

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)	
)	
Video Device Innovation	)	GN Docket Nos. 09-47, 09-51, 09-137
NBP Public Notice #27	)	CS Docket No. 97-80
)	
Implementation of Section 304 of the)	
Telecommunications Act of 1996	)	CS Docket No. 97-80
)	
International Comparison and Consumer)	
Survey Requirements in the Broadband Data	)	GN Docket No. 09-47
Improvement Act)	
)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
)	
Development of Advanced)	
Telecommunications Capability to All)	
Americans in a Reasonable and Timely)	
Fashion and Possible Steps to Accelerate Such	)	GN Docket No. 09-137
Deployment Pursuant to Section 706 of the)	
Telecommunications Act)	

COMMENTS OF TRANSPARENT VIDEO SYSTEMS

Summary

The existing CableCARD regime, intended to foster competition, does not serve its purpose or goals and has the unintended consequence of restricting competition. The failure of the CableCARD system should not lead the Commission to discard separable security entirely, but the Commission should consider alternative, lower-cost, alternatives to separate security from navigation devices.

A new separable security system including a SD/MicroSD form factor security device would help to foster competition and enable new devices, services and innovation.

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)	
)	
Video Device Innovation	)	GN Docket Nos. 09-47, 09-51, 09-137
NBP Public Notice #27	)	CS Docket No. 97-80
)	
Implementation of Section 304 of the)	
Telecommunications Act of 1996	)	CS Docket No. 97-80
)	
International Comparison and Consumer)	
Survey Requirements in the Broadband Data	)	GN Docket No. 09-47
Improvement Act)	
)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
)	
Development of Advanced)	
Telecommunications Capability to All)	
Americans in a Reasonable and Timely)	
Fashion and Possible Steps to Accelerate Such	)	GN Docket No. 09-137
Deployment Pursuant to Section 706 of the)	
Telecommunications Act)	

COMMENTS OF TRANSPARENT VIDEO SYSTEMS

Transparent Video Systems (“TVS”) is a manufacturer of cable television (“CATV”) head-end systems.¹ TVS’s solutions enable smaller, independent cable and telephone video operators to deliver advanced digital television services.

By deliberately using DVB rather than CableLabs and SCTE standards, TVS’s systems are practical, cost effective, and easy to use. TVS’s systems are built on open standards and yield easily-customized services and applications at a fraction of the cost of a closed system.

In general, we believe that the failure of the CableCARD system and mechanism should not lead the Commission to discard the concept of separable security. We are in favor of a

¹ Transparent Video Systems Inc. is a privately-held Delaware corporation with headquarters in San Carlos, California. For more information see <http://www.transparentvideo.net> or telephone (650) 508-8699.

mechanism for implementation of Section 629 of the Telecommunications Act of 1996² by use of gateways to the home network, but at the same time, believe that there remains a vital need for separable security – albeit one different from the CableCARD. We discuss one separable security architecture below.

I. OVERALL COMMENTS

- a. The CableCARD system distorts the competitive marketplace and *prevents* competition from developing.

It is TVS's opinion that the CableCARD concept imposes a competitive disadvantage on small cable operators and on new entrant equipment manufacturers.

The CableCARD regime requires cable operators deploy set-top boxes (“STBs”) that are much more expensive than would otherwise be necessary. In particular, the direct-to-home satellite (“DTH” or “DBS”) competition uses ISO-7816 smart card, DVB-based STBs that are significantly cheaper than an STB with a CableCARD, whereas some of the Over-the-Top (“OTT”) video competitors issue totally proprietary STBs. The RF channels carried by the cable operator are burdened by the CableCARD costs whereas the IP content from the OTT operator to the same consumer and carried by the cable operator’s cable internet connection is not burdened by CableCARD costs.

The approval steps for CableCARD equipment take far too long and are so expensive as to create a significant burden, thereby excluding competitive equipment manufacturers, who could create inexpensive, cost-effective devices from the marketplace.

Therefore, we recommend, as an immediate step to relieve the cable operators from this disadvantage, ISO-7816 DVB smart card-based STBs be generally allowed, perhaps by finding that the smart card is separable security.

