Before the Federal Communications Commission Washington, D.C. 20554

In the Matter of)	
Intel Corporation)	CSR-8229-Z
Motorola, Inc.)	CSR-8251-Z
TiVo, Inc.)	CSR-8252-Z
Requests for Waiver of Section 76.640(b)(4)(ii) of the Commission's Rules)	

MEMORANDUM OPINION AND ORDER

Adopted: June 18, 2010 Released: June 18, 2010

By the Chief, Media Bureau:

I. INTRODUCTION

1. In this Order, we grant limited interim waivers of the requirement that cable operators include an IEEE 1394 interface on all high-definition set-top boxes that they acquire for distribution to customers. Each of the above-captioned companies filed requests for waiver of this requirement with respect to devices that include alternative Internet Protocol ("IP")-based home networking interfaces instead of IEEE 1394 interfaces. IP connections will serve the same purpose that the IEEE 1394 interface requirement is intended to achieve – encouraging connectivity between cable operator-leased set-top boxes and retail consumer electronics devices and computers. Therefore, the Bureau grants this limited waiver during the interim period in which the Commission considers changes to its existing IEEE 1394 interface and set-top box rules.²

¹ See Intel Waiver Request (filed Oct. 7, 2009); TiVo Waiver Request (filed Nov. 6, 2009); Motorola Waiver Request (filed Nov. 25, 2009).; Media Bureau Seeks Comment on Intel's Request for Waiver of the IEEE 1394 Output Requirement, 24 FCC Rcd 13682 (2009); Media Bureau Seeks Comment on Motorola's Request for Waiver of the IEEE 1394 Output Requirement, 25 FCC Rcd 1232 (2010); Media Bureau Seeks Comment on TiVo's Request for Waiver of the IEEE 1394 Output Requirement, 25 FCC Rcd 1235 (2010).

² Implementation of Section 304 of the Telecommunications Act of 1996; Commercial Availability of Navigation Devices and Compatibility Between Cable Systems And Consumer Electronics Equipment, 25 FCC Rcd 4303, 4311, ¶¶ 19-21 (2010) ("Fourth FNPRM"). In this pending proceeding, the Commission instructed the Bureau to process these waivers in the normal course of business. *Id.* at 4311 n.50.

II. BACKGROUND

2. In 2003, the Commission adopted a rule requiring cable operators to include the IEEE 1394 interface in their leased set-top boxes. Section 76.640(b)(4)(ii) of the Commission's rules states:

Effective July 1, 2005, [cable operators shall] include both a DVI or HDMI interface and an IEEE 1394 interface on all high definition set-top boxes acquired by a cable operator for distribution to customers.³

The IEEE 1394 interface requirement was created to set a baseline for connectivity to provide home networking and digital recording functionality to cable subscribers in a secure, digital format.⁴ At the time of adoption, the IEEE 1394 interface was the only digital video interface available for consumer devices that supported recording devices and networking. Since the time of adoption, however, most home networking devices have migrated toward technologies based on IP. This has led some in the cable industry, which initially supported the IEEE 1394 interface requirement, to criticize the IEEE 1394 interface requirement in recent years by asserting that the requirement is costly and that few consumers use the IEEE 1394 interface to connect consumer electronics devices to their cable boxes.⁵

- 3. Two cable operators have previously received waivers of the IEEE 1394 output requirement. On August 18, 2004, the Commission granted BellSouth a waiver of Section 76.640(b) of the Commission's rules based on certain BellSouth systems' technical incompatibility with the CableCARD requirement. Cable One received a similar waiver of the IEEE 1394 interface requirement on May 28, 2009, based on the cost that the requirement would add to a low-cost, limited-capability box.
- 4. In November 2009, the petitioners filed requests for waiver of the IEEE 1394 interface requirement with respect to devices that have IP-based connections. Texas Instruments ("TI") and the 1394 Trade Association ("1394TA") filed oppositions to the petitions, asserting, among other arguments, that the issue raised in the petitions should be dealt with as part of a rulemaking. On April 21, 2010, the Commission adopted and released the *Fourth FNPRM*, which sought comment on a proposed rule that would (i) allow cable operators to include certain interfaces in lieu of the IEEE 1394 interface and (ii)

⁴ Implementation of Section 304 of the Telecommunications Act of 1996, Commercial Availability of Navigation Devices, Compatibility Between Cable Systems and Consumer Electronics Equipment, 18 FCC Rcd 20885, 20896, ¶ 24 (2003) ("Plug and Play Order").

³ 47 C.F.R. § 76.640(b)(4)(ii).

