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FOR

SURVEILLANCE DATA EXCHANGE

Part 15: Category 65

SDPS Service Status Messages

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Abstract

This document describes the application of ASTERIX to SDPS Service Status Messages

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The following table identifies all management authorities who have successively approved the present issue of this document.

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DOCUMENT CHANGE RECORD

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1. INTRODUCTION

1.1 Scope

1.1.1 This document describes the structure for the transmission of service status messages from an SDPS.

1.1.2 This document defines the data out of Category 065.

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2. REFERENCES

2.1 General

The following Documents and Standards contain provisions which, through references in this text, constitute provisions of this Eurocontrol Standard Document.

At the time of publication of this Eurocontrol Standard Document, the editions indicated for the referenced documents and standards were valid.

Any revision of the referenced ICAO Documents shall be immediately taken into account to revise this Eurocontrol Standard Document.

Revisions of the other referenced documents shall not form part of the provisions of this Eurocontrol Standard Document until they are formally reviewed and incorporated into this Eurocontrol Standard Document.

In the case of a conflict between the requirements of this Eurocontrol Standard Document and the contents of the other referenced documents, this Eurocontrol Standard Document shall take precedence.

2.2 Reference Documents

1. Eurocontrol Standard 000-1-92. Directives for the Uniform Drafting and Presentation of Eurocontrol Standard Documents. 1992.
2. Eurocontrol Standard SUR.ET1.ST05.2000-STD-01-01. All Purpose Structured Eurocontrol Radar Information Exchange - ASTERIX, edition 1.29 February 2002

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3. DEFINITIONS, ACRONYMS AND ABBREVIATIONS

3.1 Definitions

For the purposes of this Eurocontrol Document, the following definitions shall apply:

- 3.1.1 Broadcast Service:** A service not needing a session establishment between a user and a SDPS.
- 3.1.2 Catalogue of Data Items:** List of all the possible Data Items of each Data Category describing the Data Items by their reference, structure, size and units (where applicable).
- 3.1.3 Data Block:** Unit of information seen by the application as a discrete entity by its contents. A Data Block contains one or more Record(s) containing data of the same category.
- 3.1.4 Data Category:** Classification of the data in order to permit inter alia an easy identification.
- 3.1.5 Data Field:** Physical implementation for the purpose of communication of a Data Item, it is associated with a unique Field Reference Number and is the smallest unit of transmitted information.
- 3.1.6 Data Item:** The smallest unit of information in each Data Category.
- 3.1.7 Record:** A collection of transmitted Data Fields of the same category preceded by a Field Specification field, signalling the presence/absence of the various Data Fields
- 3.1.8 Service:** An SDPS information service is uniquely identified by a service identification and is composed of a track element and a sensor element. A track element is characterised by the track selection (e.g. set of Mode-3/A codes, filtering in height, primary only, secondary only...), the track item selection (e.g. WGS-84 position, Time of Day...), the track transmission characteristics (e.g. synchronised on sensor, periodical, a-periodical event-triggered). A sensor element is characterised by the sensor selection, the sensor item selection, the sensor transmission characteristics.
- 3.1.9 Session:** Point to point connection between a user and a SDPS.
- 3.1.10 User Application Profile:** The mechanism for assigning Data Items to Data Fields, and containing all necessary information which needs to be standardised for the successful encoding and decoding of the messages.

3.2 Acronyms and Abbreviations

For the purposes of this Eurocontrol Document, the following shall apply:

°	Degree (angle)
ADS-B	Automatic Dependent Surveillance - Broadcast
ASTERIX	A ll Purpose ST ructured E urocontrol su Rveillance I nformation EX change
CAT	Data Category
EATMP	European Air Traffic Management Programme
FRN	Field Reference Number
FSPEC	Field Specification
FX	Field Extension Indicator
ICAO	International Civil Aviation Organization
LEN	Length Indicator
LSB	Least Significant Bit
PSR	Primary Surveillance Radar
RE	Reserved Expansion Indicator
REP	Field Repetition Indicator
s	second, unit of time
SAC	System Area Code
SDPS	Surveillance Data Processing System
SIC	System Identification Code
SP	Special Purpose Indicator
SSR	Secondary Surveillance Radar
STFRDE	Surveillance Task Force on Radar Data Exchange
SURT	Surveillance Team (EATMP)
UAP	User Application Profile (see Definitions)
UTC	Co-ordinated Universal Time
WGS-84	World Geodetic System 84

4. GENERAL PRINCIPLES

4.1 General

The transmission of SDPS Service Status Messages shall require the transmission of three types of messages :

- SDPS status,
- End of batch,
- Broadcast service related report.

