• ABU

ASIA-PACIFIC BROADCASTING UNION
- Kuala Lumpur, Malaysia

• ASBU

ARAB STATES BROADCASTING UNION
- Tunis, Tunisia

• AUB

AFRICAN UNION OF BROADCASTING
- Dakar, Senegal

• CBU

CARIBBEAN BROADCASTING UNION
- St. Michael, Barbados

• EBU

EUROPEAN BROADCASTING UNION
- Geneva, Switzerland

• IAB

INTERNATIONAL ASSOCIATION OF BROADCASTING
- Montevideo, Uruguay

• NABA

NORTH AMERICAN BROADCASTERS ASSOCIATION
- Toronto, Canada

• OTI

ORGANIZACION DE TELECOMUNICACIONES IBEROAMERICANAS
- Mexico City, Mexico

June 4, 2008

To: Broadcast Encoder Suppliers

Dear Sir / Madam,

Re: Establishing Carrier ID's for world wide uplinking by January 1st, 2011

For many years users of satellite services have been plagued by the problem of occasional interference to their transmission by other signals. In most cases, valuable transmission time and perhaps the programming itself is lost due to the time it may take to identify the interfering carrier and resolve the interference. The World Broadcasting Unions International Satellite Operations Group (WBU-ISOG) along with the Satellite Users Interference Reduction Group, Inc (SUIRG), Global VSAT Forum (GVF) and other user organizations advocate the inclusion of a carrier identification capability which would provide a much needed ability to identify the source of interfering signals, especially rogue carriers. Following the study of various proposals, an approach for inclusion of user data in the encoder has been endorsed by WBU-ISOG. We seek your support as a supplier of broadcast encoders, to ensure that this capability is adopted in your products to enable uplinker contact information to be adopted as standard practice for all fixed and mobile uplinking earth stations globally.

Satellite interference comes from several sources; typically most are from operator error or equipment malfunction. The most trying and problematic cases come from malicious intent. When there is an interference incident, satellite operators have documented that it can take from minutes to months and even up to a year of investigation to resolve the problem. The major cause for this delay is the unknown origin of satellite signals. Our aim is, through the inclusion of a carrier identifier agent, to quickly pinpoint, isolate, and resolve the vast majority of interference cases for broadcast video signals.

WBU-ISOG has endorsed a solution based upon open technology which involves the automatic insertion and detection of contact and location data in the MPEG Data Stream. This solution initially demonstrated at the WBU-ISOG Forum in December 2006 by our Rogue Carrier Working Group (RCWG) in conjunction with SUIRG, Link Research, SISLINK, COLEM Communications and SAT Corporation, may be implemented in encoders using the MPEG Network Information Table (NIT) - Carrier Descriptor Table. Specific fields in the MPEG NIT are identified for insertion of user carrier information, which may then be extracted for uplinker identification by the Satellite carrier. An outline of the approach endorsed by WBU-ISOG is provided in the Attachment to this letter.

WBU-ISOG, representing broadcasters involved in the gathering of news and events from around the world, is writing to you as a leading supplier to ask for your support in our efforts to provide the satellite industry and users with the capability of maximizing performance through the minimization of satellite interference from unknown video sources. The ability to quickly and positively identify and contact uplinkers will enable rapid troubleshooting of carrier interference. **We ask that you include this capability for Carrier ID in your broadcast encoder products. Similarly we are requesting Satellite operators to assist in educating the user community regarding the future requirement for this user data in the uplink MPEG data stream.** We anticipate that as encoders are upgraded and replaced, a realistic target date for a requirement for the inclusion of user contact information in the encoder data stream is January 1st, 2011.

I hope to hear from you with positive support and any suggestions you may have on how to achieve inclusion of Carrier ID in the MPEG data stream as a standard operating practice. This item will be addressed during our RCWG session on the first morning of the WBU-ISOG Forum June 12th-13th, 2008 hosted by CNN in Atlanta and we look forward to your participation and feedback on this agenda item.

I would be pleased to discuss this important issue further and to provide additional information.

Best regards,

Dick Tauber

Chair WBU-ISOG

Attachment

INSERTION OF CARRIER ID INFORMATION IN MPEG STREAM:

The insertion of carrier ID information in the MPEG stream will assist in the rapid identification of satellite streams which will be of great assistance in troubleshooting satellite interference problems.

