Asterix category 063 - Sensor Status Reports

category: 063

edition: 1.6

date: 2020-08-04

Preamble

Surveillance data exchange.

Description of standard data items

I063/010 - Data Source Identifier

Definition: Identification of the radar station from which the data are received.

Structure:

I063/010/SAC - *System Area Code*

- 8 bits [. . . . . .]
- raw value

I063/010/SIC - *System Identification Code*

- 8 bits [. . . . . .]
- raw value

Note: The defined SACs are on the EUROCONTROL ASTERIX website (www.eurocontrol.int/asterix)

I063/015 - Service Identification

Definition: Identification of the service provided to one or more users.

Structure:

- 8 bits [. . . . . .]
- raw value

The service identification is allocated by the SDPS

I063/030 - Time of Message

Definition: Absolute time stamping of the message, in the form of elapsed time since last mid-night, expressed as UTC.

Structure:

- 24 bits [. . . . . .]
- unsigned quantity
- scaling factor: 1
- fractional bits: 7
- unit: ”s”
- LSB = $1/2^7$ s = $1/128$ s $\approx 7.8125e-3$ s

The time of the day value is reset to zero at every midnight.

I063/050 - Sensor Identifier

Definition: *Structure*:

I063/050/SAC - *System Area Code*

- 8 bits [. . . . . .]
- raw value

I063/050/SIC - *System Identification Code*

- 8 bits [. . . . . .]
- raw value

- The up-to-date list of SACs is published on the EUROCONTROL Web Site (http://www.eurocontrol.int/asterix).
- If the SAC/SIC refers to an SDPS used as input, the respective sensor status information will be transmitted using the Reserved Expansion Field.

I063/060 - Sensor Configuration and Status

Definition: Configuration and status of the sensor

Structure:

Extended item.

I063/060/CON

- 2 bits [. .]
- values:

  0: Operational
  1: Degraded
  2: Initialization
  3: Not currently connected

I063/060/PSR

- 1 bit [.]
- values:

  0: PSR GO
  1: PSR NOGO

I063/060/SSR

- 1 bit [.]
- values:

  0: SSR GO
  1: SSR NOGO

I063/060/MDS

- 1 bit [.]
- values:

  0: MDS GO
  1: MDS NOGO

I063/060/ADS

- 1 bit [.]

- values:

    0: ADS GO
    1: ADS NOGO

I063/060/MLT

- 1 bit [.]
- values:

    0: MLT GO
    1: MLT NOGO

(FX)

- extension bit

    0: End of data item
    1: Extension into next extent

I063/060/OPS - *Operational Release Status of the System*

- 1 bit [.]
- values:

    0: System is released for operational use
    1: Operational use of System is inhibited

I063/060/ODP - *Data Processor Overload Indicator*

- 1 bit [.]
- values:

    0: Default, no overload
    1: Overload in DP

I063/060/OXT - *Transmission Subsystem Overload Status*

- 1 bit [.]
- values:

    0: Default, no overload
    1: Overload in transmission subsystem

I063/060/MSC - *Monitoring System Connected Status*

- 1 bit [.]
- values:

    0: Monitoring system connected
    1: Monitoring system disconnected

I063/060/TSV - *Time Source Validity*

- 1 bit [.]
- values:

    0: Valid
    1: Invalid

I063/060/NPW - *No Plot Warning*

- 1 bit [.]
- values:

    0: Default (no meaning)
    1: No plots being received

I063/060/(spare)

- 1 bit [.]

(FX)

- extension bit

  0: End of data item
  1: Extension into next extent

1. GO/NOGO information from PSR, SSR, Mode S, ADS and MLT is derived from monosensor categories and has a meaning only for operational sensors, whereas (CON) is derived by the SDPS.
2. The information (OPS), (ODP), (OXT), (MSC) and (TSV) are only related to CNS/ATM Ground Station and are derived from monosensor category (ASTERIX Cat 023).

I063/070 - Time Stamping Bias

Definition: Plot Time stamping bias, in two's complement form

Structure:

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 1
- fractional bits: 0
- unit: "ms"
- LSB = 1 ms

I063/080 - SSR / Mode S Range Gain and Bias

Definition: SSR / Mode S Range Gain and Range Bias, in two's complement form.

Structure:

I063/080/SRG - *Mode S Range Gain*

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 0.00001
- fractional bits: 0
- LSB = 0.00001

I063/080/SRB - *Mode S Range Bias*

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 1
- fractional bits: 7
- unit: "NM"
- LSB = $1/2^7$ NM = $1/128$ NM $\approx 7.8125e-3$ NM

Note:

The following formula is used to correct range:

$$\rho_{\text{corrected}} = \frac{\rho_{\text{measured}} - range\_bias}{1 + range\_gain}$$

I063/081 - SSR Mode S Azimuth Bias

Definition: SSR / Mode S Azimuth Bias, in two's complement form.

Structure:

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 360
- fractional bits: 16
- unit: "°"
- LSB = $360/2^{16}$ ° = $360/65536$ ° ≈ $5.4931640625e-3$ °

Note:

The following formula is used to correct azimuth:

$$\theta_{\text{corrected}} = \theta_{\text{measured}} - azimuth\_bias$$

I063/090 - PSR Range Gain and Bias

Definition: PSR Range Gain and PSR Range Bias, in two's complement form.

Structure:

I063/090/PRG - *PSR Range Gain*

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 0.00001
- fractional bits: 0
- LSB = 0.00001

I063/090/PRB - *PSR Range Bias*

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 1
- fractional bits: 7
- unit: "NM"
- LSB = $1/2^7$ NM = $1/128$ NM ≈ $7.8125e-3$ NM

Note:

The following formula is used to correct range:

rhomathrm{corrected} = frac{rhomathrm{measured} - range_bias}{1 + range_gain}

I063/091 - PSR Azimuth Bias

Definition: PSR Azimuth Bias, in two's complement form.

Structure:

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 360
- fractional bits: 16

- unit: "°"
- LSB = $360/2^{16}$ ° = $360/65536$ ° ≈ $5.4931640625e-3$ °

Note:

The following formula is used to correct azimuth:

$$\theta_{\text{corrected}} = \theta_{\text{measured}} - azimuth\_bias$$

I063/092 - PSR Elevation Bias

Definition: PSR Elevation Bias, in two's complement form.

Structure:

- 16 bits [. . . . . .]
- signed quantity
- scaling factor: 360
- fractional bits: 16
- unit: "°"
- LSB = $360/2^{16}$ ° = $360/65536$ ° ≈ $5.4931640625e-3$ °

I063/RE - Reserved Expansion Field

Definition: Expansion

Structure:

Explicit item (RE)

I063/SP - Special Purpose Field

Definition: Special Purpose Field

Structure:

Explicit item (SP)

User Application Profile for Category 063

- (1) `I063/010` - Data Source Identifier
- (2) `I063/015` - Service Identification
- (3) `I063/030` - Time of Message
- (4) `I063/050` - Sensor Identifier
- (5) `I063/060` - Sensor Configuration and Status
- (6) `I063/070` - Time Stamping Bias
- (7) `I063/080` - SSR / Mode S Range Gain and Bias
- `(FX)` - Field extension indicator
- (8) `I063/081` - SSR Mode S Azimuth Bias
- (9) `I063/090` - PSR Range Gain and Bias
- (10) `I063/091` - PSR Azimuth Bias

- (11) `I063/092` - PSR Elevation Bias
- (12) `(spare)`
- (13) `I063/RE` - Reserved Expansion Field
- (14) `I063/SP` - Special Purpose Field
- `(FX)` - Field extension indicator