

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

In the Matter of)
)
International Bureau Seeks Comment on)
Implementation of Section 25.281(b)) IB Docket No. 12-267
Transmitter Identification Requirements for)
Video Uplink Transmissions)

COMMENTS OF ACCELERATED MEDIA TECHNOLOGIES INC.

Accelerated Media Technologies Inc. (AMT) opposes any further extension of the implementation schedule for the Section 25.281(b) transmitter identification requirements for digital video uplink transmissions.¹ There is sufficient availability of equipment in the U.S. market so that the schedule need not be modified.

BACKGROUND

AMT is a cutting-edge technology company that designs, engineers and integrates custom satellite, broadcast and communications platforms. AMT provides the highest-quality and most-reliable broadcast and communications solutions for electronic news gathering, fixed and mobile satellite, mobile command centers, and technology for network operation center applications worldwide. AMT holds multiple patents for emerging technologies in both the satcom and mobile broadcast market spaces. Its production and integration facilities are located in Auburn, Massachusetts, with more than 200,000 square feet of purpose-built manufacturing space. AMT

¹ *International Bureau Seeks Comment on Implementation of Section 25.281(b) Transmitter Identification Requirements for Video Uplink Transmissions*, Public Notice, DA 16-367 (rel. April 6, 2016) (Public Notice). Comments on the Public Notice are due on or before June 30, 2016, with replies due on or before July 15, 2016. *See* 81 Fed. Reg. No. 104, p. 34301 (rel. May 31, 2016).

was founded by a group of highly experienced mobile and fixed communications specialists whose experience spans nearly 45 years.

AMT understands mobile communication platforms. With regard to transmitter identification for digital video uplink transmissions via satellite, AMT presently offers two devices to the U.S. market that allow operators to meet – at reasonable cost – the updated Automatic Transmitter Identification System (ATIS) requirements established by the Federal Communications Commission (FCC) in 2013.

The CID Passport Modulator can be used with temporary fixed earth stations to add the carrier identification (CID) to digital video uplink transmissions. It allows a user, rather than buying a new encoder, to turn off the modulator on existing equipment and use the Passport Modulator to insert the CID in accordance with the new Section 25.281(b) requirement. AMT specifically requested that the Passport Modulator be created as a stand-alone device in order to provide a cost-effective means for achieving Section 25.281(b) compliance. The Passport Modulator has been available in the United States for six months, and received recognition when exhibited at the National Association of Broadcasters (NAB) conference earlier this year.² The Passport is offered for \$6,200, with volume discounts available. The marketing spec sheet is attached.

The Teamcast CID Decoder is available for satellite providers to use at teleports to read the CID.³ Only a few such devices would be needed at each teleport location because they are only put into use when interference is suspected and needs to be identified. Like the Passport Modulator, the Teamcast CID Decoder is added to existing equipment, eliminating the need for

² See <http://www.creativeplanetnetwork.com/news/shoot/best-show-tools-and-technologies-recognized-digital-video-2016-nab-show/614407>.

³ See <http://www.teamcast.com/products/cid-receiver-first-carrier-id-extractor/> for details.

operators to retrofit or replace current equipment. The Teamcast CID Decoder has been available for sale in the U.S. for eight months at a cost of \$8,000, with volume discounts available. The marketing sheet is also attached.

At least one other company offers similar products. Newtec sells a stand-alone modulator designed to be added to current equipment, without the need for replacement or retrofitting, and provides for Section 25.281(b) compliance.⁴ AMT understands that the cost of this product is in the range to \$6,000 - \$9,700.

DISCUSSION

The purpose of the ATIS requirement is to allow satellite operators a means of identifying and addressing interference. In 2013, the Commission established the updated ATIS requirement to align it with the contemporary use of digitally modulated broadband video signals, as the former requirement was not suited for use with digitally modulated signals.⁵ Upon the recommendation of the Satellite Industry Association (SIA) and a review of the record, the Commission adopted a two-year grace period by which providers must bring equipment up-to-date to meet this new standard.⁶ In doing so, it rejected a proposed five-year grace period, and concluded that two years was sufficient.⁷ The grace period is due to expire on September 3, 2016, but the Bureau has issued a blanket temporary waiver to extend the time by which operators must comply to September 3, 2017.⁸

⁴ Information about this device, the M6100 Broadcast Satellite Modulator, is available at <http://www.newtec.eu/frontend/files/leaflet/m6100-broadcast-satellite-modulator-r2.1.pdf>.

⁵ *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, 28 FCC Rcd 12403, 12466-70 (2013) (2013 R&O).

⁶ *Id.* at 12470.

