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(Acts whose publication is obligatory)

COMMISSION

COMMISSION REGULATION (EC) No 2082/2000

of 6 September 2000

adopting Eurocontrol standards and amending Directive 97/15/EC, adopting Eurocontrol standards and amending Council Directive 93/65/EEC

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Directive 93/65/EEC of 19 July 1993 on the definition and use of compatible technical specifications for the procurement of air traffic management equipment and systems [1] and in particular Article 3 thereof,

Having regard to Commission Directive 97/15/EC of 25 March 1997 adopting Eurocontrol standards and amending Council directive 93/65/EEC on the definition and use of compatible technical specifications for the procurement of air traffic management equipment and systems [2],

Whereas:

(1) Directive 97/15/EC adopted the Eurocontrol standard for On-Line Data Interchange (OLDI), edition 1.0 and the Eurocontrol standard for Air Traffic Services Data Exchange Presentation (ADEXP), edition 1.0.

(2) Eurocontrol adopted more recent versions of the two standards mentioned above, i.e. OLDI edition 2.2 and ADEXP edition 2.0 and also a new Eurocontrol standard named Flight Data Exchange — Interface Control Document (FDE-ICD).

(3) These Eurocontrol standards fall within the scope of Directive 93/65/EEC and contribute to the harmonisation of Member States' air traffic management national systems, particularly concerning the transfer of flights between air traffic control centres (OLDI), the air traffic flow management (ADEXP) and the communications between national systems (FDE-ICD).

(4) Editions 2.2 of OLDI and 2.0 of ADEXP supersede previous editions presently in force according to the provisions of Article I of Directive 97/15/EC and therefore that Article has to be repealed.

(5) The provisions of this Regulation are in accordance with the opinion of the Committee established in accordance with Directive 93/65/EEC,

HAS ADOPTED THIS REGULATION:

Article 1

In as much as they are necessary for the implementation of an integrated European air traffic management system, the mandatory elements of Eurocontrol specifications included in the following Eurocontrol standards documents are adopted in the framework of Directive 93/65/EEC:

— the Eurocontrol standard for On-Line Data Interchange (OLDI), edition 2.2 (Eurocontrol document reference DPS.ET1.ST06-STD), the text of which is included in Annex I to the present Regulation,

[1] OJ L 187, 29.7.1993, p. 52.
[2] OJ L 95, 10.4.1997, p. 16.

— the Eurocontrol standard for Air Traffic Services Data Exchange Presentation (ADEXP), edition 2.0 (Eurocontrol document reference DPS.ET1.ST09-STD), the text of which is included in Annex II to the present Regulation,

— the Eurocontrol standard for Flight Data Exchange — Interface Control Document (FDE-ICD), edition 1.0 (Eurocontrol document reference COM.ET1.ST12-STD), the text of which is included in Annex III to the present Regulation.

Article 2

Article I of Directive 97/15/EC is hereby repealed.

Article 3

The present Regulation shall enter into force on the third day following its publication in the *Official Journal of the European Communities*.

The present Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 6 September 2000.

For the Commission

Loyola DE PALACIO

Vice-President

ANNEX I

ON-LINE DATA INTERCHANGE (OLDI) EDITION 2.2

(Eurocontrol document reference DPS.ET1.ST06-STD)

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FOREWORD

1. Responsible Body

The Eurocontrol Standard for On-Line Data Interchange (OLDI), Edition 2.2 has been prepared by the Directorate of European ATC Harmonisation and Integration Programme (EATCHIP) Development (DED), Eurocontrol, which is also responsible for the updating of the document. All comments or enquiries should be addressed to Director General, Eurocontrol, Rue de la Fusée, 96, B-1130 Bruxelles, for the attention of Division DED-2.

2. Relation to the EATCHIP Work Programme Document

This Standard constitutes a deliverable under Specialist Task DPS.ET1.ST06 of the ATM Data Processing Systems (DPS) domain of EATCHIP as specified in EATCHIP Work Programme Document (EWPD) Edition 2.0, dated 30/09/94.

3. Approval and Amendments

This Standard has been subject to the following approval procedure as detailed in the Directives for Eurocontrol Standardisation:

— Approval by the EATCHIP Operational Requirement and ATM Data Processing Team (ODT) by correspondence procedure;

— Consultation of all ECAC States through their representatives in the Committee of Management or EATCHIP Project Board;

— Approval by the EATCHIP Project Board and the Committee of Management;

— Adoption by the Permanent Commission.

The provisions of this Standard are effective following adoption by the Permanent Commission.

In order to meet the requirements of the evolution of Air Traffic Control (ATC) procedures, amendments and additions may be proposed through the ODT for discussion and possible approval. The requirements will be incorporated either as an amendment or as a further edition of the document for endorsement and approval in accordance with specified procedures.

4. Editorial Practices

The following practice has been adhered to in order to indicate the status of each statement: Normative Elements have been printed in light face text; *Recommended Elements* have been printed in light face italics, the status being indicated by the prefix **Recommendation**.

The following editorial practice has been followed in the writing of the specifications: for Normative Elements the operative verb 'shall' is used, and for Recommended Elements the operative verb 'should' is used.

Notes are printed in light face italics preceded by the prefix 'NOTE'.

5. Relationship to Edition 1 of the Eurocontrol Standard for On Line Data Interchange

This document supersedes Parts 1 and 2 of Edition 1 of the Eurocontrol Standard for On Line Data Interchange. Part 3, which describes the technical protocols to be used is superseded by the Eurocontrol Standard for Flight Data Exchange — Interface Control Document Part 1.

6. Significant Changes from Edition 1

The following are the most significant changes and additions from Edition 1:

1. Incorporation of the following complementary (non-mandatory) messages in respect of the basic procedure:

   — Message for the Abrogation of Co-ordination (MAC);

   — Secondary Surveillance Radar (SSR) Code Assignment (COD) Message;

   — Information (INF) Message.

2. Definition of message content and format to support the crossing of a boundary by a flight on a track which is not a defined Air Traffic Services (ATS) route, but which is defined by the begin and end points of the route segment.

3. Incorporation of a dialogue procedure which allows:

   — the identification and negotiation of non-standard transfer conditions by controllers performing the planning function;

   — the provision of the capability for the accepting unit to counter-propose transfer conditions;

   — the provision of transfer of communication facilities as part of the transfer of control procedure.

4. The use of the format described in Edition 2 of the Eurocontrol Standard Document for ATS Data Exchange Presentation (ADEXP) is introduced. All messages specified under the basic procedure and those used during the co-ordination phase of the dialogue procedure are described using both International Civil Aviation Organisation (ICAO) and ADEXP formats. Transfer of Communication messages described under the dialogue procedure are described utilising ADEXP format only.

5. Deletion of the following Annexes to Edition 1:

   A: ATC Unit Identification.

   B: OLDI Message Structure

   (all messages in Edition 3 include examples).

   D: Historical Overview.

   E: Implementation Plan.

   F: Compliance by States.

   G: Guidelines for Implementation.

   H: Guidelines for Evaluation of OLDI.

6. Separation of Part 3 — Technical Requirements — from the applications specification.

7. **Relationship to Other Documents**

This document makes reference to the use of two types of field format in the compilation of messages; these are ICAO and ADEXP.

ICAO field formats are described in Reference 1. In the event that Reference 1 is superseded by another document, the definition of ICAO field types shall be as described in that document.

Formats for ADEXP fields are described in Reference 2.

NOTE *Referenced documents are listed at Section 2.*

8. **Language**

The English language has been used in preparing the original of this document.

1. INTRODUCTION

1.1. Purpose

1.1.1. Flights which are being provided with an ATC service are transferred from one ATC unit to the next in a manner designed to ensure complete safety. In order to accomplish this objective, it is a standard procedure that the passage of each flight across the boundary of the areas of responsibility of the two units is co-ordinated between them beforehand and that the control of the flight is transferred when it is at, or adjacent to, the said boundary.

1.1.2. Where it is carried out by telephone, the passing of data on individual flights as part of the co-ordination process is a major support task at ATC units, particularly at Area Control Centres (ACC)s. The operational use of connections between Flight Data Processing Systems (FDPS)s at ACCs for the purpose of replacing such verbal 'estimates', referred to as On-Line Data Interchange (OLDI), began within Europe in the early nineteen eighties.

1.1.3. In order to facilitate implementation, common rules and message formats were elaborated and agreed by the agencies concerned and incorporated in Edition 1 of the Eurocontrol Standard for On-Line Data Interchange; this document, Edition, has been produced to support the continuing development of such facilities in compliance with the requirements of EATCHIP.

1.2. Scope

1.2.1. This document specifies the facilities and messages to be provided between FDPSs serving ATC units for the purpose of achieving:

— the co-ordination required prior to the transfer of flights from one unit to the next;

— the transfer of communication of such flights.

1.2.2. This document:

— defines the message formats and rules for the content;

— describes the facilities required at such units which are prerequisite to the use of data interchange for this purpose.

1.2.3. This Standard is applicable between the Member States of Eurocontrol to international OLDI facilities between units providing an area ATC service.

1.2.4. **Recommendation** *It is recommended that European Civil Aviation Conference (ECAC) States should apply this Standard to:*

— *international OLDI facilities between units providing an area ATC service within the ECAC area;*

— *OLDI facilities between units providing an area ATC service which are internal to the State concerned.*

2. REFERENCES

2.1. The following Documents contain provisions which, through reference 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 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 conflict between the requirements of this Eurocontrol Standard Document and the contents of these other referenced documents, this Eurocontrol Standard Document shall take precedence.

2.2. The following documents are referenced in this Standard Document:

1. Procedures for Air Navigation Services — Rules of the Air & Air Traffic Services, ICAO Document 4444, Thirteenth Edition dated 7 Nov. 1996, as amended.

2. Edition 2.0 of the Eurocontrol Standard Document for ATS Data Exchange Presentation (ADEXP), reference DPS-ET1-ST09-STD-01-00, dated June 1998.

3. DEFINITIONS, SYMBOLS AND ABBREVIATIONS

3.1. Definitions

For the purposes of this Eurocontrol Standard, the following definitions shall apply.

3.1.1. *Accepting Unit:* The unit providing an ATC service that is to take control or has taken control of a flight when the transfer from one unit to the next is to or has taken place.

3.1.2. *Acknowledgement:* Notification that a message has been received and found to be correctly processable.

3.1.3. *Activation:* The process in a receiving ATC unit whereby the flight plan for the referent flight is upgraded to include the data provided by the transferring unit as part of the co-ordination process between the two units and which results in the provision of the data to controllers.

3.1.4. *Altitude:* The vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

3.1.5. *Application:* That part of an ATS sub-system that conforms to this standard and interfaces with such entities in other ATS systems.

3.1.6. *Area of Responsibility:* An airspace of defined dimensions within which an ATC unit provides air traffic services.

3.1.7. *Association:* A procedure in which a system connects a received OLDI message with a flight plan entry in the database.

3.1.8. *ATC Unit:* A unit providing an air traffic control service.

3.1.9. *Availability:* A probability that a facility will be accessible by a user at a time.

3.1.10. *Boundary:* The planes (lateral and vertical) delineating the area of responsibility of an ATC unit.

3.1.11. *Cleared Flight Level:* The flight level to or at which a flight has currently been cleared by ATC.

3.1.12. *Co-ordination, ATC:* The process, executed between ATC units with adjoining areas of responsibility, of formally advising each other of the planned passage of flights across the boundary, in order to ensure flight safety through consistency of intended actions.

3.1.13. *Co-ordination Message:* A generic term referring to a message used for accomplishing ATC co-ordination. These include the CDN which is a specific message described in paragraph 8.8.

3.1.14. *Co-ordination Phase:* In respect of a given flight, the phase during which the transferring and receiving ATC units agree the conditions (e.g. flight level, boundary point) under which a flight will pass from the control of one to the other.

3.1.15. *Co-ordination Point:* A point on or adjacent to the boundary known by the ATC units in a co-ordination sequence and referred to in co-ordination messages.

3.1.16. *Correlation:* The process based on defined criteria of linking flight plan data and the radar track of the same flight, normally for presentation on a controller display.

3.1.17. *Eurocontrol Standard:* Any specifications for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which has been approved as essential for implementation in ATS systems within Eurocontrol Member States. A Eurocontrol Standard must not be in conflict with ICAO Standards, but, where appropriate, should complement the latter.

3.1.18. *Executive Controller:* A controller who provides instructions directly to flights under his/her control. Such controllers include those providing area radar control service.

3.1.19. *Exit Level:* The level at which a flight has been co-ordinated to cross a transfer of control point. An exit level may include supplementary crossing conditions which define the level band within which a climbing/descending flight will be.

3.1.20. *Flight Plan:* Specified information provided to air traffic service units, relative to an intended flight or portion of flight of an aircraft. In addition, information derived from the flight plan of a specific flight held within an FDPS.

3.1.21. *Generate:* A process in an ATC system where relevant data are extracted from the data base(s) and a message is created for transmission to a receiving ATC unit.

3.1.22. *ICAO Format:* The format utilised for the ground — ground transmission of ATS messages and which uses the field types and separators described in Reference 1.

3.1.23. *Level:* A generic term relating to vertical position of an aircraft in flight; within this Standard the term level or flight level includes altitude in those cases where it is used.

3.1.24. *Notification:* The process whereby the transferring unit transmits data to update the system at the receiving unit in preparation for the co-ordination phase.

3.1.25. *Receiving Unit:* The ATC unit to which a message is sent.

3.1.26. *Reliability:* The percentage of the scheduled availability during which the service is to be operable.

3.1.27. *Requested Flight Level:* A flight level requested by the flight in the flight plan.

3.1.28. *Revision:* An amendment to data sent previously by the transferring ATC unit to the receiving ATC unit.

3.1.29. *Supplementary Crossing Level:* A level, at or above which, or at or below which a flight has been co-ordinated to cross the transfer of control point. The supplementary level, if present, is an element of the exit level.

3.1.30. *System Flight Plan:* Information derived from the flight plan of a specific flight held within an FDPS.

3.1.31. *Transaction Time:* A time interval following the initiation of a message during which transmission, initial processing in the receiving system, generation and transmission of an acknowledgement message, and its identification in the transferring system are performed.

3.1.32. *Transfer of Control Point:* A defined point, located along a flight path of an aircraft, at which the responsibility for providing ATS to the aircraft is transferred from one ATC unit or control position to the next. It is not necessarily coincident with the co-ordination point.

3.1.33. *Transfer Phase:* A phase of flight following the co-ordination phase, during which the transfer of communication is executed.

3.1.34. *Transferring Unit:* In a co-ordination sequence, the ATC unit responsible for providing a service to a flight before the boundary and which initiates the co-ordination phase with the next unit.

3.1.35. *Transmit:* Communicate a message from one system to another.

3.1.36. *Unit:* Air traffic service unit

3.1.37. *Warning:* A message displayed at a working position when the automated co-ordination process has failed.

3.2. Symbols and Abbreviations

For the purposes of this Eurocontrol Standard, the following symbols and abbreviations shall apply.

ABI	Advance Boundary Information Message
ACC	Area Control Centre
ACP	Accept Message
ACT	Activate Message
ADEXP	ATS Data Exchange Presentation
ATC	Air Traffic Control
ATM	Air Traffic Management
ATS	Air Traffic Service
CDN	Co-ordination Message
CNL	Flight Plan Cancellation
COD	SSR Code Assignment Message
COF	Change of Frequency Message
COP	Co-ordination Point
DED	Directorate of EATCHIP Development, Eurocontrol

EATCHIP	European ATC Harmonisation and Integration Programme
ECAC	European Civil Aviation Conference
ETO	Estimated Time Over
ETOT	Estimated Take-Off Time
EWPD	EATCHIP Work Programme Document
FDPS	Flight Data Processing System
FRF	Further Route of Flight
HMI	Human-Machine Interface
HOP	Handover Proposal Message
ICAO	International Civil Aviation Organisation
INF	Information Message
LAM	Logical Acknowledgement Message
LoA	Letter of Agreement
MAC	Message for the Abrogation of Co-ordination
MAS	Manual Assumption of Communications
NM	Nautical Mile
OLDI	On-Line Data Interchange
ORCAM	Originating Region Code Assignment Method
PAC	Preliminary Activate Message
RAP	Referred Activate Proposal Message
REV	Revision Message
RJC	Reject Co-ordination Message
ROF	Request on Frequency Message
RRV	Referred Revision Message
SBY	Stand-by Message
SDM	Supplementary Data Message
SSR	Secondary Surveillance Radar
SYSCO	System Supported Co-ordination
TI	Transfer Initiation
TIM	Transfer Initiation Message
TWR/APP	Tower (aerodrome control) and Approach Control

4. GENERAL REQUIREMENTS

4.1. Introduction

This section describes the general operational requirements necessary for the implementation of an OLDI facility between ATC units and the classification and performance requirements of the different types of message used.

4.2. **Flight Data Processing System Requirements**

4.2.1. *Flight Data Base*

Units which utilise a facility described in this document shall be provided with data from an FDPS which contains all the information required for the display, processing and compilation of the messages as specified. The primary source of data for each flight is the flight plan as filed by, or on behalf of, the pilot in command. Further items of data are obtained by the processing of flight plans with reference to the environment of the unit concerned.

4.2.2. *Operation in Real Time*

The OLDI procedure includes events in the transferring ATC unit to initiate functions necessary for the timely presentation of data to the transferring controller and the transmission of co-ordination data to the accepting unit. For this purpose the FDPS shall be able to initiate functions by the comparison of Co-ordinated Universal Time and applicable time parameters with times at specified positions on the route of flight as determined from the flight database.

4.2.3. *Data Communications Capability*

4.2.3.1. The FDPS shall be able to receive and transmit flight data in the format applicable to the message as specified in this document via a data communication medium which supports the OLDI function.

4.2.3.2. **Recommendation** *The FDPS should have the development potential to allow the addition of new messages that may be included in future editions of this standard.*

4.2.3.3. Within the performance requirements specified in this document, the data communication medium shall provide a rapid and reliable application-to-application data exchange by:

— assuring the integrity of OLDI message transmission;

and

— monitoring either point-to-point connections or the status of the communications network, as applicable.

4.2.3.4. The FDPS shall warn the working positions when anomalies are detected by the data communications system.

4.2.4. *Application Functions*

4.2.4.1. The systems used for the provision of OLDI facilities shall be able to automatically receive, store, process, extract and deliver for display, and transmit OLDI related data in real-time.

4.2.4.2. The FDPS shall:

— reflect current operational data relevant to the OLDI function as required by this Standard, updated either automatically, through manual input, or by a combination of both;

— be able to extract such elements from the flight plan database;

— identify the next ATC unit on the route of flight.

4.2.4.3. The following shall be agreed bilaterally:

— Co-ordination Points (COPs);

— Reference points used for bearing and distance notations in identifying the COP on direct, off-ATS route segments, where used.

NOTE *The COPs may not always be identical to the transfer of control points.*

4.2.5. *Human-Machine Interface (HMI)*

4.2.5.1. The HMI shall be able to:

— display the operational contents of OLDI messages and relevant warnings related to received messages for immediate attention;

— route co-ordination and transfer message warnings to the operational positions responsible for the co-ordination of the flights concerned.

4.2.5.2. ATC staff shall be provided with a means to modify the data from which the operational contents of the messages are derived as required in this document.

4.2.5.3. The HMI shall indicate that the transmission of the message is in progress or has been successfully transmitted as appropriate.

4.2.5.4. A warning or notification to the appropriate ATC or technical position(s) shall be generated automatically if no acknowledgement has been received within the parameter time following a transmission of a co-ordination or transfer message.

4.2.5.5. Such a warning or notification shall be in a form that immediately attracts the attention of the appropriate working position.

4.2.5.6. **Recommendation** *The HMI at ATC positions using OLDI should provide a warning if the OLDI facility is not available.*

4.2.6. *Initiation of Messages*

4.2.6.1. Each system shall contain a set of system parameters in order to ensure timely, automatic initiation of OLDI messages.

4.2.6.2. **Recommendation** *The capability to manually initiate the transmission of a co-ordination message prior to the calculated transmission time should be provided.*

4.2.6.3. The automatic event shall always be assured, if manual initiation is not executed.

4.2.6.4. The system shall utilise time parameters to define the following:

— lead time, prior to transmission, when the operational contents of the messages within the transferring unit are displayed;

— lead time, global or per COP, to transmit the message, where applicable;

— time after transmission of a message within which an application level acknowledgement is to be received (time-out).

4.2.6.5. A message shall be transmitted without delay when the required information becomes available at a time later than that at which it would otherwise have been transmitted.

Example: A flight commences a GAT IFR segment at a point close to the boundary which it is then to cross; the ETO at the point is communicated eight minutes before the COP at which time transmission of the ACT message is already late based on the applicable time parameter(s); the message is sent without delay.

4.2.7. *Reception of Messages*

4.2.7.1. The ATC system shall be able to:

— receive OLDI messages;

— process them automatically in accordance with this Standard;

— output flight data in accordance with the message received, and display required warnings in case of inconsistency in the data received;

— generate and transmit acknowledgement messages automatically at the application level.

4.2.7.2. An acknowledgement message (Logical Acknowledgement (LAM), Accept (ACP) or Stand-by (SBY) Message) shall be generated and transmitted when the corresponding message has been processed and the presentation of the results of the processing to the appropriate position(s), as necessary, is assured.

NOTE *The detailed conditions for the generation of an acknowledgement are specified individually for each message.*

4.3. **Updating from Surveillance Data**

Recommendation *In order to ensure the accuracy of time estimate data, information derived from the tracking of flights by radar or other surveillance means should be used to update the flight plan database.*

4.4. **Recording of OLDI Data**

4.4.1. *Content*

The contents of all OLDI messages and the time of reception shall be recorded.

4.4.2. *Facilities*

Facilities shall be available for the retrieval and display of the recorded data.

4.5. **Availability, Reliability, Data Security and Data Integrity**

4.5.1. *Availability*

4.5.1.1. The OLDI facility shall be available during the hours of normal and peak traffic flows between the two units concerned.

4.5.1.2. **Recommendation** *The OLDI facility should be available 24 hours every day.*

4.5.1.3. Any scheduled down-time periods (and thus the planned availability time) shall be bilaterally agreed between the two units concerned.

4.5.2. *Reliability*

4.5.2.1. Reliability on every OLDI link shall be at least 99,86 % (equivalent to a down-time of not more than 12 hours per year based on 24-hour availability).

4.5.2.2. **Recommendation** *Where operationally justified, a reliability of at least 99,99 % (equivalent to a down-time of not more than 52 minutes per year, based on 24 Hour availability) should be provided.*

4.5.3. *Data Security*

Recommendation *Data security methods (e.g. access rights, source verification) and, where applicable, network management should be applied to OLDI facilities.*

4.5.4. *Data Integrity*

The failure rate at application level shall not exceed one transmission error per 2 000 messages.

4.6. **Operational Evaluation**

4.6.1. *Evaluation Period*

Each new OLDI facility, including a new facility on an existing link, shall be subject to an evaluation period to verify the data integrity, accuracy, performance, compatibility with ATC procedures and overall safety prior to its operational implementation.

NOTE *A procedure to assist in the evaluation of a new OLDI facility is available from the OLDI Secretariat, Eurocontrol.*

4.6.2. *Operational Introduction Date*

The date of the operational introduction, implying completion of the evaluation period, shall be formally agreed between the two units.

5. **MESSAGE CATEGORIES**

5.1. **General**

5.1.1. *Purpose*

This Section of the document:

— defines the categories of messages;

— states transaction time requirements for the categories;

— states which messages are mandatory and which are complementary;

— assigns message types to categories.

5.1.2. *Message Categories*

OLDI messages have been assigned to the following categories:

— Category 1: Transfer of Communication;

— Category 2: Co-ordination;

— Category 3: Notification.

5.2. **Transaction Times**

5.2.1. *Transaction Time Conditions*

5.2.1.1. The transaction times specified include transmission, initial processing at the receiving unit, creation of the acknowledgement message, its transmission and reception at the transferring unit. The automatic acknowledgement messages LAM and SBY have therefore, not been assigned to a message category.

5.2.1.2. The maximum transaction times for the different categories of messages shall be as specified in Table 5-1.

Table 5-1

Maximum Transaction Times

Message Category	90 %	99,8 %
1	4 sec	10 sec
2	10 sec	25 sec
3	15 sec	45 sec

5.2.1.3. A time-out value shall be defined per message category or type.

5.2.1.4. If no acknowledgement has been received within the specified time after transmission, a message shall be considered to have been unsuccessfully transmitted or processed and a warning output as specified in the pertinent section in this document.

5.2.1.5. **Recommendation** *The time-out values for the three categories should not exceed 12 seconds, 30 seconds and 60 seconds respectively.*

5.3. **Message Classification and Categorisation**

5.3.1. *Message Classification — Mandatory and Complementary*

5.3.1.1. Messages described in this document are classified as either mandatory or complementary.

5.3.1.2. Where a message is described as mandatory (M) for transmission (TX), processing shall be included to be able to send such messages.

5.3.1.3. Where a message is described as mandatory for reception (REC), processing shall be included to be able to process received messages.

NOTE *In exceptional cases, where the traffic flow between two units is unidirectional, the mandatory messages may be applicable in only one direction.*

5.3.1.4. Where a message is described as complementary (C) for transmission, processing shall be included to be able to send such messages if required by the sending unit and bilaterally agreed with the receiving unit.

NOTE *Complementary messages may be used in one direction only as determined by operational requirements.*

5.3.1.5. Where a message is described as complementary for reception, processing shall be included to be able to process received messages where such use has been bilaterally agreed.

5.3.1.6. Requirements described in Tables 5-3 and 5-4 are applicable only where the use of the Dialogue procedure for Co-ordination and/or Transfer of Communication respectively have been agreed bilaterally between ATC units.

5.3.2. *Categorisation of Messages*

5.3.2.1. The categorisation of messages for the basic procedure is specified in Table 5-2.

5.3.2.2. The categorisation of the additional co-ordination messages for the dialogue procedure is specified in Table 5-3.

5.3.2.3. The categorisation of transfer of communication messages for the dialogue procedure is specified in Table 5-4.

Table 5-2

Basic Procedure Messages

Message Type	Abbreviation	Category	Transmission	Reception
Advance Boundary Information	ABI	3	M	M
Activate	ACT	2	M	M
Revision	REV	2	C (1)	C (1)
Preliminary Activate	PAC	2	C	C
Abrogation of Co-ordination	MAC	2	C	C
SSR Code Assignment	COD	2	C	C
Information	INF	3	C	C
Logical Acknowledgement Message	LAM		M	M

NOTE
(1) Mandatory for TX and REC when used in a dialogue procedure.

Table 5-3

Dialogue Procedure — Co-ordination Phase Messages
(Additional to Table 5-2)

Message Type	Abbreviation	Category	Transmission	Reception
Referred Activate Proposal	RAP	2	C	M
Referred Revision	RRV	2	C	M
Co-ordination	CDN	2	M	M
Stand-by (1)	SBY		M	M
Accept	ACP	2	M	M
Reject Co-ordination (2)	RJC	2	C	C

NOTES
(1) See paragraph 5.2.1.1 Transaction Time Conditions.
(2) Not used in all airspace configurations.

Table 5-4

Dialogue Procedure — Transfer Phase Messages

Message Type	Abbreviation	Category	Transmission	Reception
Transfer Initiation	TIM	1	M	M
Supplementary Data	SDM	1	(1)	(1)
Handover Proposal	HOP	1	M	M
Change of Frequency (2)	COF	1	C	M
Request on Frequency	ROF	1	C	M
Manual Assumption (2)	MAS	1	C	M

NOTES
(1) M when sent from the transferring unit; C when sent from the accepting unit.
(2) Bilaterally agreed procedures shall specify that when the transfer takes place in respect of a given direction of traffic flow, as a minimum, either the transferring unit shall send a COF message or the accepting unit shall send a MAS message.

6. BASIC PROCEDURE — MANDATORY MESSAGES

6.1. General

6.1.1. *Description of Requirement*

This section describes the minimum requirement at the application level for the implementation of OLDI facilities.

6.1.2. *Implementation*

Units using OLDI for the co-ordination of flights shall implement the ABI, ACT, and LAM as described in this section, except where it has been bilaterally agreed to use the co-ordination dialogue procedure as described in Section 8 of this document, in which case the conditions for the use of ACT and LAM messages are as defined in that section.

6.2. Advance Boundary Information Message (ABI)

6.2.1. *Purpose of the ABI Message*

The ABI satisfies the following operational requirements:

— provide for acquisition of missing flight plan data;

— provide advance boundary information and revisions thereto for the next ATC unit;

— update the basic flight plan data;

— facilitate early correlation of radar tracks;

— facilitate accurate short-term sector load assessment.

The ABI is a notification message.

6.2.2. *Message Contents*

The ABI message shall contain the following items of data:

— Message Type;

— Message Number;

— Aircraft Identification;

— SSR Mode and Code (if available);

— Departure Aerodrome;

— Estimate Data;

— Destination Aerodrome;

— Aircraft number and type;

— Route (optional);

— Other Flight Plan Data (optional).

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

6.2.3. *Rules of Application*

6.2.3.1. General

6.2.3.1.1. Except as provided for in 6.2.3.1.3 and 6.2.3.1.4 below, one or more ABI messages shall be sent for each flight planned to cross the boundary of areas of responsibility subject to OLDI procedures.

6.2.3.1.2. When sent, the ABI message shall precede the Activate (ACT) or Referred Activate Proposal (RAP) message.

6.2.3.1.3. An ABI message shall not be generated if a Preliminary Activate (PAC) message is to be sent.

6.2.3.1.4. **Recommendation** *ABI transmission should be inhibited if the ACT or RAP message is due for transmission immediately or within a bilaterally agreed time interval.*

NOTE *The purpose of this recommendation is to avoid the attempted simultaneous resolution of anomalies at different positions at the receiving unit in respect of ABI and ACT messages for the same flight.*

6.2.3.1.5. A revised ABI message shall be sent if the subsequent ACT message has not been generated and:

— the route of flight has been modified such that the COP in the previous ABI message is no longer accurate;

— the aerodrome of destination has been changed;

or

— the type of aircraft has been changed.

6.2.3.1.6. **Recommendation** *A revised ABI message should be sent if the subsequent ACT message has not been generated and one of the following items is subject to change:*

— *The expected boundary crossing level;*

— *The expected SSR code at the transfer of control point;*

— *When the estimated time over (ETO) at the COP differs from the previous ABI message more than the time specified in the Letter of Agreement (LoA);*

— *Any other data as bilaterally agreed.*

6.2.3.2. Processing in the Receiving Unit

6.2.3.2.1. The ATC system receiving an ABI message shall attempt association with the corresponding flight plan data.

6.2.3.2.2. If the flight plan association is unsuccessful, a flight plan shall be created automatically or manually in the receiving system.

6.2.3.2.3. If the flight plan association is successful but a discrepancy is identified between the data in the message and corresponding data in the receiving system that would result in the need for corrective action on receipt of the following ACT message, the discrepancy shall be referred to an appropriate position for resolution.

6.2.3.3. Time Parameters for Transmission

6.2.3.3.1. The message shall be transmitted a parameter number of minutes before the estimated time at the COP.

6.2.3.3.2. The ABI generation parameter(s) shall be included in the LoA between the ATC units concerned.

6.2.3.3.3. **Recommendation** *The ABI generation parameter(s) should be:*

— *variable, based on the provisions of the LoA;*

— *defined separately for each of the COPs.*

6.2.4. *Acknowledgement of ABI*

6.2.4.1. Acknowledgement

The ABI message shall be acknowledged by generating and transmitting a LAM message.

NOTE *A LAM message is generated regardless of the results of the flight plan association attempt.*

6.2.4.2. No Acknowledgement

Recommendation *If no LAM message is received as an acknowledgement for an ABI message, a warning should be displayed at a supervisory position.*

6.2.5. *Examples*

'Air 2000' 253, a Boeing 757 from Malta to Birmingham estimating BNE VOR at 1221 UTC, flying at FL350 at a true airspeed of 480 knots, planned to route via UB4 BNE UB4 BPK UB3 HON, transponding on A7012 and requesting FL390. The following are equivalent examples of the ABI message sent from Reims to London ACC.

6.2.5.1. ICAO

(ABIE/L001-AMM253/A7012-LMML-BNE/1221F350-EGBB-9/B757/M-15/N0480F390 UB4 BNE UB4 BPK UB3 HON)

6.2.5.2. ADEXP

-TITLE ABI -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 001 -ARCID AMM253 -SSRCODE A7012 -ADEP LMML -COORDATA -PTID BNE -TO 1221 -TFL F350 -ADES EGBB -ARCTYP B757 -ROUTE N0480F390 UB4 BNE UB4 BPK UB3 HON

6.3. **Activate Message (ACT)**

6.3.1. *Purpose of the ACT Message*

The ACT message satisfies the following operational requirements:

— Replace the verbal boundary estimate by transmitting automatically details of a flight from one ATC unit to the next prior to the transfer of control;

— Update the basic flight plan data in the receiving ATC unit with the most recent information;

— Facilitate distribution and display of flight plan data within the receiving ATC unit to the working positions involved;

— Expedite display of callsign/code correlation in the receiving ATC unit;

— Provide transfer conditions to the receiving ATC unit.

6.3.2. *Message Contents*

The ACT message shall contain the following items of data:

— Message Type;

— Message Number;

— Aircraft Identification;

— SSR Mode and Code

— Departure Aerodrome;

— Estimate Data;

— Destination Aerodrome;

— Aircraft number and type;

— Route (optional);

— Other flight plan data (optional).

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

6.3.3. *Rules of Application*

6.3.3.1. General

6.3.3.1.1. One ACT message shall be sent for eligible flights crossing the boundary except as provided for in paragraph 6.3.3.1.10.

6.3.3.1.2. The ACT message shall be generated and transmitted automatically at the calculated time as specified in the LoA, unless manually initiated at an earlier time.

6.3.3.1.3. **Recommendation** *ATC staff should be provided with a means to trigger the transmission of ACT messages prior to the calculated time of transmission.*

6.3.3.1.4. The operational contents of the ACT message due to be transmitted shall be displayed at the working position responsible for the co-ordination of the flight prior to the actual transmission.

6.3.3.1.5. **Recommendation** *In relation to 6.3.3.1.4, the time at which it is calculated that the ACT is to be transmitted automatically should be displayed together with its contents.*

6.3.3.1.6. The ACT message shall contain the most recent information on the flight, reflecting the expected exit conditions.

6.3.3.1.7. The relevant working position shall be notified of the transmission of the ACT message.

6.3.3.1.8. As soon as a LAM has been received, the ACT message data becomes operationally binding to both of the ATC units. The co-ordinated transfer conditions and the fact that the LAM has been received shall be presented to the ATC staff at the transferring unit.

6.3.3.1.9. Acceptance by the receiving unit of the transfer conditions implied in the ACT message shall be assumed, unless the receiving unit initiates co-ordination to amend them.

6.3.3.1.10. A further ACT message may only be sent to the same co-ordination partner if the previous one has been abrogated by the use of a MAC.

6.3.3.1.11. Route and Other flight plan data shall be included if bilaterally agreed.

6.3.3.2. Processing in the Receiving Unit

6.3.3.2.1. The ATC system receiving an ACT message shall attempt association with the corresponding flight plan.

6.3.3.2.2. If a corresponding flight plan is found and no discrepancy is present in the message that would inhibit correct processing:

— the operational content shall be included with the flight plan;

— the required data shall be output at operational ATC and other positions as appropriate;

— a LAM shall be returned.

6.3.3.2.3. If a corresponding flight plan cannot be found, or a discrepancy is found that inhibits correct processing of the message:

— if the sector responsible for accepting control of the flight can be identified:

  — the operational content of the message shall be displayed at the sector;

  — a LAM shall be returned;

  — a flight plan shall be created;

— in all other cases a LAM shall not be returned.

6.3.3.3. Parameters for Transmission

6.3.3.3.1. The message shall be transmitted at or as soon as possible after the earlier of the times determined from the following:

— a parameter number of minutes before the estimated time at the COP;

— the time at which the flight is at a bilaterally agreed distance from the COP.

6.3.3.3.2. The ACT generation parameter(s) shall be included in the LoA between the ATC units concerned.

6.3.3.3.3. The ACT generation parameter(s) shall be variable based on the provisions of the LoA.

6.3.3.3.4. **Recommendation** *ACT generation parameters should be defined separately for each of the COPs.*

6.3.3.3.5. The specified parameters shall allow sufficient time for:

— the transmitting unit to update the transfer flight level to reflect the expected conditions at the COP;

and

— the receiving unit to process the ACT and generate and transmit a LAM but still allow for verbal co-ordination to be carried out by the transferring unit and resultant action initiated by the accepting unit if the exchange of data fails.

6.3.4. *Acknowledgement of ACT*

6.3.4.1. Acknowledgement

The ACT message shall be acknowledged by the generation and transmission of a LAM message.

6.3.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an ACT message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flight.

6.3.5. *Examples*

The following examples are an extension of those provided for the ABI message in paragraph 6.2; all details are the same except the ETO at the COP, which is 1226 in the ACT message shown.

6.3.5.1. ICAO

(ACTE/L005-AMM253/A7012-LMML-BNE/1226F350-EGBB-9/B757/M-15/N0480F390 UB4 BNE UB4 BPK UB3 HON)

6.3.5.2. ADEXP

-TITLE ACT -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 005 -ARCID AMM253 -SSRCODE A7012 -ADEP LMML -COORDATA -PTID BNE -TO 1226 -TFL F350 -ADES EGBB -ARCTYP B757 -ROUTE N0480F390 UB4 BNE UB4 BPK UB3 HON

6.4. **Logical Acknowledgement Message (LAM)**

6.4.1. *Purpose of the LAM Message*

The LAM is the means by which the receipt and safeguarding of a transmitted message is indicated to the sending unit by the receiving unit.

The LAM processing provides the ATC staff at the transferring unit with the following:

— a warning when no acknowledgement has been received;

— an indication that the message being acknowledged has been received, processed successfully, found free of errors, stored and, where relevant, is available for presentation to the appropriate working position(s).

6.4.2. *Message Contents*

The LAM message shall contain the following items of data:

— Message Type;

— Message Number;

— Message Reference.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

6.4.3. *Rules of Application*

6.4.3.1. General

6.4.3.1.1. The rules for the return of a LAM are specified in the sections of this document defining the processing of each message.

6.4.3.1.2. The LAM message shall be generated and transmitted without human intervention.

6.4.3.1.3. The LAM message shall not be used to avoid the need for technical messages to ensure the integrity of data transmissions.

6.4.3.1.4. The LAM message shall be generated and transmitted immediately so that the transaction time requirement of the message being acknowledged can be achieved.

6.4.3.1.5. With exception of ABI messages, the transmitting ATC system shall inform the controller responsible for co-ordination if a LAM message has not been received within the time parameter set for such warnings.

6.4.4. *Acknowledgement of LAM*

The LAM message shall not require any acknowledgement.

6.4.5. *Examples*

6.4.5.1. ICAO

(LAML/E012E/L001)

6.4.5.2. ADEXP

-TITLE LAM -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 012 -MSGREF -SENDER -FAC E -RECVR -FAC L -SEQNUM 001

7. BASIC PROCEDURE — COMPLEMENTARY MESSAGES

7.1. General

7.1.1. *Description of Requirement*

This section describes facilities applicable to the basic procedure which are additional to those described in Section 6 Basic Procedure — Mandatory Messages.

7.1.2. *Implementation*

7.1.2.1. The use of any of the facilities described in this section shall be bilaterally agreed before introduction.

7.1.2.2. Where such use is agreed, the rules described in this section shall be applied.

7.2. **Preliminary Activate Message (PAC)**

7.2.1. *Purpose of the PAC Message*

The PAC message satisfies the following operational requirements:

— notification and pre-departure co-ordination of a flight where the time of flight from departure to the COP is less than that which would be required to comply with the agreed time parameters for ACT message transmission;

— notification and pre-departure co-ordination of a flight before departure by a local (aerodrome/approach control) unit to the next unit that will take control of the flight;

— provide for acquisition of missing flight plan data in case of discrepancies in the initial distribution of flight plan data;

— request the assignment of an SSR code from the unit to which the above notification/co-ordination is sent, if required.

7.2.2. *Message Contents*

The PAC message shall contain the following items of data:

— Message Type;

— Message Number;

— Message Reference (optional);

— Aircraft Identification;

— SSR Mode and Code;

— Departure Aerodrome;

— Estimated Take-Off Time or Estimate Data;

— Destination Aerodrome;

— Type of Aircraft;

— Route (optional);

— Other flight plan data (optional).

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

7.2.3. *Rules of Application*

7.2.3.1. General

7.2.3.1.1. One or more PAC messages shall be sent for each flight planned to cross the boundary of areas of responsibility where the time from departure to the COP would not permit the ACT message to be sent at the required time.

7.2.3.1.2. One or more PAC messages shall be sent by the Aerodrome/Approach unit to the next unit for each departing flight for which either notification or co-ordination is required.

7.2.3.1.3. **Recommendation** *For the implementation of PAC/LAM between units, the relevant TWR/APP systems should be provided with a means to input and forward 'start-up', 'push-back', 'taxi' or similar information from which the ETOT may be derived in order to calculate the ETO at the COP and initiate the transmission of the PAC.*

7.2.3.1.4. As bilaterally agreed, the message shall contain either:

— Estimated Take-Off Time;

or

— Estimate Data.

7.2.3.1.5. When the message reference is included, by bilateral agreement, it shall:

— contain the message number of the first PAC message sent for the flight;

— be included on second and subsequent PAC messages.

7.2.3.1.6. The use of the code request facility, if required, shall be agreed bilaterally.

7.2.3.1.7. A revised PAC message shall be sent if, before departure, any of the following conditions apply:

— the route of flight has been modified such that the COP in the previous message is no longer accurate;

— the type of aircraft has been changed;

— the destination aerodrome in the previous PAC has been found to be incorrect.

7.2.3.1.8. **Recommendation** *A revised PAC message should be sent if, before departure, the following data differs from that in the previous PAC message:*

— *the level (in the estimate data, if present);*

— *the expected SSR code at the transfer of control point;*

— *the Estimated Take-Off Time or the ETO at the COP by a time in excess of a bilaterally agreed value;*

— *there is a change in any other data, as bilaterally agreed.*

7.2.3.2. Processing in the Receiving Unit

7.2.3.2.1. The ATC system receiving a PAC message shall attempt association with the corresponding flight plan.

7.2.3.2.2. If a corresponding flight plan is found and no discrepancy is present in the message that would inhibit correct processing:

— the operational content shall be included with the flight plan;

— the required data shall be output at operational ATC and other positions as appropriate;

— a LAM shall be returned.

7.2.3.2.3. If a corresponding flight plan cannot be found, or a discrepancy is found that inhibits correct processing of the message:

— if the sector responsible for accepting control of the flight can be identified:

  — the operational content of the message shall be displayed at the sector;

  — a LAM shall be returned;

  — a flight plan shall be created;

— in all other cases a LAM shall not be returned.

