>28</sup> Motorola detailed the reasons why its waiver request satisfied the Commission's public interest and navigation device waiver standards in both its request and reply comments, and incorporates those filings by reference here. See Motorola Waiver Request; see also Motorola Reply Comments, CSR-8251-Z, CS Dkt. No. 97-80 (Mar. 4, 2010). It also bears emphasis that the Commission -- *on its own motion* -- has already waived the 1394 Rule as applied to certain set-top boxes based on a weighing of the public interest costs and benefits. See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices; Cable One, Inc.'s Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, Memorandum Opinion and Order, 24 FCC Rcd. 7882, ¶ 16 (2009) ("*Cable One Waiver Order*") ("Under the circumstances of this particular waiver request, however, we believe that the costs to consumers of imposing the IEEE 1394 output requirement would outweigh the potential benefits."); *id.* ¶ 16 n.42 ("Regardless of the precise cost of the 1394 requirement, we believe that the additional cost would be inconsistent with the purpose of this grant, *i.e.*, to provide a low-cost HD box for consumers.").

the existing [1394 Rule] as part of its normal course of business.”<sup>29</sup> Moreover, the Media Bureau has previously granted waivers of its rules during the pendency of a rulemaking to consider changes to such rules.<sup>30</sup> And grant of the Waiver Request would advance the public interest goals set forth in the rulemaking by giving manufacturers “greater choice in the specific interface they include in their set-top boxes.”<sup>31</sup>

#### **IV. THE COMMISSION SHOULD CONTINUE POLICIES THAT PROMOTE THE OPTIMIZATION OF BROADBAND NETWORKS.**

Aside from the interface issue, Motorola welcomes the Commission’s proposals aimed at facilitating the digitization of cable networks and the reclamation of cable bandwidth for faster Internet and other beneficial services. DTAs and SDV are two critical elements of these bandwidth-reclamation efforts, and Commission policies and rules should aim to accelerate, not delay or impair, their adoption.

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<sup>29</sup> FNPRM at n.50.

<sup>30</sup> See, e.g., *Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television, Public Interest Obligations of TV Broadcast Licensees*, Order, 18 FCC Rcd. 8166, ¶ 6 (2003) (granting a waiver request on behalf of non-commercial broadcasters for waiver from the Commission’s simulcasting requirements during the pendency of the second DTV periodic review); *In the Matter of Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion To Digital Television*, Order, 18 FCC Rcd. 22538, ¶¶ 4, 9 (2003) (same); *In the Matter of Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television*, Order, 19 FCC Rcd. 14114, ¶ 7 (2004) (granting waiver to NBC stations “[i]n view of the continued pendency of the Second DTV Periodic Review proceeding and NBC’s commitment to airing innovative digital programming”).

<sup>31</sup> FNPRM ¶ 20.

**A. The Commission Should Exempt All DTAs From The Integration Ban And Apply Such Relief To All Cable Systems.**

Motorola supports the Commission's proposal to exempt DTAs without recording functionality from the integration ban.<sup>32</sup> As Motorola has explained previously,<sup>33</sup> DTAs provide a critical tool in the digitization of cable systems and the advancement of the Commission's broadband goals. Cable operators require low-cost devices that enable customers to view programming that has been migrated from analog to digital delivery over the cable plant. DTAs are substantially cheaper than CableCARD-enabled devices that provide more advanced capabilities, and can thereby facilitate the rapid reclamation of analog bandwidth for faster Internet, more HD channels, more Spanish-language and other diverse programming, and other digital services without undermining the Commission's CableCARD objectives. Motorola and other vendors, such as Pace, Thomson, and Cisco, supply DTAs to cable operators.

The SD DTAs that have been deployed to date are playing an important role in this digitization effort, but are no longer an adequate solution for consumers in light of the rapid growth of HDTVs in the home. As the Commission concluded in its *Cable One Waiver Order*, HD is becoming "commonplace" in the video marketplace today.<sup>34</sup> Over 63% of television households now have an HDTV, up from 27% in 2006, and that figure

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<sup>32</sup> See *id.* ¶ 22.

<sup>33</sup> See, e.g., Motorola PN#27 Comments; Joint Letter of Pace, Motorola, *et al.* to Marlene H. Dortch, Secretary, FCC, CS Dkt. No. 97-80, GN Dkt. Nos. 09-51 *et al.* (Apr. 13, 2010) ("4/13/10 Joint Letter"); Joint Opposition of Motorola, Cisco, Pace, Thomson, and NagraVision, CSR-7902-Z, CS Dkt. No. 97-80, at 2-4 (July 9, 2009); Motorola Comments, GN Dkt. No. 09-51 (June 8, 2009) ("Motorola Broadband Plan Comments").

