Asterix category 240 - Radar Video Transmission

category: 240

edition: 1.3

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Preamble

Surveillance data exchange.

Description of standard data items

I240/000 - Message Type

definition: This Data Item allows for a more convenient handling of the messages at the receiver side by further defining the type of transaction.

Element

bit size: 8

Values:

1: Video Summary message
2: Video message

Notes:

1. In applications where transactions of various types are exchanged, the Message Type Data Item facilitates the proper report handling at the receiver side.
2. All Message Type values are reserved for common standard use.
3. The list of items present for the two message types is defined in the following table.

Table: Message Types :

Type Item	001	002
I240/000	M	M
I240/010	M	M
I240/020	X	M
I240/030	M	X
I240/040	X	O(1)
I240/041	X	O(1)
I240/048	X	M
I240/049	X	M
I240/050	X	O(2)
I240/051	X	O(2)
I240/052	X	O(2)
I240/140	O	O

(1) • Either Item I240/040 or I240/041 shall be present in each Video Message

(2) • Either Item I240/050 or I240/051 or I240/052 shall be present in each video message

I240/010 - Data Source Identifier

definition: Identification of the system from which the data are received.

Group

I240/010/SAC - System Area Code

Element
bit size: 8
Raw Content

I240/010/SIC - System Identification Code

Element
bit size: 8
Raw Content

Note:

- The up-to-date list of SACs is published on the EUROCONTROL Web Site (http://www.eurocontrol.int/asterix)

I240/020 - Video Record Header

definition: Contains a message sequence identifier.

Element
bit size: 32
Unsigned integer

Note:

- The Message Sequence Identifier is used by the receiving application to detect lost messages.

I240/030 - Video Summary

definition: Contains an ASCII string (free text to define stream meta data).

Repetitive

Regular, 1 byte(s) REP field size.

Element
bit size: 8
Ascii string (8-bits per char)

I240/040 - Video Header Nano

definition: Defines a group of video cells corresponding to a video radial: all cells have the same size in azimuth and range and are consecutive in range.

Group

I240/040/STARTAZ - Start Azimuth of the Cells Group

Element
bit size: 16
Unsigned quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”
>= 0.0
< 360.0

I240/040/ENDAZ - End Azimuth of the Cells Group

Element
bit size: 16
Unsigned quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”
>= 0.0
< 360.0

I240/040/STARTRG - Starting Range of the Cells Group, Expressed in Number of Cells

Element
bit size: 32
Unsigned integer

I240/040/CELLDUR - Video Cell Duration in Nano-seconds

Element
bit size: 32
Unsigned quantity
LSB = 1 ns ≈ 1.0 ns
unit: ”ns”

I240/041 - Video Header Femto

definition: Defines a group of video cells corresponding to a video radial: all cells have the same size in azimuth and range and are consecutive in range.

Group

I240/041/STARTAZ - Start Azimuth of the Cells Group

Element
bit size: 16
Unsigned quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”
>= 0.0
< 360.0

I240/041/ENDAZ - End Azimuth of the Cells Group

Element
bit size: 16
Unsigned quantity
LSB = $360/2^16$ ° ≈ $5.4931640625e-3$ °
unit: ”°”
>= 0.0
< 360.0

I240/041/STARTRG - Starting Range of the Cells Group, Expressed in Number of Cells

Element
bit size: 32
Unsigned integer

I240/041/CELLDUR - Video Cell Duration in Femto-seconds

Element
bit size: 32
Unsigned quantity
LSB = 1 fs ≈ 1.0 fs
unit: ”fs”

I240/048 - Video Cells Resolution & Data Compression Indicator

definition: This Data Item defines the bit resolution used in the coding of the video signal amplitude in all cells of the video group as well as an indicator whether data compression has been applied.

Group

I240/048/C - Data Compression Indicator

Element
bit size: 1
Values:

0: No compression applied
1: Compression applied

Spare bits: 7

I240/048/RES - Bit Resolution

Element
bit size: 8
Values:

1: Monobit Resolution (1 bit)
2: Low Resolution (2 bits)
3: Medium Resolution (4 bits)
4: High Resolution (8 bits)
5: Very High Resolution (16 bits)
6: Ultra High Resolution (32 bits)

Note:

- When the Data Compression Indicator (C) is set, shows that a data compression technique has been applied. The actual algorithm used and the related parameters have to be specified in a relevant ICD (Interface Control Document).