- b. Separable security should be opened to include alternatives to CableCARD, and focus should be on security adapters like HDCP and DTCP for securing the content to the display.

A retail market for navigation devices that also supports encrypted or protected content can only be opened if the navigation devices have two characteristics:

² 47 U.S.C. § 549(c).

1. a high speed slot allowing a detachable security device to perform the content decryption,
2. a local protection function that the detachable security device uses to securely relay the content to the navigator device display driver.

We recommend establishing the framework for more types of separable security, in particular, SD/MicroSD and USB.

We recommend that HDCP and DTCP be specifically allowed for secure handshake of the content from the detachable content protection device to the display of the navigation device. Furthermore, we recommend that manufacturer-specific schemes be authorized as long as the specifications for the manufacturer-specific schemes are open for any manufacturer of detachable security device and for any operator, and are licensed under fair, reasonable, and non-discriminatory terms.

Thus several options exist to achieve separable security and local content protection functions thereby allowing manufacturers to create products that compete on feature sets and price, rather than having significant portions of the products' feature sets fixed by regulation.

With the above in place, it is not necessary to regulate navigation devices to support a specific content management scheme like DLNA or other. This is advantageous as it frees manufacturers to make what they believe is the most compelling product, thus enabling competition, innovation, and lower prices.

II. RESPONSES TO SPECIFIC ISSUES TO HELP UNDERSTANDING OF SPECIFIC ISSUES AND THE NATIONAL BROADBAND PLAN

A. WHAT TECHNOLOGICAL AND MARKET-BASED LIMITATIONS KEEP RETAIL VIDEO DEVICES FROM ACCESSING ALL FORMS OF VIDEO CONTENT THAT CONSUMERS WANT TO WATCH?

The conflicting requirements of promoting open competition on consumer navigation devices, while protecting content from distribution through to the display, comprise the root of the problem of interoperable navigation devices not being successful at retail. The need to protect the transport of content and limit the distribution/redistribution of the content necessarily forces content distributors (cable, satellite, ILECs, and others) to promote closed navigation

devices – i.e., STBs – and deny consumption on open navigation devices like personal computers.

Allowing consumption of premium content on open navigation devices can only be met through two elements: (a) separation of content protection systems and (b) content protection.

- a) Separation of the content protection system security device from the navigator device (i.e., separable security).

The CableCARD concept basically satisfies this requirement. However, the CableCARD is based on PCMCIA which today is an outdated detachable device concept. PCMCIA was chosen in the mid-1990s when it was the only detachable device architecture for consumer devices having the speed necessary for accepting a high-speed digital transport stream. Satellite is the worst case – appx. 70Mbits/sec in, and 140Mbits/sec out. PCMCIA is a declining interface and, in any case, is not at all present on mobile devices like smart phones and PDAs.

Going forward, a far more practical solution for the separable security form factor is the MicroSD card. This modern SD card standard has the speed for any relevant digital transport stream – including those from wide satellite transponders. MicroSD (which can be adapted to standard SD card form factor via a trivial plastic adapter) is the detachable device port most widely available on navigator devices as it is common on flat screens, PCs, mobile phones, game devices, media-players, etc.

USB is an alternative. However, a USB device can take any form factor, including being relatively bulky. The USB ports therefore needs to be designed for the USB device to be connected with, and not enclosed in, the terminal. The USB device would then be unnaturally protruding from the host device. A detachable device sticking out of the terminal is then much less practical for mobile phones and other handheld devices.

The SD card standards also specify the form factor of the micro- and standard SD cards. This allows the terminal designer to embed the MicroSD card slot inside the terminal for insertion of the SD card fully inside the terminal. This is practical and user-friendly for mobile devices and laptop PCs. SD/MicroSD cards can be adapted to USB with a passive mechanical adaptor, thereby yielding the best of both worlds – a very small USB-connectible security card.

- b) Protection of the content from the time it leaves the domain of the content protection system security device until shown on screen.

High-bandwidth Digital Copy Protection (“HDCP”)³ and CI+⁴ are examples of such display protection schemes. Providers of premium content only accept their content to be released on navigation devices that have both (1) the support for a strong content protection system and (2) security to the display. For example, it is the lack of security to the display that usually makes the PC unacceptable as content consumption device for premium content.

