



## **Satellite Users Interference Reduction Group**

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from the Interference Source Identifier Forum...

# ***Carrier ID Projects***



# The ID Working Groups...

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➤ **Data ID...**

➤ **Chairman: Roger Franklin (Crystal Computer Corp/RFI Sentry)**

➤ **VSAT ID...**

➤ **Chairman: David Hartshorn (GVF)**

➤ **Video ID...**

➤ **Chairman: Martin Coleman (Colem Communications Ltd.)**

**Update follows...**



# Video ID - Milestones achieved...

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- **Original Demonstration - 7<sup>th</sup> December 2006**
- **Video Specification (V1.0) issued - January 2007**
- **Formal notification issued from WBU ISOG - June 2008**
- **Carrier ID Forum – Washington DC – 18<sup>th</sup> November 2009**
- **Working Groups for Video, Data & VSAT setup**
- **Video Specification (V2.0) issued - 22<sup>nd</sup> December 2009**
- **All Video Encoder & Modulator Manufacturers contacted then visited at NAB 2010**



# Manufacturers & Video ID...

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Expected completion for **All...**

**Q1 2011**

Lead...

Ericsson  
Harmonic (Scopus)  
Vislink

Support/In Progress...

ATEME  
CISCO  
Cobham  
Fujitsu Media Solutions  
HaiVision  
Harris Corp  
IDC (Tiernan)  
Motorola  
Newtec (Modulators)  
NTT  
Sencore  
Streambox

Waiting for Update...

Adtec  
DARIM  
Envivio  
Grass Valley  
Hitachi – Chicago  
Sumavision  
Telairity

*Based on findings from NAB 2010...*

- **Ericsson E5700 & EN8000 Encoders by**  
Q2 2010 (V2.0)
- **Ericsson EN81x0 & Modulators by**  
Q1 2011 (V2.0)
- **Harmonic – Complete and Ready (V1.0)**
- **All Vislink Products – Complete & Ready (V1.0)**



# Where are we with Video ID?

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**All applicable Video Encoder & Modulator Systems to be**

**CARRIER ID READY by Q1 2011**

**Users & Operators being contacted to engage and ensure  
their carriers have ID**

**Using Trade Shows/Organizations to make the push!**

*Some of the those Broadcasters already supporting and assisting in getting  
the ID message across include...*

***ABC, BSkyB, CNN, Discovery, Eurovision, Reuters,  
SiSLive, SNG***



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# ***Video Carrier ID Specification...***



# Network Information Table (NIT) Carrier ID content...

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Carrier Identifier Format	2 character string Numeric Only (Now '02')
Comma Separator	1 character string
Encoder Manufacturer	5 character string (Name of Encoder Manufacturer e.g. VSL__)
Comma Separator	1 character string
Encoder Serial Number	12 character string (Electronic Serial Number of Encoder)
Comma Separator	1 character string
Carrier Identifier	5 character string (Name of Carrier Company)
Comma Separator	1 character string
Telephone Number	17 character string Numeric Only & the following "+", "(" and ")" (Typically – Operator's MCR/POC Number, etc)
Comma Separator	1 character string
Longitude	9 character string ('+000.0000' to '+/-180.0000') Numeric Only & the following "+", "-" and "."
Comma Separator	1 character string
Latitude	8 character string ('+00.0000' to '+/-90.0000') Numeric Only & the following "+", "-" and "."
Comma Separator	1 character string
User Information	15 character string (Service Information/Other User Field, etc)
Total Character Count =	<b>80</b>

*(Maximum size for Carrier ID in the NIT excluding Descriptor Tag and Length field)*

*Typical example...*

**02,VSL\_\_,0123456789\_\_,SIS\_\_,+44(0)2076968722\_,+000.0000,+00.0000,USER\_INFO\_\_\_\_\_**



## Common Parameter Specification...

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All fields are fixed length;

Network Descriptor Tag 8 bits & Length 8 bits - Default shall = 196 decimal.

Codes available are from 192 to 254 decimal. Note, this is part the DVB specification for the construction of any service information table;

All bytes in the Network Descriptor are ASCII and in the range of the standard printable codes...

32 to 126 decimal or 20 to 7E hex

Comma ',' shall be used as the field separator (No trailing Comma ',' at end of descriptor);

Padding characters shall use Underscore "\_" only;

Manufacturer/Serial number has been added to allow for future use of a global database;

'Carrier Identifier Format' allows different formats of Identifier (essentially a version number for future proofing). Now defaults to '02' as the final specification constitutes the second version of the format.

#### Special Considerations...

With reference to the NIT itself the DVB specification allows for this table to be retransmitted between **25ms and 10s** -

Ref: ETSI TR101 290 Table Timing Intervals.

**Note 1:** *From an engineering point-of-view it is considered that, "any type of monitoring equipment should be able to extract the NIT within the valid DVB timing range specified above".*

**Note 2:** *In general this is usually sent at a rate of around 1 to 2 seconds.*

**Note 3:** *Carrier Identifier Format, Encoder Manufacturer & Encoder Serial Number hardcoded at build!*





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# ***Video Carrier ID Detection...***



# Detection...

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courtesy  
of...   
INTEGRAL  
SYSTEMS

December 2006 at ITU/ISOG demonstrated that it was possible to capture the NIT table in a DVB-S2 stream and read it...

