

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

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

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THIRD FURTHER NOTICE OF PROPOSED RULEMAKING**

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**COMMENTS OF THE 1394 TRADE ASSOCIATION ON  
THIRD FURTHER NOTICE OF PROPOSED RULEMAKING**

These Comments on the Commission’s Third Further Notice of Proposed Rulemaking are respectfully submitted by the 1394 Trade Association (“1394TA”). The 1394TA is a consortium of 120 international companies representing a broad spectrum of Audio/Video (Sony, Panasonic, JVC, Pioneer, Hitachi, Samsung, Mitsubishi, etc), Computing (Apple, Microsoft, Seagate, etc) and component (Texas Instruments, LSI, Molex, etc.) providers. The 1394TA supports the adoption of 1394 through education and the development of standards based on the 1394 technology. Our member companies believe it is detrimental to consumer interest for the FCC to preclude 1394 in future regulations as there is widespread adoption of this technology in STB and in other consumer devices. 1394 enables unique capabilities which will increase the entertainment value of digital media to the consumer, advancing the benefit of the digital transition.

**I. INTRODUCTION AND SUMMARY.**

In this Third Further Notice of Proposed Rulemaking, the Commission has requested comments on specific prior proposals filed by the consumer electronics and cable television

industries, and has also asked for comment, more generally, as to home networking solutions as they may pertain to all Multichannel Video Programming Distributors (MVPDs) rather than exclusively to the cable industry.

In summary, the 1394TA is requesting that the Commission stipulate the continued use of 1394 in Set-Top Boxes and expand the scope of this directive to usage in home networking. This will extend the **September 2003 FCC R&O** and will not prematurely obsolete products which were manufactured in compliance with this FCC regulation. This is the timeliest route to the Commission's goal to increase consumer interest in the digital transition by providing additional benefit to the consumer when purchasing digital televisions.

**II. 1394 IS AN ESTABLISHED TECHNOLOGY WITH WIDE ADOPTION IN THE WORLDWIDE MARKET.**

Since introduction in 1995, 600 Million 1394 enabled products have entered the worldwide market from over 4,000 different manufacturers. Continued growth of 1394 products is projected over the foreseeable future by all major market analysts. Furthermore, all tier one 1394 component vendors report growing sales of their 1394 products. Consumer products include all new HD cable STBs delivered since July 1, 2005, over 150 models of HDTVs from 12 different OEMs including LG, Samsung, Sony, Mitsubishi and others, numerous video recording devices and most high-end notebook computers and home desktop computers. In the case of Apple and Sony, all desktop and notebook computers come standard with 1394. 1394 is already enabling the market for the digital transition.

**III. 1394 ENABLED PRODUCTS PROVIDE THE INTEROPERABILITY REQUIRED FOR RETAIL COMPETITION.**

Test events conducted by both the CEA and the 1394TA have shown an improving trend in interoperability of 1394 products. Interoperability has improved to the extent that test events

have been scaled back in 2007 by both organizations. 1394TA authorized Self-Certification of 1394 A/V products is well established among all major OEMs for products sold into the Japanese market. The 1394TA is finalizing the standards for a comparable self-certification program for the North American market. Test standards and tools are scheduled to be completed for STB and DVD Recordable devices by the end of 2007 and in use by early 2008. AV HDD and HDTV test standard and test tool completion will follow.

#### **IV. ONLY 1394 PROVIDES ALL THE REQUIRED CAPABILITIES NECESSARY FOR HD NETWORKING IN THE HOME.**

Home networks based on other technologies cannot provide the user experience a reasonable consumer should expect. DLNA is based on Ethernet and not suitable for multiple streams of HD content.

#### **V. 1394 DELIVERS THE GUARANTEED QUALITY OF SERVICE VITAL TO HD NETWORKS.**

1394 supports the highest level of Quality of Service (QoS) available in any home network technology today. Using 1394, there is no need to add expensive buffering and the attendant buffer delays to sink devices such as DTVs, causing a delay before the image appears while the buffer fills up. Ethernet does not guarantee that video will arrive in a predictable fashion. It depends on “best effort” delivery which will occasionally delay, discard, duplicate, or misorder packets. This will not provide the consumer with the user experience he expects from his HD products.

Several solutions have been proposed to make Ethernet more suitable for HD networking. One solution is to reduce congestion on the network by either eliminating traffic, essentially limiting the network to only a few devices or increasing the bandwidth by installing Gigabit Ethernet.

A third option, which is gaining popularity, is called Tag Protocol ID (TPID) which gives time sensitive items a higher priority so they have a better chance of reaching their destination on time. This will require the addition of expensive AV switches to both support prioritization of streaming media, and to isolate from the network, legacy Ethernet devices that do not understand such prioritization. The use of these switches will complicate installation and frustrate inexperienced homeowners not familiar with these added requirements to Ethernet. And in the end, once several devices are connected with high priority TPID's, the problem starts all over again.