The Network information will always contain the manufacturers name and the unique unit serial number and encoders will have the option of having data automatically added into Network Information tables to provide traceability. Additional information can be added in the MPEG Network Information Table (NIT) by the uplinker, as requested by the Satellite operator, for example: ClientID; Contact Number; Latitude; Longitude … etc.

WBU-ISOG has endorsed the approach suggested by Link Research and encourages broad industry adoption of this non-proprietary practice.

Network Information Table (NIT) Carrier Identification Descriptor

Content

- **Descriptor Tag 8 bits**
- **Descriptor Length 8 bits**
- **Carrier Identifier Format 2 character string (Initially '01')**
- **Comma Separator 1 character string**
- **Carrier Identifier 5 character string (Name of Carrier Company)**
- **Comma Separator 1 character string**
- **Telephone Number 17 character string**
- **Comma Separator 1 character string**
- **Longitude 9 character string ('+000.0000' to '+/-180.0000')**
- **Comma Separator 1 character string**
- **Latitude 9 character string ('+000.0000' to '+/-090.0000')**
- **Comma Separator 1 character string**
- **Encoder Manufacturer 5 character string (Name of Encoder Manufacture eg VSL__)**
- **Comma Separator 1 character string**
- **Encoder serial number 12 character string (Electronic Serial Number of Encoder)**
- **Eg: 01,SIS__,+44(0)1923474069_,+000.0000, +000.0000,VSL__,12345678____**

Notes

- **1. All fields are of fixed length.**
- **2. All bytes in descriptor are ascii.**
- **3. ',' used as field separator (No trailing ',' at end of descriptor).**
- **4. Manufacturer/Serial number has been added to allow for future use of global database.**
- **5. 'Carrier Identifier Format' allows different formats of Identifier (essentially a version number for future proofing). Initially default to '01'.**
- **6. Descriptor is only placed in NIT if the Factory Default Set is set to '1'.**

For example: in the Link Encoder, the following Remote Control Commands have been included for the Carrier ID Descriptor (Firmware v9a3):

- **wgcar;SIS__; Carrier Identifier, 5 character string**
- **wgtel;+44(0)1923474069_; Telephone Number, 17 character string**
- **wglon;+000.0000; Longitude, 9 character string**
- **wglat;+000.0000; Latitude, 9 character string**
- **wgidd;196; NIT Carrier ID descriptor in decimal (192 <= n, <= 254) (Default = 196)**
- **wgsir;3; Service information speed up (0=x1,1=x4/3,2=x2,3=x4)**
- **wgdef;1; Link Encoder Factory Default set (0=Legacy, 1=WBU) Set to 1 to enable**
- **Carrier ID insertion into the NIT.**

NETWORK INFORMATION TABLE

Network Information Table (NIT) Carrier Identification Descriptor Content

- Descriptor Tag 8 bits
- Descriptor Length 8 bits
- Carrier Identifier Format 2 character string (Initially '01')
- Comma Separator 1 character string
- Carrier Identifier 5 character string (Name of Carrier Company)
- Comma Separator 1 character string
- Telephone Number 17 character string
- Comma Separator 1 character string
- Longitude 9 character string ('+000.0000' to '+/- 180.0000')
- Comma Separator 1 character string
- Latitude 9 character string ('+000.0000' to '+/-090.0000')
- Comma Separator 1 character string
- Encoder Manufacturer 5 character string (Name of Encoder Manufacture eg VSL__)
- Comma Separator 1 character string
- Encoder serial number 12 character string (Electronic Serial Number of Encoder)

Example content:

01,SIS__,+44(0)1923474069_,+000.0000, +000.0000,VSL__,12345678____

WBU-ISOG Acknowledges the following individuals and companies for their efforts in demonstration of proof of concept and presentations at the WBU-ISOG FORUMS, December 7, 2006 and October 22, 2007

Adam Edwards, SES-Engineering, member WBU-ISOG Rogue Carriers Working Group

SUIRG, Satellite Users Interference Reduction Group

COLEM Communications Ltd: software to automatically configure the Encoder with relevant contact and location data.

LINK RESEARCH: Demonstration of modified L1109 encoder to provide relevant data in MPEG stream and presentation at the WBU-ISOG Forum, Oct., 2007, Dubrovnik.

SAT CORPORATION to detect the content in the MPEG data stream

SISLINK for provision of uplink for test and demonstration