Displays take many forms. Some are fully integrated like many mobile phones; some are easily accessible like most PCs. There may be ways to secure the content to the display that are more cost effective or secure on one type of navigator device than another.

Imposing a particular display security adapter specification for all types of navigator devices may not be optimal. An alternative strategy would be for the Commission to encourage the concept generally, then let the providers of navigator devices add whatever mechanisms they believe suit their type of navigation device best. Because, in practice, there are only a limited number of ways to make a display security adapter, rapid convergence can be expected towards a few methods and protocols.

Unlike a fixed standard, this approach also allows for proprietary display security adapters. Proprietary display security adapters are acceptable and appropriate in tightly integrated navigation devices. On the other hand, more general purpose displays, like the flat-screens and lap-tops, should be designed using an open standard. Nonetheless, both open- and proprietary specification display security adapters must offer an open protocol/API towards the content protection security device.

³ HDCP is a technology for cryptographically protecting uncompressed digital audio/video across a link between a receiver/decoder and a display device. HDCP is defined for use across Digital Visual Interface (“DVI”), High-Definition Multimedia Interface (“HDMI”), DisplayPort and other similar interfaces. *See generally* Digital Content Protection, LLC, *HDCP Deciphered White Paper* (Jul. 2008), available at http://www.digital-cp.com/files/documents/04A897FD-FEF1-0EEE-CDBB649127F79525/HDCP_deciphered_070808.pdf.

⁴ *See* <http://www.ci-plus.com>. CI+ is an enhancement to the DVB Common Interface (CI) that adds link encryption over the CI-Host interface for decrypted content. One criticism of the DVB Common Interface is the lack of link protection for descrambled content. CI+ resolves this criticism by implementing copy protection, just as SCTE did for the CableCARD interface in ANSI/SCTE 41 (adding DFAST content scrambling across the CableCARD interface).

1. WHAT LIMITATIONS PREVENT CONSUMER ELECTRONICS MANUFACTURERS FROM DEVELOPING A TRUE “PLUG-AND-PLAY” DEVICE THAT IS NETWORK AGNOSTIC?

Consumer electronics manufacturers are limited by the encryption technologies in two ways: (a) the lack of standards and (b) compatibility. These factors hinder the creation of a truly network agnostic device in the US market; as such, the current CableCARD system has found only limited compatibility with just STB and TV devices. This leaves out PCs, smart phones, PDAs, X-Box, PS-3, and other personal and portable video devices – amounting to tens of millions of devices. Many of these devices could be upgraded via a software download to use a USB-connected security device and thereby receive protected content.

Internationally, the world has generally adopted DVB standards for MPEG content distribution. DVB incorporates Simulcrypt, and related standards enable broadcast equipment manufactures to produce signals that are compatible with consumer electronics devices. A system built using DVB Simulcrypt would be compatible with STBs, TVs, PDAs, PCs, or any other product that has an SD/MicroSD card slot or USB port with the use of an inexpensive adapter.

2. WHAT TECHNICAL OR MARKET LIMITATIONS KEEP CERTAIN VIDEO DEVICES FROM ACCESSING VIDEO SERVICES TO WHICH A CONSUMER HAS SUBSCRIBED?

The limitation is that the encryption is not portable between different consumer viewing devices. Regardless of transport type, you have MPEG content which can be processed and transported via modulated RF or IP. Encryption needs to work at the MPEG layer and be transport agnostic. DVB Simulcrypt supports this type of functionality. Moreover, Simulcrypt encryption can be portable for the consumer. Encryption, DRM, and storage can all be achieved on a single, low cost electronic medium using an SD/MicroSD card. Such consumer friendly, portable content can be displayed via STBs, TVs, PCs, PDAs, cell phones, and other portable devices.