I240/049 - Video Octets & Video Cells Counters

definition: This Data Item contains the number of “valid” octets (i.e. nonempty octets) used in the coding of the video signal amplitude and the number of “valid” cells in the video group.

Group

I240/049/NBVB - Number of 'valid' Octets

Element
bit size: 16
Unsigned integer

I240/049/NBCELLS - Number of 'valid' Cells

Element
bit size: 24
Unsigned integer

I240/050 - Video Block Low Data Volume

definition: Contains a group of video cells corresponding to a video radial; all cells have the same size in azimuth and range and are consecutive in range. This item shall be used in cases where a low data volume, up to 1020 bytes, will be transmitted.

Repetitive

Regular, 1 byte(s) REP field size.

Element
bit size: 32
Raw Content

Notes:

1. The first cell in the block is always the closest to the sensor and the following cells are in increasing range order.

2. To get the range in meters of the cell at position “NU_CELL” in the data stream, the following formula shall be used: D = CELL_DUR(in seconds) * (START_RG + NU_CELL - 1) * c/(2.) where c = 299 792 458 m/s: light celerity.

I240/051 - Video Block Medium Data Volume

definition: Contains a group of video cells corresponding to a video radial; all cells have the same size in azimuth and range and are consecutive in range. This item shall be used in cases where a medium data volume, up to 16320 bytes, will be transmitted.

Repetitive

Regular, 1 byte(s) REP field size.

Element
bit size: 512
Raw Content

Notes:

1. The first cell in the block is always the closest to the sensor and the following cells are in increasing range order.
2. To get the range in meters of the cell at position “NU_CELL” in the data stream, the following formula shall be used: D = CELL_DUR(in seconds) * (START_RG + NU_CELL - 1) * c/(2.) where c = 299 792 458 m/s: light celerity.

I240/052 - Video Block High Data Volume

definition: Contains a group of video cells corresponding to a video radial; all cells have the same size in azimuth and range and are consecutive in range. This item shall be used in cases where a high data volume, up to 65024 bytes, will be transmitted.

Repetitive

Regular, 1 byte(s) REP field size.

Element
bit size: 2048
Raw Content

Notes:

1. The first cell in the block is always the closest to the sensor and the following cells are in increasing range order.
2. The maximum value of REP that should be used is 254, in order to keep the maximum size of the field at 64kbytes.
3. To get the range in meters of the cell at position “NU_CELL” in the data stream, the following formula shall be used: D = CELL_DUR(in seconds) * (START_RG + NU_CELL - 1) * c/(2.) where c = 299 792 458 m/s: light celerity.

I240/140 - Time of Day

definition: Absolute time stamping expressed as UTC.

Element
bit size: 24
Unsigned quantity
LSB = $1/2^7$ s $\approx 7.8125e-3$ s
unit: ”s”

Note:

- The time information, shall reflect the exact time of an event, expressed as a number of 1/128 s elapsed since last midnight.

I240/RE - Reserved Expansion Field

definition: Expansion

Explicit (ReservedExpansion)

I240/SP - Special Purpose Field

definition: Special Purpose Field

Explicit (SpecialPurpose)

User Application Profile

- 1: `I240/010` - Data Source Identifier
- 2: `I240/000` - Message Type
- 3: `I240/020` - Video Record Header
- 4: `I240/030` - Video Summary
- 5: `I240/040` - Video Header Nano
- 6: `I240/041` - Video Header Femto
- 7: `I240/048` - Video Cells Resolution & Data Compression Indicator
- (FX) - Field extension indicator
- 8: `I240/049` - Video Octets & Video Cells Counters
- 9: `I240/050` - Video Block Low Data Volume
- 10: `I240/051` - Video Block Medium Data Volume
- 11: `I240/052` - Video Block High Data Volume
- 12: `I240/140` - Time of Day
- 13: `I240/RE` - Reserved Expansion Field
- 14: `I240/SP` - Special Purpose Field
- (FX) - Field extension indicator