<sup>34</sup> See *Cable One Waiver Order* ¶ 12.

is expected to climb to 90% in the next three years.<sup>35</sup> HD DTAs would provide a low-cost option for consumers to access HD channels on their HDTVs.<sup>36</sup> Moreover, consumers are increasingly using HDTVs as secondary TV sets in the home,<sup>37</sup> and HD DTAs would be a particularly attractive option for these sets (for which consumers may find one-way cable services to be adequate).<sup>38</sup>

The FNPRM also asks what impact the proposed exemption would have on the marketplace for retail navigation devices.<sup>39</sup> We do not believe that the proposed rule would have any impact on the retail marketplace. The one-way navigation devices available at retail, like the TiVo and Moxi devices, include more advanced features, such as recording and broadband access capability, to differentiate themselves from other HD-

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<sup>35</sup> See SNL Kagan, *Digital/HD TV Set Projection Model* (2010) (“Kagan HDTV Report”).

<sup>36</sup> There are over 110 HD networks today. See SNL Kagan, *High-Definition Cable Networks (As Of 2/3/09)* (2009).

<sup>37</sup> See *id.* (noting that the percentage of HDTVs purchased as primary sets has decreased from 74% in 2006 to 45.9% in 2009); Leichtman Research Group, *HDTV 2009: Consumer Awareness, Interest, and Ownership*, at 32 (2009) (“38% of HDTV owners have more than one HDTV set, and 26% are likely to get another HDTV set in the next year”); *id.* at 30 (“Reduced prices are allowing HD sets to be more affordable for potential new owners, as well as existing owners shopping for additional HDTV sets.”); see also *Cable One Waiver Order* ¶ 12 (“Now, however, consumers are purchasing sets of all sizes with HD capabilities and using them throughout their homes.”).

<sup>38</sup> Press reports suggest that there continue to be a significant number of consumers who do not get HD programming on their HDTVs. See Mari Rondeli, *Satellite HD Penetration Set to Surge*, SNL Kagan Multichannel Market Trends (Jan. 25, 2010) (“However, within the U.S. market, a significant gap remains between HD TV ownership and households utilizing HD programming. As of year-end 2009, 71% of TV households were believed to own at least one HD set, yet only 32% of DBS customers and 37% of cable subscribers were outfitted with HD set-top boxes that enable HD TV viewing.”); see also Jared Newman, *HD Owners Not Watching In HD*, MyCE.com (Jan. 26, 2009), available at <http://www.myce.com/news/HDTV-owners-not-watching-in-HD-15452/> (discussing a report that found that 17 million of the 39 million U.S. households with HDTV, or 43.6%, do not watch in HD). Consumers have cited cost as a major factor, saying they did not want spend extra to lease an HD STB or to receive HD channels. *Id.* HD DTAs will help close that adoption gap, and enable consumers to get fuller use out of their HDTVs.

<sup>39</sup> See FNPRM ¶ 22.

enabled devices. Furthermore, the Commission’s common reliance goals are already being met, given the fact that cable operators have deployed almost 20 million set-top boxes with CableCARDs.<sup>40</sup> In sum, as the Commission concluded in its *Cable One Waiver Order*, HD DTAs are “unlikely to present a significant impediment to the development of a competitive retail market for navigation devices.”<sup>41</sup>

In addition, the FNPRM invites comment on whether “the potential effect on the retail market supports limiting any relief to smaller cable systems with activated [channel] capacity of 552 MHz or less.”<sup>42</sup> As noted, Motorola does not believe the proposed exemption would have *any* impact on the retail marketplace for navigation devices. In any event, Motorola opposes limiting the exemption to smaller-capacity cable systems. Simply stated, *all* cable customers, not just those served by small cable systems, should enjoy the benefits of HD DTAs. These devices provide a low-cost way for cable customers to watch HD channels on their HDTVs. SD DTAs, in contrast, unnecessarily degrade the customers’ viewing experience on their HDTVs by forcing them to watch analog-quality video on the TV. As the Commission underscored in its *Cable One Waiver Order*, there is “no reason to provide a regulatory incentive to deprive consumers of the HD-quality programming they expected and paid for when they purchased their sets.”<sup>43</sup>

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<sup>40</sup> See NCTA CableCARD Report at 1 (reporting that the top 10 cable operators have deployed more than 19.5 million operator-supplied set-top boxes with CableCARDs).

<sup>41</sup> *Cable One Waiver Order* ¶ 13.