3. WITH RESPECT TO INTERNET ACCESS, CONSUMERS CAN PURCHASE OR LEASE INTERFACE DEVICES (FOR EXAMPLE, CABLE MODEMS) THAT PERFORM ALL OF THE NETWORK-SPECIFIC FUNCTIONS AND CONTENT VIA ETHERNET PORTS TO A MULTITUDE OF COMPETITIVELY PROVIDED

CONSUMER DEVICES INCLUDING COMPUTERS, PRINTERS, GAME CONSOLES, DIGITAL MEDIA DEVICES, WIRELESS ROUTERS, REFRIGERATORS, NETWORK STORAGE DEVICES AND MORE. WHAT TECHNICAL OR MARKET LIMITATIONS PREVENT VIDEO CONTENT DISTRIBUTORS FROM PROVIDING SIMILAR DEVICES THAT ALLOW FOR INNOVATIONS IN THE NAVIGATION DEVICE MARKET?

To this point, the market limitations for IP distributed video have mostly been programmer-driven. Content providers do not trust the currently deployed encryption/scrambling schemes to keep their content free from theft. Although IP has proven to be a very efficient way to transport video, it may be too efficient in the eyes of the programmers. With unencrypted IP video feeding the consumers' PCs and PDAs, it is generally regarded as too alluring and too easy to pirate.

B. WOULD A RETAIL MARKET FOR NETWORK AGNOSTIC VIDEO DEVICES SPUR BROADBAND USE AND ADOPTION AND ACHIEVE SECTION 629'S GOAL OF A COMPETITIVE NAVIGATION DEVICE MARKET FOR ALL MVPDS?

The beginnings of a competitive marketplace for navigation devices are underway. There are several competitive manufacturers of devices which are able to navigate various Over-The-Top ("OTT") services, such as Netflix and Vudu. We recommend that the Commission act quickly to avoid OTT services supplanting MVPDs entirely.

OTT services are infrastructure-free, and the lack of separable security and other Section 629-related requirements have significantly less costs associated with navigation devices. For example, the Roku digital video player is available for less than \$80 and navigates Netflix, Amazon Video On Demand, and MLB.TV.⁵ Devices like the Roku player do not have CableCARDS or similar costly technologies and, as a result, have a competitive advantage over MVPDs – particularly smaller cable operators that have fewer resources.

The Commission should ease or eliminate CableCARD requirements, or, in the alternative, impose similar requirements on OTT and other navigation devices.

⁵ Press Release, Roku, Inc., *Roku Introduces New \$79 Instant Streaming Player* (Oct. 27, 2009), available at http://www.roku.com/Libraries/Press_Releases/RokuReleasesNew79DollarPlayer.sflb.ashx (last visited Dec. 20, 2009).

1. HOW COULD THE COMMISSION DEVELOP A STANDARD THAT WOULD ACHIEVE A RETAIL MARKET FOR DEVICES THAT CAN ATTACH TO ALL MVPD NETWORKS AND ACCESS INTERNET-BASED VIDEO SOURCES?

We don't believe that an all-MVPD system, as defined, will have success unless such a system includes satellite providers and makes allowances for smaller cable MSOs. Smaller MSOs have a competitive disadvantage by virtue of the Commission's navigation device rules (especially the integration ban⁶). Smaller operators are losing customers to other MVPDs (generally satellite providers) because of the cost burdens placed upon them by such rules – rules which the satellite operators have not been burdened with.

2. WHAT ARE THE PROS AND CONS OF EACH OF THESE TYPES OF SOLUTIONS, AND WHICH ONE WOULD DO THE MOST TO PROMOTE BROADBAND ADOPTION AND UTILIZATION? WOULD ANY INHIBIT BROADBAND ADOPTION AND UTILIZATION?

TVS's focus is on that of the smaller operator. Such operators would accrue immediate benefit were the Commission to sunset the current CableCARD requirements or, similarly, adopt a permanent waiver for all small cable system operators. Innovation in video or data services requires bandwidth, and the most effective means for increasing bandwidth for small operators is converting analog video channels to digital. Such a conversion replaces analog transmission with digital channels at a much higher effective system capacity.⁷

Unfortunately, this conversion is cost prohibitive for a vast majority of small, independent cable operators due to the high cost of CableCARDs and CableCARD-equipped STBs. In contrast, basic standard definition DVB STBs are available to these small operators at virtually the same price of a CableCARD.⁸ Hybrid IP/RF two-way DVB HD DVR STBs are

⁶ 47 C.F.R. §76.1204(a)(1).