⁵ Letter from Kyle McSlarrow, President & CEO, National Cable and Telecommunications Association to Marlene H. Dortch, Secretary, Federal Communications Commission, CS Dkt. 97-80 (Aug. 13, 2008).

⁶ BellSouth Interactive Media Services LLC. 19 FCC Rcd 15607, 15608-12, ¶¶ 3-8 (2004).

⁷ 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, 24 FCC Rcd 7882, 7888, ¶ 16 (2009) ("Cable One Order").

⁸ See, e.g., Intel Waiver Request at 3-4; TiVo Waiver Request at 2; Motorola Waiver Request at 6-8.

⁹ Letter from David Thompson, Secretary, 1394 Trade Association, to Marlene H. Dortch, Secretary, Federal Communications Commission (December 9, 2009) ("1394TA Intel Opposition"); Letter from David Thompson, Secretary, 1394 Trade Association, to Marlene H. Dortch, Secretary, Federal Communications Commission (March 3, 2010) ("1394TA Motorola Opposition"); Letter from David Thompson, Secretary, 1394 Trade Association, to Marlene H. Dortch, Secretary, Federal Communications Commission (March 4, 2010) ("1394TA TiVo Opposition"); Texas Instruments Opposition to Intel's Waiver Request; Texas Instruments Opposition to Motorola and TiVo Waiver Requests.

more fully specify how set-top boxes should communicate with external devices that are connected to the set-top box through one of those interfaces. ¹⁰

III. DISCUSSION

- Intel Corporation ("Intel"), Motorola, Inc. ("Motorola"), and TiVo Inc. ("TiVo") have 5. demonstrated that a limited interim waiver of the IEEE 1394 interface requirement would serve the public interest. Intel seeks waiver of the IEEE 1394 requirement as applied to set-top boxes that incorporate Intel's IP-enabled system-on-a-chip media processors. Motorola seeks waiver with respect to its highdefinition set-top box models that include an IP connector. TiVo seeks clarification that the IEEE 1394 interface rule does not apply to devices that are widely available at retail when a cable operator provides those same devices to its subscribers. We deny TiVo's clarification request, as the rule on its face contains no such exception and the requested "clarification" conflicts with the language of the rule. 11 Alternatively, TiVo seeks waiver on behalf of cable operators who wish to deploy the TiVo high definition digital video recorder models, which support home networking through Ethernet and optional Wi-Fi connectivity. Each petitioner asserts that IP connectors offer equivalent functionality to IEEE 1394 interfaces, and therefore will not disturb consumers' home networking options. ¹² Furthermore, they cite the cost of including an IEEE 1394 interface as their major grounds for waiver. The petitioners assert that this cost curtails the development of new technologies and capabilities; ¹³ such technologies and capabilities include higher-performance processor chips and the ability to view internet-based content on set-top boxes.14
- 6. As a threshold matter, Texas Instruments ("TI") suggests that the Bureau should not consider the Waiver Requests separately from the Commission's consideration of whether to change the existing output requirement rule as proposed in the *Fourth FNPRM*. TI asserts that granting the Waiver Requests would prejudge the rule change that the Commission has proposed.¹⁵ In the *Fourth FNPRM*, however, the Commission indicated that the Bureau should act on the requests for waiver of the IEEE 1394 output requirement "as part of its normal course of business." Furthermore, there is precedent for Bureaus relying on a public interest determination to decide whether to waive a rule, regardless of whether the Commission is considering a change to the rule:

[F]or purposes of determining whether an interim waiver should be granted in a particular case, what is important is whether the public interest would be served by a grant of the waiver. Whether the Commission specifically contemplates changing a rule in a manner that would provide relief to the party seeking the waiver is only one factor in the public interest calculus.¹⁷

¹⁵ Texas Instruments Opposition to Motorola and TiVo Waiver Requests at 7 (citing *New ICO Satellite Services G.P.*, 24 FCC Rcd 171, 183, ¶ 33 (2009)).

¹⁰ Fourth FNPRM, 25 FCC Rcd 4303, 4311, ¶¶ 19-21.

¹¹ See AT & T Communications Revisions to Tariff F.C.C. No. 2 (800 ReadyLine Service), 2 FCC Rcd 5939, 5942, ¶¶ 31-33 (1987) (holding that a rule that is clear on its face cannot be interpreted in a way that conflicts with the language of the rule).

¹² The petitioners request waiver for devices with IP connectivity, but ask the Commission not to specify a particular connector for IP connectivity. *See, e.g.*, Intel Waiver Request at 1 n.3.

¹³ Intel Waiver Request at 3-4, 9-10; TiVo Waiver Request at 5; Motorola Waiver Request at 5-6.

¹⁴ *Id*.