7.2.3.2.4. The data in a second or subsequent PAC message shall supersede the data in the previous message.

7.2.3.2.5. If the PAC message includes a request for the assignment of an SSR code and is correctly processable as described in paragraph 7.2.3.2.2. above, a COD message shall be returned in addition to the LAM.

NOTE *As the code assignment process requires detailed flight plan route information, no requirement is made in this document for the return of a COD message by the receiving unit where such data may not be available for the flight. This does not prevent a message being returned under such circumstances if a specific local capability exists and the procedure has been agreed bilaterally.*

7.2.3.3. Time Parameters for Transmission

A transmission time parameter is not applicable since the message is sent as the result of a manually entered message identifying the imminent departure of the flight.

7.2.4. *Acknowledgement of PAC*

7.2.4.1. Acknowledgement

The messages to be sent in response to a PAC message are described in paragraph 7.2.3.2. above.

7.2.4.2. No Acknowledgement

If no LAM message is received as an acknowledgement for a PAC message, a warning shall be displayed at the position in the ATC unit responsible for co-ordination with the next unit.

7.2.4.3. No-LAM cases

In no-LAM cases, verbal co-ordination shall be initiated.

7.2.4.4. No COD Message

7.2.4.4.1. If a COD message is not received in response to a code request included in the PAC message, a warning shall be displayed at an appropriate position.

7.2.4.4.2. Where the code request function is to be used, the time-out value to be applied shall be agreed bilaterally.

7.2.5. *Examples*

7.2.5.1. Estimated Take-Off Time and Code Request

7.2.5.1.1. ICAO

(PACBA/SZ002-CRX922/A9999-LFSB1638-LSZA-9/B737/M)

7.2.5.1.2. ADEXP

-TITLE PAC -REFDATA -SENDER -FAC BA -RECVR -FAC SZ -SEQNUM 002 -ARCID CRX922 -SSRCODE REQ -ADEP LFSB -ETOT 1638 -ARCTYP B737 -ADES LSZA

7.2.5.2. Time at COP

7.2.5.2.1. ICAO

(PACD/L025-EIN636/A5102-EIDW-LIFFY/1638F290F110A-EBBR-9/B737/M)

7.2.5.2.2. ADEXP

-TITLE PAC -REFDATA -SENDER -FAC D -RECVR -FAC L -SEQNUM 025 -ARCID EIN636 -SSRCODE A5102 -ADEP EIDW -COORDATA -PTID LIFFY -TO 1638 -TFL F290 -SFL F110A -ARCTYP B737 -ADES EBBR

7.3. **Revision Message (REV)**

7.3.1. *Purpose of the REV Message*

The REV message is used to transmit revisions to co-ordination data previously sent in an ACT message provided that the accepting unit does not change as a result of the modification.

7.3.2. *Message Contents*

The REV message shall contain the following items of data:

— Message Type;

— Message Number;

— Message Reference (optional);

— Aircraft Identification;

— SSR Mode and Code (optional);

— Departure Aerodrome;

— Estimate Data;

— Co-ordination point (optional);

— Destination Aerodrome;

— Route (optional);

— Other flight plan data (optional).

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

7.3.3. *Rules of Application*

7.3.3.1. General

7.3.3.1.1. One or more REV messages may be sent to the unit to which a flight has been currently co-ordinated by the use of an Activate message.

7.3.3.1.2. The following elements shall be subject to revisions:

— ETO at the COP;

— Transfer level(s);

— SSR Code.

7.3.3.1.3. A REV message shall be sent when:

— the ETO at the COP differs from that in the previous message by more than a value bilaterally agreed, rounded to the nearest integer value;

— there is any change to the transfer level(s) or SSR code.

7.3.3.1.4. Where bilaterally agreed, a REV message shall be sent when there is any change in the following:

— COP;

— route;

— other flight plan data (ICAO field 8, 10 and 18 data).

NOTE *Operational rules may require that modifications effected after ACT be subject to prior co-ordination between the units concerned.*

7.3.3.1.5. When bilaterally agreed, the message reference shall be included in the REV message.

7.3.3.1.6. The message reference, when included, shall contain the message number of the preceding ACT message.

7.3.3.1.7. Acceptance by the receiving ATC unit of the transfer conditions implied by the REV message shall be assumed, unless the receiving ATC unit initiates co-ordination to amend them.

7.3.3.2. Formatting of Revision Messages

7.3.3.2.1. ICAO Format

All revision messages include field types 3, 7, 13, 14 and 16. The following types of revision are accommodated within those fields:

— a change to the ETO at the COP or transfer level(s) shall be incorporated by the inclusion of the revised data in field 14;

— a change to the SSR Code shall be included in field 7;

— route changes including changes to the COP shall be incorporated in field 14 and 15 data included in field 22 format after the initial five fields. Such messages shall include two field 14's, the first containing element a) only, the COP through which the flight had previously been co-ordinated. Rules for the co-ordination of such changes, including direct routings, are specified in Annex B Special Route Processing Requirements;

— modifications to fields 8, 10 and 18 shall be incorporated as field 22 data after the initial five fields.

7.3.3.2.2. ADEXP Format

All revision messages in ADEXP format shall include the following primary fields: TITLE REFDATA ARCID ADEP ADES. The following rules apply:

— a change to the ETO at the COP or transfer level(s) shall be incorporated by the inclusion of the revised data in primary field COORDATA;

— route changes, including changes to the COP, shall be incorporated in primary fields COORDATA and ROUTE. Such messages shall include primary field COP containing the Co-ordination Point through which the flight had previously been co-ordinated. Rules for the co-ordination of such changes, including direct routings, are specified in Annex B;

— a change to the SSR Code shall be indicated by the inclusion of primary field SSRCODE;

— modifications to other flight plan data shall be incorporated by the inclusion of the requisite primary field(s) as defined for other Flight Plan Data in Annex A.

If a revision message is sent to co-ordinate only SSR Code and/or Other Flight Plan Data, the primary field COP shall be included in place of COORDATA.

7.3.3.2.3. SSR Code

SSR Mode and Code shall be included in a REV message only when it is required to co-ordinate a change of SSR code.

7.3.3.3. Processing in the Receiving Unit

7.3.3.3.1. If an ACT has been received for the subject flight from the same ATC unit, the ATC system receiving a REV message shall attempt association with the corresponding flight plan.

7.3.3.3.2. If a corresponding flight plan is found and no discrepancy is present in the message that would inhibit correct processing:

— the operational content shall be included with the flight plan;

— the required data shall be output at operational ATC and other positions as appropriate.

7.3.3.4. Initiation of Transmission

7.3.3.4.1. The REV message is event driven and shall be transmitted immediately following the relevant input or update.

7.3.3.4.2. No changes may be effected by the use of the REV message after the flight is a specified time/distance from the transfer point. The time and distance parameters shall be bilaterally agreed.

7.3.3.4.3. **Recommendation** *The REV parameters should be defined separately for each of the COPs.*

7.3.3.5. Change of Receiving ATC Unit

The REV message shall not be used if a revision of flight plan data leads to a change of the receiving ATC unit (see Message for the Abrogation of Co-ordination).

7.3.4. *Acknowledgement of REV*

7.3.4.1. Acknowledgement

If the REV message:

— can be associated with a flight plan within the receiving system, a LAM message shall be transmitted in acknowledgement;

— cannot be associated with a flight plan within the receiving system, a LAM message shall not be transmitted.

7.3.4.2. No Acknowledgement

7.3.4.2.1. If no LAM message is received as an acknowledgement for a REV message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flights.

7.3.4.2.2. In no-LAM cases, a verbal revision shall be initiated by the transferring ATC unit.

7.3.5. *Examples*

7.3.5.1. I C A O

a. (REVE/L002-AMM253-LMML-BNE/1226F310-EGBB)

b. (REVE/L010-AMM253/A2317-LMML-BNE/1226F310-EGBB)

7.3.5.2. A D E X P

a. -TITLE REV -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 002 -ARCID AMM253 -ADEP LMML -COORDATA -PTID BNE -TO 1226 -TFL F310 -ADES EGBB

b. -TITLE REV -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 010 -ARCID AMM253 -ADEP LMML -COP BNE -ADES EGBB -SSRCODE A2317

7.4. **Message for the Abrogation of Co-ordination (MAC)**

7.4.1. *Purpose of the MAC Message*

A MAC message is used to indicate to the receiving unit that the co-ordination or notification previously effected for a flight is being abrogated.

The MAC is not a replacement for a Cancellation (CNL) message, as defined by ICAO, and therefore, shall not be used to erase the basic flight plan data.

7.4.2. *Message Contents*

The MAC message shall contain the following items of data:

— Message Type;

— Message Number;

— Message Reference (optional);

— Aircraft Identification;

— Departure Aerodrome;

— Co-ordination Point;

— Destination Aerodrome;

— Co-ordination Status and Reason (optional).

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

7.4.3. *Rules of Application*

7.4.3.1. G e n e r a l

7.4.3.1.1. A MAC message shall be sent to a unit to which co-ordination had previously been effected for a flight, by the use of an ACT or RAP message, when one of the following occurs:

— the expected level at the transfer point is different from the level contained in the previous message resulting in a change of the next unit in the co-ordination sequence;

— the route of flight has been altered which results in change of the next unit in the co-ordination sequence;

— the system flight plan is cancelled in the sending unit and the co-ordination is no longer relevant;

— a MAC is received from the previous unit in respect of the flight.

7.4.3.1.2. When the MAC message is sent due to a flight level or route change, notification and/or co-ordination, as appropriate, shall be effected with the new unit in the co-ordination sequence.

7.4.3.1.3. A MAC message shall be sent when the co-ordination for a departing flight, effected by the use of a PAC message, is abrogated.

7.4.3.1.4. **Recommendation** *A MAC message should be sent when the notification (ABI message) previously effected for a flight is cancelled due to any of the reasons specified in paragraph 7.4.3.1.1. above or the flight is delayed en-route and a revised estimate cannot be determined automatically.*

7.4.3.1.5. A message reference shall be included if bilaterally agreed.

7.4.3.1.6. If included, the message reference shall contain the message number of the last ABI, PAC or ACT message transmitted for the flight and acknowledged.

7.4.3.1.7. The co-ordination point shall be the COP through which the flight had been previously notified or co-ordinated.

7.4.3.1.8. **Recommendation** *The MAC message should identify the status to which the co-ordination or notification is to revert and the reason for the abrogation.*

7.4.3.1.9. If included, the status and reason shall be one of the following combinations:

— when the receiving unit is no longer the next co-ordination partner:

  — the status is INI (initial);

  — the reason is one of the following:

    — TFL if the reason is a change of transfer level;

    — RTE if the reason is a change of route;

    — CSN if the reason is a change in the callsign;

    — CAN if the reason is a cancellation;

    — OTH for any other reason or if the reason is unknown;

— when one of the following conditions applies:

  — the co-ordination effected by the use of the previous PAC or ACT message (as modified by any subsequent REV message) is abrogated but the flight is expected to be the subject of a new co-ordination sequence with the same unit;

    or

  — following the transmission of an ABI message, the flight is holding for an indefinite period and is expected to be subject to a revised ABI or ACT, as appropriate:

    — the status is NTF (notification);

    — the reason is one of the following:

      — DLY if the reason is a delay;

      — HLD if the reason is a hold;

      — OTH for any other reason, or if the reason is unknown.

7.4.3.1.10. If the flight is to be re-notified or re-co-ordinated:

— a new notification and/or co-ordination message, as appropriate, shall be sent;

— the basic flight plan data stored in the receiving ATC unit shall not be affected by a MAC message;

— the system shall retain the capability to correctly process a new notification and/or co-ordination message from either the previous transferring unit or a different unit in a new co-ordination sequence.

7.4.3.2. Processing in the Receiving Unit

The working position(s) in the receiving ATC unit which are provided with flight details shall be notified of the abrogation.

7.4.4. *Acknowledgement of MAC*

7.4.4.1. Acknowledgement

7.4.4.1.1. If the MAC message can be associated with a flight plan within the receiving system and can be processed, a LAM message shall be transmitted in acknowledgement.

7.4.4.1.2. If the MAC message cannot be associated with a flight plan within the receiving system, or cannot be processed, a LAM message shall not be transmitted.

7.4.4.2. No Acknowledgement

7.4.4.2.1. If ATC co-ordination is being abrogated and no LAM message is received, a warning shall be displayed at the ATC position responsible for the co-ordination.

7.4.4.2.2. In such cases a verbal abrogation of co-ordination shall be effected by the transferring ATC unit.

7.4.5. *Examples*

An ABI message was sent by Amsterdam ACC to Brussels ACC for flight HOZ3188, planned at FL190; the flight subsequently requests to climb to FL270 and is so cleared, thus entering Maastricht airspace instead of Brussels. Examples 7.4.5.1 a and 7.4.5.2 a show how the MAC sent to Brussels by Amsterdam would appear both in ICAO and ADEXP formats.

An ABI and, later, an ACT message are sent to Maastricht, but, a few minutes before reaching the COP, the aircraft returns to Amsterdam Airport and the flight plan is cancelled in the sending unit's system; a MAC is sent to Maastricht as shown in examples (7.4.5.1 b and 7.4.5.2 b).

7.4.5.1. ICAO

a. (MACAM/BC112-HOZ3188-EHAM-NIK-LFPG-18/STA/INITFL)

b. (MACAM/MC096-HOZ3188-EHAM-NIK-LFPG-18/STA/INICAN)

7.4.5.2. ADEXP

a. -TITLE MAC -REFDATA -SENDER -FAC AM -RECVR -FAC BC -SEQNUM 112 -ADEP EHAM -COP NIK -ADES LFPG -ARCID HOZ3188 -CSTAT -STATID INI -STATREASON TFL

b. -TITLE MAC -REFDATA -SENDER -FAC AM -RECVR -FAC MC -SEQNUM 096 -ADEP EHAM -COP NIK -ADES LFPG -ARCID HOZ3188 -CSTAT -STATID INI -STATREASON CAN

7.5. **SSR Code Assignment Message (COD)**

7.5.1. *Purpose of the COD Message*

7.5.1.1. The Originating Region Code Allocation Method (ORCAM) is provided to permit a flight to respond on the same code to successive units within a participating area. Unless code allocation is performed centrally, e.g. by an ACC, airports may need to be individually allocated a set of discrete SSR codes. Such allocations are very wasteful of codes.

7.5.1.2. The COD message satisfies the operational requirement for the issue of a Mode A SSR code by one Air Traffic Service Unit to another for a specified flight when requested. An optional facility permits the issuing unit to include the route of flight if bilaterally agreed.

7.5.2. *Message Contents*

The COD message shall contain the following items of data:

— Message type;

— Message number;

— Message reference (optional);

— Aircraft identification;

— SSR mode and code;

— Departure aerodrome;

— Destination aerodrome;

— Route (optional).

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

7.5.3. *Rules of Application*

7.5.3.1. General

7.5.3.1.1. A COD message shall be generated and transmitted automatically in response to a code assignment request received within a message.

7.5.3.1.2. The SSR code shall be the code being assigned to the flight.

7.5.3.1.3. The approved saturation code, as specified in the Air Navigation Plan for the European Region, shall be inserted if a discrete code is not available.

7.5.3.1.4. If bilaterally agreed, the message reference, containing the message number of the message to which the COD message is in response, shall be included.

7.5.3.1.5. The route shall be included if bilaterally agreed.

7.5.3.1.6. Acceptance of the SSR code by the unit receiving the COD message shall be assumed.

7.5.3.2. Processing in the Receiving Unit

7.5.3.2.1. Provided there is no discrepancy in the message that would inhibit correct processing, a LAM shall be returned.

7.5.3.2.2. If the message cannot be associated with a flight plan or a discrepancy is found that inhibits correct processing of the message a LAM shall not be returned.

7.5.3.2.3. Route data, if included, shall not be a reason to inhibit the return of a LAM unless it fails to comply with the format requirement as stated in Annex A.

7.5.3.3. Time Parameters for Transmission

A transmission time parameter shall not be applicable, since the COD message is sent as a result of the reception of a message requesting the assignment of an SSR code.

7.5.4. *Acknowledgement of COD*

7.5.4.1. Acknowledgement

The COD message shall be acknowledged by generating and transmitting a LAM message.

7.5.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for a COD message, a warning shall be displayed at an appropriate position.

7.5.5. *Examples*

7.5.5.1. ICAO

(CODP/PO011-AAL905/A0767-LFPO-KEWR)

7.5.5.2. ADEXP

-TITLE COD -REFDATA -SENDER -FAC P -RECVR -FAC PO -SEQNUM 011 -ADEP LFPO -ADES KEWR -ARCID AAL905 -SSRCODE A0767

7.6. **Information Message (INF)**

7.6.1. *Purpose of the INF Message*

7.6.1.1. The INF message is used to provide information on specific flights to agencies not directly involved in the co-ordination process between two successive ATC units on the route of flight.

7.6.1.2. The INF message may be used to provide copies of messages and to communicate agreed co-ordination conditions to such agencies following a dialogue between controllers. For this purpose INF messages may be generated by the systems at the transferring or accepting unit.

7.6.1.3. The message may also be used to provide information in relation to any point on the route of flight to an agency.

7.6.1.4. The format allows the communication of initial data, revisions and cancellations.

7.6.2. *Message Contents*

The INF message shall contain the following items of data in the format of a message described in this document:

— Message type;

— Message number;

— All items of operational data as contained in the original message or resultant co-ordination being copied;

— Reference Message Type.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

7.6.3. *Rules of Application*

7.6.3.1. Message Types

The type(s) of message(s) to be duplicated by an INF message will be based upon users requirements and sending unit capabilities. Type(s) of message(s) and rules of application will, generally, be agreed upon bilaterally.

7.6.3.2. Message Addressees

One or more INF message(s) may be transmitted for the same flight to one or more addressee(s).

7.6.3.3. Operational Content

The operational content of the INF message shall be in the format of one of the existing messages.

7.6.3.4. **Recommendations**

1. *Conditions forwarded in an initial dialogue message (e.g. ACT, RAP, REV, RRV message) may be changed or rejected before the dialogue is completed. Sending units should be capable of forwarding the final agreed co-ordination conditions.*

2. *The INF message should be sent immediately, or at a time related to the time at the COP, which is agreed bilaterally with the receiving agency.*

7.6.4. *Acknowledgement of INF*

Recommendations

1. *The INF message may be acknowledged dependent on the co-ordination partner by generating and transmitting a LAM message.*

2. *Subject to bilateral agreement between the units concerned, if no LAM message is received as an acknowledgement for an INF message, a warning should be displayed at an appropriate position.*

7.6.5. *Examples*

A flight with callsign BAW011, B747 from EGLL to OMDB at FL290, requesting FL410, is estimating Koksy (KOK) VOR at 1905, transponding on A5437, proceeding via UG1 and UB6.

An ACT message is sent by London to Maastricht for the flight. A copy is sent from London to a unit identified as IT.

The following give examples of the INF message.

7.6.5.1. ICAO

(INFL/IT112-BAW011/A5437-EGLL-KOK/1905F290-OMDB-9/B747H-15/N0490F410 DVR KOK UG1 NTM UB6 KRH-18/MSG/ACT)

7.6.5.2. ADEXP

-TITLE INF -REFDATA -SENDER -FAC L -RECVR -FAC IT -SEQNUM 112 -ARCID BAW011 -SSRCODE A5437 -ADEP EGLL -COORDATA -PTID KOK -TO 1905 -TFL F290 -ADES OMDB -ARCTYP B747 -ROUTE N0490F410 DVR UG1 KOK NTM UB6 KRH -MSGTYP ACT

8. DIALOGUE PROCEDURE — COORDINATION

8.1. General

8.1.1. *Introduction*

8.1.1.1. The dialogue procedure provides facilities for communication and negotiation between controllers in the co-ordination phase and for communication in the transfer phase.

8.1.1.2. This section describes messages used in the dialogue procedure in the co-ordination phase where the conditions of transfer are planned. Those for the transfer phase where the handover of the flight is accomplished are described in Section 9 — Dialogue Procedure — Transfer of Communication.

8.1.1.3. Procedures for the two phases are not dependent on each other; they can be implemented individually or together.

8.1.1.4. A number of additional messages are introduced and the capability for either partner to initiate a dialogue is supported.

8.1.1.5. The co-ordination dialogue procedure allows the identification of:

— transfers that are in accordance with LoAs and can be accepted automatically; and

— those which require to be referred to the controller at the receiving unit for a decision regarding acceptance.

8.1.1.6. This procedure also allows the interpretation of the LoAs within the two systems to be monitored and for any discrepancy between them to be identified.

8.1.2. *The Filter*

8.1.2.1. General

8.1.2.1.1. The co-ordination dialogue procedure requires that systems identify whether or not transfers are in accordance with LoAs.

8.1.2.1.2. The process which checks such compliance is referred to in this document as 'the filter'. The database used for the filter will include the following, if required:

— agreed co-ordination points;

— eligible (or ineligible) flight levels which may also be associated with the co-ordination points;

— aerodromes of departure;

— destinations;

— agreed direct routes;

— time and/or distance limits prior to the COP, after which any co-ordination message is considered non-standard;

— any other conditions, as bilaterally agreed.

8.1.2.1.3. All items in this list may be combined to define more complex conditions.

8.1.2.1.4. Within Section 8 of this document the term 'standard conditions' shall be interpreted as 'in accordance with the LoA' and the term 'non-standard conditions' as 'not in accordance with the LoA'. Unless bilaterally agreed, messages sent by transferring units for co-ordinations which are known to be standard shall utilise different message types from those for which the conditions are non-standard.

8.1.2.2. Action In the Transferring Unit

8.1.2.2.1. The filter in the transferring unit shall review the transfer conditions that are about to be sent to the accepting unit.

8.1.2.2.2. **Recommendation** *If the transfer conditions are found to be non-standard, the fact should be drawn to the attention of the transferring controller, for confirmation or modification.*

8.1.2.3. Action in the Accepting Unit

8.1.2.3.1. All ACT and REV messages shall be checked against the filter.

8.1.2.3.2. If the check indicates that the received transfer conditions are non-standard, they shall be referred to the controller for a decision, otherwise they will be accepted automatically.

8.1.2.4. Synchronisation of the Filters

8.1.2.4.1. The use of different messages for standard and non-standard transfer conditions allows the identification of any discrepancy between standard conditions as held in the systems at the transferring and accepting units.

8.1.2.4.2. The identification in the accepting unit of non-standard transfer conditions in a message used to co-ordinate only standard transfers will signify a discrepancy between the two filters. Such discrepancies should be resolved for the effective operation of the dialogue procedure.

8.1.3. *Message Sequence*

8.1.3.1. General

8.1.3.1.1. Certain rules require to be followed to ensure that co-ordination is complete before any revisions or transfer of communication message exchange takes place and also to ensure that controllers at both units do not simultaneously make proposals on the same flight.

8.1.3.1.2. An ATC unit shall only transmit or acknowledge receipt of a Revision (REV or RRV) message for a flight when it is in the co-ordinated state, i.e. an ACT or RAP dialogue has been completed by a LAM or ACP.

8.1.3.1.3. CDN messages shall only be eligible for transmission by the accepting unit.

8.1.3.1.4. CDN messages shall only be transmitted and acknowledged:

— as part of a dialogue initiated by the receipt of an Activate (ACT, RAP) or Revision (REV or RRV) message; or

— when the flight plan for that flight is in the co-ordinated state.

8.1.4. *Simultaneous Message Handling*

8.1.4.1. General

8.1.4.1.1. A unit involved in a co-ordination or transfer message exchange for a flight shall not initiate a further co-ordination or transfer message exchange for the same flight with the same unit until either a LAM, ACP or RJC has been received, or a time-out has been reached.

8.1.4.1.2. It is possible for a CDN message to cross with a REV, RRV or MAC message for the same flight sent from the transferring unit. This situation may be identified in the transferring unit by the CDN arriving before the acknowledgement for the transmitted co-ordination message and in the accepting unit by the message from the transferring unit arriving before the acknowledgement of the CDN. In this event the CDN shall not be acknowledged and the REV, RRV or MAC processed.

8.1.5. *Reject Handling*

The RJC message terminates a system dialogue. A new system co-ordination must be initiated which reflects the telephone co-ordination where applicable.

8.1.6. *Operational Reply Time-out*

8.1.6.1. General

8.1.6.1.1. A time-out mechanism shall be applied at the sending and at the receiving centres for the reply to messages that are referred to the controller.

8.1.6.1.2. The duration of these time-outs shall be bilaterally agreed.

8.1.6.1.3. The expiry of the time-out at the transferring unit shall result in a warning being output to the transferring controller, to indicate the need to initiate a telephone co-ordination.

8.1.6.1.4. **Recommendations**

1. *A warning should be displayed to the ATC position at the accepting unit responsible for the flight when the time-out in the transferring unit is imminent.*

2. *The warning should allow for the transmission time of the reply.*

8.1.6.1.5. Systems shall be able to process replies which are received after the expiry of the time-out.

8.1.7. *Implementation*

8.1.7.1. The dialogue procedures address two phases, namely the co-ordination phase and the transfer phase. The dialogue in the two phases uses different messages and the required transaction times are different. The co-ordination messages are specified in ICAO and ADEXP formats, the transfer of communication messages only in ADEXP.

8.1.7.2. The minimum HMI requirements for the co-ordination dialogue are different from those for the transfer dialogue:

— the transfer dialogue addresses primarily the executive control function and requires a fast and user-friendly HMI;

— the co-ordination dialogue is not as time-critical and therefore its HMI requirements are of a lower order.

8.1.7.3. The dialogue procedure shall be implemented using one of the following alternative scenarios:

— co-ordination phase dialogue procedure plus any complementary messages as bilaterally agreed (Sections 7 and 8);

— basic co-ordination procedure and transfer phase dialogue procedure (Sections 6, 7 and 9);

— co-ordination and transfer phase dialogue procedure plus any complementary co-ordination messages as bilaterally agreed (Sections 7, 8 and 9).

The Advance Boundary Information message shall be sent in all scenarios.

8.1.7.4. The scenario used for the implementation shall be bilaterally agreed.

8.2. **Activate Message (ACT)**

8.2.1. *Purpose of the ACT Message*

The purpose of the ACT Message is described in paragraph 6.3.1. In a dialogue procedure, the ACT message is used to meet these requirements provided that the transfer conditions for the flight are standard and the transferring controller does not require to refer the flight to the accepting controller for acceptance.

8.2.2. *Message Contents*

The contents of the ACT message used in the dialogue procedure shall be as described for the ACT message in paragraph 6.3.2.

8.2.3. *Rules of Application*

8.2.3.1. General

8.2.3.1.1. The rules of application are as described for the ACT in paragraph 6.3 with the exception of the special rules described in this paragraph.

8.2.3.1.2. An ACT message shall be sent for a flight with standard transfer conditions which the transferring controller does not require to be referred to the accepting controller.

NOTE *If these requirements do not apply, a RAP is sent (see paragraph 8.3 Referred Activate Proposal Message).*

8.2.3.1.3. **Recommendation** *A new co-ordination procedure should be initiated if a Reject Co-ordination (RJC) message is returned in response to an ACT message.*

8.2.3.2. Processing in the Receiving Unit

8.2.3.2.1. The message is checked against the filter to confirm that the proposed conditions are standard.

8.2.3.2.2. The message shall be processed as a RAP message if:

— the transfer conditions are found to be non-standard;

— a corresponding system flight plan cannot be found and there is insufficient information available to identify whether or not the transfer conditions are standard.

8.2.3.2.3. ACT messages found to be standard shall be processed in accordance with paragraph 6.3.3.2.

8.2.3.2.4. **Recommendation** *If the transfer conditions in an ACT message are found to be non-standard, there is a discrepancy between the filters in the two systems. The fact that the ACT is non-standard should be drawn to the attention of supervisory staff in order that the discrepancy be resolved.*

8.2.4. *Acknowledgement of ACT*

8.2.4.1. Acknowledgement

8.2.4.1.1. In a dialogue procedure an ACT message shall be acknowledged by:

— a LAM if the transfer conditions are found to be standard;

— an SBY message in all other cases.

8.2.4.1.2. When a LAM has been received, the operational contents of the ACT message shall become operationally binding to both of the ATC units.

8.2.4.1.3. Where bilaterally agreed, an ACP may be used in place of a LAM to indicate the acceptance of an ACT containing standard transfer conditions by the accepting unit.

8.2.4.2. No Acknowledgement Cases

If no acknowledgement is received for an ACT message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flight.

8.3. **Referred Activate Proposal Message (RAP)**

8.3.1. *Purpose of the RAP Message*

The RAP message satisfies the following operational requirements, in addition to those specified for the ACT message in paragraph 6.3:

— the proposal by the transferring controller and referral to the accepting controller of flights with non-standard transfer conditions;

— allow the transferring controller, if he/she requires to do so, to force the referral to the accepting controller of standard transfer conditions for a specific flight.

8.3.2. *Message Contents*

The contents of the RAP message shall be the same data as described for the ACT message (paragraph 6.3) and may optionally include the following data element:

— reason, indicating manual referral (only available in ADEXP).

8.3.3. *Rules of Application*

8.3.3.1. General

8.3.3.1.1. A RAP message shall be sent in place of the ACT message for flights crossing the boundary meeting one of the following conditions:

— the transferring system has determined the transfer conditions are non-standard;

— the transferring controller has indicated that the proposed transfer conditions are to be referred to the accepting controller.

8.3.3.1.2. The operational contents of the RAP message due to be transmitted shall be displayed at the working position responsible for the co-ordination of the flight prior to the actual transmission.

8.3.3.1.3. **Recommendation** *The time when the RAP message is transmitted automatically should be displayed together with its contents.*

8.3.3.1.4. The relevant working position shall be notified of the transmission of the RAP message.

8.3.3.2. Processing in the Receiving Unit

8.3.3.2.1. The ATC system receiving a RAP message shall attempt association with the corresponding flight plan.

8.3.3.2.2. If a corresponding flight plan is found and no discrepancy is present in the message that would inhibit correct processing:

— the operational contents shall be referred to the accepting controller;

— an SBY shall be returned.

8.3.3.2.3. **Recommendation** *An indication of the reason for the referral (non-standard conditions or manual referral) should be included.*

8.3.3.2.4. If the message cannot be associated with a flight plan, or a discrepancy is found that inhibits correct processing of the message, then:

— the operational content of the message shall be displayed at the sector;

and

— an SBY message returned;

and

— a flight plan created.

8.3.3.2.5. In all other cases the message shall not be acknowledged.

8.3.3.3. Manual Trigger

8.3.3.3.1. When it is used to force the referral of a proposed co-ordination with standard transfer conditions to the accepting controller, the RAP will be initiated manually by the transferring controller and transmitted immediately.

8.3.3.3.2. **Recommendation** *Manual triggering of a RAP message before the calculated time of transmission should be allowed at the position responsible for co-ordination of the flight.*

8.3.3.4. Time Parameters for Automatic Transmission

The time/distance before the boundary at which RAP messages are automatically transmitted shall be the same as for the ACT messages.

8.3.4. *Acknowledgement of RAP*

8.3.4.1. Acknowledgement

The message shall be acknowledged by the generation and transmission of an SBY message.

8.3.4.2. No Acknowledgement Case

If no SBY message is received as an acknowledgement for a RAP message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flight.

8.3.5. *Operational Reply to RAP*

The accepting controller may either accept, counter-propose or reject transfer conditions.

8.3.5.1. Acceptance

8.3.5.1.1. When the accepting controller elects to accept the proposed transfer conditions, an ACP message shall be returned.

8.3.5.1.2. As soon as the ACP message has been received, the RAP message data becomes operationally binding to both of the ATC units. The co-ordinated transfer conditions and the fact that the ACP has been received shall be presented to the transferring controller.

8.3.5.2. Counter-Proposal

When the accepting controller elects to counter-propose transfer conditions, a CDN message shall be returned.

8.3.5.3. **Recommendation** *When the accepting controller elects to reject the proposed transfer conditions, an RJC message should be returned. A new co-ordination process should then be initiated.*

NOTE *With respect to the recommendation at 8.3.5.3, in most cases the new co-ordination will be with a different unit.*

8.3.6. *Examples*

8.3.6.1. ICAO

(RAPE/L022-AMM253/A7012-LMML-BNE/1226F350-EGBB-9/B757/M)

8.3.6.2. ADEXP

-TITLE RAP -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 022 -ARCID AMM253 -SSRCODE A7012 -ADEP LMML -COORDATA -PTID BNE -TO 1226 -TFL F350 -ADES EGBB -ARCTYP B757

8.4. **Revision Message (REV)**

8.4.1. *Purpose of the REV Message*

The purpose of the REV message is described in paragraph 7.3.1. In a dialogue procedure, the REV message is used to meet these requirements provided that the transfer conditions for the flight are standard and the transferring controller does not require to refer the flight to the accepting controller for acceptance.

8.4.2. *Message Contents*

The contents of the REV message shall be as described for the REV message in paragraph 7.3.2.

8.4.3. *Rules of Application*

8.4.3.1. General

8.4.3.1.1. One or more REV messages may be sent to the unit to which a flight has been currently co-ordinated by the use of an Activate or RAP message.

8.4.3.1.2. REV messages shall be sent under the conditions specified in paragraph 7.3.3.1 for flights with standard transfer conditions which the transferring controller does not require to be referred to the accepting controller.

8.4.3.2. Initiation of Transmission

The REV message shall be transmitted immediately following a detection of a change in the co-ordination data required to be co-ordinated as described in paragraph 7.3.3.

8.4.3.3. Processing in the Receiving Unit

8.4.3.3.1. If a corresponding flight plan is found in the co-ordinated state and no discrepancy is found that would inhibit correct processing of the message, then:

— the REV message shall be acknowledged;

— in all other cases the message shall not be acknowledged.

8.4.3.3.2. The transfer conditions shall be examined to ensure that they are standard.

8.4.3.3.3. If the transfer conditions are not standard they shall be presented to the accepting controller.

8.4.3.3.4. If the proposed transfer conditions are found to be standard, they shall be included with the flight plan and the required data output at operational ATC and other positions as appropriate.

8.4.3.3.5. **Recommendation** *If the transfer conditions in an REV message are found to be non-standard, there is a discrepancy between the filters in the two systems. The fact that the REV is non-standard should be drawn to the attention of supervisory staff in order that the discrepancy be resolved.*

8.4.4. *Acknowledgement of REV*

8.4.4.1. Acknowledgement

8.4.4.1.1. If the REV message is to be acknowledged, it shall be acknowledged by:

— a LAM message if the transfer conditions are found to be standard;

— an SBY message if the transfer conditions are found to be non-standard.

8.4.4.1.2. When a LAM has been received, the operational contents of the REV message become operationally binding to both of the ATC units.

8.4.4.1.3. Where bilaterally agreed, an ACP may be used in place of a LAM to indicate the acceptance by the accepting unit of a REV containing standard transfer conditions.

8.4.4.2. No Acknowledgement Cases

If no acknowledgement is received for a REV message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flights.

8.4.5. *Operational Reply to REV*

As the REV message is used to send standard transfer conditions, it will normally be accepted by the system in the accepting unit. If the transfer conditions are found to be non-standard by the filter in the accepting unit, the message shall be processed as an RRV message.

8.5. **Referred Revision Proposal Message (RRV)**

8.5.1. *Purpose of the RRV Message*

The RRV message shall provide for revision of previously sent and agreed transfer conditions in the following cases:

— when the proposed transfer conditions in the revision are non-standard;

— when the proposed revision is standard, but the transferring controller wants to refer the revision to the accepting controller.

8.5.2. *Message Contents*

The contents of the RRV message shall be as described for the REV message (paragraph 7.3.2) and may optionally include the following data element:

— reason, indicating manual referral (only available in ADEXP format).

8.5.3. *Rules of Application*

8.5.3.1. General

One or more RRV messages shall be sent, in place of REV messages, for each revision, if either:

— the transferring system has determined the transfer conditions are non-standard;

or

— the transferring controller has indicated that the proposed transfer conditions are to be referred to the accepting controller. This use of the RRV is optional.

8.5.3.2. Initiation of Transmission

The RRV message shall be transmitted immediately following the detection of a change in the co-ordination data or when manually initiated.

8.5.3.3. Processing in the Receiving Unit

8.5.3.3.1. If a corresponding flight plan is found in the co-ordinated state and no discrepancy is found that would inhibit correct processing of the message, then:

— The RRV message shall be acknowledged;

— in all other cases the message shall not be acknowledged.

8.5.3.3.2. The proposed transfer conditions shall be displayed at the ATC position responsible for the co-ordination of the flight.

8.5.3.3.3. **Recommendation** *An indication of the reason for the referral (non-standard conditions or manual referral) should be included.*

8.5.4. *Acknowledgement of RRV*

8.5.4.1. Acknowledgement

The message shall be acknowledged by the generation and transmission of an SBY message.

8.5.4.2. No Acknowledgement Cases

If no SBY message is received as an acknowledgement for an RRV message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flight.

8.5.5. *Operational Reply to RRV*

The accepting controller can either accept, counter-propose or reject an RRV message.

8.5.5.1. Acceptance

When the accepting controller elects to accept the proposed amendment to the agreed transfer conditions, an ACP message shall be returned.

8.5.5.2. Counter-Proposal

When the accepting controller elects to counter-propose transfer conditions, a CDN message shall be returned.

8.5.5.3. Rejection

When the accepting controller elects to reject the proposed amendment to the agreed transfer conditions:

— an RJC message shall be returned;

and

— a new co-ordination process shall be initiated.

Rejection is implied if neither an ACP or CDN is received in response to the RRV message.

8.5.6. *Examples*

8.5.6.1. ICAO

(RRVE/L059-AMM253-LMML-BNE/1226F310-EGBB)

8.5.6.2. ADEXP

-TITLE RRV -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 059 -ARCID AMM253 -ADEP LMML -COORDATA -PTID BNE -TO 1226 -TFL F310 -ADES EGBB

8.6. **Stand-by Message (SBY)**

8.6.1. *Purpose of the SBY Message*

The SBY message acknowledges the receipt of a message proposing transfer conditions and indicates that the proposal is being referred to the controller for a decision.

8.6.2. *Message Contents*

The SBY message shall contain the following items of data:

— Message Type;

— Message Number;

— Message Reference.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

8.6.3. *Rules of Application*

8.6.3.1. General

The SBY message shall be generated and transmitted automatically immediately in response to:

— a RAP, RRV or CDN message;

— an ACT or REV message which fails the filter.

8.6.4. *Acknowledgement of SBY*

The SBY message shall not be acknowledged.

8.6.5. *Examples*

8.6.5.1. ICAO

(SBYL/E027E/L002)

8.6.5.2. ADEXP

-TITLE SBY -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 027 MSGREF-SENDER -FAC E -RECVR -FAC L -SEQNUM 002

8.7. **Acceptance Message (ACP)**

8.7.1. *Purpose of the ACP Message*

The ACP message satisfies the following operational requirements during the ATC co-ordination and transfer phases:

— indicate the manual acceptance by a controller in one unit of the transfer conditions proposed by the controller in the other unit in one of the following messages:

  — RAP;

  — RRV;

  — CDN;

  — ACT and REV, if either is found to be non-standard;

— when bilaterally agreed, provide the automatic acceptance of an ACT or REV message that has passed the filter in the accepting unit (in place of the LAM);

— when bilaterally agreed, indicate the manual acceptance of a HOP message (in place of the ROF message).

8.7.2. *Message Contents*

The ACP message consists of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Message Reference;

— Optional data — the message may also include:

— Frequency;

— ICAO format messages optional data — the message may also contain all of the following items:

— Aircraft Identification;

— Departure Aerodrome;

— Destination Aerodrome.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

8.7.3. *Rules of Application*

8.7.3.1. General

8.7.3.1.1. The Message Reference of the ACP shall include the Message Number of the message to which it is in response.

8.7.3.1.2. The Frequency field, when included, shall contain the frequency on which the flight is to contact the accepting unit when the hand-over takes place.

8.7.3.1.3. The ACP message shall be sent following manual acceptance by the controller of proposed transfer conditions, forwarded by an ACT, RAP, REV, RRV or CDN.

8.7.3.1.4. The ACP message may be sent as an alternative to a ROF message in response to a HOP message.

8.7.3.1.5. When bilaterally agreed, the ACP message shall be generated and transmitted automatically by the system as a reply to an ACT/REV that has passed the filter.

8.7.3.1.6. When an ACP has been received, the agreed transfer conditions shall be binding for both units.

8.7.3.2. Processing in the Receiving Unit

8.7.3.2.1. The ATC system receiving an ACP message shall attempt association with the corresponding flight plan.

8.7.3.2.2. if the ACP can be associated with a flight plan the acceptance shall be indicated to the controller.

8.7.3.2.3. If the ACP cannot be associated with a flight plan:

— a warning shall be output at the appropriate position; and

— a LAM shall not be sent.

8.7.4. *Acknowledgement of ACP*

8.7.4.1. Acknowledgement

8.7.4.1.1. A LAM shall not be returned where the ACP is used as an automatic reply for an ACT or REV message that has passed the filter.

8.7.4.1.2. An ACP message sent as a result of a manual acceptance shall be acknowledged by generating and transmitting a LAM message.

8.7.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an ACP message sent as a result of a manual acceptance, a warning shall be displayed at the ATC position responsible for the co-ordination of the flight.

8.7.5. *Examples*

8.7.5.1. ICAO

(ACPL/E027E/L002-18/FRQ/242150)

8.7.5.2. ADEXP

-TITLE ACP -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 027 -MSGREF-SENDER -FAC E -RECVR -FAC L -SEQNUM 002 -FREQ 242150

8.8. **Co-ordination Message (CDN)**

8.8.1. *Purpose of the CDN Message*

The CDN message satisfies the following operational requirements:

— to forward a counter proposal from the accepting controller to the transferring controller as a reply to an ACT, a RAP, a REV or an RRV message;

— to initiate a proposed modification to agreed transfer conditions by the accepting controller to the transferring controller.

8.8.2. *Message Contents*

The CDN message consists of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Message Reference (only if in response to another message);

  — Aircraft Identification;

  — Departure Aerodrome;

  — Destination Aerodrome;

NOTE *The message shall also contain one, or both, of the following:*

  — Estimate Data (if an ICAO message) or Transfer Flight Level (if an ADEXP message);

  — Direct Routing Request.

— Bilaterally agreed data — The following data may also be included, when bilaterally agreed:

  — Frequency.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

8.8.3. *Rules of Application*

8.8.3.1. General

8.8.3.1.1. CDN messages shall be initiated by the accepting controller only.

8.8.3.1.2. It shall be used to transmit a counter proposal from the accepting controller to the transferring controller.

NOTE *This can be in a dialogue as a reply to a proposal forwarded by an ACT, RAP, REV, or RRV, or as the start of a dialogue to amend previously agreed transfer conditions.*

8.8.3.1.3. The message reference shall only be inserted when the CDN message is in reply to another message.

8.8.3.1.4. When inserted, the message reference shall contain the message number of the message to which the CDN is in reply.

