

## What's it all about?

### What is CID?

CID is a signal embedded into a video or data transmission path that will enable satellite operators and End Users to identify the source of an interfering carrier.

### Why is CID needed?

CID will enable operators and End Users to identify interfering carriers quickly which will improve the transmission Quality Of Service experience and reduce Operating Expense that Satellite Interference is known to impact.

### How does CID work?

The CID technology for video and data satellite carriers embeds a separate carrier that contains the Carrier ID information onto the carriers it is identifying. The technique works in the modulator of a modem, encoder/modulator or stand-alone modulator. The CID is embedded using a very low data rate spread spectrum carrier. The technology enables an existing modulator to create two carriers; the primary payload carrier and the low-power Spread Spectrum CID.

### Will the use of CID prevent all occurrences of Satellite Interference?

"No." NOT ALL satellite interference can be prevented. CID is meant to greatly decrease and significantly mitigate the elapsed time to resolve when an interference event transpires. Also, a heightened awareness and demand for accuracy when uplinking and an increased and expanded requirement for higher levels of training should help to reduce the actual number of RFI events. No matter how stringent the requirements regarding CID for ground services, there are going to be some who do not comply (there are approximately 15,000 to 25,000 interference events a year). Satellite interference must be reduced to protect our business!

## Getting kitted out!

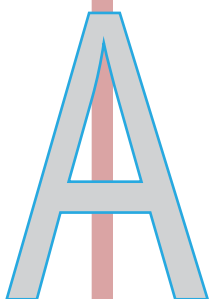
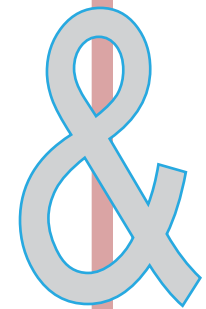
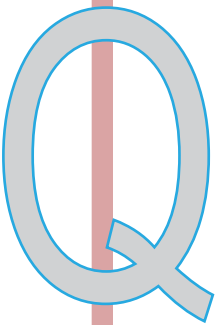
### What equipment and/or sub systems must a company obtain to enable CID?

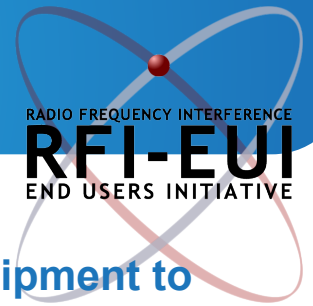
The modem, encoder/modulator, or stand-alone modulator needs to be able to support the Carrier ID feature and function.

What do I ask an equipment supplier when seeking CID capabilities?

The questions to ask are:

- Does the modem, encoder/modulator or stand-alone modulator that I am purchasing support CID? If not, when will it?
- Does my existing modem, encoder/modulator or stand-alone modulator that I previously purchased from you support CID? If not, when will it?





## Will I require any additional monitoring equipment to ensure that the CID signal is properly integrated into my uplink/downlink transmission chain?

It is not necessary for the earth station owner to have this equipment. The satellite operator will have all necessary CID monitoring equipment.

## Can the use of CID impair the transport stream from being received and decoded?

No. The CID technology does not modify the transport stream and was designed specifically to **NOT** create interference either with the carrier it is referencing, or to adjacent carriers.

## Can the use of CID restrict usable “bits” in a transport stream?

No. The CID technology does not modify or affect the transport stream.

## Is CID enabled by the manufacturer?

No. CID is not enabled by the manufacturer upon delivery of equipment. Those responsible for the uplink shall define the parameters and enable CID!

## Will I need to implement CID capability on my existing uplink transmission equipment?

Satellite Operators are not requiring CID on existing equipment at this time. It is in everyone's best interest to help alleviate the effects of interference events, that implementing CID on existing uplink systems would be a major step forward in making this happen.