4.2 Time Management

The timestamping shall comply with ICAO Annex 5.

4.3 Unused Bits in Data Items.

Decoders of ASTERIX data shall never assume and rely on specific settings of spare or unused bits. However in order to improve the readability of binary dumps of ASTERIX records, it is recommended to set all spare bits to zero.

4.4 User Application Profile and Data Blocks

4.4.1 A single User Application Profile (UAP) is defined and shall be used for SDPS service messages.

4.4.2 Data Blocks shall have the following layout.

CAT = 065	LEN		FSPEC	Items of the first record		FSPEC	Items of the last record
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where:

- Data Category (CAT) = 065, is a one-octet field indicating that the Data Block contains SDPS status messages;
- Length Indicator (LEN) is a two-octet field indicating the total length in octets of the Data Block, including the CAT and LEN fields;
- FSPEC is the Field Specification.

4.5 Composition of Messages

4.5.1 Messages shall be composed of Data Items assembled in the order defined by the Field Reference Number (FRN) in the associated UAP.

4.5.2 When sent, items shall always be transmitted in a Record with the corresponding FSPEC bits set to one.

5. LAYOUT OF MESSAGES

5.1 Standard Data Items

The standardised Data Items which shall be used for the transmission of SDPS service messages are defined in Table 1 and described in the following pages.

Table 1 - Data Items of Category 065

Data Item Reference Number	Description	System Units
I065/000	Message Type	N.A.
I065/010	Data Source Identifier	N.A.
I065/015	Service Identification	N.A.
I065/020	Batch Number	N.A.
I065/030	Time of Message	1/128 s
I065/040	SDPS Configuration and Status	N.A.
I065/050	Service Status Report	N.A.

NOTE: N.A. = Not Applicable

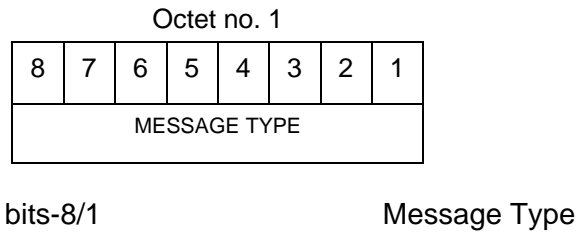
5.2 Description of Standard Data Items

5.2.1 Data Item I065/000, 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.

Format: One-octet fixed length Data Item.

Structure:



Encoding rule :

This data item shall be present in every ASTERIX record.

NOTES

1. In application where transactions of various types are exchanged, the Message Type Data Item facilitates the proper message handling at the receiver side.
2. The following set of Message Types are standardised for category 065 records:
 - 001 SDPS Status,
 - 002 End of Batch,
 - 003 Service Status Report.

The list of items present for the three message types is defined in the following table. M stands for mandatory, O for optional, X for never present.

Item	Type	001 SDPS Status	002 End of Batch	003 Broadcast Service...
I065/000	Message Type	M	M	M
I065/010	Data Source Identifier	M	M	M
I065/015	Service Identification	M	M	M
I065/020	Batch Number	X	M	X
I065/030	Time of Message	M	M	M
I065/040	SDPS configuration and status	M	X	X
I065/050	Service Status Report	X	X	M

5.2.2 Data Item I065/010, Data Source Identifier**Definition :** Identification of the SDPS sending the data**Format :** Two-octet fixed length Data Item**Structure:**

Octet no. 1								Octet no. 2							
16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
SAC								SIC							

bits-16/9 (SAC) System Area Code

bits 8/1 (SIC) System Identification Code

NOTE - The up-to-date list of SACs is published on the Eurocontrol Web Site (<http://www.eurocontrol.int/asterix>).**5.2.3 Data Item I065/015, Service Identification****Definition :** Identification of the service provided to one or more users.**Format :** One-Octet fixed length data item.**Structure:**

Octet no. 1							
8	7	6	5	4	3	2	1
Service Identification							

Bits-8/1 Service Identification

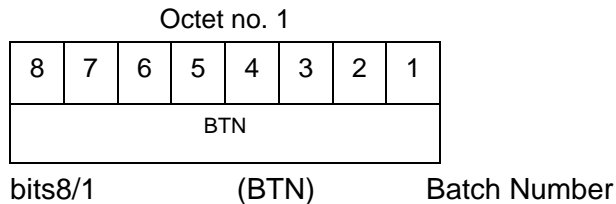
NOTE - the service identification is allocated by the SDPS

5.2.4 Data Item I065/020, Batch Number

Definition : A number indicating the completion of a service for that batch of track data, from 0 to N-1, N being the number of batches used to make one complete processing cycle.