8.8.3.1.5. The Direct Routing Request facility (described in detail in Annex A) shall:

— only be used if bilaterally agreed; and

— if agreed, define any operational limits to its use.

8.8.3.1.6. The CDN shall not be sent after a time/distance before the boundary specified in the LoA between the units concerned.

8.8.3.1.7. In the event that a CDN is transmitted effectively simultaneously with a message for the same flight from the transferring unit, e.g. a revision or an abrogation of co-ordination, neither an acknowledgement nor an operational reply shall be returned.

NOTE *The effect of this is that when two messages cross, the one from the transferring unit takes priority and the CDN is dropped by both. Both units can sense the situation by the receipt of the message from the other before receiving the acknowledgement.*

8.8.3.1.8. As soon as an acceptance has been received the CDN message data becomes operationally binding to both of the ATC units. The co-ordinated transfer conditions and the fact that the ACP has been received shall be presented to the ATC staff concerned.

8.8.3.2. Processing in the Receiving Unit

8.8.3.2.1. If a corresponding flight plan is found and no discrepancy is present in the message that would inhibit correct processing:

— the operational content shall be presented at the ATC position responsible for the co-ordination of the flight;

and

— an SBY shall be returned.

8.8.3.2.2. If the CDN cannot be associated, or a discrepancy is found that inhibits correct processing of the message, no SBY shall be returned.

8.8.4. *Acknowledgement of CDN*

8.8.4.1. Acknowledgement

Under the conditions specified above, the CDN message shall be acknowledged by the generation and transmission of an SBY message.

8.8.4.2. No Acknowledgement Cases

If no SBY message is received as an acknowledgement for a CDN message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flight.

8.8.5. *Operational Reply to CDN*

The controller may either accept or reject the transfer conditions proposed in a CDN message.

8.8.5.1. Acceptance

When the transferring controller elects to accept the proposed transfer conditions, an ACP message shall be returned.

8.8.5.2. **Recommendation** *When the transferring controller elects to reject the proposed transfer conditions, an RJC message should be sent (explicit rejection).*

NOTE *The proposed co-ordination is implicitly rejected if no acceptance has been received by the time that the CDN message times-out.*

8.8.6. *Examples*

8.8.6.1. ICAO

(CDNL/D041D/L025 -EIN636 -EIDW -LIFFY/1638F270F110A -EBBR)

8.8.6.2. ADEXP

-TITLE CDN -REFDATA -SENDER -FAC L -RECVR -FAC D -SEQNUM 041 -MSGREF -SENDER -FAC D -RECVR -FAC L -SEQNUM 025 -ARCID EIN636 -ADEP EIDW -ADES EBBR -PROPFL -TFL F270 -SFL F110A

8.9. **Reject Co-ordination Message (RJC)**

8.9.1. *Purpose of the RJC Message*

The RJC message indicates the rejection by a controller at one unit of the transfer conditions proposed by the controller at the other unit in one of the following messages:

— RAP;

— RRV;

— CDN;

— ACT and REV, if either is found to be non-standard.

The RJC message can only be used in direct response to one of the above messages.

8.9.2. *Message Contents*

The RJC message shall contain the following items of data:

— Message Type;

— Message Number;

— Message Reference.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

8.9.3. *Rules of Application*

8.9.3.1. General

8.9.3.1.1. The RJC shall be sent as required in response to a RAP, RRV, CDN message or to a ACT or REV message found to be non-standard at the accepting unit.

8.9.3.1.2. The RJC message terminates the system dialogue and any previously agreed co-ordination remains valid.

8.9.3.1.3. **Recommendation** *Following the reception of an RJC message a new co-ordination sequence should be initiated, reflecting the telephone co-ordination where applicable.*

8.9.3.2. Processing in the Receiving Unit

8.9.3.2.1. If a corresponding message to which the RJC message refers is found;

— the rejection shall be indicated at the ATC position responsible for the co-ordination of the relevant flight; and

— a LAM shall be returned in acknowledgement.

8.9.3.2.2. If no such message is found to be awaiting reply, or a discrepancy is present in the message which prevents processing, no acknowledgement shall be returned.

8.9.4. *Acknowledgement of RJC*

8.9.4.1. Acknowledgement

The RJC message shall be acknowledged by the generation and transmission of a LAM message.

8.9.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an RJC message, a warning shall be displayed at the ATC position responsible for the co-ordination of the flights.

8.9.5. *Examples*

8.9.5.1. ICAO

(RJCMC/E746E/MC324)

8.9.5.2. ADEXP

-TITLE RJC -REFDATA -SENDER -FAC MC -RECVR -FAC E -SEQNUM 746 -MSGREF -SENDER -FAC E -RECVR -FAC MC -SEQNUM 324

9. DIALOGUE PROCEDURE — TRANSFER OF COMMUNICATION

9.1. General

9.1.1. *Introduction*

9.1.1.1. This section of the Standard describes the facilities and messages that support the radar hand-over aspect of the transfer of control procedure. They shall be implemented where bilaterally agreed.

9.1.1.2. Transfer of Communication facilities shall not be implemented unless the unit is utilising either the co-ordination facilities described in Section 6 (Basic Procedure — Mandatory Messages) or those in Section 8 (Dialogue Procedure — Co-ordination).

9.1.1.3. The messages described in this section of the document are available only in ADEXP format and it is not planned that they be made available in ICAO format.

9.1.2. *Message Sequence*

9.1.2.1. Transfer of Communication message exchange, other than the Supplementary Data Message (SDM), shall not take place unless co-ordination is complete, i.e. an ACT or RAP dialogue has been completed by a LAM or ACP.

9.1.2.2. An acknowledgement shall not be returned whilst co-ordination is outstanding.

9.1.3. *Transfer of Communications*

9.1.3.1. The method of signifying the actual change of communication of flights shall be bilaterally agreed between the two units concerned.

9.1.3.2. The conditions shall be one or both of the following:

— the transferring unit sends a Change Of Frequency message (COF);

— the accepting unit sends a Manual Assumption of Communication message (MAS);

9.1.3.3. The method shall be agreed between the two units for each traffic flow.

NOTE *Alternative methods may be used for different flows, e.g. one unit may generate COF messages for flights leaving its airspace and MAS messages for flights entering its airspace. In such a case it would not be necessary for the other unit to enter any messages to signify transfer of communication.*

9.2. **Transfer Initiation Message (TIM)**

9.2.1. *Purpose of the TIM Message*

The purpose of the TIM is to:

— signify the Transfer Initiation (TI) event (the end of the co-ordination phase and the start of the transfer phase);

— simultaneously forward executive control data from the transferring to the accepting unit.

9.2.2. *Message Contents*

The TIM message shall consist of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Aircraft Identification;

— Available data — the message shall also contain any of the following, if available:

  — Cleared Flight Level;

  — Assigned Heading or Direct Clearance;

  — Assigned Speed;

  — Assigned Rate of Climb/Descent;

— Optional data — the message may also contain:

  — Position.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

9.2.3. *Rules of Application*

9.2.3.1. General

9.2.3.1.1. The TIM message shall be generated and transmitted by the transferring unit to the accepting unit without human intervention at a bilaterally agreed time/distance of the flight from the boundary.

9.2.3.1.2. A TIM message shall also be sent automatically when the Request On Frequency message (ROF) is received by the transferring unit.

9.2.3.1.3. A TIM shall not be sent before the flight has been co-ordinated.

9.2.3.1.4. The TIM message shall contain the most recent data available in the system.

9.2.3.2. Time Parameters for Transmission

9.2.3.2.1. The TIM generation parameter shall be a Variable System Parameter which may be changed, based on the provisions of the LoAs.

9.2.3.2.2. **Recommendation** *The TIM generation system parameter should be defined separately for each of the COPs.*

9.2.3.2.3. The co-ordination partners shall include the TIM generation parameters in their LoA.

9.2.3.2.4. The system parameter triggering the TIM message may be related to the calculated ground speed of the aircraft. However, initiation of a TIM message shall always commence before the current flight plan position is closer to COP than a minimum distance specified bilaterally.

9.2.3.2.5. The specified system parameter for TIM transmission shall allow sufficient time for verbal co-ordination before the hand-over.

9.2.3.3. Processing in the Receiving Unit

9.2.3.3.1. The data received in a TIM shall be made available to the accepting controller.

9.2.4. *Acknowledgement of TIM*

9.2.4.1. Acknowledgement

If the TIM message:

— can be unambiguously associated with a flight plan, it shall be acknowledged by the generation and transmission of a LAM message;

— cannot be unambiguously associated with a flight plan, no acknowledgement shall be sent.

9.2.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an TIM message, a warning shall be displayed at the appropriate position.

9.2.5. *Example*

-TITLE TIM -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 029 -ARCID AMM253

9.3. **Supplementary Data Message (SDM)**

9.3.1. *Purpose of the SDM Message*

9.3.1.1. General

9.3.1.1.1. The primary purpose of the SDM is to transmit control data and changes thereto from the transferring unit to the accepting unit, provided that it has been bilaterally agreed that the changes do not need to be acknowledged by the accepting controller.

9.3.1.1.2. The SDM message may also be used by the accepting unit to notify the transferring unit of the radio telephony frequency to which the flight is to be transferred.

9.3.2. *Message Contents*

9.3.2.1. Messages from the Transferring Unit

The SDM message shall consist of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Aircraft Identification;

— Additional data — the message shall also contain one or more of the following:

  — Assigned Heading or Direct Clearance;

  — Assigned Speed;

  — Assigned Rate of Climb/Descent;

  — Cleared Flight Level.

9.3.2.2. Messages from the Accepting Unit

The SDM shall contain the following data:

— Message Type;

— Message Number;

— Aircraft Identification;

— Frequency.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

9.3.3. *Rules of Application*

9.3.3.1. Messages from the Transferring Unit

9.3.3.1.1. SDM messages shall be transmitted after the initiation of the transfer phase (see TIM, paragraph 9.2) following any change to the following items:

— cleared flight level;

— assigned speed;

— assigned rate of climb/descent;

— assigned heading; or

— issue or change of a clearance for the flight to proceed direct to a specified point.

NOTE *The HOP message is required to be used when approval by the accepting controller is required prior to the transfer of communication.*

9.3.3.1.2. The message shall contain only the fields which have changed.

9.3.3.1.3. SDM messages containing the data described in 9.3.3.1.1 shall be transmitted before TI, if bilaterally agreed.

9.3.3.1.4. Such messages shall commence at a bilaterally agreed time relative to TI, provided that there is data for which there is a value available in the system.

9.3.3.2. Messages from the Accepting Unit

9.3.3.2.1. SDM messages may be transmitted to indicate the frequency on which the flight is to contact the accepting unit.

NOTE *Units may agree bilaterally to send other information. Such transfer is not defined in, and therefore, not part of, this Standard.*

9.3.3.2.2. SDM messages from the accepting unit shall be transmitted during the co-ordination phase if bilaterally agreed.

9.3.3.3. Processing in the Receiving Unit

9.3.3.3.1. The ATC system receiving an SDM message shall attempt association with the corresponding flight plan.

9.3.3.3.2. If a corresponding flight plan in the co-ordinated state is found:

— a LAM shall be returned; and

— the operational contents of the SDM message shall be made available to the appropriate controller.

9.3.3.3.3. If a corresponding flight plan cannot be found, or a discrepancy is found that inhibits correct processing of the message:

— no LAM shall be returned; and

— a warning shall be output at an appropriate position.

9.3.4. *Acknowledgement of SDM*

9.3.4.1. Acknowledgement

The SDM message shall be acknowledged by the generation and transmission of a LAM message.

9.3.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an SDM message, a warning shall be displayed at an appropriate position.

9.3.5. *Example*

-TITLE SDM -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 028 -ARCID AMM253 -AHEAD 290

9.4. **Hand-Over Proposal (HOP)**

9.4.1. *Purpose of the HOP Message*

The purpose of the HOP Message is:

— for the transferring controller to draw the attention of the accepting controller to a specific flight for handover purposes;

— for the transferring controller to propose the flight for hand-over to the accepting controller when it is required to do so;

— to forward modifications to the executive control data which require the approval of the accepting controller, as bilaterally agreed.

It is not necessary to utilise the HOP for all flights; it is used at the discretion of the transferring controller.

NOTE *With respect to paragraph c) above, the SDM is used to forward modifications to executive control data which do not require the approval of the accepting controller.*

9.4.2. *Message Contents*

The HOP message shall consist of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Aircraft Identification;

— Available data — the message shall also contain any of the following, if available:

  — Cleared Flight Level;

  — Assigned Heading/Direct Clearance;

  — Assigned Speed;

  — Assigned Rate of Climb/Descent;

— Optional data — the message may also contain:

  — Position.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

9.4.3. *Rules of Application*

9.4.3.1. General

9.4.3.1.1. The HOP message, when used, shall be manually initiated by the transferring controller.

9.4.3.1.2. The message shall include any flight data described in paragraph 9.4.2 above which has changed from that previously transmitted.

9.4.3.1.3. If a HOP message is sent before TI, the Transfer phase shall be initiated.

NOTE *A Transfer Initiation Message (TIM) is not required in addition to the HOP.*

9.4.3.1.4. The earliest time or distance before the COP or boundary at which a HOP may be sent shall be bilaterally agreed.

9.4.3.1.5. **Recommendation** *The time/distance should be specified separately for each COP.*

9.4.3.2. Processing in the Receiving Unit

9.4.3.2.1. The ATC system receiving a HOP message shall attempt association with the corresponding flight plan.

9.4.3.2.2. The flight data received in the message shall be displayed immediately to the accepting controller.

9.4.3.2.3. If the accepting controller accepts the flight under the conditions proposed in the HOP, a ROF may be sent in response to the transferring unit. When bilaterally agreed an ACP may be sent as a reply to a HOP.

9.4.3.2.4. If the accepting controller is unable to accept the flight, the transfer shall be agreed verbally.

NOTE *Due to the urgency of the handover procedure, system support in monitoring the return of the ROF (or ACP) is not required by this Standard; it is assumed that the transferring controller will be well aware of the absence of a response from the accepting controller and will take action as necessary. However, this Standard does not prevent a warning being provided to the transferring controller if it is considered operationally necessary.*

9.4.3.2.5. As soon as a ROF (or ACP) has been received, the HOP message data shall become operationally binding to both of the ATC units.

9.4.4. *Acknowledgement of HOP*

9.4.4.1. Acknowledgement

If it can be associated with a flight plan, the HOP message shall be acknowledged automatically by a LAM.

9.4.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for a HOP message, a warning shall be displayed at the appropriate position.

9.4.5. *Example*

-TITLE HOP -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 030 -ARCID AMM253 -CFL F190 -ASPEED N0420 -RATE D25 -DCT BEN STJ

9.5. **Request on Frequency Message (ROF)**

9.5.1. *Purpose of the ROF Message*

The ROF is sent by the accepting unit to the transferring unit, when required, requesting the transferring controller to instruct the aircraft to change to the frequency of the accepting controller. The message may be used:

— in reply to a HOP to signify the acceptance of the flight under the proposed conditions;

— to request the early transfer of the flight.

9.5.2. *Message Contents*

The ROF message shall consists of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Aircraft Identification;

— Optional data — the message may also contain:

  — Frequency.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

9.5.3. *Rules of Application*

9.5.3.1. General

9.5.3.1.1. The ROF message shall be manually initiated by the accepting controller.

9.5.3.1.2. The accepting controller may trigger a ROF, either:

— when the accepting controller requires to have the aircraft early on frequency;

— as a reply to a HOP message.

9.5.3.2. Processing in the Receiving Unit

9.5.3.2.1. The ATC system receiving an ROF message shall attempt association with the corresponding flight plan.

9.5.3.2.2. The reception of the ROF shall be indicated to the transferring controller without delay.

9.5.3.2.3. If the flight is not in the Transfer phase, the Transfer phase shall be initiated and a TIM message shall be transmitted.

9.5.4. *Acknowledgement of ROF*

9.5.4.1. Acknowledgement

9.5.4.1.1. If the ROF message can be unambiguously associated with a flight plan, it shall be acknowledged by the generation and transmission of a LAM message.

9.5.4.1.2. If the ROF message cannot be unambiguously associated with a flight plan, no acknowledgement shall be sent.

9.5.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an ROF message, a warning shall be displayed at the appropriate ATC position.

9.5.5. *Example*

-TITLE ROF -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 030 -ARCID AMM253

9.6. **Change of Frequency Message (COF)**

9.6.1. *Purpose of the COF Message*

9.6.1.1. General

9.6.1.1.1. The COF is sent by the transferring unit to the accepting unit, to indicate that the flight has been instructed to contact the accepting controller.

9.6.1.1.2. The message may include the facility for the transferring controller to release the flight from the agreed transfer conditions when it has established radio communication with the accepting controller.

9.6.2. *Message Contents*

The COF message shall consist of the following items of data:

— Mandatory data — the message shall contain:

  — Message Type;

  — Message Number;

  — Aircraft Identification;

— Available data — the message shall also contain any of the following, if available:

  — Release Indication;

  — Frequency;

  — Cleared Flight Level;

  — Assigned Heading or Direct Clearance;

  — Assigned Speed;

  — Assigned Rate of Climb/Descent;

— Optional data — the message may also contain:

  — Position.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

9.6.3. *Rules of Application*

9.6.3.1. General

9.6.3.1.1. The COF message shall be manually initiated by the transferring controller.

9.6.3.1.2. The use of the COF message is mandatory if, by bilateral agreement, the MAS message is not used.

9.6.3.1.3. If a COF message is sent before TI, the Transfer phase shall be initiated.

NOTE *A Transfer Initiation Message (TIM) is not required in addition to the COF.*

9.6.3.2. Processing in the Receiving Unit

9.6.3.2.1. The ATC system receiving a COF message shall attempt association with the corresponding flight plan.

9.6.3.2.2. The reception of the COF shall be indicated to the accepting controller without delay.

9.6.4. *Acknowledgement of COF*

9.6.4.1. Acknowledgement

9.6.4.1.1. If the COF message can be unambiguously associated with a flight plan, it shall be acknowledged by the generation and transmission of a LAM message.

9.6.4.1.2. If the COF message cannot be unambiguously associated with a flight plan, no acknowledgement shall be sent.

9.6.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for a COF message, a warning shall be displayed at the appropriate ATC position.

9.6.5. *Examples*

-TITLE COF -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 030 -ARCID AMM253

9.7. **Manual Assumption of Communications Message (MAS)**

9.7.1. *Purpose of the MAS Message*

The MAS is sent by the accepting unit to the transferring unit indicating that two-way radio contact has been established with the flight.

9.7.2. *Message Contents*

The MAS message shall contain the following items of data:

— Message Type;

— Message Number;

— Aircraft Identification.

NOTE *Data insertion rules, formats and field contents are specified at Annex A.*

9.7.3. *Rules of Application*

9.7.3.1. General

9.7.3.1.1. The MAS message shall be manually initiated by the accepting controller.

9.7.3.1.2. The use of the MAS message is mandatory if, by bilateral agreement, the COF message is not used.

9.7.3.2. Processing in the Receiving Unit

9.7.3.2.1. The ATC system receiving a MAS message shall attempt association with the corresponding flight plan.

9.7.3.2.2. The fact that the MAS has been received shall be presented immediately to the controller.

9.7.4. *Acknowledgement of MAS*

9.7.4.1. Acknowledgement

9.7.4.1.1. If the MAS message can be unambiguously associated with a flight plan, it shall be acknowledged by the generation and transmission of a LAM message.

9.7.4.1.2. If the MAS message cannot be unambiguously associated with a flight plan, no acknowledgement shall be sent.

9.7.4.2. No Acknowledgement Cases

If no LAM message is received as an acknowledgement for an MAS message, a warning shall be displayed at the appropriate ATC position, as required.

9.7.5. *Example*

-TITLE MAS -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 030 -ARCID AMM253

ANNEX A (Normative)

DATA INSERTION RULES

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A.1. **Purpose**

This Annex describes the general rules for the insertion of data in the messages described in this Standard. These rules apply to all messages except where other alternatives or exceptions to these rules are specifically stated in the Rules of Application for a specific message.

A.2. **Generic Message Formats**

A.2.1. All messages described in the following sections may be transmitted using ICAO format:

6 Basic Procedure — Mandatory Messages;

7 Basic Procedure — Complementary Messages;

8 Dialogue Procedure — Co-ordination.

A.2.2. ICAO message field formats are specified in the Procedures for Air Navigation Services — Rules of the Air and Air Traffic Control (Document 4444). In messages where they occur, the following ICAO Field types shall be transmitted before any other Field types in the following order: 3, 7, 13, 14, and 16. As they are in Field type 22 format, the order of other ICAO Field types is not important, other than that they do not precede the Field types listed above.

A.2.3. All messages described in this document may be transmitted using Eurocontrol ADEXP format. The contents, structure, and usage of ADEXP data fields shall be in accordance with Reference 2.

NOTES

1. *Only the Primary ADEXP data fields are listed in this Annex, except where associated Sub-fields require specific comment. The ADEXP Standard lists all optional and mandatory Sub-fields required within each Primary field.*

2. *Messages described in Section 9, Dialogue Procedure — Transfer of Communication, are described only in ADEXP format.*

A.3. **Message Type**

The message type shall be the abbreviation for the message as described in the following list:

ABI: Advance Boundary Information.

ACP: Acceptance.

ACT: Activate.

CDN: Co-ordination.

COD: SSR Code Assignment.

COF: Change of Frequency.

HOP: Hand-Over Proposal.

INF: Information.

LAM: Logical Acknowledgement Message.

MAC: Message for Abrogation of Co-ordination.

MAS: Manual Assumption of Communications.

PAC: Preliminary Activation.

RAP: Referred Activate Proposal.

REV: Revision.

RJC: Reject Co-ordination.

ROF: Request on Frequency.

RRV: Referred Revision Proposal.

SBY: Stand-by.

SDM: Supplementary Data Message.

TIM: Transfer Initiation Message.

A.3.1. *ICAO*

Field type 3, element (a).

A.3.2. *ADEXP*

Primary field 'title'.

A.4. **Message Number**

The message number data includes the identifiers assigned to the transmitting and receiving units and the message sequence number. The message sequence number progresses sequentially from 001 to 000 (representing 1000), thence repeats from 001 for all messages sent to the same addressee, regardless of the type of message.

A.4.1. *ICAO*

Field type 3, element (b).

A.4.2. *ADEXP*

Primary field 'refdata'.

Sub-field 'fac', within sub-fields 'sender' and 'recvr', shall contain the identifiers assigned to the ATC units. These identifiers shall be not greater than eight characters in length.

Sub-field 'seqnum' shall contain the sequence number.

A.5. **Message Reference**

A.5.1. *ICAO*

Field type 3, element (c) (called 'reference data' in ICAO document 4444).

The content of element (c) shall be that of Field type 3, element (b), of the OLDI message referred to.

A.5.2. *ADEXP*

Primary field 'msgref'.

The values of Sub-fields 'sender', 'recvr', and 'seqnum', within Primary field 'msgref', shall be those of the same Sub-fields within Primary field 'refdata' of the OLDI message referred to.

A.6. **Aircraft Identification**

A.6.1. *ICAO*

Field type 7, element (a).

A.6.2. *ADEXP*

Primary field 'arcid'.

A.7. **SSR Mode and Code**

Either:

1. if known, the SSR mode/code on which the receiving unit can expect the aircraft to respond at the transfer of control point;

   or

2. an indicator that the SSR code is being requested from the receiving unit.

A.7.1. *ICAO*

Field type 7, elements (b) and (c).

If no SSR code is assigned or the mode/code is not known, elements (b) and (c) shall be omitted.

When requesting an SSR code/mode, elements b) and c) shall contain the value 'A9999'.

A.7.2. *ADEXP*

Primary field 'ssrcode'.

If no valid SSR code is assigned or the mode/code is not known, the field shall be omitted.

When requesting an SSR code/mode via the PAC message, primary field 'ssrcode' shall contain the indicator 'REQ'.

A.8. **Departure Aerodrome**

A.8.1. *ICAO*

Field type 13, element (a).

A.8.2. *ADEXP*

Primary field 'adep'.

A.9. **Estimate Data**

A.9.1. *General*

A.9.1.1. Estimate data shall include the COP, time at the COP and transfer level.

A.9.1.2. The co-ordination point shall be defined as either a known reference point, a range and bearing from a known reference point, or a latitude and longitude.

A.9.1.3. The cleared (transfer) level shall correspond to the proposed transfer conditions.

A.9.1.4. **Recommendation** *For climbing or descending flights, the estimate data should also contain supplementary crossing data and crossing conditions.*

A.9.1.5. If used, the supplementary crossing data shall contain the supplementary crossing level at the transfer of control point. The crossing conditions shall be:

— Letter 'A'; — if the flight will be at or above the level in the supplementary crossing data; or

— Letter 'B'; — if the flight will be at or below the level in the supplementary crossing data.

A.9.2. *ICAO*

Field type 14.

A.9.3. *ADEXP*

Primary field 'coordata'.

Subfield 'ptid' within Primary field 'coordata' shall contain either:

— a known reference point; or

— a bearing and distance from a known reference point, as defined in the same message by Primary field 'REF' or 'GEO'.

A.10. **Co-ordination Point**

A.10.1. *General*

A.10.1.1. The co-ordination point referred to by the transferring and receiving ATC units for the purposes of the transfer concerned.

A.10.1.2. The co-ordination point shall be defined as either a known reference point, a range and bearing from a known reference point, or a latitude and longitude.

A.10.2. *ICAO*

Field 14, element (a).

A.10.3. *ADEXP*

Primary field 'cop' containing:

— a known reference point; or

— a bearing and distance from a known reference point, as defined in the same message by Primary field 'REF' or 'GEO'.

A.11. **Destination Aerodrome**

A.11.1. *ICAO*

Field 16, element (a).

A.11.2. *ADEXP*

Primary field 'ades'.

A.12. **Aircraft Number and Type**

Aircraft number and type shall contain the type of aircraft. The number of aircraft shall be included in the case of formation flights.

A.12.1. *ICAO*

Field type 9 in field type 22 format. Element c of field type 9 shall contain either the wake turbulence category appropriate to the type of aircraft or the letter 'Z'.

A.12.2. *ADEXP*

Primary field 'arctyp'. In addition, if there is more than one aircraft in the flight, Primary field 'nbarc'.

A.13. **Route**

Both formats support the route description as defined for ICAO messages which requires as the first element speed and requested flight level or altitude information. After the speed level group, the route data will include as a minimum that specified in the following paragraph. Further route data may be inserted after item c) if available. See also Annex B 'Special Route Processing Requirements' for insertion rules for route data.

A.13.1. *Content*

A.13.1.1. Flights Proceeding via a Defined COP

— the route element before the COP (ATS route, SID identifier, DCT or significant point);

— the COP;

— the route element after the COP (ATS route or significant point).

A.13.1.2. Flights Proceeding Off ATS Route

— the point from which the flight is proceeding on the direct route segment;

— the element 'DCT';

— the point to which the flight is proceeding on the direct route segment.

A.13.2. *Format*

A.13.2.1. ICAO

Field type 15, in field type 22 format.

A.13.2.2. ADEXP

Primary field 'route'.

A.14. **Other Flight Plan Data**

A.14.1. *ICAO*

Field types 8, 10, and 18, in the field type 22 format.

A.14.2. *ADEXP*

Primary fields: 'afildata', 'ceqpt', 'com', 'comment', 'depz', 'destz', 'eetfir', 'eetpt', 'fltrul', 'flttyp', 'mach', 'nav', 'opr', 'per', 'reg', 'rif', 'rmk', 'sel', 'seqpt', 'sts', and 'typz'.

A.15. **Co-ordination Status and Reason**

Co-ordination status and Reason shall include the following elements:

— a three letter indicator confirming the new status of the system flight plan, to be one of the following:

  — INI, when the system flight plan is to be in an initial state, i.e. no notification message received;

  — NTF, when the system flight plan is to be in a notified status;

  — CRD, when the system flight plan is to be in co-ordinated status, i.e. basic ACT received or initial co-ordination dialogue completed with conditions agreed.

— a three letter indicator specifying the reason for the status to be one of the following:

  — TFL, if the reason is a change of transfer level;

  — RTE, if the reason is a change of route;

  — HLD, to indicate that the flight is holding for an indefinite period and will be subject to a further message;

  — DLY, to indicate that the departure is delayed;

  — CAN, if the reason is a cancellation;

  — CSN, for a change of callsign;

  — OTH, for any other reason or if the reason is unknown.

A.15.1. *ICAO*

A.15.1.1. The co-ordination status and reason shall be in the Field type 18 format.

A.15.1.2. The co-ordination status and reason shall include the following elements as a ten character group:

— STA followed by an oblique stroke;

— the indicator to confirm the new status of the notification/co-ordination;

— the indicator specifying the reason.

A.15.2. *ADEXP*

Primary field 'cstat'.

Auxiliary items 'coordstatusident' and 'coordstatusreason' shall contain the new status and reason as specified above respectively.

A.16. **Assigned Heading** (ADEXP only)

Primary field 'ahead' shall contain either:

— the heading assigned to a flight, expressed in degrees;

or

— if no heading is assigned, the indicator 'ZZZ', e.g. when an SDM message is used to indicate that a previously assigned heading no longer applies.

A.17. **Assigned Speed** (ADEXP only)

Primary field 'aspeed' shall contain either:

— the speed assigned to a flight, expressed in knots, mach number, or kilometres/hour;

or

— if no speed is assigned, the indicator 'ZZZ', e.g. when an SDM message is used to indicate that a previously assigned speed no longer applies.

A.18. **Assigned Rate of Climb/Descent** (ADEXP only)

Primary field 'rate' shall contain:

— the climb or descent rate assigned to a flight, expressed in hundreds of feet per minute;

or

— if no rate of climb/descent is assigned, the indicator 'ZZZ' in the digit portion of the field, e.g. when an SDM message is used to indicate that a previously assigned rate of climb/descent no longer applies.

A.19. **Direct Clearance** (ADEXP only)

A direct route, not defined as an ATS route, between two points. The points can be defined as either a known reference point or a range and bearing from a reference point. All endpoint designators used shall be bilaterally agreed, i.e. known to both systems.

Primary field 'DCT' containing:

— the point at which the deviation has or will commence, defined as one of:

  — a known reference point;

  or

  — a range and bearing from a known reference point, as defined in the same message by Primary field 'REF';

  or

  — the value 'ZZZ' if the sending unit does not require to designate the deviation point.

— the point situated on the original flight plan route to which the aircraft has been or will be cleared, defined as:

  — a known reference point;

  or

  — a range and bearing from a known reference point, as defined in the same message by Primary field 'REF'.

A.20. **Direct Routing Request**

Request for a direct route, not defined as an ATS route, between two points. The points can be defined as either a known reference point or a range and bearing from a reference point.

All endpoint designators used shall be bilaterally agreed, i.e. known to both systems.

A.20.1. *ICAO*

Field type 15, excluding the initial speed/level group, in field 22 format.

It shall contain:

— the point at which the deviation is requested to commence, defined as one of:

  — a known reference point;

    or

  — a range and bearing from a known reference point;

    or

  — the value 'ZZZ' if a direct routing is being requested by the receiving ATC unit.

— the abbreviation 'DCT',

— followed by the point situated on the original flight plan route to which the aircraft is requested to be cleared, defined as:

  — a known reference point;

    or

  — a range and bearing from a known reference point.

A.20.2. *ADEXP*

Primary field 'DCT' containing:

— the point at which the deviation is requested to commence, defined as one of:

  — a known reference point;

    or

  — a range and bearing from a known reference point, as defined in the same message by Primary field 'REF';

    or

  — the value 'ZZZ' if a direct routing is being requested by the receiving ATC unit but the precise point at which it would commence is not known.

— the point situated on the original flight plan route to which the aircraft is requested to be cleared, defined as:

  — a known reference point;

    or

  — a range and bearing from a known reference point, as defined in the same message by Primary field 'REF'.

A.21. **Position** (ADEXP only)

A.21.1. *General*

A.21.1.1. The current position of the flight expressed in either geographic co-ordinates or by bearing and distance from a designated point.

A.21.1.2. Primary field 'ref' or 'geo' shall define the current horizontal location of the aircraft. Points used for range and bearing purposes in primary field 'ref' shall be bilaterally agreed, i.e. known to both systems. Primary field 'position' shall contain the subfield 'ptid' which refers to the defined reference or geographic point. If time information is to be included, either sub-field 'to' (hhmm) or 'sto' (hhmmss) is to be used, as bilaterally agreed.

A.22. **Release Indication** (ADEXP only)

Primary field 'release' shall contain one of the following:

— C, if the flight is released for climb;

— D, if the flight is released for descent;

— T, if the flight is released for turns;

— F, if the flight is fully released for all actions.

A.23. **Frequency**

A.23.1. *ICAO*

Field type 18 shall include the following elements in field 22 format:

— FRQ, followed by an oblique stroke;

— 6 digits indicating the frequency, expressed in MHz to three decimal places.

A.23.2. *ADEXP*

Primary field 'freq'.

A.24. **Reason** (ADEXP only)

Primary field 'reason', containing the value 'MANUAL' for manually referred messages.

A.25. **Cleared Flight Level** (ADEXP only)

Primary field 'cfl'.

A.26. **Proposed Transfer Flight Level** (ADEXP only)

Primary field 'propfl'.

A.27. **Estimated Take-Off Time**

A.27.1. *ICAO*

Field type 13 element (b).

A.27.2. *ADEXP*

Primary field 'etot'.

A.28. **Reference Message Type**

The field contains the message type as specified in paragraph A.1 of this Annex.

A.28.1. *ICAO*

Field type 18 in field type 22 format. The element indicator shall be 'MSG'.

A.28.2. *ADEXP*

Primary field 'msgtyp'.

ANNEX B (Normative)

SPECIAL ROUTE PROCESSING REQUIREMENTS

B.1. Introduction

B.1.1. *General*

B.1.1.1. This Annex describes the rules and data insertion requirements in the following cases, when permitted:

— a flight routes on a direct track, off route, across the boundary as the result of a direct route segment filed in the flight plan;

— after transmission of the ABI or ACT message, a flight is re-routed via either:

  — a different ATS route;

  — a direct track to rejoin the original route at a later point.

B.1.1.2. With respect to the re-routing of flights (paragraph B.1.1.1), the data exchange described in this Annex supports the modification of the route of flight as held in both systems by the use of notification and co-ordination messages.

B.2. Application of Messages

B.2.1. *Basic Rules for Direct Routings*

B.2.1.1. Conditions for the use of OLDI for the co-ordination of flights on direct routings shall be agreed bilaterally.

B.2.1.2. The data required for the notification and co-ordination of flights on direct routings is contained in the co-ordination point (estimate data (ICAO format) and co-ordination data (ADEXP format)) and route in the applicable messages.

B.2.2. *Direct Route Filed*

When the route indicates that the flight will cross the boundary on a direct track, the direct route segment and the resultant COP will be included in the ABI message(s). This COP is included in the subsequent ACT or RAP message.

The COP and route data shall be formatted as described in paragraph B.3.2.

B.2.3. *Re-routings after ABI and before ACT Transmission*

A new ABI message shall be sent with data corresponding to the new route.

B.2.4. *Re-routing after ACT transmission*

B.2.4.1. A REV message shall be used to indicate re-routings after the ACT message has been sent until a bilaterally agreed time before the ETO at the COP previously co-ordinated.

NOTE *A REV message is only used where the accepting unit does not change as the result of the modification. If it does change, a MAC message must be sent to the original accepting unit or the co-ordination verbally cancelled.*

B.2.4.2. The message shall contain the following data elements:

— Co-ordination point (previous COP, for reference purposes);

— Estimate data;

— Route.

B.2.4.3. ICAO format messages shall contain the following fields:

3 Message type and number; message reference if bilaterally agreed;

7 Aircraft identification. Elements b and c shall not be included unless a revision o the SSR code is being co-ordinated simultaneously;

13 Departure aerodrome;

14 Element a only, containing the previous COP for reference purposes;

16 Destination;

22 Field 14 containing the estimate data for the new boundary crossing conditions in field 22 format;

22 Field 15 containing the new route in field 22 format.

B.2.4.4. ADEXP format messages shall include, in addition to the message type and number, aircraft identification, departure aerodrome, destination and, if bilaterally agreed, the message reference number:

— the previous COP in the COP field;

— the new co-ordination conditions in the COORDATA field;

— the new route in the ROUTE field.

B.2.4.5. Route revisions sent as part of the dialogue procedure shall be sent as RRV messages unless bilaterally agreed to be considered 'standard'.

B.3. **Field Contents**

B.3.1. *ATS Routes*

For flights which re-route via an alternative ATS Route, the estimate and route fields are formatted as for ABI and ACT messages.

B.3.2. *Direct Routes*

B.3.2.1. The co-ordination point in the estimate data shall be the point of boundary crossing expressed as a bearing and distance from a reporting point. Such points shall be bilaterally agreed. Where the distance is zero or a flight will pass within a bilaterally agreed distance from such a point, only the identifier of the point shall be included.

B.3.2.2. When bilaterally agreed, the co-ordination point for a flight on a direct route may be expressed by reference to latitude/longitude.

B.3.2.3. The route shall contain:

— the point situated on the original route from which the aircraft is to route direct; where a flight is routed direct from 'present position', the point may be expressed as a bearing and distance from a reporting point. When bilaterally agreed, the point may be expressed by reference to latitude/longitude;

— the abbreviation 'DCT';

— the point to which the aircraft is to proceed directly;

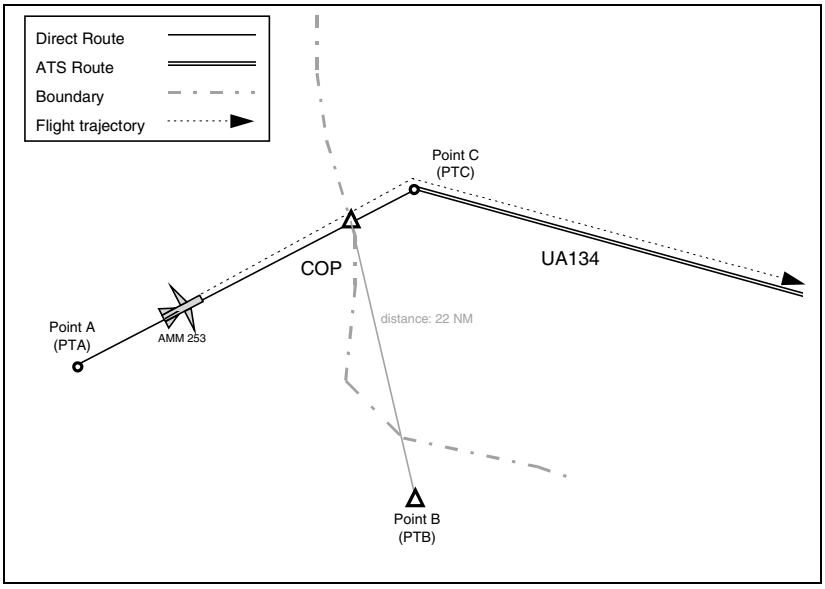
— the remainder of the further route of flight (FRF), if known to the sending system.

B.4. **Examples**

B.4.1. *Direct Routes*

B.4.1.1. ABI and ACT Messages

B.4.1.1.1. The flight (identification Jetset 253) is to cross the boundary on a direct track from Point A (PTA), to Point C (PTC) after which it will follow ATS route UA134. The system determines a COP of bearing 350, distance 22 NM from Point B (PTB).



The following ABI message is sent:

— ICAO

(ABIE/L003-AMM253/A0701-LMML-PTB350022/1440F350-EGBB-9/B757/M-15/N0490F390 PTA DCT PTC UA134)

— ADEXP

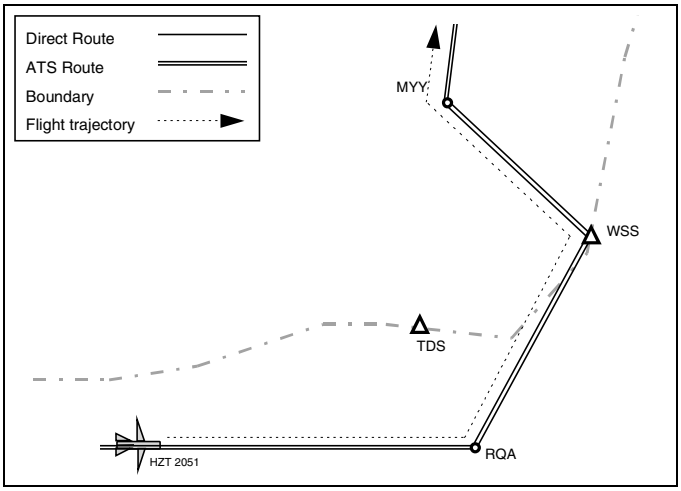
-TITLE ABI -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 003 -ARCID AMM253 -SSRCODE A0701 -ADEP LMML-COORDATA -PTID REF01 -TO 1440 -TFL F350 -ADES EGBB -ARCTYP B757-REF-REFID REF01 -PTID PTB -BRNG 350 -DSTNC 022 -ROUTE N0490F390 PTA DCT PTC UA134

B.4.1.1.2. The ACT message has the same format as the ABI message except that the route of flight is optional.