## Engaging the satellite operators!

### What are the primary responsibilities of the satellite operator in the management of Carrier ID?

Through the Space Data Association (SDA,) Operators have the ultimate responsibility of maintaining the global and secured CID database. They also each have the individual responsibility for monitoring their own satellites for interference events. When a satellite operator detects an interference event it will:

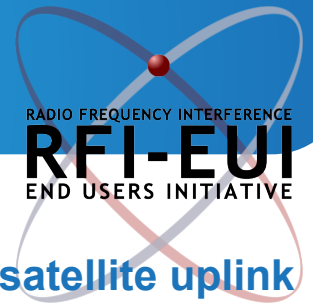
- Determine if CID is present
- Determine if the CID belongs to one of its own customers
  - If yes, it contacts that customer and works with them to resolve the interference
  - If no, it accesses the SDA database to determine which satellite operator the CID belongs to, and contacts that operator for resolution.
- Resolve interference events by its customers upon notification of another satellite operator.

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## Can a satellite operator require an existing satellite uplink customer to implement CID?

Yes. At this time only Eutelsat requires CID.

## The data!

### Q What information is available in CID and who has access to CID information?

CID consists of both mandatory and optional data fields. The mandatory fields consist of a DVB CID Global Unique Identifier (fixed by the manufacturer and not editable by the user) and the CID format revision code. The Global Unique Identifier will generally be based on either the 48-bit MAC address of the unit or a 48-bit Space Data Association modulator identifier. The CID format code is a revision code that anticipates possible changes in the number and possible content of the fields in the content ID table.

The content ID table provides for the following optional information to be added by a user: latitude and longitude, telephone number, user defined data fields (7 total) for other information as determined by a user and their satellite operator. Only satellite operators will govern and have access to all CID information.

### & Who is responsible for reporting CID information?

This information will be gathered by the satellite operator during the earth station line-up procedure. It is the responsibility of the modem, encoder/modulator or stand-alone modulator operator to have the proper information available and pre-loaded.

## Opting out!

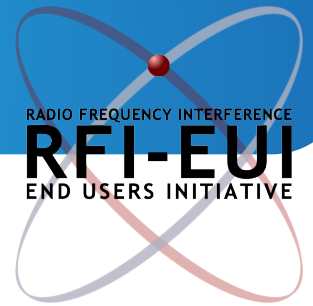
### A Can an organization turn off CID?

No. Organizations will not be able to shut down CID without the concurrence and assistance of the system satellite operator they intend to use for their transmission(s). Once CID becomes obligatory for all transmissions, the only possible end-users who would have a request to disable CID discontinued or "turned off" granted, might be a ground service being deployed for reasons of national security.

### Am I required to participate in the Carrier ID initiative?

Although not a requirement as yet, Satellite Operators and End Users in the video and data industries are advocating the adoption of CID to minimize the operating and commercial hardship caused by Satellite Interference.





## What happens if I choose not to participate in the CID initiative?

Initially, any ground station uplink operator choosing NOT to participate in the use of CID would be able to proceed with their customer's service request without fault or penalty. However, it is understood and recognized by the industry that the use of CID for all transmissions is in the best interest of everyone.

## And finally...

### When will CID be available and when will I have to implement CID?

The capability for CID utilizing the MPEG NIT table is available in MPEG 2 and 4 encoders. The DVB-CID ETSI TS 103 129 Standard has been approved and formerly released on May 29, 2013. It will soon be available in new modulators from Manufacturers. CID is required at this time only by Eutelsat. A timeline for CID will be developed by other satellite operators and meet the January 2015 deadline.

### How much will CID Cost?

The cost for CID will be included by the manufacturers of all new modems, encoders/modulators or stand-alone modulator equipment.

### Are there non-recurring expenses?

There may be a firmware cost to upgrade older versions of modems, encoders/modulators or stand-alone modulator equipment that are capable of including the DVB CID in their firmware. Very old equipment may not have enough processor resources to add the DVB CID.

### Are there recurring expenses?

A recurring expense for CID is not expected to be levied by the Satellite Operator or manufacturer.