⁷ Each analog channel requires a 6 MHz channel on the cable system's coaxial cable distribution network, however each 6 MHz channel, when converted to digital, can carry as much as 38Mbps of data. As cost-effective MPEG encoders are now available that can compress standard definition video programming into a little as 2Mbps, replacing one analog channel with a digital channel can free as many as 18 analog channels (by carrying 19 'channels' of video programming, at 2Mbps each, on a single 38Mbps digital channel).

⁸ TVS has been supplying the TVS-10001-PLUS STBs with security cards for \$76 in small quantities to cable operators.

available at half the cost of an HD-only CableCARD STB.⁹ Moreover, with the increased volume of DVB STBs, these prices will continue to decrease.

In fact, millions of devices implementing DVB standards are currently deployed in the United States – by DBS operators. DBS operators are able to purchase receivers from multiple manufacturers, yielding price and feature competition between and among the suppliers.¹⁰ This competition results in decreased costs to consumers – with increased features.

We believe that, with the costs and commercial hindrances associated with the integration ban, there is a real danger to the commercial viability of small operators in rural and semi-rural areas. The Commission has granted waivers of the integration ban to small operators and on devices generally marketed to small operators and has created a process whereby devices with a particular feature set receive expedited waiver processing.¹¹ The Commission should give cable operators with less than 5,000 subscribers or less than 552 MHz bandwidth, an exemption or automatic waiver from the existing integration ban and common-reliance rules.¹²

Devices implementing DVB standards are available which would empower operators to immediately supply new advanced digital systems utilizing more broadband than ever before. Unfortunately, if the Commission adopts a *different* system, this would create significant delays and further the damage done to both consumers and smaller cable operators by the integration ban and the failure of the CableCARD regulations to accomplish the goal of Section 629.

⁹ See Chris Lanier, *Dell Raises CableCARD Tuner Prices*, Apr. 10, 2008, available at <http://msmvps.com/blogs/chrisl/archive/2008/04/10/1581650.aspx> (indicating prices for Digital Cable Tuners with CableCARD sockets of \$255 (single) and \$491 (dual CableCARD)); See HP MDTV C-5 CableCARD Module, available at <http://www.whatsyourdeal.com/forums/47782-hp-mdtv-c-5-cable-card.html> (Indicating an apparent close-out sale of discontinued CableCARD interfaces at \$79.99).

¹⁰ See Letter from Stacy Fuller, Vice President, Regulatory Affairs, DIRECTV to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket Nos. 09-47, 09-51, 09-137, CS Docket No. 97-80 (Dec. 15, 2009) at 1.

¹¹ See Evolution Broadband, LLC's Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules, *Memorandum Opinion & Order*, 24 FCC Rcd. 7890, 7897, ¶ 15 (2009); see *In The Matter of Application of Motorola, Inc., Cisco Systems, Inc., Pace Americas, Inc., Thomson, Inc. Request for Waiver of Section 76.1204(a)(1) of the Commission's Rules*, *Memorandum Opinion and Order*, DA 09-1854 at 12 (rel. Aug. 24, 2009); 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*, FCC 09-45, 24 FCC Rcd. 7882 at 18 (2009).

¹² See generally *In The Matter of Carriage of Digital Television Broadcast Signals: Amendment to Part 76 of the Commission's Rules*, Comments of the American Cable Ass'n, CS Docket No. 98-120 (describing a 5,000 subscriber or 552 MHz bandwidth threshold).

C. CAN THE HOME BROADBAND SERVICE MODEL BE ADAPTED TO ALLOW VIDEO NETWORKS TO CONNECT AND INTERACT WITH HOME VIDEO NETWORK DEVICES SUCH AS TELEVISIONS, DVRs, AND HOME THEATER PCs VIA A MULTIMEDIA HOME NETWORKING STANDARD?

1. ARE DLNA AND HANA THE ONLY HOME NETWORKING STANDARDS THAT THE COMMISSION SHOULD CONSIDER IN REVIEWING THIS MODEL? IF NOT, WHICH OTHER STANDARDS SHOULD THE COMMISSION CONSIDER?