B.4.1.2. REV Message

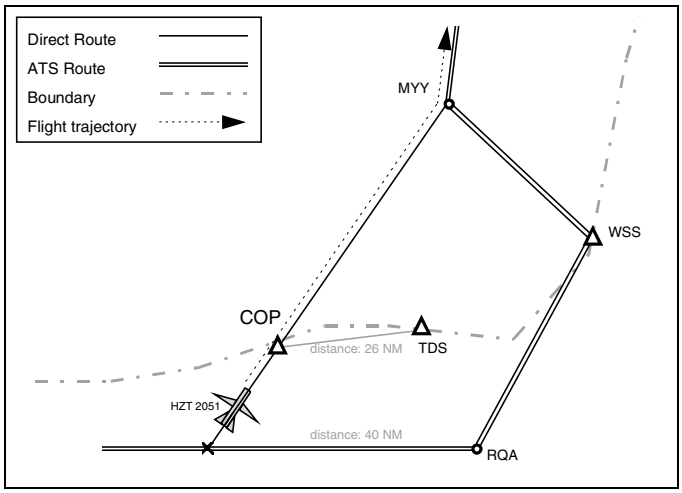
Flight HZT2051 was previously the subject of the following ACT message (or ADEXP equivalent):

(ACTQW/FG455-HZT2051/A3347-HECA-WSS/1838F310-EHBK-9/B737/M



The flight is then routed from 40 NM west of point RQA direct to MYY. The closest point to the boundary crossing is TDS from which the distance to the actual crossing point is 26 NM at bearing 240 degrees. The following revision message is sent:

(REVQW/FG464-HZT2051-HECA-WSS-EHBK-14/TDS240026/1842F310-15/N0458F310
RQA270040 DCT MYY)



The ADEXP equivalent of the message is:

-TITLE REV -REFDATA -SENDER -FAC QW -RECVR -FAC FG -SEQNUM 464 -ARCID HZT2051 -ADEP HECA -COP WSS -ADES EHBK -COORDATA -PTID REF01 -TO 1842 -TFL F310 -REF -REFID REF01 -PTID TDS -BRNG 240 -DSTNC 026 -ROUTE N0458F310 RQA270040 DCT MYY

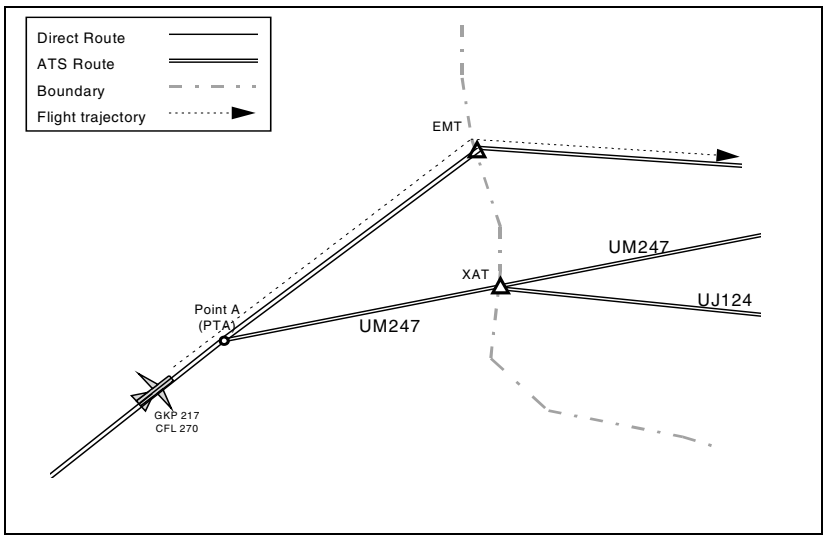
A subsequent revision message would indicate TDS240026 as the COP.

B.4.2. *Re-route via ATS Routes after ACT Transmission*

B.4.2.1. ACT Message

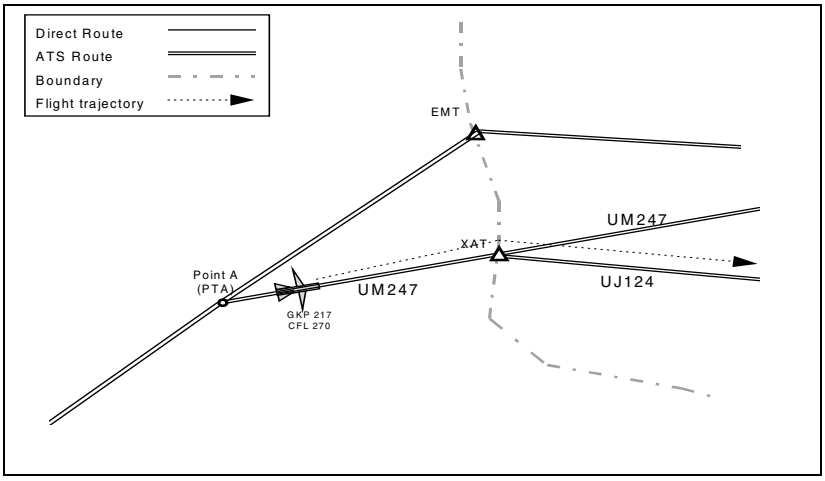
Flight GKP217 is planned to route via co-ordination point EMT. The following ACT is transmitted:

(ACTK/G206-GKP217/A2332-EGNX-EMT/1211F270-DTTA-9/FK28/M)



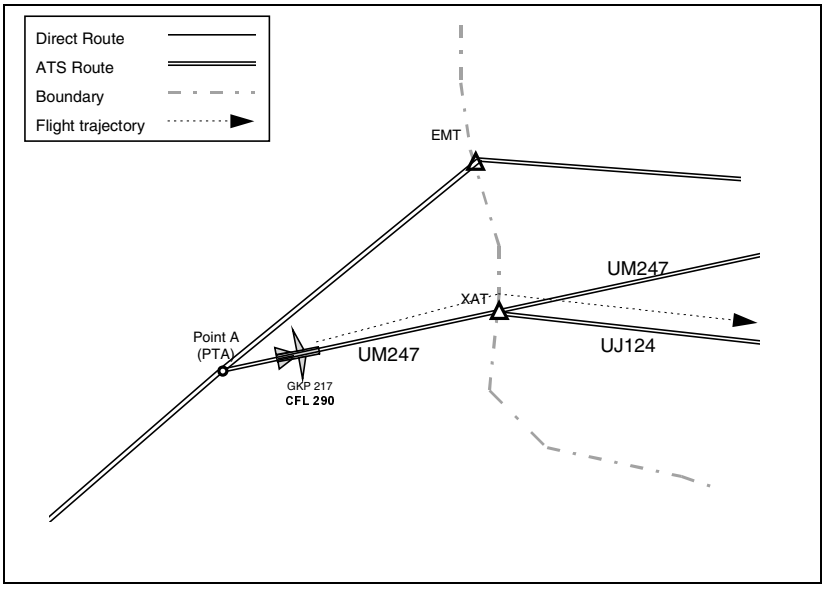
The flight subsequently re-routes via ATS route UM247 within the sending centre's airspace to new co-ordination point XAT following which it is to follow ATS route UJ124. The accepting centre remains the same. The following revision message is sent:

(REVK/G214-GKP217-EGNX-EMT-DTTA-14/XAT/1225F270-15/N0430F290 UM247 XAT UJ124)



The flight is then cleared to FL290 resulting in the following message (containing the new COP):

(REVK/G233-GKP217-EGNX-XAT/1225F290-DTTA)



B.4.2.2. ADEXP Equivalents

The ADEXP equivalents of the two revision messages are as follows:

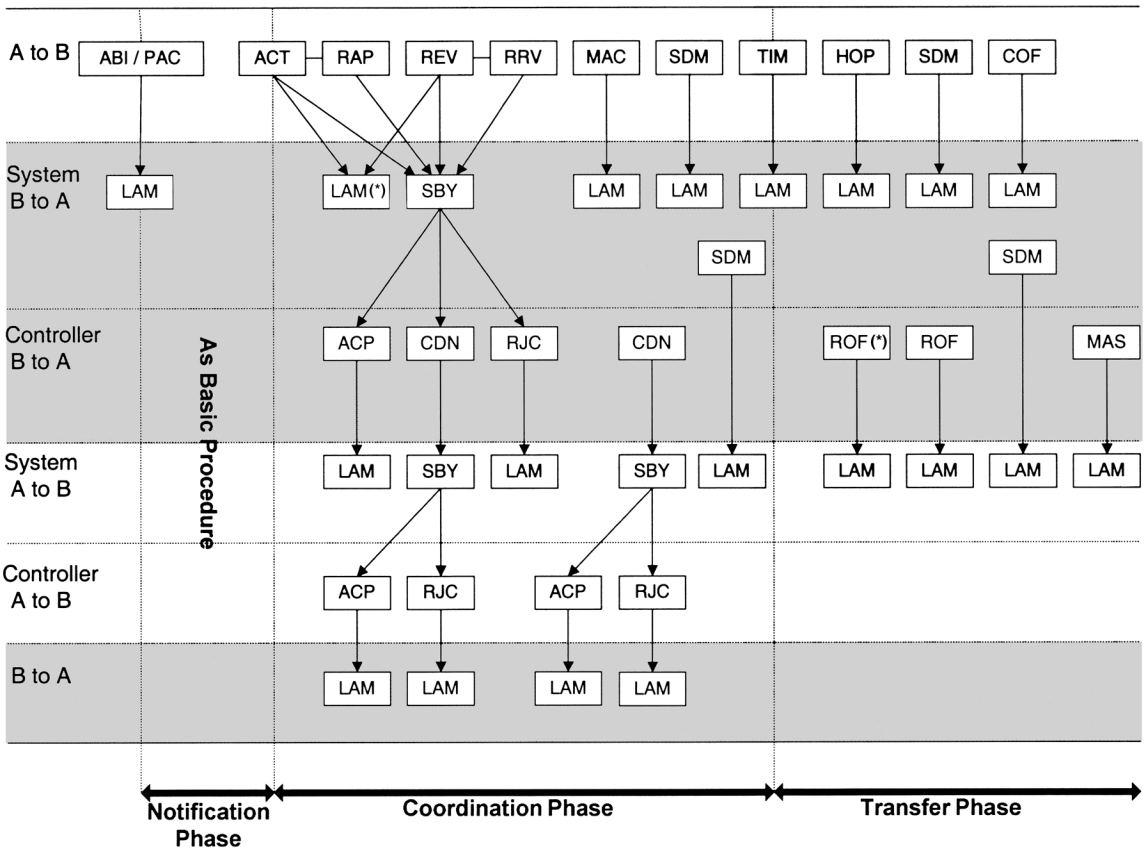
a. -TITLE REV -REFDATA -SENDER -FAC K -RECVR -FAC G -SEQNUM 214 -ARCID GKP217 -ADEP EGNX -COP EMT -ADES DTTA -COORDATA -PTID AT -TO 1225 -TFL F270 -ROUTE N0430F290 UM247 XAT UJ124

b. -TITLE REV -REFDATA -SENDER -FAC K -RECVR -FAC G -SEQNUM 233 -ARCID GKP217 -ADEP EGNX -COORDATA -PTID XAT -TO 1225 -TFL F290 -ADES DTTA

ANNEX C (Informative)

DIALOGUE PROCEDURE (SYSCO LEVEL 1) PHASES — MESSAGE SEQUENCE

Message Sequence



(*) ACP when bilaterally agreed.

ANNEX II

AIR TRAFFIC SERVICES DATA EXCHANGE PRESENTATION (ADEXP) EDITION 2.0

(Eurocontrol document reference DPS.ET1.ST09-STD)

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FOREWORD

1. Responsible Body

This Standard has been developed and is maintained by the User Requirements Section of the Central Flow Management Unit (CFMU) of the European Organisation for the Safety of Air Navigation (Eurocontrol).

2. EATCHIP Work Programme Document

This Standard has been produced as a deliverable of the EATCHIP Work Programme Document (EWPD), Data Processing Systems Domain (DPS), Executive Task 09.

3. Approval of the Standard

3.1. This Standard is adopted in accordance with the procedures outlined in the Directives for Eurocontrol Standardisation, Ref. 000-2-93, Edition 1.0.

3.2. The provisions of this Standard became effective after adoption of edition 1.0 by the Permanent Commission of Eurocontrol in 1995 and had a date of application with effect from 1st. December 1997.

4. Technical Corrigenda and Amendments

This Standard is kept under review to ascertain required amendments or technical corrigenda. The procedure for the maintenance of this Standard is laid down in Annex H of the Directives for the Uniform Drafting and Presentation of Eurocontrol Standard Documents.

Amendments or additions affecting the basic principles or grammar of the ADEXP format shall only be made following the formal review procedure as provided in the Directives for the Uniform Drafting and Presentation of Eurocontrol Standard Documents.

Amendments or additions to this Standard shall be proposed in writing to: CFMU Users Requirements Section (ADEXP), Eurocontrol Agency.

5. Editorial Conventions

5.1. The format of this Standard complies with the Directives for the Uniform Drafting and Presentation of Eurocontrol Standard Documents, there are however some departures from the Directives. The minor formatting exemptions from the Directives are to avoid confusion with the ATS Data Exchange Presentation (ADEXP) notation.

5.2. The following notation has been used to indicate the status of each statement:

— Normative Elements use the operative verb 'shall' and have been printed in light faced roman text;

— *Recommended Elements* use the operative verb 'should' and have been printed in light faced italics, the status being indicated by the prefix; **Recommendation**.

6. Relationship to other Standard Documents

This Standard is related to:

Eurocontrol Standard Document for On-Line Data Interchange (OLDI)

7. **Status of Annexes to this Standard**

There are 6 Annexes to this Directive, the status of each being defined as follows:

Annex A	Normative
Annex B	Normative
Annex C	Normative
Annex D	Normative
Annex E	Informative
Annex F	Informative
Annex G	Informative.

8. **Language used**

The English language has been used for the original text of this Standard.

1. **SCOPE**

1.1. ADEXP is a format, not a protocol. No restrictions are imposed on the transmission media or protocols to be used, other than that of the character set.

1.2. ADEXP provides a format for use primarily in on-line, computer to computer message exchange.

1.3. This document defines the principles and syntax rules of the ADEXP format. It provides this definition in terms of a comprehensive definition of the ADEXP fields.

1.4. The ADEXP format has been specified for use within the following areas of message exchange (for document reference information see Section 2, page 3):

— Flight Planning: exchange of flight plan data and associated messages between the Integrated Initial Flight Plan Processing System (IFPS), Air Traffic Services (ATS) and Aircraft Operators (AO). (Document Ref. 3)

— Air Traffic Flow Management (ATFM): exchange of messages between the Tactical System (TACT) of the CFMU, AO and ATS. (Document Ref. 5)

— Air Traffic Control Co-ordination: exchange of tactical co-ordination messages between Air Traffic Control Units (ATCU). (Document Ref. 6)

— Airspace Management: exchange of data between National ATS Units, the CFMU and AO, concerning airspace availability. (Document Ref. 7)

— Civil / Military Co-ordination: messages concerning civil/military flight data and airspace crossing messages. (Document Ref. 7).

1.5. Detailed specifications concerning the usage and content of the messages within each of the above groups shall be found in the referenced documents.

2. **REFERENCES**

2.1. The following documents and standards contain provisions which, through reference 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 International Civil Aviation Organisation (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 conflict between the requirements of this Eurocontrol Standard Document and the contents of these other referenced documents, this Eurocontrol Standard Document shall take precedence.

2.2. At the time of publication, the documents listed below are those that are referenced from this Standard however users are invited to check the usage and message field composition tables in the latest editions of these documents.

1. ICAO Chicago Convention Annex 10 Volume I, edition dated November 1985;

2. ICAO Chicago Convention Annex 10 Volume II, edition dated July 1995;

3. IFPS and RPL Dictionary of Messages, edition 1.0, dated March 1998;

4. 'Rules of the Air and Air Traffic Services', PANS-RAC Doc 4444, edition dated November 1985 (including Amendment No 6 dated November 1995);

5. Guide To ATFM Message Exchange Eurocontrol Document Ref. TACT/USD/MSGGUID, edition 6.0, effective March 1998,

6. Eurocontrol Standard for On-Line Data Interchange, edition 2.0, dated October 1996.

7. Functional Specifications for System Support to Airspace Data Distribution and Civil Military Co-ordination, edition 1.0, dated May 1996.

3. DEFINITIONS, SYMBOLS AND ABBREVIATIONS

3.1. Notation

The notation used to define the syntax is termed Backus Naur Form (BNF). BNF defines a set of rules which determines a class of character strings. In this case, the class of character strings is the set of messages which can be called a syntactically valid ADEXP message.

3.2. Definitions

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

Token: A character or set of characters which can be 'extracted' by a lexical analyser due to the presence of separators.

Symbol: Any 'term' which appears in a BNF rule but which is not a character.

Terminal Symbol: A symbol which is represented in terms of a sequence of characters.

Non-Terminal Symbol: A symbol which is represented by one or more terminal symbols.

NOTE *A non-terminal symbol may also be represented as a mixture of terminal and non-terminal symbols.*

3.3. Construction

3.3.1. BNF consists of a set of rules or constructs of the form:

symbol ::= expression

NOTES

1) *The '::=' notation should be read as 'can be replaced by'.*

2) *The 'symbol' is classed as non-terminal.*

3) *The 'expression' part contains terminal and non-terminal symbols.*

3.3.2. Terminal symbols have a direct representation as a sequence of characters which can be identified as a token by a lexical analyser, using the presence of separators.

3.4. Conventions

For the purposes of this Eurocontrol Standard document, the following conventions shall apply:

— *Terminal* symbols are in upper case.

NOTE *By convention, the NIL terminal symbol stands for 'no terminal symbol'.*
It is used in choices as in the following example:
a ::= b (c | NIL) where a can be replaced by (b followed by c) or by b only.

— *Non-Terminal* symbols (e.g. the left hand side of a grammar production) are in lower case.

— *Characters and String Literals* appearing inside rules are respectively enclosed in quotes (') or double quotes (").

Examples

1) HYPHEN::= '-'

2) title::= '-' "TITLE" titleid

It may be required, for some data modelling applications, to distinguish between terminal and non-terminal symbols by means other than the use of upper and lower case lettering.

Whenever it is required to explicitly distinguish between terminal and non-terminal symbols, other than by the use of upper and lower case lettering, it is recommended to use the addition of a suffix as follows: '_at' for an Auxiliary term, '_pf' for a Primary field and '_sf' for a Subfield.

3.5. **Operators**

For the purposes of this Eurocontrol Standard document, the following operators shall apply:

Optional: When some symbols can legally appear or not appear at some point in the grammar. The optional symbols are enclosed in square brackets '[' and ']'.

Closure: When a group of symbols may appear zero or more times. The symbols are enclosed in curly brackets '{' and '}'. If a number is specified before the '{' it gives the minimum number of times that the group of symbols may appear. If a number is specified after the '}' it gives the maximum number of times that the group of symbols may appear.

Choice: When a number of alternative symbols may appear at some point in the grammar. Choice is represented by '|'.

Concatenation: Representation of symbols that follow sequentially, even though one or more separators may come in the middle. There is no explicit representation of this. They are two types:

— *Strict Concatenation:* at the lexical level, rules may involve concatenation of terminals indicating that they strictly follow each other (no separator in the middle), in this case the '!' symbol shall be used.

Example datetime:: = date ! timehhmm

e.g. "9912251200" meaning 25th December 1999, at 12h00.

— *Loose Concatenation:* the allowed presence of separators between terminals. The representation of Loose Concatenation within a rule may be either Implicit or Explicit

Examples

1) Implicit:

dct::= '-' "DCT" point point

2) Explicit

dct::= '-'!{SEP}!"DCT"!1{SEP}!point!1{SEP}!point

e.g. "-DCT NTM RMS".

NOTES

1) *Concatenation shall always takes precedence over choice. Parenthesis '(' and ')' are used to alter the expression evaluation order.*

Example	a::= B C | D	is equivalent to:	a::= (B C) | D
		and NOT to:	a::= B (C | D)

2) *In all rules, the allowed presence of separators between the symbols will be left implicit, in order to preserve readability.*

Recommendation *When there is a risk of confusion due to precedence between the above mentioned operators, it is recommended to use the parenthesis, in order to clarify the desired evaluation order.*

3.6. Abbreviations

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

ACH	ATC Flight Plan Amendment Message
ADEG	ATS Data Exchange Group
ADEXP	ATS Data Exchange Presentation
AFIL	Air-Filed Flight Plan
AFP	ATC Flight Plan Proposal
AFTN	Aeronautical Fixed Telecommunication Network
ANM	ATFM Notification Message
AO	Aircraft Operator(s)
APL	ATC Flight Plan
ATC	Air Traffic Control
ATCU	Air Traffic Control Unit(s)
ATFM	Air Traffic Flow Management
ATS	Air Traffic Services
BNF	Backus Naur Form
CASA	Computer Assisted Slot Allocation
CIDIN	Common ICAO Data Interchange Network
CFL	Cleared Flight Level
CFMU	Central Flow Management Unit
CMTP	Common Medium-Term Plan
CNL	Cancellation Message
CTOT	Calculated Take-Off Time
DPS	Data Processing Systems Domain
ECAC	European Civil Aviation Conference
EFL	Estimated Flight Level
EOBT	Estimated Off-Block Time
ETO	Estimated Time Over
Eurocontrol	European Organisation for the Safety of Air Navigation
EWPD	EATCHIP Work Programme Document
FIR	Flight Information Region
FIW	Flight Plan Input Workstation
FMP	Flow Management Position
FNM	Flight Notification Message
FPL	Flight Plan Message (ICAO format)

GAT	General Air Traffic
IA	International Alphabet
IAFP	Individual ATC Flight Plan Proposal
ICAO	International Civil Aviation Organisation
IFPD	Individual Flight Plan Data
IFPS	Integrated Initial Flight Plan Processing System
IFPU	IFPS Unit
IFR	Instrument Flight Rules
ISO	International Standards Organisation
ITA	International Telegraph Alphabet
LAM	Logical Acknowledgement Message
LRM	Logical Rejection Message
MAC	Co-ordination Abrogation Message
MFS	Message from Shanwick
OAT	Operational Air Traffic
OLDI	On-Line Data Interchange
RFL	Requested Flight Level
RFP	Replacement Flight Plan
RFPD	Repetitive Flight Plan Data
RPL	Repetitive Flight Plan
RVR	Runway Visual Range
SFL	Supplementary Flight Level
SRD	Software Requirements Document
SSR	Secondary Surveillance Radar
TACT	Tactical System of the CFMU
TOS	Traffic Orientation Scheme
UIR	Upper Information Region
VFR	Visual Flight Rules

4. ADEXP PRINCIPLES

4.1. Textual, Human Readable Format

4.1.1. The ADEXP format is a textual format, based on characters.

4.1.2. The ADEXP messages remain readable to a human operator which enables better tuning, or operational issues, to be addressed.

4.1.3. A textual format is also more open and understandable.

4.2. **Identified and Retrievable Fields**

4.2.1. A message in ADEXP format shall be composed of fields.

4.2.2. Fields shall be delimited by a special start-of-field character, the hyphen character ('-') and identified by specific keywords.

NOTE *It should be noted that certain fields (those syntactically defined as containing the lexical item 'CHARACTER') may legally contain a '-' character as part of the field content.*

4.2.3. This approach improves the extensibility and robustness of the format. (If a field is absent or incorrect, it can be skipped, and the remaining part of the message can still be interpreted. (See section 4.3).

4.2.4. As another consequence, the order of fields in a message shall not be relevant to determine its legality, except for the first field (mandatory title field) which determines the allowed fields.

4.2.5. Fields may be basic or compound.

4.2.6. The constituent parts of compound fields are called subfields, and are defined by the presence of keywords, delimited by the a start-of-field character.

4.2.7. Basic fields are fields which do not contain subfields.

4.2.8. The basic or compound fields composing the first level of definition of a message are called its primary fields.

4.2.9. All lower level constituents are by definition subfields, which in turn, may be basic or compound.

4.2.10. Compound fields are of two kinds, structured fields or list fields.

4.2.11. Structured fields have a pre-defined content made exclusively of subfields. The order of subfields in a structured field is NOT significant.

4.2.12. List fields are introduced by the BEGIN keyword and terminated by the END keyword. Between these, repeating occurrences of a same subfield or combination of subfields may take place. The order of the occurrences inside a list field is semantically significant.

4.2.13. In the following, the term 'field' will be used generically to mean primary and/or subfields, except when explicitly qualified otherwise.

4.2.14. Fields in a message may be optional or mandatory, as defined by their syntax.

4.3. **Unrecognised Fields**

4.3.1. If an unknown field appears in a message, it shall be ignored.

4.3.2. In other words, if the system which analyses the message does not recognise a keyword, all the text up to the next known Primary Field, which is not within a List Field, will be ignored.

4.3.3. Depending on the message title, the ignored field may or may not cause a rejection of the message being parsed.

NOTE *It should be noted that although ADEXP is designed to provide this type of flexibility, it is at the discretion of those responsible for defining the interface requirements, to indicate, for each message, how the system should react to an unrecognised field.*

4.3.4. If the unknown field is a list field, (this has been found due to the -BEGIN keyword), then all its contents (up to the corresponding -END keyword) are ignored.

4.3.5. In order to avoid any ambiguity during the recovery that follows skipping an unrecognised field, it is required that a keyword introduces either a primary field, or a subfield.

4.3.6. This allows the definition of two kinds of keywords:

— Primary keywords;

— Sub-keywords.

4.3.7. Once it is defined as being of one kind, a keyword shall not be further re-used in another group of messages as the other kind, with the one exception when it is inside a list field. It is possible to have inner occurrences of a primary keyword anywhere within a list field without creating ambiguity, since the presence of the BEGIN keyword indicates we may consider the inner occurrence as a subfield.

Examples (of use of keyword types)

1) *Primary Field*

-RFL F330

2) *Sub-Field*: always within a 'Compound Field'

-GEO -GEOID 01 -LATTD 520000N -LONGTD 0150000W

where -GEO is a primary compound field and -GEOID, -LATTD and LONGTD are all sub-fields.

3) *List Field*

-BEGIN RTEPTS -PT -PTID CMB -ETO 9305091430 -RFL F370 -PT -PTID

.....

-END RTEPTS

where '-BEGIN' is the list field indicator and 'RTEPTS' is a primary field.

NOTE *'RFL' is defined as a primary field. Inclusion within a list field is the only occasion when a primary field may be used as a subfield. (See Example 3 above)*

5. ADEXP SYNTAX RULES

5.1. Lexical Elements

5.1.1. *Character Set*

5.1.1.1. The character set to be used for the exchange of messages in ADEXP format shall be International Alphabet Number 5 (IA-5) as defined in Reference 1.

5.1.1.2. The ADEXP format is designed as a computer to computer exchange format which may be transmitted on different computer networks or on dedicated computer-computer links. In addition, a requirement exists to be able to exchange some ADEXP messages, typically Flight Planning and ATFM related, on the Aeronautical Fixed Telecommunication Network (AFTN).

5.1.1.3. Messages which may be required to be transmitted via AFTN shall have their character set restricted to those characters that have a direct correlation between International Telegraph Alphabet Number 2 (ITA-2) and IA-5, as defined in Reference 1.

NOTE *Besides graphic characters and format effectors as defined below, the ITA-2 character set defines 'signals' (like perforated tape, for instance). They are not part of the allowed character set for ADEXP messages.*

5.1.1.4. The characters which are permitted for use within ADEXP messages which may be transmitted via AFTN, are the graphic characters and the format effectors as defined below:

Graphic Characters

a) upper case letters (A to Z)

b) digits (0 to 9)

c) special graphic characters, as follows:

1) space character ' '

2) open bracket '('

3) close bracket ')'

4) hyphen '-'

5) question mark '?'

6) colon ':'

7) full stop '.'

8) comma ','

9) apostrophe '''

10) equal sign '='

11) plus sign '+'

12) oblique '/'

Format Effectors

a) Carriage-Return

b) Line-Feed

5.1.2. *Basic Lexical Items*

The following basic lexical items are defined for use in this specification:

— ALPHA ::= 'A'|'B'|'C'|'D'|'E'|'F'|'G'|'H'|'I'|'J'|'K'|'L'|'M'|'N'|'O'|'P'|'Q'|'R'|'S'| 'T'|'U'|'V'|'W'|'X'|'Y'|'Z'

— DIGIT ::= '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9'

— ALPHANUM ::= ALPHA | DIGIT

— SPACE ::= ' '

— HYPHEN ::= '-'

— FEF ::= Carriage_return | Line_Feed

— SEP ::= 1{ SPACE | FEF }

— SPECIAL ::= SPACE | '(' | ')' | '?' | ':' | '.' | ',' | '"' | '=' | '+' | '/'

— CHARACTER ::= ALPHA | DIGIT | SPECIAL | FEF | HYPHEN

— LIM_CHAR ::= ALPHA | DIGIT | SPECIAL | FEF

— START-OF-FIELD ::= HYPHEN

NOTE *LIM_CHAR represents any allowed character except HYPHEN which is reserved to indicate the start of a field. On the contrary, CHARACTER represents any allowed element of the character set.*

5.1.3. *Lines, Separators and Delimiters*

5.1.3.1. The division into lines of the text of a message shall have no syntactic effect.

5.1.3.2. A separator can be a space character or format effector.

5.1.3.3. Fields shall be delineated only by the presence of a start-of-field character followed by a keyword.

5.1.3.4. Hence the whole message could legally be on one line.

5.1.4. *Signed Values*

5.1.4.1. It may be required to indicate a numeric value as being negative.

5.1.4.2. Fields which are required to indicate a negative value shall, within their syntax definition, explicitly indicate the value as being a 'signed value' i.e. as being either positive or negative. A field which has not been so defined may not represent a negative value.

5.1.4.3. A 'signed value' shall always be preceded by either the letter 'N' meaning negative or 'P' meaning positive. A zero value may be preceded by either 'N' or 'P'.

5.1.4.4. The syntax of a field which allows a 'signed value' shall be as follows:

'-' "KEYWORD" ("P" | "N") ! 1{DIGIT}

Example: A field called 'NUMBER' which may contain a negative value of one to eight digits would be defined as:

'-' "NUMBER" ("P" | "N") ! 1{DIGIT}8

Therefore:	-NUMBER P5	— value of 'number' is +5
	-NUMBER N5	— value of 'number' is −5
	-NUMBER 5	— invalid syntax, either a 'P' or a 'N' must be present

5.1.5. *Keywords*

5.1.5.1. A keyword is any sequence of upper case letters or digits. It introduces a field only when it is preceded by a start-of-field character ('-').

keyword ::= 1{ ALPHANUM }

5.1.5.2. Keywords shall comply with the following syntax:

'-'!{SEP}!"KEYWORD"!1{SEP}! <subfield/s or contained value>

i.e. a keyword shall be separated from it's 'start-of-field character' by zero or more separators. It shall be followed immediately by one or more separators, followed by the relevant subfield/s or contained value.

NOTE It is important to note that a keyword and its preceding start-of-field character may be separated by any number of separators, including none.

Examples (The following sequences all validly introduce a field)

1) -TITLE IFPL

2) - TITLE IFPL

3) - TITLE IFPL

4) -

TITLE IFPL

5.1.5.3. **Recommendation** *It is a recommended practice to avoid the use of a separator between the start-of-field character '-' and the subsequent keyword.*

NOTE

1) In the examples above, the first occurrence is the recommended choice.

2) It is also important to note that a keyword must be immediately followed by at least one separator.

5.1.5.4. Throughout the document the concatenation of items separated by at least one separator is implicitly represented by the notation of 'Loose Concatenation' (see 3.5).

NOTE As will be explained later, keywords also introduce list fields when they are preceded by the BEGIN keyword.

5.1.5.5. Keywords shall be as short as possible while remaining semantically meaningful.

5.1.5.6. The pre-defined keywords of the ADEXP format which are listed below shall not be redefined or used with a different role, in specific usages of the format:

TITLE:	identifies a category of messages and defines the corresponding set of allowed primary fields;
BEGIN:	identifies the beginning of a list field;
END:	identifies the end of a list field;
COMMENT:	identifies a COMMENT field.

5.1.5.7. In order to avoid ambiguity (duplicate use of a same keyword with different meanings) or redundancy (different keywords with the same meaning), a Central Definition Table of Primary Fields (i.e. primary keywords) is maintained in this Standard at Annex A (A3) and a Central Definition Table of Subfields (i.e. sub-keywords) is also maintained at Annex A (A4).

5.2. **Fields**

5.2.1. *Field Syntax*

field ::= basic_field | structured_field | list_field

basic_field ::= '-' keyword contained_values

contained_values ::= {CHARACTER}

list_field ::= '-' "BEGIN" keyword {subfields} '-' "END" keyword

structured_field ::= '-' keyword field_1 field_2 .....field_n

NOTE As will be seen, in the case of list fields, the keyword is not preceded directly with '-' but with the '-''BEGIN' construct.

5.2.2. *Message Composition in Terms of Fields*

5.2.2.1. The first field of an ADEXP message shall always be a TITLE field (i.e. a field introduced by the TITLE keyword).

5.2.2.2. The remaining contents of a message in terms of its primary fields, shall be defined by its TITLE.

5.2.2.3. The syntax of messages corresponding to a given TITLE shall be defined by the fields it contains (defined by their keywords):

— The name and allowed content of its primary fields;

— The name and allowed content of its subfields.

5.2.3. *Basic Fields*

5.2.3.1. The syntax of basic field shall be as follows:

basic_field ::= '-' keyword contained_values

5.2.3.2. 'Contained_values' defines the text which provides the value of the field, and may not introduce any subfield.

Example rule arctyp ::= '-' "ARCTYP" (icaoaircrafttype | "ZZZZ")

NOTE

1) An explicit equivalent rule of which being:

arctyp ::= '-'!{SEP}!"ARCTYP"!1{SEP}!(icaoaircrafttype | "ZZZZ").

2) An example portion of a message is :: "-ARCTYP ZZZZ".

5.2.3.3. **Recommendation** *Where there are more than two contained values within a basic field and there is, in addition, the need to express 'choice' or 'option' amongst the values, it is recommended to make the field a structured field and to include the contained values within subfields.*

5.2.4. *List Fields*

5.2.4.1. The syntax of list fields shall be as follows:

list_field ::='-' "BEGIN" keyword { subfields } '-' "END" keyword

5.2.4.2. The 'subfields' may be any combination of subfields, the occurrence of which may appear zero or more times inside the list field.

5.2.4.3. The list of subfields contained in a given list field shall form an ordered set (the order of subfields is significant).

Example rule addr ::= '-' "BEGIN" "ADDR" { fac } '-' "END" "ADDR"

NOTE

1) This example shows that an 'addr' field is a list field containing 0 or more occurrences of a 'fac' subfield (an ATS facility).

2) An example portion of a message showing ADDR as a list field containing FAC subfields is:

-BEGIN ADDR -FAC LLEVZPZX -FAC LFFFZQZX -END ADDR.

3) An example portion of a message showing a combination of subfields is:

xxx::= '-' "BEGIN" "XXX" { yyy | zzz } '-' "END" "XXX".

5.2.5. *Structured Fields*

5.2.5.1. The syntax of structured fields shall be as follows:

structured_field::= '-' keyword field_1 field_2.....field_n

5.2.5.2. The allowed contained subfields in a given structured field shall depend only on the structured field itself.

5.2.5.3. The order of appearance of subfields in a structured field shall not be significant, which allows for easy future extensions (by adding new contained subfields).

Example rule pt::= '-' "PT" ptid [fl] [eto]

NOTES

1) This defines the 'pt' field as a structured field containing a point ('ptid' subfield), optionally followed by a calculated flight level ('fl' subfield), optionally followed by an estimated time over the point ('eto' subfield).

2) An example occurrence of that field may be for instance:

"-PT -PTID RMS -FL F250 -ETO 921225120000".

5.2.5.4. **Recommendation** *Wherever it is felt that the contents of a field might evolve in the future, it is desirable to make it a structured field. This will allow progressive extensions of its subfields.On the contrary, a basic field may be simpler or more familiar to use, but it imposes a fixed sequence of elements (values) with very reduced extension possibilities.*

5.2.6. *The COMMENT Field*

5.2.6.1. The comment field introduces an area of free text where all available characters except the start-of-field character ('-') can be used, and which extends to the next field.

comment ::= '-' "COMMENT" { LIM_CHAR }

Example

COMMENT THIS IS THE BEGINNING OF A FREE ROUTE TEXT AREA

5.2.7. *The TITLE Field*

5.2.7.1. The first field of an ADEXP message shall always be a title field. The syntax of which shall be as follows:

title ::= '-' "TITLE" 1{ ALPHA }10

5.2.7.2. The possible values of the title field consist of the set of ADEXP message titles, as listed in Annex B of this Standard.

Example -TITLE IFPL

6. NORMALISED DESCRIPTION OF ADEXP MESSAGES

6.1. Introduction

6.1.1. The following paragraphs define how the ADEXP format of different categories of messages shall be described in a normalised way, in the frame of the present Standard.

6.1.2. The Normalised description involves:

— Definition of auxiliary terms;

— Definition of each individual primary field's syntax and semantic;

— Definition of each individual subfield's syntax and semantic;

— Definition of each group of messages with reference to their defining documentation.

6.1.3. This Standard does not provide the detail concerning the field composition and data insertion rules for each message title.

6.1.4. Reference should be made to the defining documentation (Interface Specification) which is applicable to the relevant message group (See section 6.5.7).

6.1.5. Defining documentation should provide, in a normalised manner, the following information for each message title:

— a list of compulsory primary fields;

— a list of optional primary fields;

— the data insertion rules for each field, and in particular, the rules concerning the use of subfields defined as optional within this Standard;

— the rules concerning recovery following the detection of an unrecognised field.

6.1.6. The fields currently defined and agreed throughout Eurocontrol member states for use within the different categories of messages which have been defined for use using ADEXP, are those provided in Annex A of this document.

6.1.7. A field shall not be used for a purpose other than that specified in it's semantic description.

6.1.8. A central index of reserved fields is provided at Annex D. 'Reserved fields' have not been agreed for use within the currently defined ADEXP messages. Typically they are fields which have been foreseen for possible future use, or they are used locally within national systems. The purpose of including them in this Standard is to assist in ensuring the uniqueness of field titles and avoidance of unnecessary redundancy.

6.2. **Auxiliary Terms**

6.2.1. In order to provide a readable definition of fields, it is often useful to introduce auxiliary terms in the grammar description.

6.2.2. Auxiliary terms do not introduce a field or subfield and hence, are not associated with a particular keyword. However, they may appear in the definition of more than one field, or subfield, or auxiliary. For instance an auxiliary term like 'date' may be used in the definition of many fields.

6.2.3. All necessary auxiliary terms shall be introduced in alphabetical order and are defined in Annex A (A2) of this Standard.

6.2.4. The description may be presented in a table as follows, sorted in alphabetical order:

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
adexpmsg	{ CHARACTER }	Free text conforming to the syntax described for an ADEXP message.		ifpdlong rfpdlong preproctxt postproctxt	
aidequipment	(('N' | 'S') ! [equipmentcode]) | equipmentcode	Radio communication, navigation and approach aid equipment.	ceqpt		
aircraftid	1{ ALPHANUM }7	Aircraft Identification.	arcid arcidk arcidold prevarcid		

6.3. **Definition of Primary Fields**

6.3.1. All primary fields used in ADEXP messages shall conform to the syntax and semantics as expressed in Annex A (A3) of this Standard.

6.3.2. The syntax of each field will be given first, then its semantic in plain clear and unambiguous terms.

6.3.3. The syntax of fields will be expressed using the BNF notation as introduced in section 3 of this Standard.

6.3.4. The description may be presented in a table as follows, sorted in alphabetical order, where:

— The first column represents the left part of a BNF rule (i.e. that part of the rule at the left of the '::=' symbol) and the third column represents its right part.

— The second column (Kind) indicates if a field is basic ('b') or compound ('c').

Primary Field	Kind	Syntax	Semantic
eobt	b	'-' "EOBT" timehhmm	Estimated Off-Block Time

6.4. **Definition of Subfields**

6.4.1. All subfields used in ADEXP messages shall conform to the syntax and semantics expressed in Annex A (A4) of this Standard.

6.4.2. Additionally, for cross-reference purposes, the primary fields inside which a given subfield appears are identified.

6.4.3. A subfield may also be a subfield of other subfields, therefore a cross-reference to these subfields is also given.

6.4.4. The description may be presented in a table as follows, sorted in alphabetical order:

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
brng	b	'-' "BRNG" refbearing	Bearing of a point from a navigation aid (in magnetic degrees)	ref	

6.5. **Group of Messages**

6.5.1. The operational categories (groups) of messages which have been defined for use using the ADEXP format are introduced in Annex E of this Standard.

6.5.2. The groups are defined in terms of the operational nature of the messages being exchanged and are often characterised by the systems concerned.

6.5.3. Reference to the defining documentation shall be made for each group of messages.

6.5.4. No title value already used for a group of messages shall be reused for another group with a different meaning.

6.5.5. A central index of message titles shall be maintained in Annex B of this Standard.

6.5.6. A reference to the related group is given for each message title listed in the central index of message titles. Reference to the defining documentation for each message title is therefore provided via the message group.

6.5.7. A central index of reserved message titles is also provided at Annex C. 'Reserved' message titles have not been agreed for use within the currently defined groups of messages using ADEXP. Typically they are messages which have been foreseen for possible future use within one of the defined groups, or they are used locally within national systems. The purpose of including them in this Standard is to assist in ensuring the uniqueness of message titles and avoidance of unnecessary redundancy.

ANNEX A (Normative)

ADEXP FIELD DEFINITIONS

A.1. Introduction

This Annex provides a listing of all the fields; Auxiliary Terms, Primary Fields and Sub-Fields which have been defined for use in ADEXP.