⁷ 2013 R&O at 12470.

⁸ Temporary Waiver Order, DA 16-122 (IB 2016) (rel. March 4, 2016).

The International Bureau (Bureau) now seeks comment on whether to extend this period based on claims from earth station operators that “suitable external modulators have not become widely available.”⁹ The facts do not bear this out. For several years, more than a half-dozen manufacturers have offered external modulators and/or encoders with optional CID-capable modulators that would allow earth station operators to meet the new ATIS requirements. These include: Newtec, Comtech, Advantech, Sencore, Harmonic, Ericsson and SED.¹⁰

The Bureau also states that some operators claim that they “would need to replace the equipment at considerably greater expense than anticipated when the rule was adopted.”¹¹ Again, this claim is inconsistent with the realities of the marketplace, given that both AMT and Newtec offer equipment that allows operators to meet the rules at reasonable cost and without the need to replace equipment.

CONCLUSION

For the foregoing reasons, Accelerated Media respectfully requests that the Bureau retain the present timeline (to September 3, 2017, given the blanket waiver) for implementation of the Section 25.281(b) transmitter identification requirements for video uplink transmissions. The record indicates that operators have access to the technology necessary to meet this timeline.

Respectfully submitted,

Laura Stefani
FLETCHER, HEALD & HILDRETH, P.L.C.
1300 North 17th Street, 11th Floor
Arlington, VA 22209
(703) 812-0440
Counsel to Accelerated Media Technologies Inc.

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⁹ Public Notice at 2.

¹⁰ Appendix A provides links to currently available CID modulators and encoders offered with CID modulator options.

¹¹ *Id.*

Appendix A

Modulators with CID Capability

Comtech Radyne Modulators with CID:

<http://www.comtechedata.com/files/datasheets/ds-cdm760.pdf>
<http://www.comtechedata.com/files/datasheets/ds-dm240xr.pdf>

Newtec Modulators with CID:

<http://www.newtec.eu/frontend/files/leaflet/m6100-broadcast-satellite-modulator-r2.6.pdf>
<http://www.newtec.eu/backend/files/leaflet/MDM6000%20High%20Speed%20Satellite%20Modem%20leaflet%20R2.0.pdf>

Sencore Modulator with CID:

<http://www.sencore.com/sites/default/files/SMD989%20v9.pdf>

NovelSat Modulator with CID:

<http://novelsat.com/wp-content/uploads/2015/12/NS300-Professional-Satellite-Modem.pdf>

Work Microwave Modulator with CID:

https://work-microwave.com/wp-content/uploads/2016/02/v2_dvb_modulator_sdm2.pdf

Paradise Data:

http://www.paradisedata.com/collateral/datasheets/210058_RevC.pdf

Advantech Wireless Modulators with CID:

<http://www.advantechwireless.com/products/sbm-75e-satellite-broadcast-modulator/>

Encoders with Available CID Modulators

Ericsson AVP 3000 Family:

https://www.ericsson.com/ourportfolio/products/avp-3000-family?nav=productcategory007%257Cf gb_101_752

Harmonic:

<http://www.harmonicinc.com/news/harmonic-powers-first-dvb-carrier-id-trials-ellipse-3202-contribution-encoder>

Adtec Digital:

<http://www.adtecdigital.com/products/encoders/en-210>

<http://www.adtecdigital.com/products/encoders/en-31>

Semiconductor CID Intellectual Property Cores

<http://www.creonic.com/en/ip-cores/dvb-cid-modulator>

<http://www.xilinx.com/products/intellectual-property/1-49lnzj.html>

<http://www.commsonic.com/products/SDvbCidModulator.htm>

<https://www.iprium.com/ipcores/id/dvb-cid-modulator/>

CID-PASSPORT

DVB-S/DSNG/S2/S2X MODULATOR



The CID-PASSPORT is a state-of-the-art satellite modulator designed for applications over satellite in full compliance with the DVB-S, DVB-DSNG, DVB-S2 and DVB-S2X (Broadcast and DSNG profiles) standards. CID-PASSPORT covers the full L-Band range (950/2150 MHz) and IF Band range (50/180 MHz) on the same hardware platform. CID-PASSPORT offers bit rates from 0.25 Mbps up to 200 Mbps with a Symbol Rate from 0.1 MBauds to 68 MBauds. CID-PASSPORT has the capability to drive a Block Up Converter (BUC) via High Stability 10Mhz reference available on the L-Band RF output signal. CID-PASSPORT is compliant with the latest Carrier ID requirements defined in ETSI 103 129.