¹⁶ Fourth FNPRM, 25 FCC Red at 4311, n.50.

¹⁷ Applications of Stockholders of Renaissance Communications Corporation, (Transferor) Tribune Company, (Transferee), 13 FCC Rcd 4717, 4718, \P 3 (1998).

Accordingly, the fact that the Commission is considering a proposed change to the output requirement rule does not preclude the Bureau from considering the waiver requests. On the contrary, when the Commission receives a request for waiver that is "stated with clarity and accompanied by supporting data," such requests "are not subject to perfunctory treatment, but must be given a hard look." ¹⁸

- 7. In analyzing petitioners' requests, we consider established legal standards for waiver pursuant to section 1.3 of the Commission's rules.¹⁹ We have authority to waive our rules if there is "good cause" to do so.²⁰ We may exercise our discretion to waive a rule where particular facts would make strict compliance inconsistent with the public interest.²¹ In this case, the special circumstance warranting a deviation from the general rule is the petitioners' commitment to include IP-based connections on their set-top boxes. IP communication over Ethernet and Wi-Fi has achieved overwhelming marketplace acceptance for home networking of media devices.²² In this case, a deviation from the rule will serve the public interest by allowing consumers to network the petitioners' IP enabled set-top boxes with other IP devices in their homes, without affecting consumers' ability to request set-top boxes with IEEE 1394 interfaces from their cable operators.
- 8. As indicated above, the Commission adopted the IEEE 1394 interface requirement to "set a baseline for connectivity ensuring that cable subscribers are able to fully enjoy the range of services offered by their cable provider in a secure, digital format."²³ Petitioners have shown, however, that the IP-based interfaces that the petitioners will include on their devices can also provide the baseline of connectivity that the IEEE 1394 output requirement was intended to achieve when those IP-based interfaces output video in a format that can be received by third-party devices.²⁴ Therefore, the petitioners have met the Commission's policy objective by including connections on their set-top boxes that will enable cable subscribers to enjoy the full range of services offered by their cable providers in a secure, digital format that third-party devices on their home networks can receive.
- 9. In this case, petitioners have shown that special circumstances warrant deviation from the general rule. When the Commission adopted Section 76.640(b)(4)(ii), it appeared that IEEE 1394 would be the marketplace leader in connecting consumer electronics devices. As the 1394 Trade Association ("1394TA") and TI assert, IEEE 1394 is a sophisticated technology that "was designed for, and is ideal

¹⁸ WAIT Radio v. FCC, 418 F.2d 1153, 1157 (D.C.Cir. 1969).

¹⁹ 47 C.F.R. § 1.3.

²⁰ *Id. See also Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

²¹ Northeast Cellular, 897 F.2d at 1166 (citing WAIT Radio v. FCC, 418 F.2d 1153, 1159 (D.C.Cir.1969).

²² See, e.g., DLNA, Why DLNA?, Key Technology Components, Network and Connectivity, http://www.dlna.org/industry/why_dlna/key_components/network/ (last visited June 3, 2010). As the 1394 Trade Association explains in its comments, IEEE 1394 is also capable of carrying IP data. 1394 Trade Association Opposition to Intel Waiver Request at 1. As we refer to consumer adoption of IP-based connectors throughout this order, we generally are referring to consumer acceptance of the physical interfaces of Ethernet and Wi-Fi for IP-based communication.

²³ *Plug and Play Order*, 18 FCC Rcd 20896-7, ¶¶ 24-25.

²⁴ See, e.g., TiVo Waiver Request at 7-8; Intel Waiver Request at 13-15 (citing Accenture, Consumer Electronics Products and Services Usage Report, available at http://www.accenture.com/NR/rdonlyres/040BE0BE-1FE5-45DD-9791-AC1D40A45A2C/0/Accenture_211008_DL_Survey_09_Media_Deck_V09.pdf; Parks Associates, "Connected Consumer Electronics: Linking Premium Applications and Content Across Devices," presentation to Connections Summit June 2009, available at

http://www.parksassociates.com/events/connections/summit/2009/agenda/slides/Summit09-ConnectedCE.pdf; DLNA Overview and Vision Whitepaper (2007) at 2, available at http://www.dlna.org/news/DLNA white paper.pdf).

for, video streaming."²⁵ The petitioners argue, however, that IP has become the *de facto* method for transferring audiovisual content between consumer electronics devices.²⁶ IP has overwhelming marketplace support and serves the same purpose that the IEEE 1394 connection is intended to serve.²⁷ TI and 1394TA argue that Ethernet and Wi-Fi do not offer any advantage over the IEEE 1394 interface in carrying IP.²⁸ We do not believe that the merits of either method of physical transport are relevant in this situation – both technologies are capable of carrying IP data, and we predict that consumers will adopt the method that they prefer for networking their devices. We note that we do not waive Section 76.640(b)(4)(i)²⁹ of our rules, which allows a consumer to request a high-definition device with a functional IEEE 1394 interface from his or her cable operator. Therefore, manufacturers of devices with IEEE 1394 interfaces will have an incentive to distinguish their devices from devices with other IP-based connectors. This waiver will ensure that cable operators can meet marketplace demand for both types of connectivity. Accordingly, we conclude that the petitioners have demonstrated that special circumstances warrant deviation from the general rule.