A.2. ADEXP Auxiliary Terms

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
adexpmsg	{ CHARACTER }	Free text conforming to the syntax described for an ADEXP message.		ifpdlong rfpdlong preproctxt postproctxt	
aidequipment	(('N' | 'S') ! [equipmentcode]) | equipmentcode	Radio communication, navigation and approach aid equipment.	ceqpt		
aircraftid	2{ ALPHANUM }7	Aircraft Identification.	arcid arcidk arcidold prevarcid		
aircraftidwldcrd	1{ ALPHANUM | '+' | '?' }7	Wildcard form of aircraftid to be used in Query messages: '?' replaces one character '+' replaces any number of characters.	arcidk		
atsroute	2 {ALPHANUM} 7	The designator of an ATS route.	atsrt	refatsrte	
century	2{DIGIT}2	Two first digits of a century.			fulldate
coorstatusident	3 {ALPHA} 3	An indicator of the coordination status of a flight.		statid	
coorstatusreason	3 {ALPHA} 7	The reason for notifying a change in the coordination status.		statreason	
country	2{ALPHA}2	The two letter ICAO designator of a country.		refatsrte	
datalink	1 {'S' | 'H' | 'V' | 'M' } 4	The ICAO designator of the datalink capability. May contain any of the values: S, H, V or M in any order but without repetition.	dat		

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
date	year ! month ! day	A date indication in the format, YYMMDD. e.g. 930424 = 24th. April 1993.	ada add aobd cobd ctod eobd eobdk eobdold etod fstday iobd lstday neweobd valfrom valfromk valfromold validitydate valuntil valuntilk valuntilold	eto	datetime
datetime	date ! timehhmm	A 'date' term as described above and immediately followed by the time in the format, HHMM. e.g. 9304240930 = 0930Z on the 24th. April 1993.	origindt		
datewldcrd	1{ DIGIT | '+' | '?')6	A 'date' term which may be wild carded.	valfromk valuntilk		
day	('0' | '1' | '2' | '3') ! DIGIT	A two digit number which may contain the digits from 00 to 31.	endtime filtim starttime	endreg from startreg until	date fulldate
emergradio	1 {'U' | 'V' | 'E' } 3	Indicator of the type of emergency radio equipment on board the aircraft. May be one or more of the defined characters in any order but without repetition.	splr		
equipmentcode	1 {('A' | 'B' | 'C' | 'D' | 'E' | 'F' | 'G' | 'H' | 'I' | 'J' | 'K' | 'L' | 'M' | 'O' | 'P' | 'Q' | 'R' | 'T' | 'U' | 'V' | 'W' | 'X' | 'Y' | 'Z')} 24	A valid ICAO code letter to indicate the equipment carried. May be one or more of the defined characters in any order but without repetition.			aidequipment
errorcode	1{DIGIT}4	Error message code number.	error		

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
fieldid	1{ ALPHANUM }	Valid ADEXP field name (i.e. keyword).	errfield ifpsmod		
firindicator	4{ ALPHA }4	An ICAO designator of an FIR.	eetfir		
flightlevel	('F' | 'A') ! 3{ DIGIT }3 | ('S' | 'M') ! 4{ DIGIT } 4	A flight level expressed either as; 'F' or 'A' followed by three digits or, 'S' or 'M' followed by four digits.	rfl	crfl1 crfl2 efl fl tfl sfl ptrfl	
flightplanstatus	'EMER' | 'HUM' | 'HOSP' | 'SAR' | 'HEAD' | 'STATE'	The reason for special treatment as indicated in Field 18 element 'STS/'. EMER = Emergency HUM = Humanitarian flight HOSP = Hospital flight SAR = Search and Rescue HEAD = Head of State STATE = State flight	sts		
flightrule	'I' | 'V' | 'Y' | 'Z'	The flight rule indicator of a flight.	fltrul		
flighttype	'S' | 'N' | 'G' | 'M' | 'X'	The type of flight as indicated by the ICAO designator used.	flttyp		
flighttypechg	'OAT' | 'GAT'	The indication provided in the route of flight of a change in the type of flight to 'OAT' or 'GAT'.	chgrul	ptrulchg	
fulldate	century ! year ! month ! day	A date indication in the format CCYYMMDD eg. 19970801 = 1st. Aug. 1997			fulldatetime
fulldatetime	fulldate ! timehhmm	A date, as described in 'fulldate', and immediately followed by the time in the format HHMM e.g. 199708010930 = 0930 hours on 1st. Aug. 1997	mesval-period		
geoname	"GEO" ! 2{DIGIT}2	The identification given to a geographical position expressed in latitude and longitude.		geoid	
heading	3{DIGIT}3	A three digit number in the range 001 to 360.	ahead		

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
icaoaerodrome	4{ ALPHA }4	A four letter ICAO designator for an aerodrome.	adarr adep adepk adepold ades adesk adesold altrnt1 altrnt2	adid	
icaoaerodro-mewldcrd	1{ ALPHA | '+' | '?' }4	Wildcard form of icaoaerodrome, to be used in Query messages: '?' replaces one character '+' replaces any number of characters.	adepk adesk		
icaoaircrafttype	ALPHA ! 1{ ALPHANUM }3	An ICAO designator of an aircraft type.	arctyp		
icaomsg	{ CHARACTER }	An ICAO message. (conforming to the syntax described in Ref. {4})	msgtxt		
ifpuid	1{ ALPHANUM }	The identifier of an IFPS Unit.	ifpuresp		
latitudelong	6{ DIGIT }6	A latitude expressed as six digits.		lattd	
latitudeside	'N' | 'S'	An indicator for 'North' or 'South' latitude.		lattd	
lifejackets	1 {'L' | 'F' | 'U' | 'V'} 4	The ICAO indicator of the type of lifejackets carried. May be one or more of the defined characters in any order but without repetition.	splj		
longitudelong	7{ DIGIT }7	A longitude expressed as seven digits.		longtd	
longitudeside	'E' | 'W'	An indicator for 'East' or 'West' longitude.		longtd	
machnumber	'M' ! 3{ DIGIT }3	The Mach number.	mach aspeed	crmach ptmach	
modifind	1{ALPHANUM}	Indication of the type of modification made to a field.	ifpsmod		

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
month	('0' | '1') ! DIGIT	Month, expressed as a two digit number.			date fulldate
numdays	('0' | '1') ! ('0' | '2') ! ('0' | '3') ! ('0' | '4') ! ('0' | '5') ! ('0' | '6') ! ('0' | '7')	The indication of the days of the week on which a RPL is active.	days daysk daysold		
numdayswldcrd	1{ DIGIT | '+' | '?' }7	The indication of the days of the week on which a RPL is active. Wildcard characters may also be used.	daysk		
originatorid	1{ ALPHANUM }10	Identifier of the originator of a message.	orgnid qrorgn		
point	2{ ALPHANUM }5	The designator of a significant point. May be a published point, a geographical point, a reference point or a point given artificially such as a 're-named' point (RENxx).	atsrt chgrul cop dct eetpt mach rfl speed sid star	ptid refatsrte	
refbearing	3{ DIGIT }3	Reference Bearing value.		brng	
refname	"REF" ! 2{DIGIT}2	The identifier given to a point expressed by bearing and distance from a published point		refid	
regulid	1{ ALPHANUM }20	The identification of an ATFM regulation concerning a flight.	regul	regid	
renameid	"REN" ! 2{DIGIT}2	Identifier of a re-named point.		renid	
rrteid	1{ ALPHANUM} 20	The identifier of a re-routing.	rrteref		
rtf	6{DIGIT}6	A radio frequency expressed in MHz to three decimal places.	freq		
rulechg	VFR' | 'IFR'	The indicators used in the route of a flight to indicate a change in the flight rules.	chgrul	ptrulchg	
seconds	('0' | '1' | '2' | '3' | '4' | '5') ! DIGIT	Seconds. Two digits from '00' to '59'.		eto sto	
spd	('K' | 'N') ! 4{ DIGIT }4	Speed. Expressed as either 'K' or 'N' followed by four digits.	aspeed speed	crspeed ptspeed	

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
ssrequipment	1 {ALPHA} 2	The ICAO designator of the SSR equipment carried and optionally, indication of a data link capability.	seqpt		
stayidentifier	STAY' ! ('1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9')	Designator of a 'stay' period, a period of 'special activity' within the route of a flight.		ptstay stayident	
survivaleqpt	1 {'P' | 'D' | 'M' | 'J' } 4	The ICAO designator of the survival equipment carried. May be one or more of the defined characters in any order but without repetition.	spls		
text20	1{ LIM_CHAR }20	Text made of 1 to 20 characters, excluding the hyphen character.	altnz com depz destz nav per sts typz		
timehhmm	('0' | '1' | '2') ! DIGIT ! ('0' | '1' | '2' | '3' | '4' | '5') ! DIGIT	Time, expressed in hours (2 digits 00-23) and minutes (2 digits 00-59). May be the time of day or a duration.	aobt ata atd atot cobt ctot delay endtime eobt eobtk eobtold etot filtim iobt minlineup newctot neweobt newptot ptot rejctot respby starttime taxitime	cto endreg eto from ptstay startreg sto time to until	datetime fulldatetime
timehhmm_elapsed	DIGIT ! DIGIT ! ('0' | '1' | '2' | '3' | '4' | '5') ! DIGIT	An unlimited number of hours and minutes, used for durations.	ttleet eetfir eetpt sple		
timewldcrd	1{ DIGIT | '+' | '?' }4	Wild card form of a timehhmm.	eobtk		
titleid	1{ ALPHA }10	A valid ADEXP message title. (see Annex B)	msgtyp orgmsg title		

Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in Auxiliary
waketurbcat	'H' | 'M' | 'L'	The ICAO wake turbulence category designator.	wktrc		
year	2{ DIGIT }2	Two last digits of a year.			date fulldate

A.3. **ADEXP Primary Fields**

ADEXP Primary Field	Kind	Syntax	Semantic
ad	c	'-' "AD" adid [(fl | flblock)] [eto] [to] [cto] [sto] [ptstay] [ptrfl] [ptrulchg] [(ptspeed | ptmach)]	The designator of an aerodrome. In cases where the aerodrome forms part of the route description additional routing information may be provided.
ada	b	'-' "ADA" date	Actual date of arrival.
adarr	b	-' "ADARR" (icaoaerodrome | 'ZZZZ')	Actual aerodrome of arrival.
adarrz	b	'-' "ADARRZ" text20	Name of actual aerodrome of arrival if no ICAO location indicator exists.
add	b	'-' "ADD" date	Actual date of departure.
addr	c	'- "BEGIN" "ADDR" 1 { fac } '-' "END" "ADDR"	List of addressees.
adep	b	'-' "ADEP" (icaoaerodrome | 'AFIL' | 'ZZZZ')	ICAO location indicator of the aerodrome of departure or the indication 'AFIL' meaning an air-filed flight plan or 'ZZZZ' when no ICAO location indicator is assigned to the aerodrome of departure.
adepk	b	'-' "ADEPK" (icaoaerodrome | 'AFIL' | 'ZZZZ' | icaoaerodromewldcrd)	Aerodrome of departure used as database key in a query, may be wild-carded. May contain an ICAO location indicator or the indication 'AFIL' meaning an air-filed flight plan or 'ZZZZ' when no ICAO location indicator is assigned to the aerodrome of departure or a combination of alphabetic and wildcard characters.
adepold	b	'-' "ADEPOLD" (icaoaerodrome | 'AFIL' | 'ZZZZ')	The 'previous' aerodrome of departure. May contain the ICAO location indicator or the indication 'AFIL' meaning an air-filed flight plan or 'ZZZZ' when no ICAO location indicator is assigned to the aerodrome of departure.
ades	b	'-' "ADES" (icaoaerodrome | 'ZZZZ')	The ICAO location indicator of the aerodrome of destination or 'ZZZZ' when no ICAO location indicator is assigned to the aerodrome of destination.
adesk	b	'-' "ADESK" (icaoaerodrome | 'ZZZZ' | icaoaerodromewldcrd)	The aerodrome of destination used as database key in a query, may be wild-carded. May contain an ICAO location indicator or 'ZZZZ' when no ICAO location indicator has been assigned to the aerodrome of destination or a combination of alphabetic and wildcard characters.

ADEXP Primary Field	Kind	Syntax	Semantic
adesold	b	'-' "ADESOLD" (icaoaerodrome | 'ZZZZ')	The 'previous' aerodrome of destination. May contain the ICAO location indicator or 'ZZZZ' when no ICAO location indicator has been assigned to the aerodrome of destination.
adexptxt	c	'-' "ADEXPTXT" (preproctxt | post-proctxt)	Contains an ADEXP message.
afildata	c	'-' "AFILDATA" ptid fl eto	Estimate data for an air-filed flight plan. A point identification, the joining flight level and the estimate date-time at the point. NOTE: The flight level indicated is the level at which the flight has been cleared to join controlled airspace over the point indicated. It need not be the same as the RFL.
ahead	b	'-' "AHEAD" (heading | "ZZZ")	The heading assigned to a flight, expressed in degrees Must be a three digit numeric or the value 'ZZZ' indicating that no heading is assigned.
altnz	b	'-' "ALTNZ" text20	Name of alternate aerodrome if no ICAO location exists.
altrnt1	b	'-' "ALTRNT1" (icaoaerodrome | 'ZZZZ')	The ICAO location indicator of the first alternate aerodrome of destination or the indicator 'ZZZZ' when no ICAO location indicator has been assigned to the aerodrome.
altrnt2	b	'-' "ALTRNT2" (icaoaerodrome | 'ZZZZ')	The ICAO location indicator of the second alternate aerodrome of destination or the indicator 'ZZZZ' when no ICAO location indicator has been assigned to the aerodrome.
aobd	b	'-' "AOBD" date	Actual Off_Block Date.
aobt	b	'-' "AOBT" timehhmm	Actual Off_Block Time.
arcid	b	'-' "ARCID" aircraftid	Aircraft Identification. May be the registration marking of the aircraft, or the ICAO designator of the aircraft operator followed by the flight identifier.
arcidk	b	'-' "ARCIDK" (aircraftid | air-craftidwldcrd)	Aircraft Identification used as database key in a query; may be wild-carded. Must be a combination of alphanumeric and wild-card characters up to maximum 7 characters in total.
arcidold	b	'-' ARCIDOLD aircraftid	The 'previous' aircraft id. Where the aircraft id. is to be amended, the new value will be given in 'ARCID'.
arctyp	b	'-' "ARCTYP" (icaoaircrafttype | "ZZZZ")	Type of aircraft (ICAO identification of the type) or ZZZZ.
aspeed	b	'-' "ASPEED" (spd | machnumber | "ZZZ")	The currently assigned speed of the flight, in kilometres per hour, knots or Mach number. Must be 'M' followed by three digits, 'K' or 'N' followed by four digits or 'ZZZ' indicating that no speed restriction is assigned.

ADEXP Primary Field	Kind	Syntax	Semantic
ata	b	'-' "ATA" timehhmm	Actual time of arrival.
atd	b	'-' "ATD" timehhmm	Actual time of departure.
atot	b	'-' "ATOT" timehhmm	Actual Time of Take-off
atsrt	b	'-' "ATSRT" atsroute point point	ATS route designator and identifiers of first and last points.
cassaddr	c	'-' "BEGIN" "CASSADDR" { fac } '-' "END" "CASSADDR"	Addresses to which ATFM messages should be addressed.
ceqpt	b	'-' "CEQPT" aidequipment	Radio communication, navigation and approach aid equipment (as ICAO field 10).
cfl	c	'-' "CFL" fl [ptid]	Cleared Flight Level. The flight level currently assigned by ATC to the pilot (flight level number).
chgrul	b	'-' "CHGRUL" (rulechg | flighttypechg | rulechg flighttypechg) point	Indication of a change in either the 'flight rules' (VFR/IFR) or the 'type of flight' (OAT/GAT) or both together with the point at which the change occurs.
cobd	b	'-' "COBD" date	Calculated Off-Block Date.
cobt	b	'-' "COBT" timehhmm	Calculated Off-Block Time.
com	b	'-' "COM" text20	Communication equipment (as ICAO field 18 COM/).
comment	b	'-' "COMMENT" 1 { LIM_CHAR }	A general comment in free text without hyphen.
condid	b	'-' "CONDID" 1 {LIM_CHAR} 30	Identification of an 'exceptional condition' raised in the context of ATFM.
coordata	c	'-' "COORDATA" ptid (to | sto) tfl [sfl]	The transfer conditions of a flight. A point id., the flight level and estimated time at that point and optional supplementary flight level information.
cop	b	'-' "COP" point	A co-ordination point identifier, either a coded designator of a point or a name given artificially (GEOxx, RENxx or REFxx).
crsclimb	c	'-' "CRSCLIMB" ptid (crspeed | crmach) crfl1 crfl2	Indication of a cruiseclimb. Giving the point at which the climb will begin, speed or mach no. and the two levels indicating the flight level band to be occupied during the climb. The second level may be 'PLUS' where the upper level is unknown.
cstat	c	'-' "CSTAT" statid [statreason]	An indicator confirming the new co-ordination status of a flight and, optionally, the reason for the change.
ctod	b	'-' "CTOD" date	Calculated Take-Off Date.
ctot	b	'-' "CTOT" timehhmm	Calculated Take-Off Time (CTOT): reference time of an ATFM Slot.
dat	b	'-' "DAT" datalink	Indication of the datalink capability carried by the aircraft.

ADEXP Primary Field	Kind	Syntax	Semantic
days	b	'-' "DAYS" numdays	Days of operation for a repetitive flight plan (1234567 where 1 is for Monday, 2 for Tuesday, ..., with 0 in columns of non-operation).
daysk	b	'-' "DAYSK" (numdays | numdayswldcrd)	Days of operation for a repetitive flight plan, used as database key in a query message, may be wildcarded.
daysold	b	'-' "DAYSOLD" numdays	The 'previous' days of operation. Used as a database key. Where the days of operation of an RPL are to be amended, the new values will be given in 'DAYS'.
dct	b	'-' "DCT" point point	Indicates a direct route between two points. The points may either be a valid ICAO designator of a point or a point appearing in a GEO, REN or REF field of the form GEOxx, RENxx or REFxx.
delay	b	'-' "DELAY" timehhmm	A period of time representing a delay. The nature of the delay i.e. delay to a flight, processing delay, etc. is dependant upon its context.
depz	b	'-' "DEPZ" text20	Name of departure aerodrome if no ICAO location indicator exists.
desc	b	'-' "DESC" 1 {LIM_CHAR}	Description of a condition or entity which is of relevance to the content of the message.
destz	b	'-' "DESTZ" text20	Name of destination aerodrome if no ICAO location indicator exists.
eetfir	b	'-' "EETFIR" firindicator timehhmm_ elapsed	FIR identification and the accumulated elapsed time (in hours and minutes) to the FIR boundary.
eetlat	c	'-' "EETLAT" lattd time	Indication of an elapsed time to a position given by latitude only.
eetlong	c	'-' "EETLONG" longtd time	Indication of an elapsed time to a position given by longitude only.
eetpt	b	'-' "EETPT" point timehhmm_elapsed	Point identifier and the accumulated elapsed time to the point.
endtime	b	'-' "ENDTIME" day ! timehhmm	The time at which a period of time ends.
entrydata	c	'-' "ENTRYDATA" (ptid | airspdes | (ptid airspdes)) [fl] [ptrfl] [(ptspeed | ptmach)] [ptfltrul] [ptmilrul]	The flight plan data which is applicable to a flight at the point given or at the entry of the flight into the airspace concerned. One or both of the fields; 'ptid', 'airspdes', must be present.
eobd	b	'-' "EOBD" date	Estimated Off-Block Date.
eobdk	b	'-' "EOBDK" date	Estimated Off-Block Date used as database key in a query, may be wildcarded. Must be a combination of digits and wild-card characters, up to maximum 6 characters in total.

ADEXP Primary Field	Kind	Syntax	Semantic
eobdold	b	'-' "EOBDOLD" date	The 'previous' estimated off block date. Used as a database key. Where the estimated off block date is to be amended, the new value will be given in 'EOBD'.
eobt	b	'-' "EOBT" timehhmm	Estimated Off-Block Time (EOBT)
eobtk	b	'-' "EOBTK" (timehhmm | timewldcrd)	Estimated Off-Block Time used as database key in a query, may be wildcarded.
eobtold	b	'-' "EOBTOLD" timehhmm	The 'previous' estimated off block time. Used as a database key. Where the estimated off block date is to be amended, the new value will be given in 'EOBT'.
errfield	b	'-' "ERRFIELD" fieldid	ADEXP name of erroneous field(s).
error	b	'-' "ERROR" [errorcode] 1{ LIM_ CHAR }	Error message text. May optionally contain an error identification code.
estdata	c	'-' "ESTDATA" ptid eto fl [sfl]	Estimate data. A point id., the estimated flight level (flight level number) and the estimate date-time at this point followed optionally by the supplementary flight level (flight level number followed by the indicator A or B).
etod	b	'-' "ETOD" date	Estimated Take-Off Date.
etot	b	'-' "ETOT timehhmm	Estimated Take-Off Time.
extaddr	c	'-'"EXTADDR" num | { fac } | (num {fac})	Addresses which are provided in addition to those which are determined automatically i.e. 'extra addresses'. May contain only the number of addresses or the actual addresses or both.
filrte	b	'-' "FILRTE" {LIM_CHAR}	The route exactly as filed i.e. without any processing.
filtim	b	'-' "FILTIM" day ! timehhmm	Day-time group specifying when the message was filed for transmission.
flband	c	'-' "FLBAND" fl fl	A flight level band defining the airspace vertically, inclusive of the flight levels given.
fltrul	b	'-' "FLTRUL" flightrule	Flight rule, as ICAO field 8.
flttyp	b	'-' "FLTTYP" flighttype	Type of flight, as ICAO field 8.
fmp	b	'-' "FMP" 4{ ALPHA }4	Identifier of a 'Flow Management Position'.
fmplist	c	'-' "BEGIN" "FMPLIST" fmp reglist '-' "END" "FMPLIST"	List of FMPs and their associated ATFM regulations.
freq	b	'-' "FREQ" rtf	Radio frequency.

ADEXP Primary Field	Kind	Syntax	Semantic
fstday	b	'-' "FSTDAY" date	First day of operation for a repetitive flight plan. This is used to give the actual first day from which flight plans will be generated from a RPL (see valfrom field) or the first day on which an amendment to an RPL is effective.
furthrte	b	'-' "FURTHRTE" {LIM_CHAR}	The further routing of a flight. For use within messages containing estimate data to indicate the further routing of the flight following the estimate point. It may contain only the next point or the complete further routing until the destination.
geo	c	'-' "GEO" geoid lattd longtd	Point along a route defined by latitude and longitude and given in the flight plan, as GEOxx (where xx is a sequence number).
ifp	b	'-' "IFP" 1{ALPHA}	Indication of known errors within a FPL.
ifpdlist	c	'-' "BEGIN" "IFPDLIST" 1 { ifpdlong } '-' "END" "IFPDLIST"	List of complete IFPDs matching the database key given in a query message. Contains a list of complete information for each individual flight which matches given query keys.
ifpdslist	c	'-' "BEGIN" "IFPDSLIST" 1 { ifpdsum } '-' "END" "IFPDSLIST"	List of ifpdsum matching the database key given in a query message. Contains a list of summarised information for each individual flight which matches given query keys.
ifplid	b	'-' "IFPLID" ALPHA ALPHA { DIGIT }8	A unique flight plan identifier, assigned by the IFPS.
ifpsmod	b	'-' "IFPSMOD" fieldid modifind	An indication given by IFPS of those fields which have been modified, and the nature of the modification.
ifpuresp	b	'-' "IFPURESP" ifpuid	Identifier of the IFPU which is responsible for a query. It must process the query and answer to it.
ignore	c	'-' "BEGIN" "IGNORE" { (condition | condition ptid ptid) }'-' "END" "IGNORE"	Indication of conditions which have been 'ignored' or by-passed in the processing of the message concerned. An 'ignored' condition may be limited to a specific portion of the route delimited by the route points given. A condition may, for example, be a time restriction (route access condition), flight level restriction or TOS violation.
iobd	b	'-' "IOBD" date	The 'Initial' Off Block Date — the 'off-block date' as given in the FPL and updated by flight plan associated messages (DLA, CHG, etc.). This is the reference date used for accessing the flight plan in the database and is the only 'off-block date' known by the concerned ATS units. Note: The IOBD is not affected by changes requested or notified through the exchange of ATFM messages.

ADEXP Primary Field	Kind	Syntax	Semantic
iobt	b	'-' "IOBT" timehhmm	The 'Initial' Off Block Time - the 'off-block time' as given in the FPL and updated by flight plan associated messages (DLA, CHG, etc.). This is the reference time used for accessing the flight plan in the database and is the only 'off-block time' known by the concerned ATS units. Note: The IOBT is not affected by changes requested or notified through the exchange of ATFM messages.
lacdr	c	'-' "BEGIN" "LACDR" { airroute } '-' "END" "LACDR"	List of Active Conditional Routes.
latsa	c	'-' "BEGIN" "LATSA" { airspace } '-' "END" "LATSA"	List of Active Temporary Segregated Areas.
lcatsrte	c	'-' "BEGIN" "LCATSRTE" { airroute } '-' "END" "LCATSRTE"	List of Closed ATS Routes.
lfir	c	'-' "BEGIN" "LFIR" 1{ fir (lacdr | (lacdr lcatsrte latsa lrar lrca)) } '-' "END" "LFIR"	List of FIRs, including the name of the region followed by either the list of Available Conditional Routes or the lists of Available Conditional Routes, Closed ATS Routes, Active Temporary Segregated Areas, Reduced Airspace Restrictions and Reduced Co-ordination Airspaces.
lrar	c	'-' "BEGIN" "LRAR" { airspace } '-' "END" "LRAR"	List of Reduced Airspace Restrictions.
lrca	c	'-' "BEGIN" "LRCA" { airspace } '-' "END" "LRCA"	List of Reduced Co-ordination Areas.
lstday	b	'-' "LSTDAY" date	Last day of operation for a repetitive flight plan. This is used to give the actual last day from which flight plans will be generated from a RPL (see valuntil field) or the last day on which an amendment to an RPL is effective => Must be a date between VALFROM and VALUNTIL.
mach	b	'-' "MACH" machnumber [point]	Mach number, in hundredths of a unit and optionally the point at which the change is requested.
mesval-period	b	'-' "MESVALPERIOD" fulldatetime fulldatetime	The validity period of a message, inclusive of the times given.
minlineup	b	'-' "MINLINEUP" timehhmm	The minimum time required for a flight, which has declared itself ready to depart, to get from it's present holding position to airborne.
modifnb	b	'-' "MODIFNB" 1{ DIGIT }3	Number of modifications that were necessary to correct an original message.

ADEXP Primary Field	Kind	Syntax	Semantic
msgref	c	'-' "MSGREF" sender recvr seqnum	Reference data for associated, previously transmitted messages.
msgsum	c	'-' "BEGIN" "MSGSUM" { [arcid] [adep] [ades] [eobt] [eobd] [orgn] [days] [valfrom] [valuntil] } '-' "END" MSGSUM"	Contains a summary of a message. Note: Must contain one or more* of the fields arcid, adep, ades, eobt and orgn but without repetition. * one or more of the fields may have been missing or garbled in received message
msgtxt	b	'-' "MSGTXT" icaomsg	Contains a complete ICAO message.
msgtyp	b	'-' "MSGTYP" titleid	Contains the title of the referenced or copied message. May be any valid ADEXP message title (see Annex B).
nav	b	'-' "NAV" text20	Significant navigation equipment, as ICAO field 18 NAV/.
nbarc	b	'-' "NBARC" 1{ DIGIT }2	Number of aircraft if more than one.
nbrfpd	b	'-' "NBRFPD" 1{ DIGIT }3	Number of flight plan data matching a query. Must be between 0 and 999.
newctot	b	'-' "NEWCTOT" timehhmm	A new Calculated Take-Off Time, as updated by TACT.
newendtime	b	'-' "NEWENDTIME" day ! timehhmm	A new time at which a period of time ends.
neweobd	b	'-' "NEWEOBD" date	A new Estimated Off-Block Date.
neweobt	b	'-' "NEWEOBT" timehhmm	A new Estimated Off-Block Time.
newptot	b	'-' "NEWPTOT" timehhmm	A new Provisional Take-Off Time.
newrte	b	'-' "NEWRTE" { LIM_CHAR }	A new route between the same aerodromes of departure and arrival as in the original message.
newstarttime	b	-' NEWSTARTTIME day ! timehhmm	A new time at which a period of time starts.
oldmsg	b	'-' "OLDMSG" { CHARACTER }	A complete original message, exactly (and in the same format) as it was received.
opr	b	'-' "OPR" 1 { LIM_CHAR }	Name of the company or agency operating the flight, as ICAO Field 18 element OPR/.
orgmsg	b	'-' "ORGMSG" titleid	The ADEXP Title of an erroneous message, as it was received by TACT.
orgn	b	'-' "ORGN" 1{LIM_CHAR}30	The address of the originator of a message.
orgnid	b	'-' "ORGNID" originatorid	The designator of an addressee having originated a message.
orgrte	b	'-' "ORGRTE" { LIM_CHAR }	Original route between the aerodromes of departure and arrival.
origin	c	'-' "ORIGIN" networktype | fac | (networktype fac)	Information concerning the originator of a message. May include the type of network used or the address concerned or both.

ADEXP Primary Field	Kind	Syntax	Semantic
origindt	b	'-' "ORIGINDT" datetime	Date and time of receipt of original message by the IFPS. Note: This is not the filing time of the message. Format is YYMMDDHHMM.
part	c	'-' "PART" num lastnum	Identification of the part of the message identified by the title, filing time and validity period.
per	b	'-' "PER" text20	Aircraft performance data, as ICAO field 18 PER/.
position	c	'-' "POSITION" (adid | ptid)[(to | sto)] [fl] [cto]	The position of an aircraft given as either a point or an aerodrome with optional time and flight level information.
prevarcid	b	'-' "PREVARCID" aircraftid	The previous callsign used.
prevssrcode	b	'-' "PREVSSRCODE" ALPHA ! 4{ '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' }4	SSR Mode and Code used by the flight immediately prior to the SSR Mode and Code given in field '-SSRCODE'.
propfl	c	'-' "PROPFL" tfl [sfl]	A flight level proposed by an accepting unit for the transfer of a flight.
ptot	b	'-' "PTOT" timehhmm	Provisional Take-Off Time. Provisional reference time for an ATFM slot.
qrorgn	b	'-' "QRORGN" originatorid	Identifier of the originator of the Query.
ralt	b	'-' "RALT" 1 {LIM_CHAR} 40	Name of en-route alternate aerodrome/s.
rate	b	'-' "RATE" ((("C" | "D")! 2{DIGIT}2) | "ZZZ")	Rate of change: the climb or descent rate assigned to an aircraft, expressed in hundreds of feet per minute. => Must be 'C' indicating a climb rate, or 'D' indicating a descent rate, followed by a two digit number indicating the assigned rate in hundreds of feet per minute. Alternatively the designator 'ZZZ' may be used to indicate that there is no assigned rate of climb or descent.
ratepdlst	c	'-' "BEGIN" "RATEPDLST" 1 {rateperiod} '-' "END" "RATEPDLST"	List of time periods and their respective flow rates for an ATFM condition.
reason	b	'-' "REASON" 4{ALPHA}12	Reason for either rejection of a message or cancellation of a slot by TACT. Information in support of the message dependent on its context.
ref	c	'-' "REF" refid ptid brng distnc	Point along a route which is defined in terms of magnetic bearing and distance from another point and is given the designator REFxx.
refdata	c	'-' "REFDATA" [sender] [recvr] seqnum	Reference data for message being transmitted.

ADEXP Primary Field	Kind	Syntax	Semantic
reg	b	'-' "REG" 1{ LIM_CHAR }7	Registration markings, as ICAO field 18 REG/.
regloc	b	'-' "REGLOC" 1 {LIM_CHAR} 15	Reference location for an ATFM Regulation.
regul	b	'-' "REGUL" regulid	Identifier of a Regulation concerning a flight.
rejctot	b	'-' "REJCTOT" timehhmm	Rejected Calculated Take-Off Time: negative response to a Slot Improvement Proposal.
release	b	'-' "RELEASE" 1{ALPHA}1	An indication that the flight is released by the transferring controller to the receiving controller. C = released for climb D = released for descent T = released for turns F = released for all actions
rename	c	'-' "RENAME" renid ptid	Indication of a temporary, new name given to a 'significant point' which appears more than once in the route description in order to avoid confusion. This temporary name is applied only for the purpose of clarity in the representation of the route and does not imply an actual modification of the real identification of the point .
respby	b	'-' "RESPBY" timehhmm	Respond By: time by which a response to a Slot Improvement Proposal has to be made.
rfl	b	'-' "RFL" flightlevel [point]	Requested flight level (in flight level number, tens of meters or hundreds of feet) and optionally the point at which a change of RFL is required.
rfp	b	'-' "RFP" "Q" ('1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9')	Replacement Flight Plan (RFP) indicator. Must be 'Q' followed by a digit (1 - 9).
rfpdlist	c	'-' "BEGIN" "RFPDLIST" { rfpdlong } '-' "END" "RFPDLIST"	List of complete RFPDs matching the database keys given in a Query.
rfpdslist	c	'-' "BEGIN" "RFPDSLIST" { rfpdsum } '-' "END" "RFPDSLIST"	List of rfpdsum (RFPD summarised information) matching the database keys given in a Query.
rif	b	'-' "RIF 4{LIM_CHAR}	Revised route subject to clearance in flight and terminating with the ICAO designator of the revised aerodrome of destination.
rmk	b	'-' "RMK" 1{ LIM_CHAR }	Plain language remarks, as ICAO field 18 RMK/.
route	b	'-' "ROUTE" {LIM_CHAR}	Complete ICAO Field 15 information containing speed, RFL and route (conforming to the syntax given in Ref. 4).

ADEXP Primary Field	Kind	Syntax	Semantic
rrtefrom	c	'-' "RRTEFROM" tfvid refloc flowlst flblock	Description of a traffic flow which is to be re-routed.
rrteref	b	'-' "RRTEREF" rrteid	Re-Route Reference.
rrteto	c	'-' "RRTETO" tfvid refloc flowlst flblock	Description of a traffic flow to which traffic is to be re-routed.
rtepts	c	'-' "BEGIN" "RTEPTS" { pt [ad]} '-' "END" "RTEPTS"	List of route points. May also contain an aerodrome identifier.
rvr	b	'-' "RVR" 1{ DIGIT }3	Runway Visual Range (RVR). Operating minima when special meteorological conditions exist. Expressed in meters.
rvrcond	c	'-' "BEGIN" "RVRCOND" 1 {rvrperiod} '-' "END" "RVRCOND"	List of time periods and their applicable RVR limits.
rvrperiod	c	'-' "RVRPERIOD" from until rvrlimit	The period of time within which the RVR limit provided is applicable.
sector	b	'-' "SECTOR" 1{ ALPHANUM }8	Identification of an ATC sector.
sel	b	'-' "SEL" 4{ ALPHA }5	SELCAL code as ICAO Feld 18 element 'SEL/'.
sendto	c	'-' "BEGIN""SENDTO" {unit} '-' "END""SENDTO"	List of air navigation units which are to be sent a message
seqpt	b	'-' "SEQPT" ssrequipment	Surveillance equipment, as ICAO Field 10.
sid	b	'-' "SID" point ! 1{DIGIT}1 ! 0{ALPHA}1	Identifier of a Standard Instrument Departure procedure.
speed	b	'-' "SPEED" spd [point]	True airspeed (in kilometres per hours or knots) and optionally, the point at which a change of airspeed is requested.
spla	b	'-' "SPLA" 1{ LIM_CHAR }50	Colour of markings on aircraft, as ICAO Field 19 element 'A/'.
spladdr	c	'-' "BEGIN" "SPLADDR" { fac } '-' "END" "SPLADDR"	Contact data, where flight plan Supplementary information may be obtained.
splc	b	'-' "SPLC" 1{ LIM_CHAR }50	Name of pilot in command, as ICAO Field 19 element 'C/'.
spldcap	b	'-' "SPLDCAP" 1{ DIGIT }3	Dinghies total capacity, as ICAO Field 19 element 'D/'.
spldcol	b	'-' "SPLDCOL" 1{ LIM_CHAR }50	Dinghies colour, as ICAO Field 19 element 'D/'.
spldcov	b	'-' "SPLDCOV" ('T' | 'F')	Dinghies: indication if they are covered, as ICAO Field 19 element 'D/'. T = True (=> 'C' in ICAO) F = False, not covered.
spldnb	b	'-' "SPLDNB" 1{ DIGIT }2	Dinghies: number, as ICAO field 19 element 'D/'.

ADEXP Primary Field	Kind	Syntax	Semantic
sple	b	'-' "SPLE" timehhmm_elapsed	Fuel endurance, as ICAO Field 19 element 'E/'.
splj	b	'-' "SPLJ" lifejackets	Life jackets, as ICAO Feld 19 element 'J/'.
spln	b	'-' "SPLN" 1{ LIM_CHAR }	Any other survival equipment and useful remarks, as ICAO Field 19 element 'N/'.
splp	b	'-' "SPLP" 1{DIGIT}3	Persons on board, as ICAO Field 19 element 'P/'.
splr	b	'-' "SPLR" emergradio	Emergency radio equipment, as ICAO Field 19 element 'R/'.
spls	b	'-' "SPLS" survivaleqpt	Survival equipment, as ICAO Field 19 element 'S/'.
src	b	'-' "SRC" ("RPL" | "FPL" | "AFIL" | "MFS" | "FNM" | "AFP" | "RQP" | "RQS" | NIL)	Indication of the data source. Contents depend on the TITLE field.
ssrcode	b	'-' "SSRCODE" ('A' ! 4{ '0' | '1' | '2' | '3' | '4' | '5' | '6' | '7' }4 | "REQ")	Either; - SSR mode and code, as ICAO field 7 elements b and c. or - the letters 'REQ' meaning that the code is requested.
star	b	'-' "STAR" point ! 1{DIGIT}1 ! 0{ALPHA}1	Identification of a Standard Arrival procedure.
starttime	b	'-' "STARTTIME" day ! timehhmm	Time at which a period of time begins.
stay	c	'-' "STAY" stayident time ((adid adid) | (ptid ptid) (adid | ptid) | (ptid adid)) [ptspeed] [ptrfl]	Indication in the route of flight of a period of 'special activity' when the aircraft will 'stay' in the area defined by the points and/or aerodromes given for the length of time indicated, i.e. training, mid-air re-fuelling, photographic mission etc. NOTE: The order in which the points and/or aerodromes are given is significant
stayinfo	c	'-' "STAYINFO" stayident remark	Information concerning the type of activity (training, photographic mission, etc.) to be performed during a 'stay' period in the route of a flight.
sts	b	'-' "STS" ("PROTECTED" | flightplan-status | 1{LIM_CHAR})	Reason for special handling, as ICAO field 18 STS/. Can be either 'PROTECTED' to indicate sensitive handling or one of the recognised labels, EMER, HOSP, etc. or free text.
taxitime	b	'-' "TAXITIME" timehhmm	The difference in time between the 'off blocks time' and the 'take-off time'. The times referred to may be actual or estimated depending upon the context.
tfcvol	b	'-' "TFCVOL" 1 {ALPHANUM} 15	Identification of a 'traffic volume'.
tfv	c	'-' "TFCVOL" tfvid refloc flowlst flblock	Description of a traffic volume.

ADEXP Primary Field	Kind	Syntax	Semantic
title	b	'-' "TITLE" titleid	Message title.
ttleet	b	'-' "TTLEET" timehhmm_elapsed	Total estimated elapsed time in hours and minutes.
typz	b	'-' "TYPZ" text20	Type of aircraft when no ICAO code exists.
unit	c	'-' "UNIT" unitid [addrinfo]	Information concerning an 'air navigation unit' i.e. an ATC unit, an aircraft operator or flight plan originator. Contains the identification of the unit and optionally address data.
valfrom	b	'-' "VALFROM" date	First date from which the flight is scheduled to operate (in year, month and day).
valfromk	b	'-' "VALFROMK" (date | datewldcrd)	First date from which the flight is scheduled to operate, used as database key in a query, may be wildcarded. Must be a valid date or a combination of a valid date and wild-card characters.
valfromold	b	'-' "VALFROMOLD" date	The 'previous' 'valfrom' date. Used as a database key. Where the start of validity date is to be amended, the new value will be given in 'VALFROM'.
validitydate	b	'-' "VALIDITYDATE" date	Date of validity.
valuntil	b	'-' "VALUNTIL" date	Last date from which the flight is scheduled to operate (in year, month and day).
valuntilk	b	'-' "VALUNTILK" (date | datewldcrd)	Last date from which the flight is scheduled to operate, used as database key in a Query, may be wildcarded. Must be a valid date or a combination of a valid date and wild-card characters.
valuntilold	b	'-' "VALUNTILOLD" date	The 'previous' 'valuntil' date. Used as a database key. Where the end of validity date is to be amended, the new value will be given in 'VALUNTIL'.
wktrc	b	'-' "WKTRC" waketurbcat	Wake turbulence category.