The CID-PASSPORT offers a Push Data Service (DualCast) based on MPE, an ACM Contribution (ContribACM) feature that adapts the modulator MODCOD without any video interruption to allow the video transmission to continue under deteriorating satellite link conditions and CID-PASSPORT offers the aggregation, up to 4 MPEG-TS multiplexes (MPTS) over Ethernet and/or ASI inputs, into one satellite carrier via the Multistream feature (as defined in DVB-S2 standard) while maintaining the integrity of the original content.

CID-PASSPORT has redundant ASI and IP inputs. CID-PASSPORT has optional upgrades available to include DVB-S2X Broadcast and DSNG profiles. CID-PASSPORT supports all new MODCOD (linear MODCOD), the 64 APSK constellation, and the new roll off (from 5% to 15% by step of 1%) available with any satellite standards.

Performance & Reliability

CID-PASSPORT has been designed to meet all ETSI EN 302 307 requirements: part I for DVB-S2 and part II for DVB-S2X. All modes of bit rate adaption are possible: PCR adaptation, Padding insertion and Dummy BBFrame insertion - resulting in CID-PASSPORT's unique automatic flexible rate adaptation. CID-PASSPORT offers a flexible baudrate (from 0.1 MBaud to 68 MBaud) to fully feed a 72 MHz transponder. An internal PRBS generator can be used to generate a RF spectrum without any valid signal input. CID-PASSPORT offers, without option, the ability to receive an incoming MPEG-TS stream either over ASI or Ethernet inputs. A local redundancy is available between the MPEG-TS over ASI and MPEG-TS over IP.

CID-PASSPORT integrates the core technology required to perform high quality modulation. It provides customers with a best in class performance, providing a high SNR value, excellent shoulder levels and lowest phase noise. CID-PASSPORT provides a high performance channel spectrum and in addition to the standard, roll off from 5 to 35% by step of 1% for the all modulation: DVB-S/DVB-DSNG/DVB-S2 and DVB-S2X. This results in efficient transmissions in 32APSK (DVB-S2/S2X) and 64APSK (DVB-S2X) with lower power.

The user-friendly Embedded Web Browser ensures ease of use and enables full configuration of the modulator, including signal input management, selection of DVB-S, DVB-DSNG, DVB-S2 and DVB-S2X, modulation type (MODCOD) and control of the mute/unmute conditions for the RF output signal. The GUI also offers monitoring of the input stream (i.e. input format & useful bit rate).

Key Features

- DVB-S/DSNG/S2/S2X standards
- L-Band and IF Band
- Symbol rate from 0.1 to 68 MBauds (1 baud step)
- Low roll-off (5 to 35%, 1% step) for DVB-S/DSNG/S2/S2X
- Carrier ID compliant (ETSI 103 129)
- ASI/IP inputs
- Multistream (up to 4 MPTS), according to EN 302 307 standard, over ASI & Ethernet
- Up to 64 embedded profiles
- Ultrafast equipment boot
- Low power consumption

High performance and cost effective DVB-S/DSNG/S2/S2X modulator for:

- Satellite contribution
- DSNG applications
- Satellite distribution
- Direct To Home (DTH) applications



Specifications¹

Standards
Carrier ID: ETSI 103 129
DVB-S2X: EN 302 307 part II
DVB-S2: EN 302 307 part I
DVB-DSNG: EN 301 210
DVB-S: EN 300 421
MPEG-TS: ISO/IEC 13818-1
DVB MPEG-TS over ASI: EN50083-9, ETSI TR 101 891
DVB MPEG-TS over IP: ETSI TR 102 034
MPEG-2 PSI Tables (PAT and PMT): EN 300 468
Inputs
MPEG-TS (188/204 bytes) over ASI (x2) - BNC connectors, 75 Ω
MPEG-TS (RTP/UDP - SMPTE-2022) over IP - 2 x RJ45 (Connectors shared between Control & Data)
Multistream up to 4 ISI selected between
<ul style="list-style-type: none"> • 2 MPTS over ASI • 4 MPTS over Ethernet
Flexible bit rate adaptation
<ul style="list-style-type: none"> • PCR adaptation/Padding/Dummy frame
Encryption 0.25 to 200 Mbps available in Single Stream
<ul style="list-style-type: none"> • BISS (single/multiple programs): mode 0,1, E
RF Outputs
L-Band
<ul style="list-style-type: none"> • 950 MHz to 2150 MHz, step 1 Hz • N 50 Ω / +7dBm / -35dBm, step 0.1 dB
IF-Band
<ul style="list-style-type: none"> • 50 MHz to 180 MHz, step 1 Hz • BNC 75 Ω / +5dBm / -35dBm, step 0.1 dB
SNR > 40 dB @ 0 dBm -16 APSK - 30 Mbaud
Shoulders rejection < -50dB @ 0dBm & f/fN=1.5 for roll off 20%
Spurious
<ul style="list-style-type: none"> • < -65 dBc @ 0 dBm for 50 to 180 or 950 to 2150 MHz • 60 dBc outside the useful band
Switchable 10MHz insertion on L-Band RF output
<ul style="list-style-type: none"> • @1Hz < -85 dBc/Hz • @10Hz < -115 dBc/Hz • @100Hz < -140 dBc/Hz • @1kHz < -145 dBc/Hz • @10kHz < -150 dBc/Hz • @1MHz < -150 dBc/Hz
Distortion Correction
Cable Tilt Correction: ±0.04 dB/MHz maximum
Clock & Synchronization
Internal 10 MHz Reference Frequency
<ul style="list-style-type: none"> • HIGH STABILITY: +/- 5 ppb over 0 to 70° C • Ageing: +/- 0.05 ppb/day - +/- 7.5 ppb/year
External 10 MHz input for RF synchronization