DLNA and HANA are the two prominent standards that should be considered but it is worthwhile to note that they are technically not *standards* but *guidelines* on the use of existing standards and describe how these existing standards should be utilized for interoperability. For example, DLNA guidelines are based on UPnP standards (and others).¹³

It should also be noted that HANA has dissolved – apparently leaving DLNA as the only actively-developed home networking standard with wide participation.¹⁴

2. WHAT ARE THE STRENGTHS AND WEAKNESSES OF EACH HOME NETWORKING STANDARD?

From a high-level perspective, they are basically the same set of “guidelines” implemented with two fundamental Physical layer interfaces. DLNA is based on IEEE 802.x, and HANA is based on IEEE 1394.¹⁵ They both use a very similar DRM-based, physical layer protection scheme called DTCP/IP for Content Access control.¹⁶ End user systems currently exist that allow transfer of content from HANA systems to DLNA systems, though this has not been formally standardized, but has been implemented *de facto* due to the frustration of industry

¹³ See Digital Living Network Alliance, *Guidelines and Certification FAQ*, available at <http://www.dlna.org/industry/certification/faq/> (indicating that DMS, M-DMS, DMR and DMPr device classes require UPnP Implementers Corporation (UIC) certification).

¹⁴ Memorandum from Bill Rose, President, High-Definition Audio-Video Network Alliance to Current and Recent HANA Member Companies, Oct. 1, 2009, available at <http://hanaalliance.org/about/HANA/MemoFromThePresident.pdf> (last visited Dec. 15, 2009) (describing the dissolution of HANA).

¹⁵ See HANA Alliance, *Frequently Asked Questions*, available at http://www.hanaalliance.org/about/HANA/HANA_FAQ_V4_082608.pdf (last visited Dec. 19, 2009) at p.2.; See *supra* note 13.

¹⁶ Digital Transmission Licensing Administrator, *DTLA Home Page*, available at <http://www.dtcp.com> (last visited Dec. 19, 2009) (“DTCP-IP ... is approved for use by the Digital Living Network Alliance”, “... DTCP-1394 is approved for use by the High-definition Audiovisual Network Alliance”).

developers on having to support multiple “standards” or “systems” for consumer satisfaction in the marketplace.¹⁷

3. WOULD ANY OF THESE STANDARDS ALLOW CONSUMERS TO USE EXISTING TECHNOLOGY? FOR EXAMPLE, MANY DEVICES ALREADY IN CONSUMERS’ HOMES CAN ACCEPT FIRMWARE UPGRADES AND ARE ALREADY DLNA OR HANA CERTIFIED. COULD THE COMMISSION ADOPT A NETWORK INTERFACE STANDARD THAT ALLOWS THOSE DEVICES TO CONNECT TO AN MVPD NETWORK?

Yes, MVPD support for DLNA or HANA has been discussed in many contexts, including in both DLNA and HANA technical circles. There are no technical barriers to such a requirement. As the Commission notes, once MVPD devices are available which allow access from DLNA or HANA devices, a software upgrade would enable connection to the MVPD network.

D. WHAT OBSTACLES STAND IN THE WAY OF VIDEO CONVERGENCE?

Set-top box costs are extremely competitive and experiencing dramatic innovations. One significant obstacle to video convergence is the CableCARD itself. Incorporating a CableCARD effectively doubles the cost of an inexpensive STB (from a cost-of-goods standpoint) as well as requiring lengthy and costly development efforts.¹⁸ Furthermore, the certification process for the CableCARD is both costly and complex.¹⁹

The Commission can encourage innovation by phasing out CableCARD requirements and replacing them with standardized content protection scheme(s) that are inexpensive to license, do not require lengthy development efforts, and have low hardware costs.

Replacing the existing CableCARD hardware requirements with an SD/MicroSD card regime would satisfy these requirements, leading to lower costs (to manufacturers and to

¹⁷ See Bill Rose, *HANA and DLNA, A Unified Architecture, A White Paper* by Bill Rose (Apr. 4, 2007), available at www.hanalliance.com/.../Whitepaper_HANA%20and%20DLNA%20-%20Unified%20Architecture%20v5.doc (last visited Dec. 20, 2009).