A.4. **ADEXP Subfields**

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
addrinfo	c	'-' "ADDRINFO" network-type fac	Address information	unit	
adid	b	'-' "ADID" icaoaerodrome | 'ZZZZ'	The designator of an aerodrome. May contain the ICAO location indicator or the characters 'ZZZZ' where no location indicator has been assigned.	ad position stay	

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
airroute	c	'-' "AIRROUTE" [num] refatsrte flblock valperiod [remark]	Description of all or part of an ATS route during a specified period.	lacdr lcatsrte	
airspace	c	'-' "AIRSPACE" [num] airspdes flblock valperiod respunit [remark]	Description of all or part of an airspace during a specified period.	latsa lrar lrca	
airspdes	b	'-' "AIRSPDES" 3 { ALPHANUM }12	Designates an airspace other than an ATS route.	entrydata	airspace
brng	b	'-' "BRNG" refbearing	Bearing of a point from a navigation aid in degrees magnetic.	ref	
condition	b	'-' "CONDITION" 2 {ALPHA} 20	Type of condition or restriction e.g. TOS, FL restriction.	ignore	
crfl1	b	'-' "CRFL1" flightlevel	The lower limit of the flight level band within which a cruise climb is requested.	crsclimb	ptcrsclimb
crfl2	b	'-' "CRFL2" (flightlevel | "PLUS")	The upper limit of the flight level band within which a cruise climb is requested. 'PLUS' where the upper limit is unknown.	crsclimb	ptcrsclimb
crmach	b	'-' "CRMACH" machnumber	The Mach No. maintained during a cruise climb.	crsclimb	ptcrsclimb
crspeed	b	'-' "CRSPEED" spd	The speed to be maintained during a cruise climb.	crsclimb	ptcrsclimb
cto	b	'-' "CTO" timehhmm	Calculated Time Over a point.	ad position	pt
distnc	b	'-' "DISTNC" 1{ DIGIT }3	Distance of a point from a navigation aid in nautical miles. Must be 1 to 3 digits, possibly with leading zeroes.	ref	
efl	b	'-' "EFL" flightlevel	Estimated flight level.	Reserved for future use.	
endreg	b	'-' "ENDREG" day!-timehhmm	The time at which an ATFM Regulation finishes.		exccond regulation
eto	b	'-' "ETO" date ! timehhmm ! seconds	Estimated Time Over a point, in year, month, day, hours, minutes and seconds.	ad afildata estdata position	pt

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
exccond	c	'-' "EXCCOND" regnum refloc regreason startreg endreg [flblock] [rvrlimit] [remark]	An 'exceptional condition' raised in the context of ATFM e.g. fog at an aerodrome.		reglist
fac	b	'-' "FAC" 1{ LIM_CHAR }30	Address data.	addr cassaddr extaddr origin spladdr	addrinfo recvr sender
fir	b	'-' "FIR" 7{ ALPHA }7	Designates a FIR or UIR.	lfir	
fl	b	'-' " FL" flightlevel	A generic flight level field. May be a 'SFL', 'EFL', 'CFL', 'RFL', etc. depending on its context.	ad afildata cfl entrydata estdata flband position	flblock pt
flblock	c	'-' "FLBLOCK" fl fl	A flight level block defining an airspace vertically, inclusive of the flight levels given. A block defined as below or above a flight level shall be expressed respectively as from flight level 000 to the specified level or as from the specified level to flight level 999.	ad rrteto rrtefrom tfv	airspace airroute pt regulation exccond
flow	c	'-' "FLOW" frompos [via1] [via2] topos [via3] [via4] flowrole	Description of a 'flow' giving the source area, optionally the routes or points to be overflown from the source area, the destination area and optionally the routes or points to be overflown to the destination area.		flowlst
flowlst	c	'-' "BEGIN" "FLOWLST" 1 {flow} '-' "END" "FLOWLST"	List of traffic flows.	rrteto rrtefrom tfv	
flowrate	b	'-' "FLOWRATE" 3{LIM_CHAR}7	The 'rate' which is imposed by an ATFM Regulation.		rateperiod
flowrole	b	'-' "FLOWROLE" 'EX' | 'IE' | 'EM' | 'IN'	An indication of the 'role' of a flow. EX = excluded IE = included exempted EM = exempted IN = included		flow
from	b	'-' "FROM" day!timehhmm	The time from which a period of time begins.	rvrperiod	rateperiod

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
frompos	b	'-' "FROMPOS" 1 {ALPHANUM} 15	A position from which a route, a route portion, a 'path' or a flow begins. May be a region, an aerodrome or a significant point.		flow
geoid	b	'-' "GEOID" geoname	Identifier of a geographical point made of 'GEO' followed by a sequence number (example: 'GEO12').	geo	
ifpdlong	c	'-' "BEGIN" "IFPDLONG" adexpmsg '-' "END" "IFPDLONG"	Complete information concerning an individual flight plan.	ifpdlist	
ifpdsum	c	'-' "IFPDSUM" arcid adep ades eobt orgn	Summary information concerning an individual flight plan. It contains the arcid, adep, ades, eobt and orgn fields.	ifpdslist	
lastnum	b	'-' "LASTNUM" 3{DIGIT}3	A three digit number indicating the end of a sequence.		
lattd	b	'-' "LATTD" latitudelong ! latitudeside	Latitude in degrees, minutes, seconds and direction (North or South).	eetlat geo	
longtd	b	'-' "LONGTD" longitudelong ! longitudeside	Longitude in degrees, minutes, seconds and direction (East or West).	eetlong geo	
networktype	b	'-' "NETWORKTYPE" 2{ALPHANUM}10	Indication of the type of network used for a message exchange.	origin	addrinfo
num	b	'-' "NUM" 3{DIGIT}3	A three digit number.	extaddr part	airspace airroute
penrate	b	'-' "PENRATE" 3{LIM_CHAR}7	The 'pending rate', used for ATFM purposes.		rateperiod
postproctxt	b	'-' "POSTPROCTXT" adexpmsg	Contains a complete ADEXP message after it has been processed.	adexptxt	
preproctxt	b	'-' "PREPROCTXT" adexpmsg	Contains a complete ADEXP message prior to it being processed i.e. as it was received.	adexptxt	

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
pt	c	'-' "PT" ptid [(fl | flblock)] [sfl] [eto] [to] [cto] [sto] [ptrte] [ptstay] [ptrfl] [ptrulchg] [(ptspeed | ptmach)] [ptcrsclimb]	Point along a route. => Contains a point identification and optionally; - a flight level or flight level block, - a supplementary flight level, - a time reference(s), - a cruise climb - a routing indication - an indication of a period of 'special activity', i.e. that the flight will 'stay' in the area for a period of time Change in: - RFL, flight rules, speed/ Mach No.	rtepts	
ptcrsclimb	c	'-' "PTCRSCLIMB" (crspeed | crmach) crfl1 crfl2	Indication in the route of a flight of a cruiseclimb. Giving the speed or mach no. followed by the two levels indicating the flight level band to be occupied during the climb. The second level may be 'PLUS' where the upper level is unknown.		pt
ptfltrul	b	'-' "PTFLTRUL" 'VFR' | 'IFR'	An indication of the flight rules which are applicable at the point concerned.	entrydata	
ptid	b	'-' "PTID" point	Point identification, either coded designator or a name given artificially (GEOxx, REFxx or RENxx).	afildata cfl coordata crsclimb entrydata estdata ignore position ref rename stay	pt
ptmach	b	'-' "PTMACH" machnumber	Mach number, in hundredths of a unit, associated to a point on the route.	ad entrydata	pt
ptmilrul	b	'-' "PTMILRUL" 'OAT' | 'GAT'	An indication of the 'military' flight rules which are applicable at the point concerned.	entrydata	
ptrfl	b	'-' "PTRFL" flightlevel	Requested flight level, associated to a point on the route.	ad entrydata	pt
ptrte	b	'-' "PTRTE" 2{LIM_CHAR}	The route of flight following the point indicated. May be the complete route to the destination aerodrome or simply the routing element to the next point.		pt

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
ptrulchg	b	'-' "PTRULCHG" rulechg | flighttypechg | rulechg flighttypechg	Indication of a change in either the 'flight rules' (VFR/IFR) or the 'type of flight' (OAT/GAT) or both and associated to a point on the route.	ad	pt
ptspeed	b	'-' "PTSPEED" spd	True airspeed (in kilometres per hours or knots) associated to a point on the route.	ad entrydata	pt
ptstay	b	'-' "PTSTAY" stayidentifier timehhmm	Indication within the filed route of flight of a period of 'special activity' when the aircraft will 'stay' in the area defined for the length of time given, i.e. training, mid-air re-fuelling, etc.	ad	pt
rateperiod	c	'-' "RATEPERIOD" from until flowrate penrate	A period of time during which the given flow rates are applicable for an ATFM Regulation.	ratepdlst	regcond
recvr	b	'-' "RECVR" fac	The receiver of the referenced message.	msgref refdata	
refatsrte	b	'-' "REFATSRTE" atsroute point [country] point [country]	ATS route designator and identifiers of first and last points. The points listed may be ICAO identifiers or artificially given GEOxx, RENxx or REFxx points. The identifier of the country within which the point is located may optionally be included. The end points must be consistent with the route information.		airroute
refid	b	'-' "REFID" refname	Identifier of a reference point made of 'REF' followed by a sequence number (example: 'REF02').	ref	
refloc	b	'-' "REFLOC" 1{LIM_CHAR}15	Reference location of an ATFM Regulation.	rrteto rrtefrom tfv	exccond regulation
regcond	c	'-' "BEGIN" "REGCOND" {rateperiod} '-' "END" "REGCOND"	List of time periods and their respective flow rates for a particular regulation.		regulation
regdesc	b	'-' "REGDESC" 1{LIM_CHAR}	Description of an ATFM Regulation.		regulation
regid	b	'-' "REGID" regulid	Identification of a flow management 'Regulation'.		regulation

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
reglist	c	'-' "BEGIN" "REGLIST" regulation [exccond] '-' "END" "REGLIST"	List of 'Regulations' for flow management purposes.	fmplist	
regnum	b	'-' "REGNUM" 3{DIGIT}3 ! "/" ! 2{DIGIT}2	A reference number for an ATFM 'Regulation'. Provides a unique reference followed by a validity indication.		exccond regulation
regreason	b	'-' "REGREASON" 4 {ALPHA} 12	The reason for an ATFM Regulation.		exccond regulation
regulation	c	'-' "REGULATION" regnum regid regdesc refloc startreg endreg [flblock] [remark] [tfvid] [regreason] [regcond]	A 'Regulation' imposed for flow management purposes.		reglist
remark	b	'-' "REMARK" 1{LIM_CHAR}	A remark about the item, the description of which this field is a part.	stayinfo	airspace airroute exccond regulation
renid	b	'-' "RENID" renameid	Identifier given to a point which is repeated in the route description.	rename	
respunit	b	'-' "RESPUNIT" 12{ALPHA}12	The responsible ATC Unit.		airspace
rfpdlong	c	'-' "BEGIN" "RFPDLONG" {adexpmsg} '-' "END" "RFPDLONG"	Complete information concerning a repetitive flight plan.	rfpdlist	
rfpdsum	c	'-' "RFPDSUM" arcid adep ades eobt orgn days valfrom valuntil	Summary of the information concerning a repetitive flight plan. It contains the arcid, adep, ades, eobt, orgn, days, valfrom and valuntil fields.	rfpdslist	
rvrlimit	b	'-' "RVRLIMIT" 3{DIGIT}3	Runway Visual Range: operating minima when special meteorological conditions exist. Expressed in meters.	rvrperiod	exccond
sender	b	'-' "SENDER" fac	The sender of the referenced message.	msgref refdata	
seqnum	b	'-' "SEQNUM" 3{DIGIT}3	The serial number of the message being sent (a 3 digit number unique to the sender/receiver combination).	msgref refdata	

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
sfl	b	'-' SFL flightlevel ! ('A'|'B')	Supplementary flight level. The flight level at or above which or, at or below which a flight has been or will be co-ordinated to cross one point. Consists of a flight level number and a crossing condition (either 'A' if the aircraft will cross the point at or above the level, or 'B' if the aircraft will cross the point at or below the level).	coordata estdata propfl	pt
startreg	b	'-' "STARTREG" day!timehhmm	The time at which an ATFM Regulation becomes effective.		exccond regulation
statid	b	'-' "STATID" coorstatusident	The indicator of the co-ordination state of a flight.	cstat	
statreason	b	'-' "STATREASON" coorstatusreason	The reason for a change in the co-ordination status of a flight.	cstat	
stayident	b	'-' "STAYIDENT" stayidentifier	Identification of a period of 'special activity' or a 'stay' within the route of a flight.	stay stayinfo	
sto	b	'-' "STO" timehhmm ! seconds	A generic time field which may contain the time for a point or for an aerodrome. The time may be an estimated, calculated or actual time depending upon its context.	ad coordata position	pt
tfl	b	'-' "TFL" flightlevel	Transfer Flight Level. The flight level at which a flight has been or will be co-ordinated to cross one point (flight level number), if in level flight, or the cleared level to which it is proceeding if climbing or descending at the boundary point.	coordata propfl	
tfvid	b	'-' "TFVID" 1{ALPHANUM}15	Identification of a 'traffic volume'.	rrteto rrtefrom tfv	regulation
time	b	'-' "TIME" timehhmm	A time indication. May be an actual time or a period of time, depending upon the message context.	stay	

Subfield	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
to	b	'-' "TO" timehhmm	'Time Over/Off'. A generic time field which may contain the time for a point or for an aerodrome. The time may be an estimated, calculated or actual time depending upon its context.	position coordata	pt
topos	b	'-' "TOPOS" 1 {ALPHANUM} 15	A position to which a route, a route portion, a 'path' or a flow extends. May be a region, an aerodrome or a significant point.		flow
unitid	b	'-' "UNITID" 2{ ALPHANUM}10	Identification of an air navigation unit i.e. an ATC unit, aircraft operator or flight plan originator.	unit	
until	b	'-' "UNTIL" day!timehhmm	The time at which a period of time ends.	rvrperiod	rateperiod
valperiod	b	'-' "VALPERIOD" fulldatetime fulldatetime	A validity period, inclusive of the times given.		airroute airspace
via1	b	'-' "VIA1" 1 {ALPHANUM} 15	A point, an ATS route or an airspace which is either on or is required to be on the route of flight. When it is required to indicate more than one this field will contain the first in the sequence.		flow
via2	b	'-' "VIA2" 1 {ALPHANUM} 15	A point, an ATS route or an airspace which is either on or is required to be on the route of flight. When it is required to indicate more than one this field will contain the second in the sequence.		flow
via3	b	'-' "VIA3" 1 {ALPHANUM} 15	A point, an ATS route or an airspace which is either on or is required to be on the route of flight. When it is required to indicate more than one this field will contain the third in the sequence.		flow
via4	b	'-' "VIA4" 1 {ALPHANUM} 15	A point, an ATS route or an airspace which is either on or is required to be on the route of flight. When it is required to indicate more than one this field will contain the fourth in the sequence.		flow

ANNEX B (Normative)

CENTRAL INDEX OF ADEXP MESSAGE TITLES

Title	Definition	Introduced in Section
ABI	Advance Boundary Information Message	E.3
ACK	Acknowledge Message	E.1
ACP	Acceptance Message	E.5
ACT	Activation Message	E.3
AUP	Airspace Use Plan Message	E.4
BFD	Basic Flight Data Message	E.5
CDN	Co-ordination Message	E.3
CFD	Change to Flight Data Message	E.5
CNLCOND	ATFM Exceptional Condition Cancellation Message	E.2.3
CNLREG	ATFM Regulation Cancellation Message	E.2.3
COD	SSR Code Assignment Message	E.3
COF	Change of Frequency Message	E.3
CRAM	Conditional Route Availability Message	E.4
DES	De-Suspension Message	E.2.2
ERR	Error Message	E.2.2
EXCOND	ATFM Exceptional Condition Notification Message	E.2.3
FCM	Flight Confirmation Message	E.2.2
FLS	Flight Suspension Message	E.2.2
FSA	First System Activation Message	E.2.3
HOP	Hand-Over Proposal Message	E.3
IACH	Individual ATC Modification Message	E.1
IAFP	Individual ATC Flight Plan Proposal Message	E.1
IAPL	Individual ATC Flight Plan Message	E.1
IARR	Individual Arrival Message	E.1
ICHG	Individual Modification Message	E.1
ICNL	Individual Cancellation Message	E.1
IDEP	Individual Departure Message	E.1
IDLA	Individual Delay Message	E.1
IFPL	Individual Flight Plan Message	E.1
INF	Information Message	E.3
IRPL	Individual Repetitive Flight Plan	E.1
IRQS	Individual Request Supplementary Flight Plan	E.1

Title	Definition	Introduced in Section
ISPL	Individual Supplementary Flight Plan	E.1
LAM	Logical Acknowledgement Message	E.3, E.5
LRM	Logical Rejection Message	E.3
MAC	Message for Abrogation of Co-ordination	E.3
MAN	Manual Processing Pending Message	E.1
MAS	Manual Assumption of Communications Message	E.3
MODCOND	ATFM Exceptional Condition Modification Message	E.2.3
MODREG	ATFM Regulation Modification Message	E.2.3
MRA	Mandatory Route Activation Message	E.2.3
MRCNL	Mandatory Route Cancellation Message	E.2.3
MRMOD	Mandatory Route Modification Message	E.2.3
NEWREG	New ATFM Regulation Notification Message	E.2.3
NTA	No Traffic Accepted Message	E.2.3
NTACNL	No Traffic Accepted Cancellation Message	E.2.3
NTAMOD	No Traffic Accepted Modification Message	E.2.3
OLRA	Off-Load Route Activation Message	E.2.3
OLRCNL	Off-Load Route Cancellation Message	E.2.3
OLRMOD	Off-Load Route Modification Message	E.2.3
PAC	Preliminary Activation Message	E.3
RAP	Referred Activate Proposal Message	E.3
RCHG	Repetitive Flight Plan Data Modification Message	E.1
RCNL	Repetitive Flight Plan Data Cancellation Message	E.1
RDY	Ready Message	E.2.2
REJ	Rejection Message	E.1
REV	Revision Message	E.3
RJC	Reject Co-ordination Message	E.5
RJT	Re-Routing Rejection Message	E.2.2
ROF	Request On Frequency Message	E.3
RRP	Re-Routing Proposal Message	E.2.2
RRV	Referred Revision Proposal Message	E.3
SAM	Slot Allocation Message	E.2.2
SBY	Stand-by Message	E.3
SDM	Supplementary Data Message	E.3
SIP	Slot Improvement Proposal Message	E.2.2
SLC	Slot Requirement Cancellation Message	E.2.2
SMM	Slot Missed Message	E.2.2
SPA	Slot Proposal Acceptance Message	E.2.2
SRJ	Slot Proposal Rejection Message	E.2.2

Title	Definition	Introduced in Section
SRM	Slot Revision Message	E.2.2
SRR	Slot Revision Request Message	E.2.2
TIM	Transfer Initiation Message	E.3
UUP	Updated Airspace Use Plan Message	E.4
XAP	Crossing Alternate Proposal Message	E.5
XCM	Crossing Cancellation Message	E.5
XIN	Crossing Intention Notification Message	E.5
XRQ	Crossing Request Message	E.5

ANNEX C (Normative)

CENTRAL INDEX OF RESERVED MESSAGE TITLES

C.1. Introduction

This annex contains a central index of reserved message titles which have not yet been defined for use in ADEXP. Their inclusion in this annex indicates that they have either been foreseen for future use or that they are already in use but their usage is limited to within local systems.

C.2. Purpose

The purpose of providing a listing of titles which have not yet been formally adopted for use within this ADEXP Standard is to prevent, in so far as possible, either the creation of redundancy whenever a new title is required for a particular purpose or the creation of a title which is already in use within a local system.

C.3. Reserved Message Titles

Reserved Title	Message Type	Reserved by
ACTARR	Activation Message for an Arrival	FRANCE
ACTDEP	Activation Message for a Departure	FRANCE
ADMFPL	ADMAR2000 Flight Plan Message	GERMANY
ADMFPT	ADMAR2000 Flight Plan Termination Message	GERMANY
ADMFPU	ADMAR2000 Flight Plan Update Message	GERMANY
ANM	ATFM Notification Message	CFMU
ANSWERCT	Response Message (Terminal Control System)	FRANCE
ANSWM	Response Message (ODS)	FRANCE
ANSXFPLCT	Response Message	FRANCE
ATT	Landing Message	FRANCE
BEGINPROC	Begin Processing Message	FRANCE
BEGPROC	Controller Working Position Initialisation Procedure Message (ODS)	FRANCE
BEGPROCCT	Controller Working Position Initialisation Message (Terminal Control System)	FRANCE
CDA	Departure Cleanance Message (ARINC 623)	FRANCE
CDAFTX	Departure Clearance (ARINC 620)	FRANCE
CHGDEP	Modification message for a Departure flight	FRANCE
CLD	Departure Clearance (ARINC 623)	FRANCE
CLDFTX	Departure Clearance (ARINC620)	FRANCE
CNLARR	Cancellation of an Arrival	FRANCE
CNLCOND	Cancellation of Exceptional Condition	CFMU

Reserved Title	Message Type	Reserved by
CNLDEP	Cancellation of a Departure	FRANCE
CNLREG	Cancellation of an ATFM Regulation	CFMU
CONFEND	End Message to a change of Operational Configuration	FRANCE
CONFIDM	Operational Configuration Message (ODS)	FRANCE
CONFIDMCT	Operational Configuration Message (Terminal Control System)	FRANCE
DEC	Take-Off Message	FRANCE
DOUBM	Duplication Flight Plan Message	FRANCE
DRT	Modification of Destination Message	FRANCE
EATARR	Update of Estimated Arrival Time Message	FRANCE
ENDPROC	Controller Working Position Initialisation Procedure Last Message (ODS)	FRANCE
ENDPROCCT	Controller Working Position Initialisation Procedure Last Message (Terminal Control System)	FRANCE
EVLARR	Pre-Activation Message for Arrival	FRANCE
EVLDEP	Pre-Activation Message for Departure	FRANCE
EXCOND	Activation of an Exceptional Condition	CFMU
FICM	Flight Data Creation Message	FRANCE
FLXVIVO	'Flexible Track' Description Display Message	FRANCE
FPCLOSE	Flight Plan Data Close Message (ODS)	FRANCE
FPCLOSECT	Flight Plan Data Close Message (Terminal Control System)	FRANCE
FPCLOSED	Duplication of Flight Plan Data Close Message (ODS)	FRANCE
FPCRD	Activation of Flight Plan Message (ODS)	FRANCE
FPCRDCT	Activation of Flight Plan Message (Terminal Control System)	FRANCE
FPCRDD	Duplication of Flight Plan Data Activation Message (ODS)	FRANCE
FPCRE	Creation of Flight Plan Message (ODS)	FRANCE
FPCRECT	Creation of Flight Plan Message (Terminal Control System)	FRANCE
FPINI	Pre-Activation of Flight Plan Message (ODS)	FRANCE
FPINICT	Pre-Activation of Flight Plan Message (Terminal Control System)	FRANCE
FPINID	Duplication of Pre-Activation of Flight Plan Message	FRANCE
FPNTF	Pre-Activation of Flight Plan Message (ODS)	FRANCE
FPNTFD	Duplication of Pre-Activation of Flight Plan Message (ODS)	FRANCE
FPRDU	Flight Data Information Message for a Non-Concerned Sector (ODS)	FRANCE
FPRDUCT	Flight Data Information Message for a non-concerned Sector (Terminal Control System)	FRANCE
FSM	Departure Clearance System Message (ARINC 623)	FRANCE
FSMFTX	Departure Clearance System Message (ARINC 620)	FRANCE

Reserved Title	Message Type	Reserved by
FSR	Flight Suspension Request Message	CFMU
IACHD	Individual ATC Modification Message	GERMANY
ICHGD	Individual Modification Message	GERMANY
IDEPD	Individual Departure Message	GERMANY
IDLAD	Individual Delay Message	GERMANY
IFPDQ	Individual Flight Plan Data Query Message	CFMU
IFPDQR	Individual Flight Plan Data Query Reply Message	CFMU
IFPDSQ	Individual Flight Plan Data Summary Query Message	CFMU
IFPDSQR	Individual Flight Plan Data Summary Query Reply Message	CFMU
IFPLD	Individual Flight Plan	GERMANY
INFOM	Information Message	FRANCE
IRQS	Individual Request for Supplementary Information Message	CFMU
ISPL	Individual Supplementary Flight Plan Message	CFMU
LGR	Flight Plan Message List	FRANCE
LISTFP	Flight Plan Message List (ODS)	FRANCE
LISTFPCT	Flight Plan Message List (Terminal Control System)	FRANCE
LOGON	Identification of Flight Plan Message	FRANCE
MAJVIVO	Daily Movements Message	FRANCE
MCOM	Co-ordination Message	FRANCE
MODCOND	Modification of an Exceptional Condition	CFMU
MODREG	Modification of an ATFM Regulation	CFMU
MRA	Activation of a Mandatory Route	CFMU
MRCNL	Cancellation of a Mandatory Route	CFMU
MRMOD	Modification of a Mandatory Route	CFMU
MRR	Mandatory Re-Routing Message	CFMU
MVTVIVO	Movements Information Message	FRANCE
NEWREG	Activation of an ATFM Regulation	CFMU
NTA	Activation of a 'Not Allowed' Traffic Flow	CFMU
NTACNL	Cancellation of a 'Not Allowed' Traffic Flow	CFMU
NTAMOD	Modification of a 'Not Allowed' Traffic Flow	CFMU
OCLM	Oceanic Clearance Message	FRANCE
OCLMD	Duplication of Oceanic Clearance Message	FRANCE
OLRA	Activation of an Off-Load Route	CFMU
OLRCNL	Cancellation of an Off-Load Route	CFMU
OLRMOD	Modification of an Off-Load Route	CFMU
PAMAER	Runway Application Message	FRANCE

Reserved Title	Message Type	Reserved by
PAMARB	'On-Stand 'Confirmation Message	FRANCE
PAMARRANN	Cancellation of Parking Allocation for an Arrival	FRANCE
PAMARRCRE	Allocation of Parking Position for an Arrival	FRANCE
PAMARRPST	Modification of Parking Allocation for an Arrival	FRANCE
PAMDAPARB	Parking Message for Arrival Aircraft	FRANCE
PAMDAPCRE	Allocation of a Parking Position	FRANCE
PAMDEPANN	Cancellation of Parking Allocation for a Departure	FRANCE
PAMDEPCRE	Parking Allocation for a Departure	FRANCE
PAMDEPPST	Modification of Parking Allocation for a Departure	FRANCE
PAMDRB	'Off-Stand' Confirmation Message	FRANCE
QTAARR	Return to Original 'Created' Status for an Arrival	FRANCE
QTADEP	Return to Original 'Created' Status for a Departure	FRANCE
RCD	Request Departure Clearance Message (AIRINC 623)	FRANCE
RCDFTX	Request Departure Clearance Message (AIRINC 620)	FRANCE
REVARR	Revision Message for an Arrival	FRANCE
RFPDQ	Repetitive Flight Plan Data Query Message	CFMU
RFPDQR	Repetitive Flight Plan Data Query Reply Message	CFMU
RFPDSQ	Repetitive Flight Plan Data Summary Query Message	CFMU
RFPDSQR	Repetitive Flight Plan Data Summary Query Reply Message	CFMU
RIEM	Flight Data Information Message	FRANCE
RMG	Missed Approach Message	FRANCE
RRA	Re-Routing Acceptance Message	CFMU
RREC	Repetitive Flight Plan Recovery Message	CFMU
RRN	Re-Routing Notification Message	CFMU
RSUS	Repetitive Flight Plan Suspension Message	CFMU
RWYCHGCT	Runway Configuration Message	FRANCE
TRACT	Request for Flight Plan Activation (ODS)	FRANCE
TRACTCT	Request for Flight Plan Activation (Terminal Control System)	FRANCE
TRCNL	Request for Flight Plan Cancellation (ODS)	FRANCE
TRCNLCT	Request for Flight Plan Cancellation (Terminal Control System)	FRANCE
TRCOR	Request for Manual Correlation	FRANCE
TRDECOR	Request for Manual De-Correlation	FRANCE
TRFIC	Request for Creation of Flight Plan Data (ODS)	FRANCE
TRFICCT	Request for Creation of Flight Plan Data (Terminal Control System)	FRANCE
TRFLRQT	Request Flight Level Message	FRANCE

Reserved Title	Message Type	Reserved by
TRMOD	Request for Flight Plan Modification (ODS)	FRANCE
TRMODCT	Request for Flight Plan Modification (Terminal Control System)	FRANCE
TRMODH	Request for Time Modification	FRANCE
TRMODHD	Request for Time Modification for Delayed Flight	FRANCE
TRMVT	Co-ordination Request for Exiting Flight (ODS)	FRANCE
TRMVTCT	Co-ordination Request for Exiting Flight (Terminal Control System)	FRANCE
TRPOINT	Specific Flight Data Request Message	FRANCE
TRRET	Request for Revision of Flight Plan to 'Created' Status (ODS)	FRANCE
TRRETCT	Request for Revision of Flight Plan to 'Created' Status (Terminal Control System)	FRANCE
TRRIP	Request for Display of Flight Data Information (ODS)	FRANCE
TRRIPCT	Request for Display of Flight Data Information (Terminal Control System)	FRANCE
TRRQT	Flight Plan Request (ODS)	FRANCE
TRRQTCT	Flight Plan Request (Terminal Control System)	FRANCE
TRSHRQT	Request for SHOOT Action	FRANCE
TRSTAR	Controller Working Position Initialisation Request (ODS)	FRANCE
TRSTARCT	Controller Working Position Initialisation Request (Terminal Control System)	FRANCE
TRTRP	Transfer Position Message	FRANCE
UNKFP	Suppression of Flight Plan Message (ODS)	FRANCE
UNKFPCT	Suppression of Flight Plan Message (Terminal Control System)	FRANCE

ANNEX D (Normative)

CENTRAL INDEX OF RESERVED FIELDS

D.1. **Introduction**

This annex contains a central index of reserved fields, Primary, Subfield and Auxiliary Terms, which have not yet been defined for use in ADEXP. Their inclusion in this annex indicates that they have either been foreseen for future use or that they are already in use but their usage is limited to within local systems.

D.2. **Purpose**

The purpose of providing a listing of fields which have not yet been formally adopted for use within this ADEXP Standard is to prevent, in so far as possible, either the creation of redundancy whenever a new field is required for a particular purpose or the creation of a keyword which is already in use within a local system.

D.3. **Reserved Auxiliary Terms**

Reserved Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in auxilary
centreidentification	1{ALPHA}4	Centre identification.	ctsrc ripsrc ctripe	ctdest	
contextfdpsid	'opepal' | 'opesos' | 'evalpal' | 'tstopepal' |'tstopesos'	Mode of operation of an FDPS application. (Operational, Test, etc.)	ctxtfdps		
contextphidiasid	'ope'|'eval1'|'EVAL2' |('TST'!1{DIGIT}1)	*Specific to the French system*	ctxtpos		
coordpoints	('E'!('S'!('X'!('O'|NIL) |NIL)|NIL) |'S'!('X'!('O'|NIL)|NIL) |'X'!('O'|NIL)|NIL) |'O'	Entry point for the control position ('E'). Exit point for the control position ('S'), XFL point (X), OCL point (O)		coorpt	
eoidentification	1{ALPHANUM}6	Identification of an 'operational entity'	eosrc	eoid	
fl3	'F' ! 3{DIGIT}3	Flightlevel expressed in hundred of feet.	autfl1 autfl2 curfl		
flighttendancy	'U'|'D'|'S'	Projected tendency of the flight profile. U for UP D for Down S for Stable	etrfl trfl		

Reserved Auxiliary Term	Syntax	Semantic	Used in Primary Field	Used in Subfield	Used in auxilary
fpcentrestate	'CREE'|'EVEIL'| 'EVLCRT'|'ACTIVE'| 'TERM'	Flight plan status within an ACC.	fpctst		
latitude	4{ DIGIT }4	A latitude expressed as four digits	Reserved for future use		
latitudeshort	2{ DIGIT }2	A latitude expressed as two digits.	Reserved for future use		
longitude	5{ DIGIT }5	A longitude expressed as five digits.	Reserved for future use		
longitudeshort	3{ DIGIT }3	A longitude expressed as three digits.	Reserved for future use		
pointcautra	1{ALPHANUM}5	*Specific to the French system*	firstpid	pointid ptcid ptid	
positionidentification	1{ALPHANUM}6	Working position actual or logical		posid	
qfuid	('0'|'1'|'2'|'3')!1{ DIGIT } 1!('L'|'C'|'R'|NIL)	QFU for a runway. L = Left C = Centre R = Right	qfu	qful	
secidentification	1{ALPHANUM}2	Sector identification.	secdest secsrc	secid	
sendingreason	'INI'|'NTF'|'ACT'| 'MOD'|'MVT'| 'MVTSEC'|'COORAUTO'| 'MODHD'| 'CNL'|'RADAR'|'INIT'| 'RQT'|'TRF'|'RIP'| 'CONF'|'END'|'QTA'| 'ESLSA'|'OCM'| 'DMER'|'TRFSEC'| 'COLLAT'|'SHRQT'| 'POINT'|'FLRQT'| 'PKG'	Reason for sending flight plan data.	event		
starreason	'TOTAL'	The type of initialisation of a position with flight plan data	streason		
temperature	("N" | "P") ! 2{DIGIT}2	Temperature expressed in degrees Celsius (00-99) with the indication of the sign (Negative or Positive)	temp		
updatereason	('T'!('R'|NIL)|'R')	Type of update last made to a flight data.- Operator Transaction ('T'). Radar update ('R').		udpt	

D.4. **Reserved Primary Fields**

Reserved Primary Field	Kind	Syntax	Semantic
aabd	b	'-' "AABD" date	Actual arrival on-block date
aabt	b	'-' "AABT" timehhmm	Actual arrival on-block time
acnf	c	'-' "ACNF" ad rcnf [qfulist]	Runway configuration
aobd	b	'-' "AOBD" date	Actual off-block date
aobt	b	'-' "AOBT" timehhmm	Actual off-block time
apptyp	b	'-' "APPTYP" 1{ALPHANUM}1	Approach type of the flight (1 digit, values: 1, 2, 3)
arcidao	b	'-' "ARCIDAO" 1{ALPHANUM}11	Aircraft identification used by aircraft operators
arcidatc	b	'-' "ARCIDATC" 8{DIGIT}8	Locally unique aircraft identification number used by ATC
atis	b	'-' "ATIS" 1{ALPHA}1	Automatic Terminal Information Service indicator.
autfl1	b	'-' "AUTFL1" fl3	Authorised flight level 1
autfl2	b	'-' "AUTFL2" fl3	Authorised flight level 2
automsg	c	'-' "AUTOMSG" (sendt ptcid flb pflt)|'NO'	Provides the data which is to be transmitted in a co-ordination message: sending time, exit point, flight level over exit point, planed flight level and information concerning whether the level is in accordance with agreements.
avail	b	'-' "AVAIL" 'YES'|'NO'	Indication as to whether a sector is permitted or not to modify a flight plan data.
bkrow	b	'-' "BKROW" 1{DIGIT}2	The position of a point of reference in a list of route points.
bkt	b	'-' "BKT" datetime	Time over the reference point for a transaction.
codetr	b	'-' "CODETR" 'YES'|'NO'	Indication whether the ssrcode should be transmitted (or not) to the pilot by the control position
confid	b	'-' "CONFID" 1{DIGIT}5	Operational configuration identification (sectors|positions).
confl	c	'-' "BEGIN" "CONFL" 1{eopos} '-' "END" "CONFL"	List of sectors/positions associations for an en-route centre.
crspd	b	'-' "CRSPD" 1{DIGIT}4	Cruise speed in knots
ctripe	b	'-' "CTRIPE" centreidentification	Name of the receiving centre for a transaction
ctrow	b	'-' "CTROW" 1{DIGIT}1	The position of a centre in a list of centres.

Reserved Primary Field	Kind	Syntax	Semantic
ctsrc	b	'-' "CTSRC" centreidentification	Identification of sending centre
ctxtct	b	'-' "CTXTCT" 'OPE' | 'TST'	Mode of operation of Terminal Control System.
ctxtfdps	b	'-' "CTXTFDPS" contextfdpsid	Mode of operation of an FPDS
ctxtpos	b	'-' "CTXTPOS" contextphidiasid	Mode of operation for ODS
curfl	b	'-' "CURFL" fl3	Current flight level
curpos	c	'-' "CURPOS" ptid | (lattd longtd)	Current position
curpost	b	'-' "CURPOST" datetime	Date and time at current position
curptt	b	'-' "CURPTT" datetime	Date and time of overflight of current point
curptx	b	'-' "CURPTX" 1{DIGIT}2	Numbered position of current point in a list of route points.
dcatcid	b	'-' "DCATCID" icaoaerodrome	Aerodrome responsible for departure clearance when given by FDPS to the aircraft via datalink.
dcbtxt	b	'-' "DCBTXT" 'PDC REQUEST RECEIVED'|'PDC REQUEST UNKNOWN' | 'PDC REQUEST IGNORED' | 'ACK'	Basic text for ARINC 623 departure clearance messages. 'ACK' for acknowledgement message.
dcbtxtftx	b	'-' "DCBTXTFTX" 'PDC REQUEST RECEIVED'|'PDC REQUEST UNKNOWN' | 'PDC REQUEST IGNORED' | 'ACK'	Basic text for ARINC 620 departure clearance messages. 'ACK' for acknowledgement message.
dccar	b	'-' "DCCAR" 'DMER'|'COLLAT'|'NO'	Departure clearance status for a flight.
dcid	b	'-' "DCID" 1{DIGIT}3	System number for departure clearance.
dcmtyp	b	'-' "DCMTYP" 1{ALPHA}3	Departure clearance message type.
dcref	b	'-' "DCREF" 1{ALPHANUM}5	Context reference for a departure clearance.
dcrmk	b	'-' "DCRMK" 1{LIM_CHAR}80	Remark for a departure clearance.
dcs1txt	b	'-' "DCS1TXT" 'REQUEST BEING PROCESSED' | 'REQUEST ALREADY RECEIVED' | 'FLIGHT PLAN NOT HELD' | 'ERROR IN MESSAGE'.	Supplementary text for the Departure Clearance System Message (ARINC 623).
dcs2txt	b	'-' "DCS2TXT" 'STANDBY'| 'REVERT TO VOICE PROCEDURE'	Second Supplementary text for the Departure Clearance message (ARINC 623).
dcdt	b	'-' "DCDT" datetime ! seconds	Day, hours, minutes, seconds for the departure clearance.
delcode	b	'-' "DELCODE" 1{ALPHANUM}20	Reason for a delay
dfdpsid	b	'-' "DFDPSID datetime ! seconds	Data of Flight Data Processing System Identification
doubid	b	'-' "DOUBID" 1{ALPHANUM}2	Identification of a 'duplicate' entity.
ecurptt	b	'-' "ECURPTT" datetime	Estimated time of overflight of current point

Reserved Primary Field	Kind	Syntax	Semantic
eda	b	'-' "EDA" date	Estimated date of arrival
elastptt	b	'-' "ELASTPTT" datetime	Estimated time of overflight of last point of the route
endhldt	b	'-' "ENDHLDT" datetime	Holding pattern ending time.
entrnb	b	'-' "ENTRNB" '1' | '2' | '3' | '4' | '5' | '6' | '7' | '8' | '9' | '10' | '11' | '12' | '13' | '14' | '15'	Number of occurrences of a flight plan within a centre.
entryt	b	'-' "ENTRYT" datetime	Entry time for the position.
enxtptt	b	'-' "ENXTPTT" datetime	Estimated time of overflight of next point (not given if current point is the last point).
eobdt	b	'-' "EOBDT" datetime	Date and estimated off-block time.
eosrc	b	'-' "EOSRC" eoidentification	Operational 'entity' identification
espfl	b	'-' "ESPFL" flightlevel	Supplementary transfer flight level for the preceding control position.
eta	b	'-' "ETA" timehhmm	Estimated time of arrival.
etrfl	b	'-' "ETRFL" flightlevel|flighttendancy	Entry Flight Level or flight profile tendency.
event	b	'-' "EVENT" sendingreason	Triggering event for FDPS.
firstpid	b	'-' "FIRSTPID" pointcautra	*Specific to the French system*
flbk	b	'-' "FLBK" flightlevel	Flight level of the last transaction reference point for an activated flight, or modified level for reference point for a transaction.
fpbaseid	b	'-' "FPBASEID" datetime!seconds	Flight Plan Data Base Identification
fpctst	b	'-' "FPCTST" fpcentrestate	Flight Plan Status within a Centre.
fpkwl	c	'-' "BEGIN" "FPKWL" 1{fpident}300 '-' "END" "FPKWL"	List of the known but not yet transferred flight plans for a position.
fplcat	b	'-' "FPLCAT" "T" | "E" | "S" | "I"	Flight category: T = overflight E = inbound S = outbound I = internal.
fplist	c	'-' "BEGIN" "FPLIST" 1{fpsum}50 '-' "END" "FPLIST"	List of Flight plan information for a callsign.
fpllist	c	'-' BEGIN "FPLLIST" fpllgr '-' "END"	List of flight plans fields
fplnb	b	'-' "FPLNB" 1{DIGIT}1	Number of flight plans from 0 to 5
fplstat	b	'-' "FPLSTAT" "T" | "C"	Flight status: T = terminated C = active.

Reserved Primary Field	Kind	Syntax	Semantic
fprmk	b	'-' "FPRMK" 1{LIM_CHAR}8	Initial flight plan remarks.
fpsrc	b	'-' "FPSRC" ("FICTOT"|"FICEVL"|"FICMOD"|FICABI"| "FICACT""|FICPAC"|'FPL"|"RPL"|"NKW")	Flight Plan source.
fpunkl	c	'-' "BEGIN" "FPUNKL" 1{fpident}300 '-' "END" "FPUNKL"	List of 'unknown' flight plans.
freetxt	c	'-' "BEGIN" "FREETXT" 1{txt}3 '-' "FREETXT"	Free text message.
ftxid	b	'-' "FLXID" 1{ALPHANUM}14	Flex-track identity.
ftxname	b	'-' "FLXNAME" 1{ALPHANUM}4	Flex-track name.
ftxnum	b	'-' "FLXNUM" 1{DIGIT}2	Flex-track generation number.
grspd	b	'-' "GRSPD" 1{DIGIT}4	Ground speed in knots.
hldbkrw	b	-' "HLDBKRW" 1{DIGIT}2	Number position of a reference point for an holding pattern in a list of route points.
icing	b	'-' "ICING" 1{ALPHA}8	Icing. 'TRACE' or 'LIGHT' or 'MODERATE' or 'SEVERE'.
indstip	b	'-' "INDSTIP" 'STIP'	*Specific to the French system*
initid	b	'-' "INITID" 1{DIGIT}1	Initialisation number.
interid	b	'-' "INTERID" 'V'!2{DIGIT}2!'R'!2{DIGIT}2	FDPS/ODS or FDPS/Terminal system interface identifier.
lalglist	c	'-' BEGIN "LALGLIST" lalg '-' END "LALGLIST"	List of latitude and longitude of points in the route.
lang	b	'-' "LANG" '?'	Conversational language indicator. '?' = the language is not usual in the company
lastradt	b	'-' "LASTRADT" datetime	Last update time given by radar information.
lights	b	'-' "LIGHTS" 1{ALPHANUM}1	Lights code.
maint	b	'-' "MAINT" 'YES'|'NO'	Indication whether the data information for a control position is continually maintained or not.
modea	b	'-' "MODEA" 'A'!4{'0'|'1'|'2'|'3'|'4'|'5'|'6'|'7'}4	SSR Mode A .information
modec	b	'-' "MODEC" flightlevel	SSR Mode C information
msgbody	b	'-' "MSGBODY" 1{CHARACTER}	Contains a character string which is identical to the body of the equivalent and existing non-ADEXP message.
msgct	b	'-' "MSGCT" datetime ! seconds	Time stamp of the message in the format: Day, hours, minutes, seconds.
nat	b	'-' "NAT" 1{ALPHA}1	Identification of a North Atlantic track .