Format : One-Octet fixed length data item.

Structure:

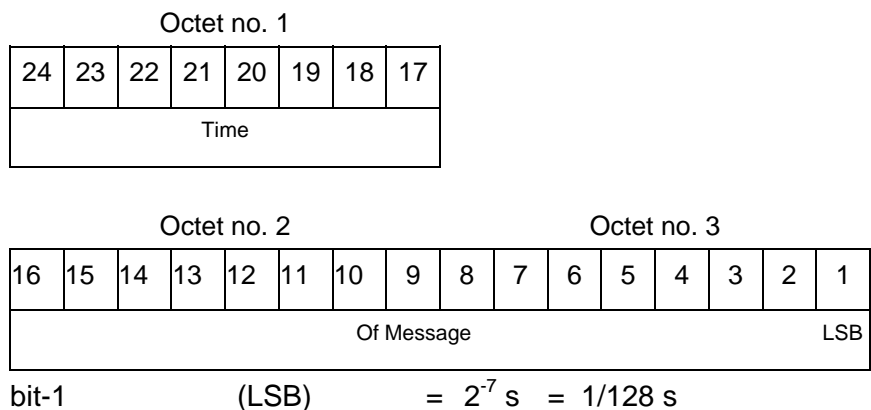


5.2.5 Data Item I065/030, Time of Message

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

Format : Three-Octet fixed length data item.

Structure:



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

5.2.6 Data Item I065/040, SDPS Configuration and Status**Definition :** Status of an SDPS.**Format :** One-Octet fixed length data item.**Structure:**

Octet no. 1

8	7	6	5	4	3	2	1
NOGO		OVL	TSV	PSS		0	0

Bits 8/7	(NOGO)	= 00	operational
		= 01	degraded
		= 10	not currently connected
		= 11	unknown
bit 6	(OVL)	= 0	Default
		= 1	Overload
bit 5	(TSV)	= 0	Default
		= 1	Invalid Time Source
bit 4/3	(PSS)	Processing System Status	
		= 00	not applicable
		= 01	SDPS-1 selected
		= 10	SDPS-2 selected
		= 11	SDPS-3 selected
bits 2/1	spare bits set to zero		

5.2.7 Data Item I065/050, Service Status Report

Definition : Report sent by the SDPS related to a service

Format : One-Octet fixed length data item.

Structure:

Octet no. 1

8	7	6	5	4	3	2	1
REPORT							

bits 8/1

- (REPORT)=
- 1: service degradation
 - 2: service degradation ended
 - 3: main radar out of service
 - 4: service interrupted by the operator
 - 5: service interrupted due to contingency
 - 6: ready for service restart after contingency
 - 7: service ended by the operator
 - 8: failure of user main radar
 - 9: service restarted by the operator
 - 10: main radar becoming operational
 - 11: main radar becoming degraded
 - 12: service continuity interrupted due to disconnection with adjacent unit
 - 13: service continuity restarted
 - 14: service synchronised on backup radar
 - 15: service synchronised on main radar
 - 16: main and backup radar, if any, failed

5.3 User Application Profile for Category 065

The following User Application Profile shall be used for the transmission of SDPS service messages.

Table 2 – SDPS Service Messages UAP

FRN	Data Item	Information	Length
1	I065/010	Data Source Identifier	2
2	I065/000	Message Type	1
3	I065/015	Service Identification	1
4	I065/030	Time of Message	3
5	I065/020	Batch Number	1
6	I065/040	SDPS Configuration and Status	1
7	I065/050	Service Status Report	1
FX	-	Field extension indicator	-
8	-	Spare	-
9	-	Spare	-
10	-	Spare	-
11	-	Spare	-
12	-	Spare	-
13	RE	Reserved Expansion Field	1+1+
14	SP	Special Purpose Field	1+1+
FX	-	Field extension indicator	-

In the above table

- the first column indicates the Field Reference Number (FRN) associated to each Data Item used in the UAP;
- the fourth column gives the format and the length of each item, a stand-alone figure indicates the octet-count of a fixed-length Data Item, 1+ indicates a variable-length Data Item comprising a first part of 1 octet followed by n-octets extents as necessary.