10. Grant of this waiver will also serve the public interest. We are convinced that consumers can and will use IP for video streaming from cable set-top boxes over Ethernet or Wi-Fi, as they are already doing with other video equipment. While the IEEE 1394 interface may be widely deployed, accepted by consumers, and continually improved as 1394TA asserts, those descriptions also apply to Ethernet and Wi-Fi. Indeed, Ethernet and Wi-Fi already have strong marketplace support, connecting home theater computers, video game consoles, and Internet-connected video devices. We disagree with TI's assertion that waiver will give an unfair advantage to petitioners over other manufacturers that have invested in IEEE 1394 ports. Although TI is correct that the petitioners could include IP connectivity as a complement to IEEE 1394 connectivity, the two interfaces serve the same functional purpose, which, as TI explains, is "to allow networking with customer premises equipment purchased at retail so that viewers

AC1D40A45A2C/0/Accenture_211008_DL_Survey_09_Media_Deck_V09.pdf; Parks Associates, "Connected Consumer Electronics: Linking Premium Applications and Content Across Devices," presentation to Connections Summit June 2009, available at

 $http://www.parksassociates.com/events/connections/summit/2009/agenda/slides/Summit09-ConnectedCE.pdf; DLNA Overview and Vision Whitepaper (2007) at 2, available at <math display="block">http://www.dlna.org/news/DLNA_white_paper.pdf).$

AC1D40A45A2C/0/Accenture_211008_DL_Survey_09_Media_Deck_V09.pdf; Parks Associates, "Connected Consumer Electronics: Linking Premium Applications and Content Across Devices," presentation to Connections Summit June 2009, available at

http://www.parksassociates.com/events/connections/summit/2009/agenda/slides/Summit09-ConnectedCE.pdf; DLNA Overview and Vision Whitepaper (2007) at 2, available at http://www.dlna.org/news/DLNA_white_paper.pdf).

²⁵ Texas Instruments Opposition to Motorola and TiVo Waiver Requests at 2.

²⁶ See, e.g., TiVo Waiver Request at 7-8; Verizon Comments in Response to Motorola and TiVo Waiver Requests at 3; Intel Waiver Request at 13-15 (citing Accenture, Consumer Electronics Products and Services Usage Report, available at http://www.accenture.com/NR/rdonlyres/040BE0BE-1FE5-45DD-9791-

²⁷ See Accenture, Consumer Electronics Products and Services Usage Report, available at http://www.accenture.com/NR/rdonlyres/040BE0BE-1FE5-45DD-9791-

²⁸ See, e.g., Texas Instruments Opposition to Intel Waiver Request at 2-3; 1394 Trade Association Opposition to Intel Waiver Request at 1.

²⁹ 47 C.F.R. § 76.640(b)(4)(i).

³⁰ 1394 Trade Association Comments at 1.

Verizon Comments in Response to Motorola and TiVo Waiver Requests at 2-3; RCN Comments in Response to TiVo Waiver Request at 3; DLNA, Why DLNA?, Key Technology Components, Network and Connectivity, http://www.dlna.org/industry/why_dlna/key_components/network/ (last visited June 3, 2010).

³² Texas Instruments Opposition to Intel Waiver Request at 5-6.

could control their viewing experience."³³ Including both interfaces would be redundant, and requiring inclusion of the 1394 interface in devices that contain an IP-based interface could discourage manufacturers from including Ethernet or Wi-Fi because the Commission's rules do not require those outputs. Given the strong marketplace acceptance of Ethernet and Wi-Fi for device connectivity, we do not wish to discourage manufacturers from including it on their devices. As explained above, cable operators will continue to have a regulatory mandate to provide a high-definition set-top box with a functional IEEE 1394 interface to any subscriber who requests one.³⁴ Therefore, waiver in this instance will ensure that cable operators can satisfy consumer demand for both IEEE 1394 and IP connectivity. Therefore, waiving the IEEE 1394 output requirement will serve the public interest because petitioners' devices include IP connections and introduce home networking benefits to cable subscribers whose homes are networked using Wi-Fi and Ethernet rather than IEEE 1394.