¹Specifications are not contractual and are subject to revision without notice.



DualCast

Opportunistic Push Data Service Insertion:

- Upgrade of the PSI/SI tables
- Browse file via GUI with size up to 100Mbytes (60s off line video file SD 4:2:0 around 5 Mbytes)

Modulation

DVB-S / DSNG:

- Outer/Inner FEC: Reed Solomon/Viterbi
- QPSK: 1/2, 2/3, 3/4, 5/6, 7/8
- 8PSK: 2/3, 5/6, 8/9
- 16QAM: 3/4, 7/8

DVB-S2:

- Outer/Inner FEC: BCH/LDPC
- QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
- 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
- 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10 (optional software key)
- 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10 (optional software key)
- PL Scrambling codes [0, 264143]
- Supported DVB modes:

- CCM: Constant Coding and Modulation,
- VCM: Variable Coding and Modulation,
- SeamlessACM: Adaptive Coding and Modulation

- DVB-S2 Short (16 200) Normal (64 800) frames:
- Pilots ON or OFF
- Variable symbol from 0.1 to 68 Mbaud, step 1 Baud

DVB-S2X Broadcast & DSNG profiles

- Same features as defined for
- New constellation for DSNG profile: 64APSK
- All new linear MODCOD for QPSK/8PSK/16A/32/64APSK

Control & Monitoring

RS232 control port with SCPI protocol

SNMP (V2C) and Web Interface Control & Monitoring

Keyboard and display on the front panel

Alarm relays - connector 9-pin sub-D (F)

Dry contact management for 1+1 redundancy

2 x 10/100/1000 base-T Ethernet ports: both for MPEG-TS over IP and Control (GUI/SNMP)

Physical

Power supply: 90 to 240 VAC - 30W

Dimensions: 450 x 350 x 44 (LxIxD)

Weight: 4 kg

Temperature: 0°C to 50°C

CID Receiver



**5%
Roll Off**

The most integrated and cost effective Carrier ID receiver⁽²⁾

Applications:

- Satellite distributions,
- Satellite contributions,
- DSNG applications,
- Monitoring systems.

Description

TeamCast proposes a full DVB Carrier ID (CID) receiver (following the standard ETSI TS 103 129 recommended in the Digital ATIS FCC 25.281) able to extract “on-the-fly”, **after being locked on the incident signal DVB-S or DVB-S2**, the DVB-CID data. So the CID Receiver is the perfect tool to check if the incoming satellite beam has its own Carrier ID. Very useful and simple to create your own database, to verify if it is the good modulator behind the carrier, ...

In addition, the CID receiver is a state-of-the-art high performance professional DVB-S and DVB-S2 demodulator. This DVB-S & DVB-S2 demodulator supports **up to 210Mbit/s** and operates in 16APSK and 32APSK with a very low implementation loss as well as the DVB-S2X roll off.

The CID Receiver can be used either with LNB satellite blocks or with L-band (from 950 MHz to 2150 MHz) signals. In the most robust MODCOD, the C/N can operate below 0 dB and the receiver synchronizes and demodulates the input signal with automatic MODCOD detection.

Customers can control the CID receiver by using a very simple embeddeed GUI and/or SNMP through Ethernet interface. Moreover, full control and error monitoring facilities are available and signal statistics (C/N, C/N margin, Bit Error Rate before and after Forward Error Correction, Packet Error Rate) are provided including Carrier ID information as Global Unique Identifier (GUI), GPS positions, telephone number and some user data to identify the uplink used (as decribed in the standard ETSI TS 103 129).