<sup>42</sup> FNPRM ¶ 22.

<sup>43</sup> *Cable One Waiver Order* ¶ 12.

Limiting the exemption to cable systems with an activated channel capacity of 552 MHz or less also would make it difficult to achieve scale economies for HD DTAs.<sup>44</sup> These smaller-capacity systems cover only 8% of all cable systems,<sup>45</sup> and typically serve far fewer customers than higher capacity systems.<sup>46</sup> However, if, as the Commission proposes, all cable systems were eligible to deploy HD DTAs, then production volumes for the HD DTAs would increase and per-unit costs for the devices decline. This would benefit both large *and* small cable operators and their customers.

Finally, limiting the DTA exemption to smaller-capacity systems would have the unintended consequence of discouraging these systems from investing in upgrading their plant capacity in the future for fear of losing the benefit of the exemption. Commission policies should aim to encourage, not discourage, such investments.

**B. The Commission Should Affirm Its Current Policy Of Promoting SDV Deployments, And Avoid Regulation In This Area.**

The FNPRM also invites comment on SDV and the adequacy of the Tuning Adapter to deliver SDV channels to UDCPs.<sup>47</sup> SDV provides another tool for cable operators to reclaim bandwidth for broadband services, new HD channels, and other

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<sup>44</sup> Cable One underscored this point when it advised the Commission earlier this year that it could not achieve a \$50 price point for the HD DTAs if its waiver were just limited to its Dyersburg, Tennessee system, and asked the Commission to expand the waiver relief to a larger number of cable systems. *See* Letter from Arthur H. Harding, Counsel for Cable One, to Marlene H. Dortch, Secretary, FCC, CSR-8080-Z, CS Dkt. No. 97-80 (Feb. 25, 2010).

<sup>45</sup> *See* SNL Kagan, *IPTV Looms, But Cable Plant Outlook Maintains Evolutionary Course* (Dec. 18, 2009) (also noting that percentage of smaller-capacity systems is projected to decline from 8% to 4% over the next three years).

<sup>46</sup> *See* 4/13/10 Joint Letter.

<sup>47</sup> *See* FNPRM ¶ 14.

digital services.<sup>48</sup> In the traditional cable architecture, all channels are typically delivered to all customers at all times regardless of whether anyone in a neighborhood is watching. In contrast, SDV enables operators to utilize bandwidth efficiently based on usage levels. Channels that are heavily viewed continue to be delivered on a broadcast basis while more lightly viewed channels can be delivered on an SDV basis.

As the Commission has noted, SDV is an essential tool for making cable bandwidth available to deliver the next generation of world-class high-speed Internet services to cable consumers, which is a key priority for the Commission.<sup>49</sup> Motorola provides an SDV solution for UDCPs that is being deployed by cable operators and thereby advances the Commission's broadband-related objectives.<sup>50</sup> In its order last year affirming the use of SDV by Time Warner Cable and Cox, the Commission observed that the reclamation of cable bandwidth through SDV would "facilitate the deployment of advanced broadband technologies such as DOCSIS 3.0 as well as expand broadband capabilities."<sup>51</sup> As SDV becomes more widely deployed, it will help cable operators free up additional bandwidth to deliver broadband speeds of 100 Mbps or more, consistent with the Commission's goals.

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<sup>48</sup> See Motorola PN #27 Comments at 7-8; Motorola Broadband Plan Comments at 23-24.

<sup>49</sup> See *Connecting America: The National Broadband Plan*, Federal Communications Commission (March 16, 2010).

<sup>50</sup> See, e.g., Motorola Press Release, *Charter Deploys Motorola Switched Digital Video Solution to Expand HD Programming for Customers*, June 9, 2010 (noting that Charter plans to launch SDV in more than 60% of its footprint by the end of 2010 using Motorola's proven SDV solution).

<sup>51</sup> See *In the Matter of Oceanic Time Warner Cable et al.*, Order on Review, 24 FCC Rcd. 8716 ¶ 13 (2009) ("SDV Order").

The Commission asks about the adequacy of the Tuning Adapter as a way for UDCPs to access SDV channels.<sup>52</sup> It has long been common knowledge that cable systems will increasingly use two-way technologies. Nonetheless, UDCPs are designed to be one-way only and are therefore incapable of accessing SDV and other two-way services over the cable plant. In contrast, tru2way devices *can* access such two-way services.