1394, on the other hand, was developed with Quality of Service designed in. 1394 allocates bandwidth for each device sending or receiving time sensitive content. Today, 1394 can transport eight HD video streams at the same time. If a ninth device requiring real-time support tries to connect, 1394 will not allow it on the network. In the meantime, 20% of 1394's bandwidth remains available for devices which do not send time sensitive content, such as computers sharing files or Internet access.

## **VI. 1394 WAS DESIGNED TO SUPPORT TWO-WAY COMMUNICATION.**

Two-way, peer-to-peer communication is native to 1394 enabling multiple streams of real-time content (such as HD video), asynchronous content (such IP data), and command/control signals (such as remote control commands) to travel in both directions across a single cable at the same time. This capability has been demonstrated for ten years at major tradeshows and industry events. Most recently, the latest version of 1394, which transmits 1394 signals across standard coax cable, was demonstrated at CES 2007 and at the CableLabs Winter Conference in March 2007. At the latter, video from an AV HDD in the 1394TA booth was sent across a single strand of coax cable to an HDTV in the HANA booth while video from an AV

HDD in the HANA booth was sent across the same cable to an HDTV in the 1394TA booth. Additionally, remote control commands were sent to stop, fast forward, rewind, and play across the single coax cable utilizing the HANA user interface for universal remote control. This technology is currently in field trials in Southern California with product expected in the fourth quarter of 2007. With 1394 already in the STB, its capabilities should be exploited. Drop-in solutions are available today to add “1394 over coax” capabilities to STBs, HDTVs, and all other A/V devices.

## **VII. 1394 PROVIDES CONTENT PROTECTION WHICH IS CRITICAL TO ANY HIGH DEFINITION NETWORK.**

Recently, content protection adopted for use with 1394 (Digital Transmission Content Protection or “DTCP”) was upgraded with localization to enhance its security. “Localization” is a term used to indicate that communication between devices is localized to a network and that devices separated by long distances are excluded. This new addition to the DTCP-1394 specification (DTCP Volume 1 Supplement F) is based almost entirely on the technical specification already existing for DTCP-IP. All that is required is an additional step during the authentication exchange to measure the send and receive interval. Any networking technology intending to carry HD content will need the ability to establish localization. As increasing pressure to tighten the send-receive interval grows, only 1394 has the ability to match the tightest parameters being considered.

## **VIII. 1394 IS NETWORK AGNOSTIC, ABLE TO CARRY ANY DATA.**

1394 is capable of supporting traffic sourced from asynchronous best effort or prioritized Ethernet networks. Therefore, it does not favor one type of traffic to the exclusion of another. The consumer benefits from a single network that optimally supports all forms of QoS from best effort to full guaranteed bandwidth reservation QoS.

## **IX. 1394 WORKS WITH MULTIPLE PHYSICAL NETWORK MEDIA.**

The 1394TA has developed several “no-new-wires” solutions for home networking. The intent is to provide the capability to use the existing MSO service cable to distribute the 1394 based home network signal. The standards to allow home networking over the existing MSO service cable will be completed well before the end of this year. In addition to this, other very fast media, for example CAT5/CAT6, POF, and GOF, are supported to carry multiple HD streams. All of these solutions enable 400 Mbps networking and distances up to 100 meters between devices for room-to-room connections. This high-throughput is necessary to meet the anticipated HD entertainment demands generated by the digital transition.

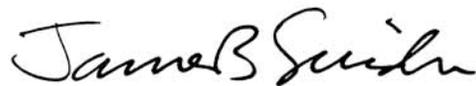
Another difference between 1394 and Ethernet is their topologies. Ethernet is based on a tier-star topology or central router where content is routed between devices. 1394 supports a peer-to-peer topology where any device can be connected to any device to gain access to the network.

## **X. CONCLUSION.**

The 1394TA recommends that the Commission base any future Report and Order on the previously issued R&O dating from September 2003 and that such future R&O should not introduce emerging technologies or solutions based on enhancements to old technologies which were never designed for and continue to be unsuitable for High Definition video networks. The September 2003 Plug and Play Order is based upon a December 2002 agreement between the NCTA and the CEA, signed by eight members of the cable industry and 14 members of the Consumer A/V industry. This agreement required, among other things, a 1394 port controllable by the CEA 931-A remote control pass-through specification and CEA 775, and encoding rules centered on DTCP for 1394. These previously negotiated requirements should be at the core of any two-way proposal.

Please accept our recommendation, as we believe this will benefit the consumer as we move forward into the digital transition.

Respectfully submitted,

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

James Snider  
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