...the Link encoder used was sending NIT every 3 seconds

At the Hong Kong SUIRG Conference (2007) the conclusion of working group on Carrier ID was that it was possible for modern digital CSM systems to capture defined words in a video data stream.

*Therefore, no technical reason for not implementing Video Carrier ID.*




# Detection (continued)...

courtesy  
of...  INTEGRAL  
SYSTEMS

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- Already proved  Monics™ can read the NIT in a DVB stream
- Modulation analysis measurements already read headers and magic words to...
  - read RS codes
  - obtain modulation information of the upcoming packet
- To read a word that is a unique identifier should not be an issue
- Existing hardware can be used
  - Concerns are how often in ID repeated
  - Must be a standard across all manufacturers
  - Must be outside of proprietary IP such as FEC (as NIT and Magic words are now)
  - ID can be a subcarrier (i.e. carrier under a carrier)



# Detection Method...

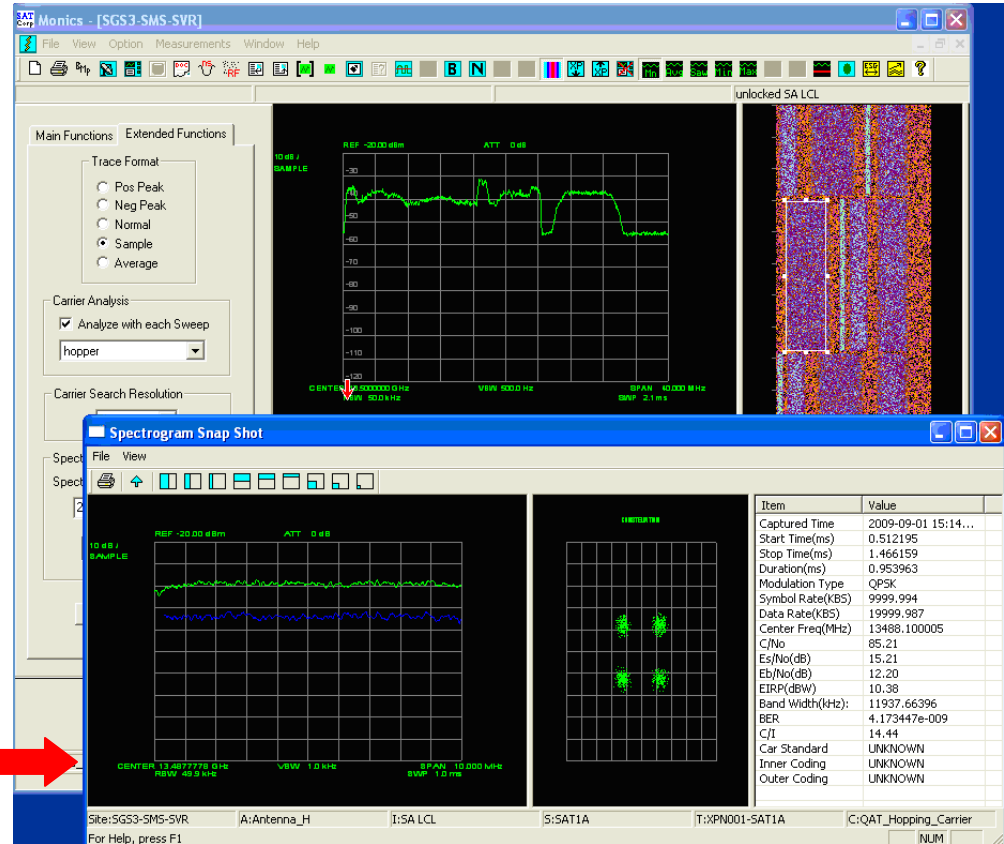
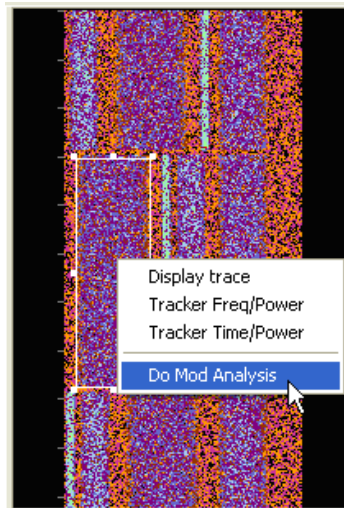
courtesy of... **INTEGRAL SYSTEMS**

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### Modulation Analysis on Burst...

A burst can be selected within a CSM system

If the burst can be analyzed for modulation & Interference then a Carrier ID word can be read





# Special Thanks to:

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<http://www.colem.co.uk/>



part of



<http://www.linkres.co.uk>



INTEGRAL  
SYSTEMS

<http://www.sat.com/>



rebranded  
from



<http://www.sislive.tv>