Reserved Primary Field	Kind	Syntax	Semantic
nfc	b	'-' "NFC" 3{DIGIT}3 ! '.' ! 3{DIGIT}3	Next frequency contact.
nxtfir	b	'-' "NXTFIR" icaoaerodrome	Next FIR to be contacted
nxtpos	c	'-' "NXTPOS" ptid | (lattd longtd)	Next position.
nxtpost	b	'-' "NXTPOST" datetime	Time over the next position.
oclfl	b	'-' "OCLFL" flightlevel	Oceanic Clearance Limit (OCL) flight level.
oprfl	b	'-' "OPRFL" flightlevel	Request Flight Level modified by an operator.
oprmk	c	'-' "BEGIN" "OPRMK" 1{rmktxt}2 '-' "END" "OPRMK"	List of Operator remarks.
oprmkct	b	'-' "OPRMKCT" 1{LIM_CHAR}20	Operator remarks.
oriented	b	'-' "ORIENTED" 'YES'|'NO'	Oriented flight or not.
pfl	b	'-' "PFL" flightlevel	Planned Flight Level (PFL).
pistcoord	c	'-' "PISTCOORD" xpist ypist vxpist vypist	Radar track coordinates and speed vector coordinates.
pistid	b	'-' "PISTID" 1{DIGIT}4	Radar track identification.
pkarr	c	'-' "PKARR" [pka] [pkc] pkatt	Parking position for an arriving flight
pkdep	b	'-' "PKDEP" 1{ALPHANUM}3	Parking position for a departing flight.
plnid	b	'-' "PLNID" 4{DIGIT}4	Flight Plan identification
plnold	b	'-' "PLNOLD" 4{DIGIT}4	Old Fight Plan identification
posst	b	'-' "POSST" 'MAE'|'MPS'|'MAS'|'MPSA'|'MPSLATE'|'NO'	Co-ordination movement State for the position: Accepted Movement for the Entry (MAE) or for the exit (MAS) or Proposed Movement for the Exit (MPS) or Proposed Movement Exit Alarm (MPSA) or position not yet movement co-ordinated (NO).
ptnb	b	'-' "PTNB" 1{DIGIT}2	Number of points in the route.
qfu	b	'-' "QFU" qfuid	Runway in use (QFU) identification.
quebec	b	'-' "QUEBEC" 'YES'|'NO'	Quebec flight or not.
radioid	b	'-' "RADIOID" 1{ALPHANUM}20	Radio identification.
reqid	b	'-' "REQID" 1{DIGIT}5	Number of a request.
reqtyp	b	'-' "REQTYP" ('STPV' | 'STIP')	Flight plan request type.
ripel	c	'-' "BEGIN" "RIPEL" 1{destid}12 '-' "END" "RIPEL"	List of entities to receive flight plan data

Reserved Primary Field	Kind	Syntax	Semantic
ripsrc	b	'-' "RIPSRC" centreidentification	Identification of the centre responsible for initiating the transmission of flight plan data.
rstid	b	'-' "RSTID" '1'|'2'|'3'|'4'|'5'	IFPS transaction number in a flight plan request.
rte	c	'-' "BEGIN" "RTE" 1{ptc}22 '-' "END" "RTE"	List of the CAUTRA points of undirected route.
rtetr	c	'-' "BEGIN" "RTETR" 1{ptpro}22 '-' "END" "RTETR"	List of route points for certain transactions.
scnf	c	'-' "BEGIN" "SCNF" 1{acnf}3 '-' "END" "SCNF"	List of aerodrome configurations.
secdest	b	'-' "SECDEST" secidentification	Receiving sector identifier.
seclist	c	'-' "BEGIN" "SECLIST" 1{sec}30 '-' "END" "SECLIST"	Global List of sectors.
seclistct	c	'-' "BEGIN" "SECLISTCT" 1{secct}30 '-' "END" "SECLISTCT"	Global List of the sectors.
secsrc	b	'-' "SECSRC" secidentification	Originating sector identifier.
spfl	b	'-' "SPFL" flightlevel	Supplementary Flight Level.
ssrcodes	c	'-' "SSRCODES" (code1 code2) | code | codep)	Transmitted SSR code.
stamp	b	'-' "STAMP" 3{DIGIT}3 ! timehhmm	Stamp identification.
streason	b	'-' "STREASON" starreason	Reason for an initialisation request issued from a working position.
strid	b	'-' "STRID" 1{DIGIT}	RDPS identifier.
temp	b	'-' "TEMP" temperature	Temperature
terminal	b	'-' "TERMINAL" 1{ALPHANUM}2	Name of the terminal.
translist	c	'-' "BEGIN" "TRANSLIST" 1 {transid} '-' "END" "TRANSLIST"	List of possible transactions for the control position and for the flight plan specified.
trfl	b	'-' "TRFL" flightlevel | flighttendancy	Transfer Flight Level or tendency information about a flight profile
turb	b	'-' "TURB" 1{ALPHA}8	Turbulence = LIGHT or MODERATE or SEVERE
validend	b	'-' "VALIDEND" datetime	End time of display.
validst	b	'-' "VALIDST" datetime	Start time of display.
visi	b	'-' "VISI" 1{ALPHANUM}20	Visibility.
wddir	b	'-' "WDDIR" 1{DIGIT}3	Wind direction expressed in degrees from 0 to 359.
wdspd	b	'-' "WDSPD" 1{DIGIT}3	Wind speed expressed in knots.
xfl	b	'-' "XFL" flightlevel	Exit Flight Level (XFL).
xfpltxt	b	'-' "XFPLTXT" 1{CHARACTER | ASCII_SUP}768	Response message to a flight plan request.

D.5. **Reserved Subfields**

Reserved Subfields	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
act	C	'-' "BEGIN" "ACT" 1{fieldid}20 '-' "END" "ACT"	Flight plan fields which are modifiable at the time of activation of a flight.		transid
bkchg	C	'-' "BKCHG" flimp flmin flmax	Implicit FL, minimum FL and maximum FL for the reference point for a transaction. The FL is generic, may be RFL, PFL, etc.		fieldid
bktchg	c	'-' "BKTCHG" delta1 delta2	The value (+/-) by which a time modification for a point is permitted.		fieldid
cflchg	c	'-' "CFLCHG" flimp flmin flmax	Implicit Cleared Flight Level (CFL), minimum CFL and maximum CFL for the reference point for a transaction.		fieldid
code	b	'-' "CODE" ('A'|'C'|'X')! 4{'0'|'1'|'2'|'3'|'4'|'5'|'6'|'7'}4	SSR mode and allocated code.	ssrcodes	
codep	b	'-' "CODEP" ('A'|'C'|'X')! 4{'0'|'1'|'2'|'3'|'4'|'5'|'6'|'7'}4	SSR mode and code which is available for use.	ssrcodes	
code1	b	'-' "CODE1" ('A'|'C'|'X')! 4{'0'|'1'|'2'|'3'|'4'|'5'|'6'|'7'}4	SSR mode and code previously allocated.	ssrcodes	
code2	b	'-' "CODE2" ('A'|'C'|'X')! 4{'0'|'1'|'2'|'3'|'4'|'5'|'6'|'7'}4	SSR mode and code which has been reserved for use and is therefore not available.	ssrcodes	
coorpt	b	'-' "COORPT" coordpoints	Characteristic of co-ordination point: Initial, Exit, OCL, XFL		ptc
ctdest	b	'-' "CTDEST" centreidentification	Receiving centre (ACC)		destid
delta1	b	'-' "DELTA1" ('0'|'1'|'2'|'3'|'4'|'5')!DIGIT	Time interval for the calculation of a minimum time.		bktchg
delta2	b	'-' "DELTA2" ('0'|'1'|'2'|'3'|'4'|'5')!DIGIT	Time interval for the calculation of a maximum time.		bktchg
deltsp1	b	'-' "DELTSP1" 1{DIGIT}4	Speed interval for the calculation of a minimum speed.		spdchg
deltsp2	b	'-' "DELTSP2" 1{DIGIT}4	Speed interval for the calculation of a maximum speed.		spdchg
destid	c	'-' "DESTID" ctdest secrip	ATC Centre and list of sectors to whom flight plan data is to be sent	ripel	

Reserved Subfields	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
edto	b	'-' "EDTO" datetime|"WT"	Estimated time over a point in year, month, day, hours, minutes or indicator 'point without time' 'WT'.		ptc ptpro
eoid	b	'-' "EOID" eoidentification	Operational 'entity' name.		eolist
eolist	c	'-' "BEGIN" "EOLIST" 1{eoid} '-' "END" "EOLIST"	List of operational entities associated to a control position.		eopos
eopos	c	'-' "EOPOS" posid [eolist]	Control position name and list of operational entities associated to this position.	confl	
fieldid	c	'-' "FIELDID" 'TYPA'|'ADES'|'RTE'|'ADEP'|'CODE'| 'LANG'|'BK'|spdchg|rflchg|cflchg|pflchg| tflchg|sflchg|xflchg|bkchg|bktchg|'QFU'| 'PKDEP'|'SID'|'NFC'|'ATIS'|'DCRMK'| 'OPRMK'	Identification of modifiable fields for a transaction.		act mod mvt ret modh
flb	b	'-' "FLB" flightlevel	Calculated flightlevel at exit co-ordination point which may be transmitted in the automatic co-ordination message to the next centre.	automsg	
flimp	b	'-' "FLIMP" flightlevel	Implicit flight level.		bkchg rflchg pflchg cflchg tflchg sflchg
flmax	b	'-' "FLMAX" flightlevel	Maximum flight level.		bkchg rflchg pflchg cflchg tflchg sflchg xflchg
flmin	b	'-' "FLMIN" flightlevel	Minimum flight level.		bkchg rflchg pflchg cflchg tflchg sflchg xflchg
fpident	c	'-' "FPIDENT" plnid stamp ctrow entrnb	Flight plan identification in a message.	fpunkl fpkwl	
fpllgr	c	'-' "FPLLGR" arcidatc arcid adep ades eobd eobt	'Summary' flight plan data.	fpllist	

Reserved Subfields	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
fpsum	c	'-' "FPSUM" plnid eobdt adep ades ctrow firstpid	Flight plan identification.	fplist	
lalg	c	'-' "LALG" lattd longtd	Latitude and longitude of each point in the route	laglist	
mod	c	'-' "BEGIN" "MOD" 1{fieldid}20 '-' "END" "MOD"	List of fields which are modifiable after activation.		transid
modh	c	'-' "BEGIN" "MODH" 1{fieldid}2 '-' "END" "MODH"	List of fields which are modifiable in a time update transaction after activation.		transid
mvt	c	'-' "BEGIN" "MVT" 1{fieldid}2 '-' "END" "MVT"	List of fields which are modifiable in a manually triggered co-ordination between sectors		transid
pflchg	c	'-' "PFLCHG" flimp flmin flmax	Implicit, minimum and maximum level for modification of PFL.		fieldid
pflt	b	'-' "PFLT" flightlevel!('NA'|NIL)	Planned flightlevel which will be transmitted in the automatic co-ordination message to the next centre. Plus an indication whether the level is in accordance with the applicable operational agreements. NA = Not according agreement.	automsg	
pka	b	'-' "PKA" 1{ALPHANUM}3	Reserved parking position, not yet allocated.	pkarr	
pkatt	b	'-' "PKATT" 'YES' | 'NO'	Indicator that the aircraft is waiting for a parking position.	pkarr	
pkc	b	'-' "PKC" 1{ALPHANUM}3	Allocated parking position.	pkarr	
pointid	b	'-' "POINTID" pointcautra	Specific to the French system.		ptpro
posid	b	'-' "POSID" positionidentification	Control position name.		eopos
ptc	c	'-' "PTC" ptcid edto [fl] [view] [udpt] [traj] [coorpt] [ref]	Characteristics of a route point.	rte	
ptcid	b	'-' "PTICD" pointcautra|geoname	Specific to the French system.	automsg	ptc
ptpro	c	'-' "PTPRO" pointid [edto] [fl] [traj]	Description of proposed route points.	rtetr	
qful	c	'-' "QFUL" qfuid	Valid QFU for a given runway on an aerodrome.		qfulist

Reserved Subfields	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
qfulist	c	'-' BEGIN" "QFULIST" 1{qful}8 '-' "END" "QFULIST"	List of valid QFUs for an aerodrome.	acnf	
rcnf	b	'-' "RCNF" 1{ALPHA}5	General take-off and landing direction for an aerodrome. (East, West, etc.)	acnf	
ref	c	'-' "REF" (refid|ref1id)	Characteristics of a reference point for a transaction.		ptc
refid	b	'-' "REFID" 'REF'!2{DIGIT}2	Identification of a possible reference point for a transaction.		ref
ref1id	b	'-' "REF1ID" 'REF'!2{DIGIT}2	Identification of the most probable reference point for a transaction.		ref
regulid1	b	'-' "REGULID1" 1{ALPHANUM}5	Regulation information specific to the French systems.	regul	
regulid2	b	'-' "REGULID2" 1{ALPHANUM}5	Regulation information specific to the French systems.	regul	
regult	b	'-' "REGULT" datetime	Regulation information specific to the French systems.	regul	
ret	c	'-' "BEGIN" "RET" 1{fieldid}1 '-' "END" "RET"	List of fields which are modifiable in a transaction to return the flight plan data to it's previous status.		transid
rflchg	c	'-' "RFLCHG" flimp flmin flmax	Implicit, minimum and maximum level for the modification of the RFL.		fieldid
rmktxt	b	'-' "RMKTXT" 1{LIM_CHAR}20	Text of a controller remark.	oprmk	
sec	c	'-' "SEC" secid [seccar]	Identification and characteristics of ACC sectors to whom flight plan data is to be sent.	seclist	secrip
seccar	b	'-' "SECCAR" ('F'!('L'!('M'!('D'|NIL)|NIL)|NIL)|NIL) |('L'! ('M'!('D'|NIL)|NIL)|NIL) |('M'!('D'|NIL)|NIL) |'D'	Characteristic of an ACC sector: - First sector ('F') - Last sector ('L') - Accepted for Entry ('M') - source sector for 'duplication' ('D')		sec
seccarct	b	'-' "SECCARCT" ('F'!('L'!('M'!('V'/NIL)/NIL)/NIL)/NIL) /('L'! ('M'!('V'/NIL)/NIL)/NIL) /('M'!('V'/NIL)/NIL) /'V'	Characteristic of a Terminal Area sector: - First sector ('F') - Last sector ('L') - Accepted for Entry('M')		secct
secct	c	'-' "SECCT" secid [seccarct]	Identification and characteristics of Terminal Area sectors.	seclistct	

Reserved Subfields	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
secid	b	'-' "SECID" secidentification	Sector identification.		secct sec
secrip	c	'-' "BEGIN" "SECRIP" 1{sec}40 '-' "END" "SECRIP"	List of receiving entities (sectors or departure/arrival control entities) to whom flight plan data is to be sent.		destid
sendt	b	'-' "SENDT" datetime	Time for sending co-ordination message.	automsg	
sflchg	c	'-' "SFLCHG" flimp flmin flmax	Implicit, minimum and maximum level for modification of Supplementary Flight Level (SFL)		fieldid
spdchg	c	'-' "SPDCHG" deltsp1 deltsp2	Lower an upper speed intervals for the modification of the flight plan speed during a transaction.		fieldid
tflchg	c	'-' "TFLCHG" flimp flmin flmax	Implicit, minimum and maximum level for modification of Transfer Flight Level (TFL).		fieldid
traj	b	'-' "TRAJ" ('S'!'M')|'S'|'M'|'T'| ('S'!'M'!'A')|('S'!'A')| ('M'!'A')|'A'	Characteristics of a point in relation to the trajectory of a flight: S = Splitpoint M = Mergepoint T = Abeam point A = STAR point		ptc ptpro
transid	b	'-' " TRANSID" (act | mod | mvt | ret | modh | 'CNL' | 'RIP') | 'NO'	Identification of possible transaction for the control position for this flight plan or 'NO' indicator meaning transaction not possible.	translist	
txt	b	'-' "TXT" 1{LIM_CHAR}80	Free text.	freetxt	
udpt	b	'-' "UDPT" updatereason	Last update brought by operator and/or by radar information.		ptc
view	b	'-' "VIEW" ('V'|'VNX')	Indication of 'viewable' nature of a point. V = viewable VNX = not viewable (artificial point)		ptc
vxpist	b	'-' "VXPIST" ALPHA 1{DIGIT}5 ALPHA:= P|N P:= Positif N:= Negative	X coordinate of the speed vector of a radar position.	pistcoord	
vypist	b	'-' "VYPIST" ALPHA 1{DIGIT}5 ALPHA:= P|N P:= Positif N:= Negative	Y coordinate of the speed vector of a radar position.	pistcoord	

Reserved Subfields	Kind	Syntax	Semantic	Used in Primary Field	Used in Subfield
xflchg	c	'-' "XFLCHG" flmin flmax	Minimum and maximum level for modification of an Exit Flight Level (XFL).		fieldid
xpist	b	'-' "XPIST" 'P'|'N' 1{DIGIT}6 P:= Positif N:= Negative	X coordinate of a radar position.	pistcoord	
ypist	b	'-' "YPIST" 'P'|'N' 1{DIGIT}6 ALPHA:= P/N P:= Positif N:= Negative	Y coordinate of a radar position.	pistcoord	

ANNEX E (Informative)

INTRODUCTION OF MESSAGE GROUPS

INTRODUCTION

This Annex provides an introduction to the different groups or categories of messages which can be exchanged in ADEXP. A complete listing of all ADEXP message titles is given in Annex B.

NOTE *For the exact conditions, rules of application and field usage, particularly the use of optional fields, reference should be made to the relevant documentation (e.g. Interface Specification document) of the systems concerned.*

E.1. Flight Plan Messages

E.1.1. *Introduction*

Messages within this category are exchanged primarily between the AO, IFPS and the relevant ATS Units.

E.1.2. *Definition of Message Titles*

Message titles within this category are:

ACK, IACH, IAFP, IAPL, IARR, ICHG, ICNL, IDEP, IDLA, IFPL, IRPL, IRQP, MAN, RCHG, RCNL, REJ.

All defining material for these messages is held within Document Ref. 3

E.1.3. *Primary Fields Composition*

Detailed definition of message content, data insertion rules and the use of compulsory and optional fields can be found in Document Ref. 3.

Example

Flight Plan Message

-TITLE IFPL

-BEGIN ADDR -FAC CFMUTACT -FAC EGZYTTFO -FAC EGZYTTTE -FAC EGTTZGZP

-FAC EGKKZPZI -FAC LFFBTEST -FAC LESCYFPX -FAC LPPCIFPS -FAC LPPTYWYA

-FAC LPAMYWYA -FAC LPAMYCYX -FAC LPPTIFPS

-END ADDR

-ADEP EGKK -ADES LPPT -ARCID AZX752 -ARCTYP BA11 -CEQPT S

-EOBD 980305 -EOBT 1130 -FILTIM 041530 -IFPLID AA00463686 -ORGNID AZXRPLO

-SEQPT C -SRC RPL -WKTRC M -TTLEET 0230 -RFL F330 -SPEED N0400 -FLTRUL I

-FLTTYP S

-ROUTE N0400F330 SAM UR41 ORTAC UR1 QPR UR107 AVS UG41 FTM

-BEGIN RTEPTS

-PT -PTID EGKK -FL F000 -ETO 980305113000

-PT -PTID SAM -FL F196 -ETO 980305114012

-PT -PTID ASPEN -FL F288 -ETO 980305114658

-PT -PTID ORTAC -FL F311 -ETO 980305114959

-PT -PTID GUR -FL F330 -ETO 980305115617

-PT -PTID AKEMI -FL F330 -ETO 980305120118

-PT -PTID LARSI -FL F330 -ETO 980305120626

-PT -PTID QPR -FL F330 -ETO 980305121236

-PT -PTID ERWAN -FL F330 -ETO 980305123152

-PT -PTID LOTEE -FL F330 -ETO 980305124401

-PT -PTID AVS -FL F330 -ETO 980305125357

-PT -PTID KORET -FL F330 -ETO 980305130137

-PT -PTID BARKO -FL F330 -ETO 980305130734

-PT -PTID CANAR -FL F330 -ETO 980305131544

-PT -PTID VIS -FL F330 -ETO 980305132220

-PT -PTID FTM -FL F234 -ETO 980305133230

-PT -PTID LPPT -FL F000 -ETO 980305134529

-END RTEPTS

-ATSRT UR41 SAM ORTAC -ATSRT UR1 ORTAC QPR -ATSRT UR107 QPR AVS

-ATSRT UG41 AVS FTM

E.2. **Air Traffic Flow Management Messages**

E.2.1. *Introduction*

Messages within this category are exchanged primarily between the TACT system of the Eurocontrol CFMU, Aircraft Operators and ATS Units.

E.2.2. *Computer Assisted Slot Allocation Messages (CASA)*

Message titles within this category are:

DES, ERR, FCM, FLS, RDY, RJT, RRP, SAM, SIP, SLC, SMM, SPA, SRJ, SRM, SRR.

E.2.2.1. Definition of Message Titles

All defining material for these messages is held within Document Ref. 5

E.2.2.2. Primary Fields Composition

Detailed definition of message content, data insertion rules and the use of compulsory and optional fields can be found in Document Ref. 5.

Example

-TITLE SAM -ARCID AMC101 -ADEP EGLL -ADES LMML -EOBD 980324 -EOBT 0945

-CTOT 010 -REGUL UZZU11 -TAXITIME 0020

E.2.3. *Information Messages*

Message titles within this category are:

FSA

E.2.3.1. Definition of Message Titles

Defining material for this message will be available in Document Ref. 5

E.2.3.2. Primary Fields Composition

Definition of message content, data insertion rules and the use of compulsory and optional fields will be found in Document Ref. 5.

Example

First System Activation Message

-TITLE FSA -ARCID EIN636 -ADEP EIDW -ADES EBBR -POSITION -PTID LIFFY -TO 1646

E.3. **ATC Co-ordination Messages**

E.3.1. *Introduction*

Co-ordination Messages are used to automate operational co-ordination and the exchange of information between ATC units. The messages ensure the timely delivery of operational information related to co-ordination through standardised data extraction and transmission capabilities.

E.3.2. *Definition of Message Titles*

Message titles within this category are:

ABI, ACT, CDN, COD, COF, HOP, INF, LAM, LRM, MAC, MAS, PAC, RAP, REV, ROF, RRV, SBY, SDM, TIM.

All defining material for these messages is held within Document Ref. 6

E.3.3. *Primary Fields Composition*

All defining material for these messages is held within Document Ref. 6.

Examples

Hand-Over Proposal Message

-TITLE HOP -REFDATA -SENDER -FAC L -RECVR -FAC E -SEQNUM 030 -ARCID AMM253

-CFL F190 -ASPEED N0420 -RATE D25 -DCT BEN STN

Activate Message

-TITLE ACT -REFDATA -SENDER -FAC E -RECVR -FAC L -SEQNUM 005 -ARCID AMM253

-SSRCODE A7041 -ADEP LMML -COORDATA -PTID BNE -TO 1226 -TFL F350

-ADES EGBB -ARCTYP B757 -ROUTE N0480F390 UB4 BNE UB4 BPK UB3 HON

E.4. **Airspace Management Messages**

E.4.1. *Introduction*

Messages used in the of co-ordination of airspace management. These messages cover the management of the environment in which the traffic is moving: the permanent and conditional routes, temporary segregated areas, danger and prohibited areas, etc.

E.4.2. *Definition of Message Titles*

Message titles within this category are:

AUP, CRAM, UUP.

All defining material for these messages is held within Document Ref.7.

E.4.3. *Primary Fields Composition*

All defining material for these messages is held within Document Ref. 7.

Example:

Conditional Route Availability Message

-TITLE CRAM -PART -NUM 001 -LASTNUM 010

-FILTIME 281353 -MESVALPERIOD 199803290600 1998703300600

-BEGIN LACDR

-AIRROUTE -NUM 001 -REFATSRTE UA23 ELVAR LP BEJ LP

-FLBLOCK -FL F245 -FL F255 -VALPERIOD 199803290600 199803300600

-AIRROUTE -NUM 002 -REFATSRTE UA44 ESP LP BEJ LP

-FLBLOCK -FL F245 -FL F255 -VALPERIOD 199803290600 199803290730

-AIRROUTE -NUM 003 -REFATSRTE UA44 ESP LP BEJ LP

-FLBLOCK -FL F245 -FL F255 -VALPERIOD 199803291830 199803300600

-AIRROUTE -NUM 004 -REFATSRTE A44 ESP LP BEJ LP

-FLBLOCK -FL F105 -FL F245 -VALPERIOD 199803290600 199803290730

-AIRROUTE -NUM 005 -REFATSRTE A44 ESP LP BEJ LP

-FLBLOCK -FL F105 -FL F245 -VALPERIOD 199803291830 199803300600

-AIRROUTE -NUM 006 -REFATSRTE A44 BEJ LP ROSAL LP

-FLBLOCK -FL F105 -FL F245 -VALPERIOD 199803292030 199803300530

-AIRROUTE -NUM 007 -REFATSRTE UA57 FFM ED DIK EL

-FLBLOCK -FL F250 -FL F450 -VALPERIOD 199803290700 199803291330

-END LACDR

E.5. **Civil / Military Co-ordination Messages**

E.5.1. *Introduction*

Messages used in the co-ordination of flight data and airspace crossing requests between civil and military ATS units.

E.5.2. *Definition of Message Titles*

Message titles within this category are:

ACP, BFD, CFD, LAM, RJC, XAP, XCM, XIN, XRQ.

All defining material for these messages is held within Document Ref. 7.

E.5.3. *Primary Fields Composition*

All defining material for these messages is held within Document Ref. 7.

Example:

Crossing Clearance Request Message

-TITLE XRQ -REFDATA -SENDER -FAC EBSZZXZQ -RECVR -FAC EBBUZXZQ

-SEQNUM 012 -ARCID DEUCE22 -SSRCODE A1240 -ARCTYP F111 -SECTOR SOUTH

-BEGIN RTEPTS

-PT -PTID GEO01 -TO 1630 -FL F250

-PT -PTID GEO02 -TO 1631 -FL250

-END RTEPTS

-GEO -GEOID GEO01 -LATTD 500000N -LONGTD 0051000E

-GEO -GEOID GEO02 -LATTD 500000N -LONGTD 0051500E

Acceptance Message

-TITLE ACP -REFDATA -SENDER -FAC EBBUZXZQ -RECVR -FAC EBSZZXZQ

-SEQNUM 014 -MSGREF -SENDER -FAC EBSZZXZQ -RECVR -FAC EBBUZXZQ

-SEQNUM 012

ANNEX F (Informative)

EXAMPLES OF ADEXP MESSAGE FORMAT

The following examples are provided as a demonstration of the ADEXP format, not as an example of message content. The message used is an IFPL and although correct at the time of publication, accuracy of field composition etc. is not guaranteed.

The EXAMPLE 1 below has been presented in a manner which makes it easily readable. This has been achieved through the use of carriage returns, line feeds, indents etc. Such a layout however does not form part of the ADEXP format rules.

Presentation of a message is therefore at the discretion of the receiving system. The examples provided as EXAMPLE 2 and EXAMPLE 3 are both valid representations of the same message as that in EXAMPLE 1.

EXAMPLE 1

-TITLE IFPL

-BEGIN ADDR
    -FAC CFMUTACT
    -FAC LFFFSTIP
    -FAC EDFFZRZL
    -FAC EDZZZQZA
    -FAC EDUUZQZA
    -FAC LOVVZQZX
    -FAC LHBPZEZX
    -FAC LYBAZQZX
    -FAC LWSSZQZX
    -FAC LGTSZAZX

-END ADDR

-ADEP EDDF

-ADES LGTS

-ARCID DLH3728

-ARCTYP B73A

-CEQPT SDMRY

-EOBD 980517

-EOBT 0715

-FILTIM 170421

-IFPLID AA05966101

-ORGNID DLHAOCC

-ORIGIN -NETWORKTYPE SITA -FAC FRAOXLH

-REG DABHM

-SEL KMGJ

-SRC FPL

-FLTTYP S

-WKTRC M

-TTLEET 0210

-RFL F330

-SPEED N0417

-FLTRUL I

-SEQPT C

-ROUTE N0417F330 NDG3D NDG UW70 MUN UB103 UNKEN UT23 BABIT UR26

SAVIN UG18 BUI UB1 TALAS

-ALTRNT1 LBSF

-EETFIR EDUU 0014

-EETFIR LOVV 0035

-EETFIR LJLA 0054

-EETFIR LHCC 0057

-EETFIR LYBA 0113

-EETFIR LWSS 0148

-EETFIR LGGG 0159

-BEGIN RTEPTS

-PT -PTID EDDF -FL F000 -ETO 980317071500

-PT -PTID NDG -FL F311 -ETO 9803173414

-PT -PTID RIDER -FL F327 -ETO 980317073726

-PT -PTID MAH -FL F330 -ETO 980317074130

-PT -PTID MUN -FL F330 -ETO 980317074449

-PT -PTID CHIEM -FL F330 -ETO 980317074754

-PT -PTID UNKEN -FL F330 -ETO 980317075109

-PT -PTID GRZ -FL F330 -ETO 9803170080830

-PT -PTID DIMLO -FL F330 -ETO 980317081443

-PT -PTID BABIT -FL F330 -ETO 980317083107

-PT -PTID SAVIN -FL F330 -ETO 980317083613

-PT -PTID UPIVO -FL F330 -ETO 980317084054

-PT -PTID KLENA -FL F330 -ETO 980317084204

-PT -PTID VAL -FL F330 -ETO 980317084629

-PT -PTID KAVOR -FL F330 -ETO 980317085329

-PT -PTID BUI -FL F330 -ETO 980317090135

-PT -PTID SARAX -FL F330 -ETO 980317090650

-PT -PTID PEP -FL F312 -ETO 980317091414

-PT -PTID TALAS -FL F241 -ETO 980317091746

-PT -PTID LGTS -FL F000 -ETO 980317093138

-END RTEPTS

-SID NDG3D

-ATSRT UW70 NDG MUN

-ATSRT UB103 MUN UNKEN

-ATSRT UT23 UNKEN BABIT

-ATSRT UR26 BABIT SAVIN

-ATSRT UG18 SAVIN BUI

-ATSRT UB1 BUI TALAS

EXAMPLE 2

-TITLE IFPL -BEGIN ADDR -FAC CFMUTACT -FAC LFFFSTIP -FAC EDFFZRZL -FAC EDZZZQZA -FAC EDUUZQZA -FAC LOVVZQZX -FAC LHBPZEZX -FAC LYBAZQZX -FAC LWSSZQZX -FAC LGTSZAZX -END ADDR -ADEP EDDF -ADES LGTS -ARCID DLH3728 -ARCTYP B73A -CEQPT SDMR -EOBD 980517 -EOBT 0715 -FILTIM 170421 -IFPLID AA05966101 -ORGNID DLHAOCC -ORIGIN -NETWORKTYPE SITA -FAC FRAOXLH -REG DABHM -SEL KMGJ -SRC FPL -FLTTYP S -WKTRC M -TTLEET 0210 -RFL F330 -SPEED N0417 -FLTRUL I -SEQPT C -ROUTE N0417F330 NDG3D NDG UW70 MUN UB103 UNKEN UT23 BABIT UR26 SAVIN UG18 BUI UB1 TALAS -ALTRNT1 LBSF -EETFIR EDUU 0014 -EETFIR LOVV 0035 -EETFIR LJLA 0054 -EETFIR LHCC 0057 -EETFIR LYBA 0113 -EETFIR LWSS 0148 -EETFIR LGGG 0159 -BEGIN RTEPTS -PT -PTID EDDF -FL F000 -ETO 980317071500 -PT -PTID NDG -FL F311 -ETO 9803173414 -PT -PTID RIDER -FL F327 -ETO 980317073726 -PT -PTID MAH -FL F330 -ETO 980317074130 -PT -PTID MUN -FL F330 -ETO 980317074449 -PT -PTID CHIEM -FL F330 -ETO 980317074754 -PT -PTID UNKEN -FL F330 -ETO 980317075109 -PT -PTID GRZ -FL F330 -ETO 9803170080830 -PT -PTID DIMLO -FL F330 -ETO 980317081443 -PT -PTID BABIT -FL F330 -ETO 980317083107 -PT -PTID SAVIN -FL F330 -ETO 980317083613 -PT -PTID UPIVO -FL F330 -ETO 980317084054 -PT -PTID KLENA -FL F330 -ETO 980317084204 -PT -PTID VAL -FL F330 -ETO 980317084629 -PT -PTID KAVOR -FL F330 -ETO 980317085329 -PT -PTID BUI -FL F330 -ETO 980317090135 -PT -PTID SARAX -FL F330 -ETO 980317090650 -PT -PTID PEP -FL F312 -ETO 980317091414 -PT -PTID TALAS -FL F241 -ETO 980317091746 -PT -PTID LGTS -FL F000 -ETO 980317093138 -END RTEPTS -SID NDG3D -ATSRT UW70 NDG MUN -ATSRT UB103 MUN UNKEN -ATSRT UT23 UNKEN BABIT -ATSRT UR26 BABIT SAVIN -ATSRT UG18 SAVIN BUI -ATSRT UB1 BUI TALAS

EXAMPLE 3

-TITLE IFPL-BEGIN ADDR-FAC CFMUTACT-FAC LFFFSTIPFAC EDFFZRZL-FAC EDZZZQZA-FAC EDUUZQZA-FAC LOVVZQZX-FAC LHBPZEZX-FAC LYBAZQZX-FAC LWSSZQZX-FAC LGTSZAZX-END ADDR-ADEP EDDF-ADES LGTS-ARCID DLH3728-ARCTYP B73A-CEQPT SDMR-EOBD 980517-EOBT 0715-FILTIM 170421-IFPLID AA05986101-ORGNID DLHAOCC-ORIGIN-NETWORKTYPE SITA-FAC FRAOXLH-REG DABHM-SEL KMGJ-SRC FPL-FLTTYP S-WKTRC M-TTLEET 0210-RFL F330-SPEED N0417-FLTRUL I-SEQPT C-ROUTE N0417F330 NDG3D NDG UW70 MUN UB103 UNKEN UT23 BABIT UR26 SAVIN UG18 BUI UB1 TALAS-ALTRNT1 LBSF-EETFIR EDUU 0014-EETFIR LOVV 0035-EETFIR LJLA 0054-EETFIR LHCC 0057-EETFIR LYBA 0113-EETFIR LWSS 0148-EETFIR LGGG 0159-BEGIN RTEPTS-PT-PTID EDDF-FL F000-ETO 980317071500-PT-PTID NDG-FL F311-ETO 9803173414-PT-PTID RIDER-FL F327-ETO 980317073726-PT-PTID MAH-FL F330-ETO 980317074130-PT PTID MUN-FL F330-ETO 980317074449-PT-PTID CHIEM-FL F330-ETO 980317074754-PT-PTID UNKENFL F330-ETO 980317075109-PT-PTID GRZ-FL F330-ETO 9803170080830-PT-PTID DIMLO-FL F330-ETO 980317081443-PT-PTID BABIT-FL F330-ETO 980317083107-PT-PTID SAVIN-FL F330-ETO 98031708361-PT-PTID UPIVO-FL F330-ETO 980317084054-PT-PTID KLENA-FL F330-ETO 980317084204-PT-PTID VAL-FL F330-ETO 980317084629-PT-PTID KAVOR-FL F330-ETO 980317085329-PT-PTID BUI-FL F330-ETO 980317090135-PT-PTID SARAX-FL F330-ETO 980317090650-PT-PTID PEP-FL F312-ETO 980317091414-PT-PTID TALAS-FL F241-ETO 980317091746-PT-PTID LGTS-FL F000-ETO 980317093138-END RTEPTS-SID NDG3D-ATSRT UW70 NDG MUN-ATSRT UB103 MUN UNKEN-ATSRT UT23 UNKEN BABIT-ATSRT UR26 BABIT SAVIN-ATSRT UG18 SAVIN BUI-ATSRT UB1 BUI TALAS

ANNEX G (Informative)

FUTURE DEVELOPMENTS

G.1. Introduction

This annex is intended to provide an indication of the proposed future development of ADEXP and the reasons and objectives behind the development.

G.2. Objectives

One of the most important objectives during the development of ADEXP was the requirement to develop a format which would enable a receiving system to successfully 'ignore' or 'skip' an unknown or unrecognised field without necessarily having to invalidate the message being processed. This implementation can allow the addition of a new field within a message without the requirement to have all receiving systems modified in advance followed by a very carefully co-ordinated 'switch-over'. The enormous flexibility that this can provide is one of the advantages of the ADEXP format.

This objective is achieved in the current standard through the use of pre-defined primary and sub-fields, introduced by unique keywords. A lexical analyser or parser which does not 'recognise' a keyword is required to ignore all the text up to the next known Primary Field, which is not within a List Field. Recovery is therefore achieved at the level of primary fields.

Current and future development in the definition of new messages indicate that in certain areas a greater level of complexity is required, where third and even fourth level nesting of fields is needed. (The Conditional Route Allocation Message (CRAM) is a current example of this requirement). ADEXP today provides the ability to build a message with any level of nesting. However, the ability to recover from an unrecognised subfield, which occurs at perhaps the third or fourth level of nesting, without the chance of misinterpretation of data or of having to invalidate the message, does not exist. The proposed modifications required of the ADEXP format are designed to ensure that a lexical analyser or parser is able, at all times, to determine where it is within the structure of a message or individual field and in so doing, to enable recovery to take place at any level of nesting without the danger of misinterpretation of data.

G.3. Proposal

In order to achieve the objective of recovery at any level within a message it is necessary for the lexical analyser to be able to determine the end, as well as the start, of a field. The current format allows only the determination of the start of a field using the '-' character.

It will be proposed, in a future release of ADEXP, to introduce the use of parenthesis to indicate respectively the start and end of a field. The current use of the '-' character to introduce the start of field would be replaced by the '(' character. The end of field, which is not explicitly indicated today, would be indicated in future by the ')' character. The following examples are intended to demonstrate the principle.

Examples

	Current Format	Proposed Format
Example of Basic Field:	-RFL F330	(RFL F330)
Example of Compound Field:	-CRSCLIMB	(CRSCLIMB
	-PTID DUB	(PTID DUB)
	-CRSPEED M084	(CRSPEED M084)
	-CRFL1 F370	(CRFL1 F370)
	-CRFL2 F430	(CRFL2 F430))

ANNEX III

FLIGHT DATA EXCHANGE — INTERFACE CONTROL DOCUMENT (FDE-ICD), EDITION 1.0

(Eurocontrol document reference COM.ET1.ST12-STD)

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FOREWORD

1. Responsible Body

This Standard Document has been prepared by and is maintained by the Flight Plan related Data Exchange (FPDE) Task Force of the European Organisation for the Safety of Air Navigation (Eurocontrol).

2. EATCHIP Work Programme Document

This Standard relates to the EATCHIP Work Programme Document (EWPD), Communications Domain, Executive Task 01, Specialist Task 12

3. Approval of the Standard

3.1. This Standard is adopted in accordance with the procedures outlined in the Directives for Eurocontrol Standardisation Ref. 000-2-93.

3.2. This Standard becomes effective upon adoption by the Permanent Commission of Eurocontrol and supersedes Eurocontrol Standard for On-Line Data Interchange (OLDI), Edition 1, Part 3: TECHNICAL REQUIREMENTS (Short Term Interface Control Document) Ref. 001-3-92.

4. Technical Corrigenda and Amendments

This Standard is kept under review to ascertain required amendments or technical corrigenda. The procedure for the maintenance of this Standard is laid down in Annex H of the Directives for the Uniform Drafting and Presentation of Eurocontrol Standard Documents Ref. 000-1-92.

5. Editorial Conventions

5.1. The format of this Standard complies with the Directives for the Uniform Drafting and Presentation of Eurocontrol Standard Documents.

5.2. The following notation has been used to indicate the status of each statement:

— Normative statements use the operative verb 'shall' and have been printed in light faced roman text;

— *Recommended statements* use the operative verb 'should' and have been printed in light faced italics, the status being indicated by the prefix **Recommendation**.

5.3. Any other information which is considered essential to the understanding of a particular indent will be integrated within the text as a NOTE. A note is considered to be informative only, therefore does not contain specifications and is placed immediately after the indent to which it refers.

5.4. Exceptionally, in order to present the Profile Requirements Lists (PRLs) in Annex E in a suitable format, some tables are not indented and are not continued over several pages.

6. Relationship to other Standard Documents

6.1. This Eurocontrol Standard Document supersedes the OLDI Short Term Interface Control Document (ST-ICD), Part 3, Edition 1 of the OLDI Eurocontrol Standard [Reference 13].

6.2. This Eurocontrol Standard Document is the first part in a expected series of Eurocontrol Standard Interface Control Documents (ICDs) for Flight Data Exchange.

7. **Status of Annexes to this Standard**

The Annexes to this Standard have the following status:

— Annex A — Normative

— Annex B — Normative

— Annex C — Normative

— Annex D — Normative.

— Annex E — Normative

— Annex F — Informative

— Annex G — Informative

— Annex H — Informative

8. **Language Used**

The English language has been used for the original text of this Standard.

1. INTRODUCTION

This Eurocontrol Standard is based on the Short Term Interface Control Document developed by the former OLDI Technical Sub-Group which was tasked with defining new interface standards for the future operation of OLDI between Area Control Centres.

Earlier OLDI links were based on proprietary protocols such as INTERCAUTRA or Datenübertragungs- und Verteilungssystem (DÜV), which run over dedicated point-to-point circuits or limited networks, and require the use of specialised hardware and software.

For the larger number of new links planned, it was felt to be desirable to move towards a network-based architecture and the adoption of international telecommunications standards, enabling links to be implemented in a more cost-effective manner, by reducing the number of connections at each Centre and allowing the use of standard 'off the shelf' hardware and software.

This Eurocontrol Standard formalises and extends the Short Term ICD. The ST-ICD has been rewritten to give a more rigorous specification that will improve interoperability and, in addition, is suitable to form the basis of future ICDs to meet the evolving requirements for Flight Data Exchange (FDE), including wider use of shared networks and the introduction of new lower layer standards. This Eurocontrol Standard provides a minimum set of functionalities that can be supported by existing OLDI implementations with minimal modifications, using either point-to-point links or Comité Consultatif des Téléphones et Télégraphes (CCITT) Recommendation X.25, 1980 or later, packet-switched networks. For procurement, more possibilities can be specified. This ICD does not prevent agreements on a bilateral basis to go further.

Installations wishing to run other application protocols in addition to, or in place of the one described in this document may either apply for amendment of the present protocol, or separate their protocol using different virtual circuits.

2. SCOPE

2.1. This Eurocontrol Standard Document specifies a data communications interface for the exchange of flight-related data messages between Area Control Centres (ACCs). It is presented in the form of an Open Systems Interconnection (OSI) profile as defined in International Organisation for Standardisation/International Electrotechnical Commission (ISO/IEC) Technical Report (TR) 10000-2 [Reference 3]. The profile covers both lower layers (T-profile) and upper layers (A-profile).

2.2. This Eurocontrol Standard Document is applicable to the following scenarios:

— support of OLDI as described in Eurocontrol Standard No. 001-92 Edition 1;

— support of transmission of OLDI application messages from ACCs to the Central Flow Management Unit (CFMU) systems.

2.3. The Standard is applicable for connection using either:

— leased line point-to-point circuits, or

— Public Switched Telephone Network (PSTN) point-to-point circuits, or

— packet-switched data networks, or interconnected packet-switched data networks, that provide an interface conforming to CCITT Recommendation X.25, 1980 or later.

NOTES

1. *The arrangement between Flight Plan Processing Systems (FPPSs) is represented in Figure 1.*

2. *Figure 1 does not illustrate potential backup connections, such as PSTN, for which guidance is given in Annex H.*

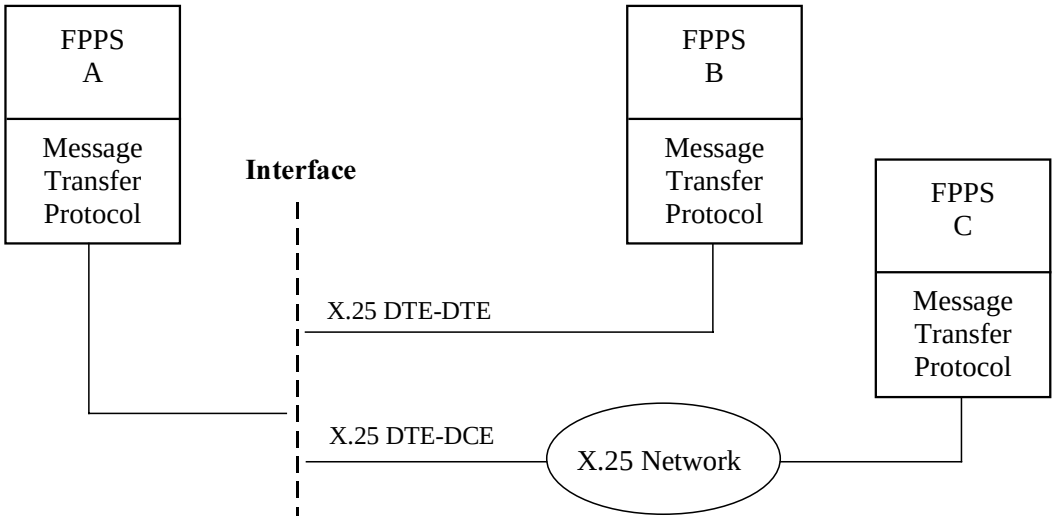


Figure 1

Interface Arrangement

2.4. Detailed security aspects of the specified data communications interface are not mandated by this Standard. However, a basic provision is specified in Annex and further guidance may be found in Annex H of this Eurocontrol Standard.