- 11. This is the first general waiver granted for classes of devices with IP connections in place of IEEE 1394 interfaces, rather than for a specific cable operator's deployment of such devices. We recognize that this decision could have competitive implications on other set-top box manufacturers. Thus, from the release date of this order until the expiration date specified below, cable operators may deploy any device that has an IP-based connector that outputs video in a format that third-party devices can receive in lieu of an IEEE 1394 interface, provided that the device complies with the rest of the Commission's rules. Cable operators may do so on any system without the need to request a separate waiver of Section 76.640(b)(4)(ii)'s requirement that they include IEEE 1394 interfaces on the set-top boxes that they deploy.
- While petitioners have convinced us that special circumstances exist to warrant deviation from the general rule, and that waiver of that rule will serve the public interest, the Commission will take the current home networking landscape into account when it adopts its final rules.³⁸ The Bureau cannot predict whether the Commission will decide that these special circumstances warrant adoption of rules that codify IP connections as a substitute for IEEE 1394 interfaces. We are confident, however, that the Commission will take marketplace and technological factors into account to assure that our interface rules serve the public interest. Therefore, this waiver will expire upon the effective date of any rule change that addresses interface requirements on cable set-top boxes, or, alternatively, upon adoption of an order in which the Commission affirmatively elects not to change its interface requirements.³⁹ Furthermore, we

³⁴ 47 C.F.R. § 76.640(b)(4)(i).

³³ *Id.* at 5.

³⁵ For example, cable operators may deploy devices that are manufactured by Advanced Digital Broadcast, Nagravision, Cisco or EchoStar, provided that those devices comply with the rest of the Commission's rules. *See, e.g.*, Advanced Digital Broadcast, Inc. Petition for Waiver of 47 C.F.R. § 76.640(b)(4) (filed March 4, 2010); Nagravision USA's Request for Waiver of Sections 76.1204(a)(1) and 76.640(b)(4)(ii) of the Commission's Rules (filed March 24, 2010); Petition of EchoStar Technologies L.L.C. for Waiver of 47 C.F.R. § 76.640(b)(4) (filed June 8, 2010); Cisco Systems, Inc. Petition for Waiver, CS Docket No. 97-80 (filed June 14, 2010).

³⁶ 47 C.F.R. § 76..640(b)(4)(ii).

³⁷ *Fourth FNPRM*, 25 FCC Rcd at 4311, ¶¶ 19-21.

³⁸ The rulemaking proceeding is a more proper venue to consider Verizon's more general suggestion that the Commission "remove the outmoded 1394 requirement." Verizon Comments in Response to Motorola and TiVo Waiver Requests at 1.

³⁹ In the event that the Commission elects not to modify the rule, this waiver will terminate on the date of adoption of the order. The rule states that a cable operator shall "include both a DVI or HDMI interface and an IEEE 1394 interface on all high definition set-top boxes acquired by a cable operator for distribution to customers." Accordingly, in the event that the Commission affirmatively elects not to change its interface requirements, a cable operator may only acquire set-top boxes that include IEEE 1394 interfaces beginning on the adoption date of the order, but may deploy and keep in service any set-top boxes acquired pursuant to this waiver order.

reiterate that we do not waive Section 76.640(b)(4)(i) of the Commission's rules, which requires cable operators to provide a device with a functional IEEE 1394 interface to any subscriber who requests one.

IV. CONCLUSION

13. While the Commission reviews the set-top box interface rule, we believe that providing the cable industry the choice to use IP for connectivity instead of the IEEE 1394 interface will provide cable subscribers with a new avenue for home networking of their consumer electronic devices. Therefore, we grant the petitioners' requests for waiver of the IEEE 1394 interface requirement with respect to devices that include IP-based interfaces that output video in a format that third-party devices can receive. This waiver is effective until the Commission adopts an order that addresses interface requirements on cable set-top boxes.

V. ORDERING CLAUSES

14. Accordingly, **IT IS ORDERED** that, pursuant to Sections 0.61(h), 1.3, and 76.7 of the Commission's rules, 47 C.F.R. §§ 0.61(h), 1.3, and 76.7, the requests for waiver of Section 76.640(b)(4)(ii) of the Commission's rules, 47 C.F.R. § 76.640(b)(4)(ii), filed by Intel Corporation, Motorola, Inc., and TiVo, Inc. **ARE GRANTED ON AN INTERIM BASIS** as set forth in this order.

FEDERAL COMMUNICATIONS COMMISSION

William T. Lake Chief, Media Bureau