This CID receiver is supporting a DVB-S2 multi-stream (as defined in EN 302 307) and will deliver the Input Stream Identifier (ISI), corresponding to the MPTS content (Multiple Program Transport Streams). The ACM feature allows seamless MODCOD switching, this allows changing the robustness of the transmission while maintaining your Quality of Service.

Key features :

- CID Extraction⁽²⁾
- DVB-S2X roll off included
- Dual L-Band input
- Full compliance with DVB-S and DVB-S2 technology
- Top performance for 16APSK and 32 APSK reception
- Adaptive equalization
- Up to 210 Mbps useful bit rate, up to 65MBaud
- Physical Layer Scrambling according to EN 302 307 standard
- Low power consumption

Main advantages:

- **Stand Alone Carrier ID (DVB-CID) extractor,**
- Dedicated setup to **optimize the DVB-S2X low roll off** reception,
- Signal S/S2 blind research (only need input Frequency value),
- Reduce time to market (easy to operate, easy to integrate),
- High performance with 16APSK and **32APSK** modulations with high Baudrate,
- Very large Symbol Rate range: from 0.2 MBaud up to **65 MBaud**.

CID receiver

Standalone Carrier ID Extractor⁽²⁾



Specifications¹

■ Standards

- o DVB-CID: ETSI TS 103 129
- o DVB-S2: EN 302 307
- o DVB-S: EN 300 421
- o DVB-ASI: EN 50083-9, ETSI TR 101 891
- o MPEG-TS: ISO/IEC 13818-1

■ Carrier ID extraction⁽²⁾

- o Carrier ID detection : < 10s
- o Carrier ID Global Unique Identifier extraction : < 20s
- o Carrier ID optional parameters (up to 4) : < 20s each
- o Total CID Extraction time = 30s + 20x(number of parameters)

■ RF inputs

- o 1 Connector F - 75 Ω
- o L-Band: From 950 MHz to 2150 MHz
- o Return loss > 9 dB
- o -25 dBm to -65 dBm (sensitivity -100 dBm @ QPSK-1/4)
- o LNB: independent DiSEqC control (off, + 13/18 Vdc, 22 KHz, 750mA max)

■ Outputs

- o DVB-S2 & DVB-S Single Stream management
- o DVB-S2 Multi-Stream management
- o Packet length 188/204 auto-detection
- o Maximum output bit rate:
 - up to 210 Mbps in single mode
 - up to 130 Mbps in CID extraction mode
- o ASI : - 1 x connector BNC - 75 Ω - MPEG-TS over ASI
- o IP⁽³⁾ : - 1 x connector RJ 45 - MPEG-TS over IP, RTP/UDP

■ Demodulation

- o DVB-S:
 - Outer/inner FEC: Reed Solomon/Viterbi
 - QPSK: 1/2, 2/3, 3/4, 5/6, 7/8
 - Roll-off value: 0.05, 0.10, 0.15, 0.20, 0.25, 0.35
- o DVB-S2
 - Outer/Inner FEC: BCH/LDPC
 - QPSK: 1/4, 1/3, 2/5, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
 - 8PSK: 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
 - 16APSK: 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
 - 32APSK: 3/4, 4/5, 5/6, 8/9, 9/10
 - PL Scrambling codes [0, 262141]
 - Supported DVB modes: CCM / VCM / ACM
 - Short and long frame
 - Roll-off values: 0.05, 0.10, 0.15, 0.20, 0.25, 0.35
 - Pilots ON or OFF
 - Variable Symbol rate (Mbauds) 0.2 to 65 Mbauds
 - Embedded adaptive equalizer

■ Control & Monitoring

- o 2 x 10/100/1000 base-T Ethernet port⁽³⁾
 - 1xRJ45 for the Control: Web Browser & SNMP
 - 1xRJ45 for the MPEG-TS over IP
- o Keyboard and display on front panel⁽³⁾

■ Physical

- o Power supply: Rack 90 to 240 VAC - 50 Hz
- o Dimensions: Rack 483x376.5x43.8 (LxH)
- o Weight: Rack 4 kg
- o Temperature: 0 °C to 50 °C

² The patent policy regarding the CID demodulation is currently under study. No patent royalty are included in the Jupiter package and it is the responsibility of the integrator or the user to check if any royalty has to be paid to patent owners regarding CID demodulation.

Order Information

XSSR-CID0-1510

CID Receiver - S/S2 - 950/2150 MHz IN - TS out - 1U Rack

¹ Specifications are not contractual and are subject to revision without notice.