In response to requests from TiVo to develop a solution so that its UDCPs could access SDV channels, Motorola and others in the cable industry worked collaboratively with TiVo to develop the Tuning Adapter. In the case of the Motorola Tuning Adapter, the device was modeled after the DCT-700 in order to minimize production costs and speed deployment of the device to market. The Motorola Tuning Adapter is therefore a small device, and can work with TiVo devices and any other UDCP that has a USB connector and the necessary firmware. It bears emphasis that the Tuning Adapter was developed at TiVo's request, that TiVo endorsed the solution in joint Commission filings with the cable industry,<sup>53</sup> and just last July described the Tuning Adapter as a "reasonable, practical solution" for compatible UDCPs.<sup>54</sup> Time Warner Cable provides

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<sup>52</sup> See FNPRM ¶ 14.

<sup>53</sup> See Letter from Henry Goldberg, Attorney for TiVo, Inc., to Marlene H. Dortch, Secretary, FCC, CS Dkt. No. 97-80 (Nov. 27, 2007).

<sup>54</sup> *In the Matter of Oceanic Time Warner Cable, Inc.*, Petition for Reconsideration or Clarification of TiVo Inc., File Nos. EB-07-SE-351, EB-07-SE-352, at 17 (July 27, 2009).

Tuning Adapters to UDCP customers at no additional cost,<sup>55</sup> as do other cable operators.<sup>56</sup>

The FNPRM now asks about a TiVo proposal that the cable industry develop a new solution that would enable UDCPs to access SDV channels via the Internet. Motorola does not doubt that such a solution could eventually be developed, but questions the need for mandating such a solution. The Tuning Adapter already provides a “no cost” solution for TiVo customers to access SDV channels, and Motorola does not see the value in investing more resources in developing an entirely new approach, particularly given the very limited number of UDCP customers in the marketplace today (approximately 500,000, or less than 1% of all cable subscribers nationwide).

Moreover, Motorola does not believe that either the navigation device statute, or the Commission’s implementing rules, were ever intended to operate as a shield to protect UDCPs against cable innovation or to force cable operators to make their services backward compatible with UDCPs on an indefinite basis. Congress specifically directed the Commission to “avoid actions which could have the effect of freezing or chilling the development of new technologies and services,”<sup>57</sup> and the Commission said in its 2005 navigation device order that “cable operators are free to innovate and introduce new products and services without regard to whether consumer electronics manufacturers are

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<sup>55</sup> See *SDV Order* ¶ 14 (citing to Time Warner Cable filings in proceeding).

<sup>56</sup> See NCTA Further Reply Comments, MB Dkt. No. 07-269, at 13 (Aug. 28, 2009) (noting that “many cable operators provide Tuning Adapters to TiVo customers without additional charge”).

<sup>57</sup> S. Rep. No. 104-230, at 181 (1996).

positioned to deploy substantially similar products and services.”<sup>58</sup> And specifically with reference to SDV, the Commission said less than a year ago that its “UDCP rules were not intended to provide access to bi-directional services or to freeze all one-way cable programming services in perpetuity.”<sup>59</sup>

In light of the clear public interest benefits of SDV and the availability of the Tuning Adapter solution for UDCPs, the Commission should be wary of proposals that might slow the pace of SDV deployments and add unnecessary costs on consumers and operators. Such an approach also is warranted given the Commission’s recognition that UDCPs have been unsuccessful in the marketplace and that the CableCARD regime should be replaced.<sup>60</sup>

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<sup>58</sup> See *In the Matter of Implementation of Section 304 of the Telecommunications Act of 1996: Commercial Availability of Navigation Devices*, Second Report and Order, 20 FCC Rcd. 6794, ¶ 30 (2005).

<sup>59</sup> *SDV Order* ¶ 11.

<sup>60</sup> See FNPRM ¶ 12; see also *SDV Order* ¶ 14 (noting that the “market demand for UDCPs is not strong and consumers with TiVo UDCP devices can use the tuning adapter to access SDV programming”); NOI ¶ 15 (“Consumers have shown limited interest in purchasing retail devices that can access MVPD services under our existing rules, and we believe that two fundamental defects in the current regime account for this reluctance. First, with few exceptions retail navigation devices are unable to provide functionality beyond that available in devices that subscribers can lease from their providers and often are unable to access many of the MVPD services that leased set-top devices are able to access. Second, as a general matter a retail navigation device purchased for use with one MVPD’s services cannot be used with the services of a competing MVPD.”).

**V. CONCLUSION**

Motorola urges that the Commission (1) provide cable operators with greater flexibility in the interfaces they include in HD set-top boxes, (2) exempt all DTAs from the integration ban and provide such relief to all cable systems, and (3) pursue policies that promote, rather than chill, deployment of SDV.

Respectfully submitted,

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