¹⁸ See Mari Sibey, *The Cost of Adding CableCARD – It’s Not \$20*, ConnectedHome2Go.Com (June 12, 2007), available at <http://connectedhome2go.com/2007/06/12/the-cost-of-adding-cablecard-%E2%80%93-it%E2%80%99s-not-20/> (noting Motorola’s estimate of \$70 per CableCARD and TiVo’s estimate of \$20). Inexpensive STBs without CableCARD are available for less than \$50. *Supra* note 11, FCC 09-45 at 5.

¹⁹ See, e.g., Letter from Julie M. Kearney, Senior Director and Regulatory Counsel, Consumer Electronics Association to Marlene H. Dortch, Secretary, Federal Communications Commission, in CS Docket No. 97-80 (Mar. 6, 2008).

consumers) and greater innovation.²⁰ Innovation would be fostered by decreasing the engineering burden of incorporating security modules and by freeing manufacturers to spend their resources, instead, on innovative new products.

1. GIVEN THE FLOOD OF VIDEO CONTENT THAT IS NOW AVAILABLE FROM A MULTITUDE OF SOURCES, WHAT OBSTACLES STAND IN THE WAY OF ALLOWING CONSUMERS TO NAVIGATE THOSE SOURCES? WHAT CAN THE COMMISSION DO TO ELIMINATE THOSE OBSTACLES?

The main obstacle is that each video content source makes its own selection of technology (and associated intellectual property associated thereto), and there are too many choices of technology for video content sources to choose from. Most large silicon providers and end consumer companies would prefer a single, identified, defined set of technologies which must be used. Such a regulation would pave the way for easy navigation between and among the large variety of video content available.

2. IS THERE A SOLUTION THAT WOULD ALLOW MVPDS TO CONTINUE INNOVATING WITHOUT MAKING NAVIGATION DEVICES OBSOLETE WHEN MVPDS ADOPT INCOMPATIBLE DELIVERY METHODS?

If the physical interface and DRM is mandated and well-defined, a service abstraction may be created which would operate similar to the Apple iTunes Music Store or the Intel Atom's Developer Network Store – new application descriptions could be downloaded to the navigation devices, allowing for new innovations to be incorporated in deployed receivers.

3. WOULD A NETWORK INTERFACE SOLUTION ADDRESS THE CONCERNS RAISED REGARDING COST AND COMPLEXITY OF DEVICE CERTIFICATION AND APPROVAL? WHY OR WHY NOT?

Yes, it would as long as the absolute way of implementing this interface is specified with no option for vendors to implement them in an alternate fashion. Requiring all vendors to follow

²⁰ MicroSD memory cards are available for appx. \$5 in single unit quantity. TOPRAM 512MB microSD TransFlash Card TRMICROSD512, <http://www.buy.com/prod/topram-512mb-microsd-transflash-card/q/loc/101/209366789.html> (last visited Dec. 19, 2009). MicroSD sockets are available for appx. \$4 in single unit quantity. MicroSD Socket for Transflash, part no. PRT-00127, http://www.sparkfun.com/commerce/product_info.php?products_id=127 (last visited Dec. 19, 2009). In production volume quantities, MicroSD cards and sockets will be each available for less than \$1. In contrast, the CableCARD sockets are available for appx. \$9 (not including CableCARD-specific interface electronics). Hirose Electric Co., Lt., PCMCIA IC Memory Card Connectors, <http://www.datasheetarchive.com/pdf/Datasheet-050/DSA0010992.pdf> (last visited Dec. 19, 2009).

the same set of implementation rules removes the issue of interoperability and thus accomplishes the goal of a certification program, which is to guarantee a basic level of interoperability.

Respectfully submitted,

/s/

Norman Gillaspie
President
Transparent Video Systems, Inc.
70 Glenn Way, Suite #2
San Carlos, CA 94070
(650) 508-8699
(650) 649-2264 (fax)
norman@transparentvideo.net

December 21, 2009