3. REFERENCES

3.1. Introduction

The following documents and standards contain provisions which, through reference in this text, constitute provisions of this Eurocontrol Standard.

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

Any revision of the referenced International Civil Aviation Organisation (ICAO) Documents shall be immediately taken into account to revise this Eurocontrol Standard.

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

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

3.2. References

1. ITU-T Recommendation X.25 (1993) (Rev. 1), Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminals operating in the packet mode and connected to public data networks by dedicated circuit.

2. ISO/IEC TR 10000-1:1992, Information technology — Framework and taxonomy of International Standardized Profiles: — Part 1: Framework (2nd edition).

3. ISO/IEC TR 10000-2:1994, Information technology — Framework and taxonomy of International Standardized Profiles — Part 2: Principles and Taxonomy for OSI Profiles (3rd edition).

4. ITU-T Recommendation X.21 (1992) (Rev. 1), Interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for synchronous operation on public data networks.

5. CCITT Recommendation X.21bis (1988), Use on public data networks of data terminal equipment (DTE) which is designed for interfacing to synchronous V-Series modems.

6. ISO/IEC 7776:1994, Information technology — Telecommunications and information exchange between systems — High-level data link control procedures — Description of the X.25 LAPB-compatible DTE Data Link procedures (2nd edition).

7. ISO/IEC 8208:1993, Information Technology — Data communications — X.25 Packet Layer Protocol for Data Terminal Equipment (3rd edition).

8. ISO/IEC ISP 10609-9:1992, Information technology — International Standardized Profiles TB, TC, TD and TE — Connection-mode Transport Service over Connection-mode Network Service — Part 9: Subnetwork-type dependent requirements for Network Layer, Data Link Layer and Physical Layer concerning permanent access to a packet-switched data network using virtual calls.

9. ISO/IEC 7498-1:1994, Information technology — Open Systems Interconnection — Basic Reference Model: The Basic Model (2nd edition).

10. ISO/IEC 8348:1993, Information technology — Open Systems Interconnection — Network Service Definition (1st edition).

11. ISO/IEC 8072:1994, Information technology — Open Systems Interconnection — Transport service definition (2nd edition).

12. ISO/IEC 8878:1992, Information Technology — Telecommunications and information exchange between systems — Use of X.25 to provide the OSI connection-mode Network Service (2nd edition).

13. Eurocontrol Standard for On-Line Data Interchange (OLDI), No. 001-92, Edition 1, 1992.

14. ISO/IEC 9646-1:1994, Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 1: General concepts (2nd edition).

15. Eurocontrol (Maastricht Upper Area Control (UAC) Systems Division) FDE ICD Part 1 Integration Test Plan Version 1.0, dated 10 May 1996.

16. Eurocontrol FDE ICD Part 1 — Reliability, Availability and Security — Technical Report version 1.0, dated 20 April 1997.

17. ITU-T Recommendation X.32 (1993) (Rev. 1), Interface between DTE and DCE for terminals operating in the packet mode and accessing a packet switched public data through a public switched telephone network or an integrated services digital network or a circuit switched public data network.

18. ITU-T Recommendation E.164 (1991) (Rev. 1), Numbering plan for the ISDN era.

19. ITU-T Recommendation X.75 (1993) (Rev. 1), Packet-switched signalling system between public network providing data transmission service.

20. ITU-T Recommendation X.121 (1993), International numbering plan for public data networks.

4. DEFINITIONS, SYMBOLS AND ABBREVIATIONS

4.1. Definitions

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

4.1.2. *Profile*: A set of one or more base standards, and, where applicable, the identification of chosen classes, subsets, options and parameters of those base standards, necessary for accomplishing a particular function [Reference 2].

4.1.3. *Profile Requirements List (PRL)*: The profile requirements are expressed in the form of conformance requirements and are arranged in a tabular list format [Reference 2].

4.1.4. *T-profile*: Transport Profile providing a Connection mode Transport Service [Reference 3].

4.1.5. *A-profile*: Application Profile requiring a Connection-mode Transport Service [Reference 3].

4.1.6. *Protocol Implementation Conformance Statement (PICS)*: A statement made by the supplier of an OSI system, stating which capabilities have been implemented, for a given OSI protocol [Reference 14].

4.2. **Symbols and Abbreviations**

For the purpose of this Eurocontrol Standard Document, the following symbols and abbreviations are used:

ACC	Area Control Centre
AFI	Authority and Format Identifier
ASCII	American Standard Code for Information Interchange
ATC	Air Traffic Control
ATCC	Air Traffic Control Centre
CAUTRA	Coordinateur Automatique du Trafic Aérien
CCITT	Comité consultatif international télégraphique et téléphonique (now ITU-T)
CFMU	Central Flow Management Unit
CUG	Closed User Group
DCE	Data Circuit-terminating Equipment
DCTS	Digital Communications Terminal System
DSP	Domain Specific Part
DTE	Data Terminal Equipment
DÜV	Datenübertragungs- und Verteilungssystem
FDE	Flight Data Exchange
FEP	Front-End Processor
FPDE	Flight Plan related Data Exchange
FPPS	Flight Plan Processing System
ICAO	International Civil Aviation Organisation
ICD	Interface Control Document
IDI	Initial Domain Identifier
IDP	Initial Domain Part
IEC	International Electrotechnical Commission
INTERCAUTRA	Inter-CAUTRA protocol
ISO	International Organization for Standardization
ITU-T	International Telecommunication Union — Telecommunication Standardization Sector
ISDN	Integrated Services Digital Network

LAPB	Link Access Procedure Balanced
LSB	Least Significant Bit
M, m	Mandatory
MSB	Most Significant Bit
MT	Message Transfer
NA	Not Applicable
NS	Network Service
NSAP	Network Service Access Point
NSDU	Network Service Data Unit
O, O.<n>	Optional, where <n> is a numeral for referencing
o, o.<n>	Optional, where <n> is a numeral for referencing
OLDI	On-Line Data Interchange
OSI	Open Systems Interconnection
PICS	Protocol Implementation Conformance Statement
PLP	Packet Layer Protocol
PRL	Profile Requirements List
PSTN	Public Switched Telephone Network
ST-ICD	Short Term Interface Control Document
SUT	System Under Test
T<x>	Timer (where <x> is a single or double letter for referencing)
TA	Terminal Adaptor
TSDU	Transport Service Data Unit
TPDU	Transport Protocol Data Unit
TR	ISO Technical Report
X	Prohibited
x	Excluded
<item>:	Conditional Item (dependent on the value of item)

4.3. **Notations**

4.3.1. For the purpose of this Eurocontrol Standard Document, binary values or a sequence of bits are denoted in hexadecimal using the notation 'd'H, where the letter d stands for a digit or a sequence of hexadecimal digits.

4.3.2. For the purpose of this Eurocontrol Standard Document, the hexadecimal representation of a bit sequence is formed by taking 4 bits at a time from the most significant bit (MSB) to the least significant bit (LSB).

NOTE *Unless otherwise specified in the referred international Standards, a sequence of bits is transmitted from MSB to LSB.*

4.3.3. For the purpose of this Eurocontrol Standard Document, the status of the support for features of a base standard, or this Eurocontrol Standard, shall be shown in upper case (e.g. M, O, O.<n>, X). The exact meaning of each status symbol is described in the Annexes of this Eurocontrol Standard prior to their use.

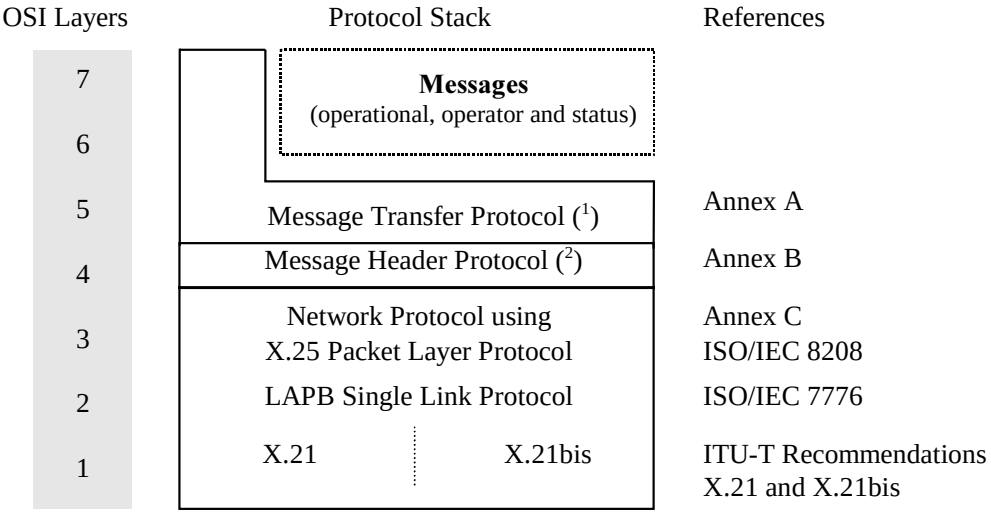
4.3.4. For the purpose of defining the FDE ICD Part 1 profile in this Eurocontrol Standard Document, the status of the support for features of a base standard or this Eurocontrol Standard, shall be shown in lower case (e.g. m, o, o.<n>, x).

NOTE *The result is a further refinement of the features of the base standards that areconditional, optional, or value dependent (see E.3.1).*

5. TECHNICAL OVERVIEW

5.1. Protocol Stack

NOTE *The protocol stack for the profile of this Eurocontrol Standard is illustrated in Figure 2. The figure places the protocols in the framework of the OSI Basic Reference Model [Reference 9] by aligning the stack with the corresponding OSI layers. However, the protocol stack is a specification for pre-OSI systems and it does not support the many functions that are allowed in the OSI protocols of the corresponding OSI layers.*



NOTES

1. *The Message Transfer Protocol makes use of system messages which have the same general form as the other application messages.*
2. *The Message Header Protocol acts as a minimal transport layer.*

Figure 2

Profile Protocol Stack

5.2. Structure of the Profile

NOTES

1. *As shown in Figure 2, the profile stack combines several lower layer protocols, of which only the X.25 Packet Layer Protocol (PLP) [Reference 1] and its supporting protocols, X.21 [Reference 4] and X.21bis [Reference 5], are defined in existing ISO/IEC and International Telecommunication Union-Telecommunication Standardization Sector (ITU-T) standards. The other higher layer protocols are defined in Annexes (Annexes A, B and C) in this Eurocontrol Standard Document.*

2. *Conformance requirements for the profile can refer to these specifications on an equal footing with external standards and are stated in Section 6. The detailed requirements are stated using the tabular format of PRLs (Annex E) and PICS proformas (proformas for protocols defined in the Annexes are given in Annex D). The use of these PRLs and PICS proformas in development and/or procurement is explained in Annex E.*

5.3. **Relation to Previous Versions of the Specification**

NOTES

1. *This profile is based on the ST-ICD developed by the former OLDI Technical Sub-Group. The protocols and packet formats defined in this Eurocontrol Standard Document are a compatible subset of those of the ST-ICD with the exception that this Eurocontrol Standard makes more detailed requirements on the use of the X.25 PLP, includes mandatory support of the M-bit and corrects the inconsistent specification of the Authority and Format Identifier (AFI) value in the Network Service Access Point (NSAP) address.*

2. *The main change in the style of this Eurocontrol Standard Document relates to the structure of the ICD specification. The Message Transfer Protocol (Annex A) is separated from the supporting T-profile. This will facilitate the use of other T-profiles as this becomes necessary to support evolving FDE requirements.*

3. *Those parts of the ST-ICD specification dealing with control of X.25 virtual circuits and delimiting application messages are now found in the Message Header Protocol (Annex B), which constitutes a minimal transport layer for FDE.*

6. PROFILE REQUIREMENTS

6.1. Conformance Requirements

6.1.1. An implementation claiming conformance to this specification shall meet the requirements laid down in sections 6.2 and 6.3 below.

6.1.2. A claim of conformance shall be supported by a Profile Implementation Conformance Statement as described in and Annex D and Annex E.

6.2. Upper-layer Requirements

6.2.1. A conforming implementation shall satisfy the requirements of the base standard, given at Annex A.

6.2.2. A conforming implementation shall satisfy the constraints given in the Profile Requirements List at Annex E.7.

6.3. Lower-layer Requirements

6.3.1. *Transport Layer Requirements*

6.3.1.1. A conforming implementation shall satisfy the requirements of the base standard, given at Annex B.

6.3.1.2. A conforming implementation shall satisfy the constraints given in the Profile Requirements List at Annex E.8.1.

6.3.1.3. A conforming implementation shall satisfy the requirement of supporting Transport Service Data Unit (TSDU) sizes of up to and including 4 097 octets.

NOTE *The first octet of the TSDU corresponds to a field of the Message Header (see and A.4.10, B.4.4), leaving a maximum of 4 096 octets for user data.*

6.3.2. *Network Layer Requirements*

6.3.2.1. A conforming implementation shall satisfy the requirements of ISO/IEC 8208 [Reference 7] in accordance with the protocol mapping given at Annex C.

6.3.2.2. A conforming implementation shall satisfy the constraints given in the Profile Requirements List at Annex E.8.2.

6.3.2.3. A conforming implementation shall, if data terminal equipment (DTE)-DTE operation is supported, be capable of configuring by system management mechanisms the choice of DTE or data circuit-terminating equipment (DCE) role for the DTE-DTE operation.

6.3.2.4. A conforming implementation shall, in either role defined by 6.3.2.3, be capable of initiating a connection according to the specification of Annex C i.e. the protocol is totally symmetric.

NOTE *Some existing implementations based on the ST-ICD, may not be able to initiate network connections according to the protocol of Annex C.*

6.3.2.5. A conforming implementation shall agree for a period of time to the facility of Non-standard Default Packet Sizes, with the value 256 for both directions of transmission.

6.3.2.6. A conforming implementation shall use NSAP addresses as defined in Annex C.

6.3.2.7. A conforming implementation shall set the D-bit to 0 in CALL REQUEST, CALL ACCEPTED and DATA packets.

NOTE *Setting D=0 in CALL REQUEST and CALL ACCEPTED packets has the effect of not using Delivery Confirmation.*

6.3.3. *Datalink Layer Requirements*

6.3.3.1. A conforming implementation shall satisfy the conformance requirements of ISO/IEC 7776 [Reference 6] for the Link Access Protocol Balanced (LAPB) Single Link Protocol.

6.3.3.2. A conforming implementation shall also satisfy the constraints given in the Profile Requirements List at Annex E.8.3.

6.3.4. *Physical Layer Requirements*

A conforming implementation shall satisfy the conformance requirements of ISO/IEC ISP 10609-9 clause 7 [Reference 8].

7. TEST METHODS

NOTES

1. *An approach to conformance testing of implementations of this specification is outlined in Annex F.*
2. *The use of the PRLs and PICS proformas provided with this specification to document conformance is outlined in Annex E.*

ANNEX A (Normative)

MESSAGE TRANSFER PROTOCOL

A.1. Introduction

This specification defines a protocol to implement a simple message transfer service for applications that require flight data exchange.

A.2. Service Implemented

The Message Transfer (MT) protocol implements the following unconfirmed services:

MT-Associate: establish an application message transfer association;

MT-Data: transfer an application message consisting of American Standard Code for Information Interchange (ASCII) characters;

MT-Abort: terminate an application message transfer association.

A.3. Service Assumed

This Message Transfer protocol assumes a subset of the Connection-mode Transport Service as defined in ISO/IEC 8072 [Reference 11], such as that offered by the protocol defined in of this Eurocontrol Standard.

A.4. Protocol Specification

A.4.1. *Introduction*

In the following text, only the operation of one application initiated Message Transfer association is described. Further associations may be supported on the same network interface, by repeating these procedures for each underlying transport connection.

A.4.2. *Types of Data*

This Annex identifies four types of application messages that are equivalent to those defined in Eurocontrol Standard No 001-3-92 Edition 1:

System Messages: These messages shall be used for link monitoring (HEARTBEAT message) and application control (STARTUP and SHUTDOWN messages).

Operational Messages: These messages shall be linked to a specific operational context and are defined in the Eurocontrol Standards and Documents that make use of this Standard for data interchange. Eurocontrol Standard Document for On-Line Data Interchange defines operational messages such as the Activation (ACT), Advanced Boundary Information (ABI), Logical Acknowledgement (LAM) messages.

Operator Messages: These messages shall contain free text. Their use shall be bilaterally agreed. For example, they may be used to exchange test information or to inform the other side about operator actions.

Status Messages: The use and the contents of these messages shall be bilaterally agreed. For example, they may be used to exchange system management information.

NOTES

1. *The use of System messages is part of the operation of this protocol and their format is specified in paragraph A.4.10.3 of this Annex.*

2. *The use and format of Status messages are subject to bilateral agreement, and are not further specified in this Eurocontrol Standard.*

3. *The state of the protocol determines which types of messages can be transmitted, as specified in the following paragraphs.*

A.4.3. *Association Establishment*

A.4.3.1. The protocol is initially in the IDLE state.

A.4.3.2. The MT-Associate-Request primitive is executed to establish an application association and bring the protocol into the DATA_READY state. The primitive has to be invoked by both the local and remote applications.

A.4.3.3. It is first necessary to establish an underlying transport connection, following the T-connect primitive procedures described in Annex B paragraph B.4.1, after which the protocol enters the READY state. At this stage only System messages (and possibly, by bilateral agreement, Operator messages) can be transferred. To transfer a System or Operator message, the sender uses the T-Data primitive (see B.4.4), with the message as parameter.

A.4.3.4. A STARTUP message (system message) shall then be transmitted, timer Tr (see A.4.7) shall be started, and the protocol enters the ASSOCIATION_PENDING state. If timer Tr expires while the protocol is still in this state, the STARTUP message shall be retransmitted and the timer shall be restarted.

NOTE *The protocol will remain in the ASSOCIATION_PENDING state until a STARTUP message is received. Continuous time-outs of the Tr timer could be signalled locally.*

A.4.3.5. Receipt of the STARTUP message shall cause the following actions:

— in the ASSOCIATION_PENDING state, a further STARTUP message is transmitted, the protocol enters the DATA_READY state and the MT-Associate-Indication primitive is signalled;

— in any other state, the message is ignored.

A.4.3.6. Receipt of the STARTUP message in state ASSOCIATION_PENDING corresponds to either:

— the remote application issued a MT-Associate-Request primitive and its Message Transfer protocol has entered the ASSOCIATION_PENDING state, or

— the remote Message Transfer protocol is responding to a previously received STARTUP message and has entered the DATA_READY State.

NOTE *This uncertainty occurs because the same message is used for STARTUP and for response to STARTUP. As a result, the Message Transfer protocol that first entered the DATA_READY state will receive a further STARTUP message. As specified in A.4.3.5, this STARTUP message is ignored.*

A.4.3.7. Once STARTUP messages have been exchanged, the association is established and all the identified types of messages can be transferred (DATA_READY state).

A.4.4. *Data Transfer*

Other types of messages are transferred in the same way as System messages, using the T-Data service, with the message as parameter. This corresponds to the MT-Data-Request and the MT-Data-Indication service primitives.

NOTE *Each message is sent as a single TSDU: there is no concatenation or segmentation of messages at this level.*

A.4.5. *Orderly Association Release*

A.4.5.1. The Message Transfer association between two applications can be cleared by either one. This corresponds to the MT-Abort-Request service primitive.

A.4.5.2. The following actions shall be taken:

— in the DATA_READY state, a SHUTDOWN message (system message) shall be transmitted, timers Tr and Ts shall be stopped, and the transport connection shall be released;

— in the ASSOCIATION_PENDING state, a SHUTDOWN message (system message) shall be transmitted, timer Tr shall be stopped, and the transport connection shall be released;

— in the READY state the transport connection shall be released;

— otherwise no action is taken.

NOTE *The SHUTDOWN message is not an early warning — the association is terminated immediately. There is no confirmation of this message from the other side.*

A.4.5.3. Receipt of a SHUTDOWN message shall cause the following actions:

— in the DATA_READY state, timer Ts (see A.4.7) shall be stopped, MT-Abort-Indication is signalled and the interface enters the ASSOCIATION_PENDING state without sending a STARTUP message;

— in any other state, no action is taken.

A.4.6. *Association Re-establishment*

The application which initiated the clearing of the association has the responsibility, when it is ready, for re-establishing the application association and any lower levels (if necessary).

NOTE *If the clearing of the association has resulted in the release of the underlying network connection, the association establishment procedure specified in paragraph A.4.3 must be followed.*

A.4.7. *Association Integrity*

A.4.7.1. The integrity of the association between two applications is provided by the idle heartbeat facility.

A.4.7.2. On entering the DATA_READY state and on transmitting any type of message on the transport connection, a configurable timer Ts shall be (re)started. If the timer Ts expires in the DATA_READY state, a HEARTBEAT message (System message) shall be transmitted (and the timer shall be restarted).

A.4.7.3. Similarly, on entering the DATA_READY state and on receiving any message except a STARTUP message on the connection, a configurable timer Tr shall be (re)started. If the timer Tr expires in the DATA_READY state, MT-Abort-Indication is signalled, the transmission of all messages is stopped, timer Ts is stopped and the timer Tr is restarted. The interface is in the ASSOCIATION_PENDING state.

NOTE *The applications will recover and resynchronise through the exchange of STARTUP messages (see A.4.3).*

A.4.8. *Disorderly Association Release*

A.4.8.1. There can be an abnormal association release if:

— the transport connection fails (e.g. line failure, protocol error),

— one of the two applications or systems fails (this could be due to hardware or software failure; in some cases, the underlying transport connection can still be working).

NOTE *Following the definition of the transport procotol in Annex B, there is no end-to-end transport connection. As a result, failure of the transport connection is a direct result of the network connection failure.*

A.4.8.2. An application or system failure can be detected by the expiry of a time-out for the receipt of an expected HEARTBEAT message (see A.4.7) from this application.

A.4.9. *Recovery From Failure*

A.4.9.1. Two cases have to be considered:

— after a transport connection failure;

— after an application failure.

A.4.9.2. In both cases, the re-establishment involves the normal association establishment procedure (see A.4.3), including exchange of STARTUP messages.

NOTE *In the event of a failure at the application level that does not cause the underlying connection to be released, the failed system may transmit a SHUTDOWN message (i.e. L_shutdown invoked either manually or as part of the application logic) before attempting to restart the link. This will curtail the remote application's time-out Tr and may result in a quicker recovery with less chance of lost data.*

A.4.10. *Message Formats*

A.4.10.1. General Message Structure

All messages consist of an integer type field ('TYP') from the range 1...63 followed by the message body. The 'TYP' field is encoded in one octet as an ASCII character by adding '40'H to the binary representation of the field (e.g. the value 3 is encoded as '43'H, character 'C'). The message body consists of ASCII characters encoded one per octet. This gives the following format:

TYP	Message Body
octet 1	*octet 2 ... octet n*

A.4.10.2. Message Body Length

Message bodies of length up to and including 4 096 octets shall be supported.

A.4.10.3. System Message Formats

System messages are coded with TYP = 4, encoded as '44'H. The message body consists of a two octets, coded as follows:

— STARTUP message: '3031'H (ASCII digits "01");

— SHUTDOWN message: '3030'H (ASCII digits "00");

— HEARTBEAT message: '3033'H (ASCII digits "03").

A.4.10.4. Other Message Formats

Field TYP defines the message type, encoded as described above:

— value 1 (encoded as '41'H) Operational messages;

— value 2 (encoded as '42'H) Operator messages;

— value 5 (encoded as '45'H) Status messages.

NOTES

1. *The format of the message body for Status messages is beyond the scope of this Eurocontrol Standard Document.*

2. *The format for Operational messages is specified in Eurocontrol Standards and Documents that define messaging applications such as On-Line Data Interchange [Reference 13].*

3. *Operator messages consist of printable ASCII text. If these messages are supported, a user interface must be provided to display received messages and to allow the composition of messages for transmission.*

A.5. Protocol State Transition Tables

A.5.1. *Introduction*

The state tables given below are the definitive specification of the protocol. In case of discrepancy with the main text above, the specification below shall prevail.

NOTE *The notation used to describe states, events, timers and actions are based on the ST-ICD. However, the following definitions and resulting actions have been reviewed and may differ from the ST-ICD.*

A.5.2. *State Definitions*

Table 1

State Definitions

State	State Description	Additional State Information
state 0	IDLE	No transport connection
state 1	READY	Transport connection established, local user down, remote user down
state 2	ASSOCIATION_PENDING	Transport connection established, local user up, remote user down
state 3	DATA_READY	Local user up, remote user up

A.5.3. *Possible Events*

Table 2

Possible Events

Event Description	Additional State Information
L_data	Indication that data (Operational, Operator, or Status message) is to be sent from the local to the remote user (MT-Data Request primitive)
L_shutdown	A command is given to stop the local user (MT-Abort Request)
L_startup	A command is given to start the local user (MT-Associate Request)
R_data	Indicates that data has been received from the remote user (T-Data Indication, TYP ≠ 'System')
R_heartbeat	A HEARTBEAT message is received from the remote user (T-Data Indication, TYP = 'System', Message code = HEARTBEAT)
R_shutdown	A SHUTDOWN message is received from the remote user (T-Data Indication, TYP = 'System', Message code = SHUTDOWN)
R_startup	A STARTUP message is received from the remote user (T-Data Indication, TYP = 'System', Message code = STARTUP)
Ts_timeout	Expiry of timer Ts
Tr_timeout	Expiry of timer Tr
TC_disconnect	A Transport connection release indication has been received (T-Disconnect Indication)
TC_setup	Event (e.g. explicit command, application request) which causes a T-Connect Request primitive

A.5.4. *Timers*

Table 3

Timers

Timer	Timer information
Tr	Time-out when a HEARTBEAT or a data message is expected
Ts	Time-out for sending a HEARTBEAT to the remote user

The value of these timers shall be such that Tr = 2Ts + transit time.

NOTE *Typical values of these timers are: Ts = 30s, Tr = 70s.*

A.5.5. *State Transition Table*

Table 4

State Transitions

State	Event	Actions to be Taken	New State
state 0	TC_setup	The transport layer attempts to set up the lower layer connection(s) between the local and remote users; when the connection has been successfully established, the user is notified (1)	state 1
	TC_disconnect	The system takes appropriate actions but remains in state 0	state 0
	L_data L_shutdown L_startup Tr_timeout Ts_timeout	Ignored	state 0
	R_data R_heartbeat R_shutdown R_startup	Ignore (event should not happen)	state 0
state 1	L_startup	The local user sends a STARTUP message to the remote user, timer Tr is started (2)	state 2
	R_startup	The local user receives a STARTUP message from the remote user, this STARTUP message is ignored since an L_startup event has not occurred	state 1
	L_data R_data R_heartbeat R_shutdown TC_setup	Ignored	state 1
	Tr_timeout Ts_timeout	Ignored	state 1
	L_shutdown	The transport connection is cleared	state 0
	TC_disconnect	The local user is notified that the transport connection is disconnected (e.g. due to an error or a remote shutdown)	state 0
state 2	R_startup	The local user receives a STARTUP message from the remote user; timers Tr and Ts are started; the local user is notified that data can be sent on the association and the reception of the STARTUP message is explicitly notified by replying with another STARTUP message (3)	state 3
	Tr_timeout	The local user retransmits a STARTUP message if it did not receive a STARTUP message from the remote user within a specified time period Tr, timer Tr is restarted	state 2

State	Event	Actions to be Taken	New State
	L_startup L_data R_data R_heartbeat R_shutdown Ts_timeout TC_setup	Ignored	state 2
	L_shutdown	The local user is directed to shut down the association: a SHUTDOWN message is transmitted, timer Tr is stopped and the transport connection is released	state 0
	TC_disconnect	The local user is notified that the transport connection is disconnected (e.g. due to an error), timer Tr is stopped and the association is aborted	state 0
state 3	L_data	Timer Ts is restarted	state 3
	R_data R_heartbeat	Timer Tr is restarted	state 3
	R_startup	If a STARTUP message is received from the remote user, it is considered as an acknowledgement of a previously sent STARTUP message; timer Tr is not restarted	state 3
	Ts_timeout	A HEARTBEAT message is sent and timer Ts is restarted	state 3
	L_startup TC_setup	Ignored	state 3 ([4])
	R_shutdown	Timer Ts is stopped; MT-Abort-Indication is signalled to the local user	state 2
	Tr_timeout	Timer Ts is stopped. MT-Abort-Indication is signalled to the local user; timer Tr is restarted	state 2
	L_shutdown	A SHUTDOWN message is transmitted; timers Tr and Ts are stopped and the transport connection is released	state 0
	TC_disconnect	The local user is notified that the transport connection is disconnected (e.g. due to an error); timers Tr and Ts are stopped and the association is aborted	state 0

NOTES
([1]) When entering state 0, it may be considered to automatically generate the TC_setup event.
([2]) Only when entering state 1 via an automatically generated TC_setup event as described in state 0, then the L_startup event may be automatically generated.
([3]) This method guarantees that a received STARTUP message from a remote user is always acknowledged by a STARTUP message.
([4]) Some existing implementations, pre-dating this Eurocontrol Standard Document, may treat this event as TC_disconnect, i.e. returning to state 0.

A.5.6. *State Transition Diagram*

NOTE *The protocol is described in Figure A.1 in the form of a state transition diagram. The diagram is only informative: in case of conflict between the diagram and the state tables above, the latter shall take precedence.*

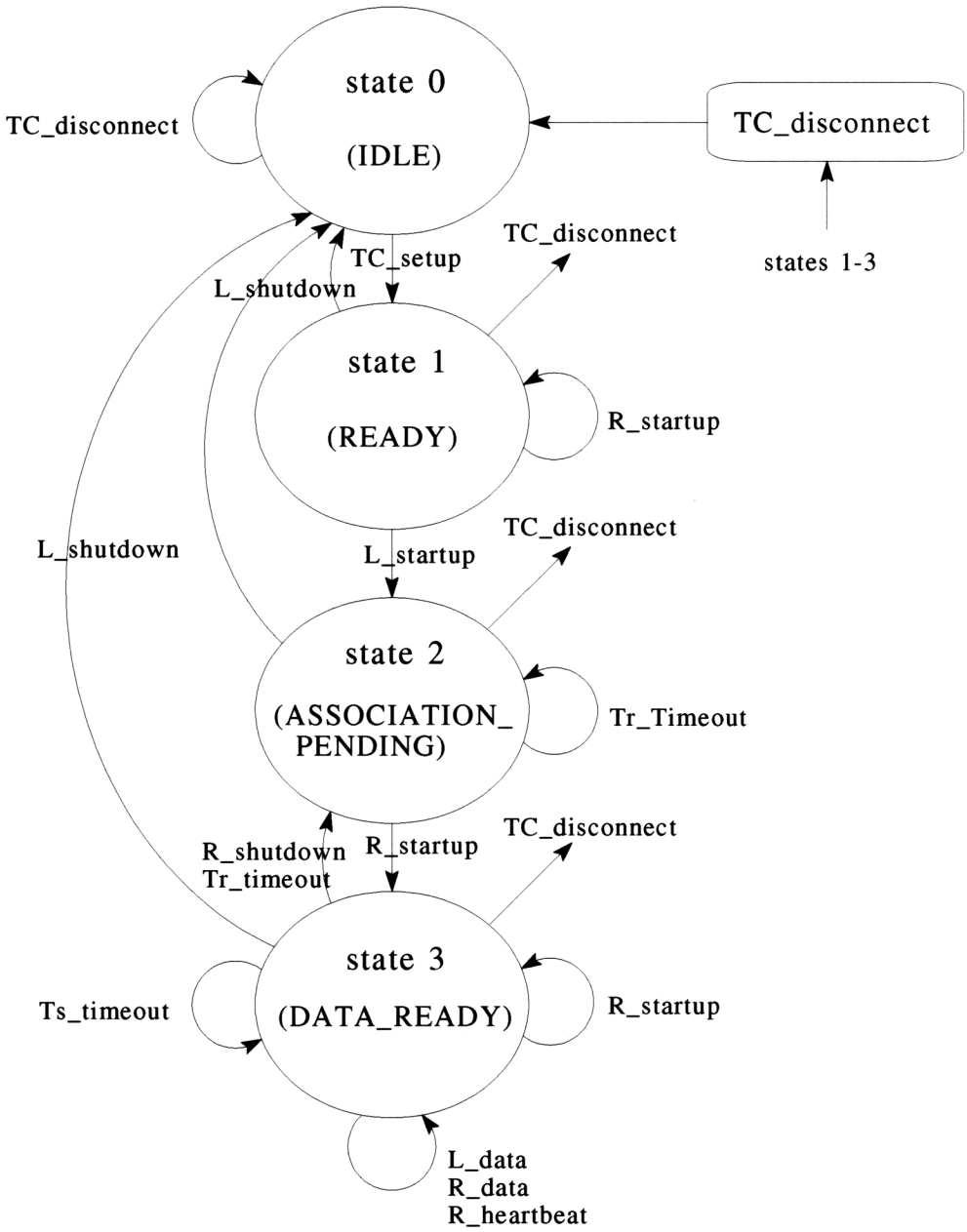


Figure A.1

Message Transfer Protocol: State Transition Diagram

ANNEX B (Normative)

MESSAGE HEADER PROTOCOL

B.1. Introduction

This Annex defines the Message Header protocol, a minimal transport protocol to be used for applications such as OLDI.

B.2. Service Implemented

B.2.1. The Message Header protocol corresponds to a subset of the Connection-mode transport Service, as defined in ISO/IEC 8072 [Reference 11], comprising the following service primitives.

T-Connect: establish a transport connection for an application

T-Data: transfer ASCII data

T-Disconnect: terminate the transport connection of an application

B.2.2. The service does not support multiplexing, error recovery, or segmentation and reassembly.

B.3. Service Assumed

The protocol assumes a reliable basic network service as provided by the X.25 Packet Layer Protocol.

NOTE *Only a single transport connection is supported on each network connection.*

B.4. Protocol Specification

B.4.1. *Connection Establishment*

The T-Connect primitive shall be implemented by using the N-Connect service of the underlying network service. There is a direct mapping between the two sets of (request, indication) primitives. Alternatively, an existing network connection may be used (e.g. one established by system management mechanisms).

Recommendations

1. *In the latter case above the network connection should be reset before use. The N-Connect primitive may be reissued automatically if no response has been received within a certain time.*

2. *If this automatic retry is implemented, retries should be attempted approximately every 15s.*

B.4.2. *Avoidance of Redundant Network Connections*

If an N-Connect-Request primitive is outstanding (i.e. no corresponding N-Connect-Confirm or N-Disconnect primitive has been signalled) and an N-Connect-Indication is signalled, then the incoming network establishment attempt shall be rejected or cleared, by responding with an N-Disconnect-Request primitive, only when both the following conditions apply:

— the calling NSAP address of the N-Connect-Indication is the same as the called NSAP address of the outstanding N-Connect-Request;

— the calling NSAP address of the outstanding N-Connect-Request is greater than the called NSAP address of the outstanding N-Connect-Request, the comparison being made on the bit strings formed by the preferred binary encoding of each NSAP address, as defined in ISO/IEC 8348 Annex A [Reference 10] (a string shall be considered greater than any of its proper initial substrings, e.g. '8800'H > '88'H).

B.4.3. *Connection Release*

B.4.3.1. Connection release shall use the N-Disconnect and N-Reset service primitives of the underlying network service.

B.4.3.2. To implement a T-Disconnect-Request, an N-Disconnect-Request shall be signalled. Alternatively, if the establishment of network connections using N-Connect primitives is not supported, the network connection shall not be explicitly released.

Recommendation *In the latter case, above the network connection should be reset.*

B.4.3.3. A T-Disconnect-Indication shall be signalled on the receipt of either of the following network service primitives on a network connection corresponding to a wholly or partly established transport connection:

— N-Disconnect-Indication;

— N-Reset-Indication.

B.4.4. *Data Transfer*

B.4.4.1. The T-Data primitive shall be implemented by using the N-Data primitive of the underlying network service. There is a direct mapping between the two sets of (request, indication) primitives. The mapping uses a Transport Protocol Data Unit (TPDU) which is transferred by the network service.

B.4.4.2. The TPDU shall have the following format, transmitted from left to right, whereby the message structure defined in A.4.10.1 is to be inserted in the data(1), data(2)...data(n) fields.

STX '02'H	LENG '48'H	ADEST '40'H	DEST '40'H	AEMM '40'H	EMM '40'H	data(1)	ADR '40'H	data(2) ... data(n)	ETX '03'H

NOTES

1. *This header is defined so as to be identical to that used in the INTERCAUTRA procedure defined for ACT message exchange between CAUTRA Paris, the 9020D system of the London Air Traffic Control Centre and Digital Communications Terminal System (DCTS) Maastricht/Karlsruhe, when carrying the message formats defined in ; in this case the field 'data(1)' corresponds to the TYP field.*

2. *The use of the fields ADEST, DEST, AEMM, EMM, and ADR with values other than '40'H is beyond the scope of this Eurocontrol Standard Document, but may be subject to bilateral agreement.*

B.4.4.3. The T-Data service shall be restricted to the transfer of printable ASCII character data. In particular, none of the data octets shall have the value '03'H (the character ETX).

B.4.4.4. A conforming implementation shall satisfy the requirement of supporting Network Service Data Unit (NSDU) sizes of up to and including 4 105 octets.

B.4.4.5. A conforming implementation shall prohibit concatenation of multiple TSDUs into a single NSDU.

B.4.4.6. A conforming implementation shall prohibit segmentation of a single TSDU into multiple NSDU's.

ANNEX C (Normative)

NETWORK PROTOCOL

C.1. **Introduction**

This Annex specifies a basic Network Protocol using the X.25 packet layer protocol, for use in both point-to-point and packet-switched network environments, to support the transfer of flight data. The protocol subset is compatible with that defined in versions of [Reference 1] from the 1980 edition on.

C.2. **Service Provided**

C.2.1. The protocol implements the connection-mode OSI Network Service as defined in ISO/IEC 8348 [Reference 10], with the following exceptions.

— NSAP addresses are restricted to the form defined in ;

— there is no facility for establishing agreement between the Network Service (NS) users and the NS provider on the quality of service associated with a network connection;

— transfer of NS-User-Data during network connection establishment and release is not supported except for provisions described in C.5.3.

C.2.2. The following NS provider-options are not offered:

— Receipt Confirmation;

— Expedited Data Transfer.

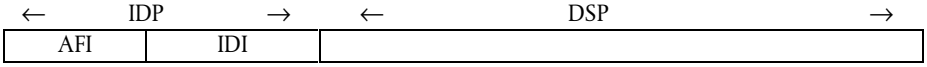
C.3. **Service Assumed**

The protocol assumes the provision of an OSI Datalink Service, such as that offered by ISO/IEC 7776 (LAPB) [Reference 6].

C.4. **NSAP Addressing**

C.4.1. *Introduction*

C.4.1.1. The structure of the NSAP addresses follows that defined in ISO/IEC 8348 Annex A [Reference 10], as illustrated below.



C.4.1.2. The components of the NSAP address are defined below:

IDP: Initial Domain Part, comprising the AFI and IDI fields

AFI: Authority and Format Identifier, and

IDI: Initial Domain Identifier

DSP: Domain Specific Part

C.4.2. *NSAP Address Structure*

C.4.2.1. For the purpose of this Eurocontrol Standard Document, the address components shall be limited to the following form.

C.4.2.2. The AFI value 48 shall be used, indicating a Local format IDI with decimal abstract syntax.

C.4.2.3. The IDI is null, following the Local format.

C.4.2.4. The DSP shall consist of 2 pairs of decimal digits, as follows:

— the first pair is an Air Traffic Control (ATC) unit identifier, which identifies an ATC system and thus indirectly a location;

— the second pair is an ATC unit selector, which may be used to identify a particular end point within an ATC unit.

C.4.2.5. The resulting NSAP address structure is illustrated below.

AFI	DSP	
48	ATC unit identifier	ATC unit selector

C.4.3. *Assignment of ATC Unit Identifiers and Selectors*

C.4.3.1. Assignment of unique ATC unit identifiers to each ATC system will be the responsibility of Eurocontrol, while ATC unit selectors will be assigned by the relevant authority within the ATC Administration or Organisation.

C.4.3.2. The allocation of ATC unit identifiers at the time of preparing this Standard is shown in

C.5. **Protocol Specification**

C.5.1. *Overview*

The protocol is based on the Subnetwork-Dependent Convergence Protocol for X.25(1980) defined in of ISO/IEC 8878 [Reference 12], with the following differences:

— the Fast Select user facility is not used; however, the encoding defined in Annex A of ISO/IEC 8878 [Reference 12] for use with the extended format User Data field available with the Fast Select facility is used here with the basic format User Data field in CALL REQUEST and INCOMING CALL packets, since restrictions on the allowed network service parameters ensure that the encoded information fits into 16 octets;

— of the network service parameters for which encodings are defined in ISO/IEC 8878 [Reference 12], only the called and calling NSAP addresses (and only in the form defined in) are sent in the CALL REQUEST packet;

— the User Data field is not used in the CALL ACCEPTED, CALL CONNECTED, CLEAR REQUEST, or CLEAR INDICATION packets;

— the alternative procedures for network connection establishment and release are not used;

— receipt confirmation using the D-bit is not supported.

NOTE *The first three of these restrictions ensure that all information which will be transmitted between two DTEs will respect the limitations of the User Data field in X.25 (1980) PLP.*

C.5.2. *Address Encoding*

The calling and called NSAP addresses shall be encoded using the preferred binary encoding defined in ISO/IEC 8348 Annex A [Reference 10].

C.5.3. *Encoding of the User Data Field*

C.5.3.1. As a result of the requirements stated above, the User Data field in CALL REQUEST and INCOMING CALL packets shall be encoded as illustrated below. All 16 octets shall be transmitted.

Table 1

User Data Field Encoding

Field Description	High Order Semi-Octet	Low Order Semi-Octet
Octet 0: Protocol identity	bin(1000)	bin(0100)
Octet 1: Message code type	bin(0010)	bin(0000)
Octet 2: Message code value (N CR)	bin(0000)	bin(0001)
Octet 3: Parameter type = Called NSAP	bin(1100)	bin(1001)
Octet 4: Parameter length	bin(0000)	bin(0110)
Octet 5: Parameter value (1st octet) = AFI value	bin(0100)	bin(1000)
Octet 6: Parameter value (2nd octet) = ATC unit identifier	high order digit	low order digit
Octet 7: Parameter value (3rd octet) = ATC unit selector	high order digit	low order digit
Octet 8: Parameter type = Calling NSAP	bin(1100)	bin(1011)
Octet 9: Parameter length	bin(0000)	bin(0110)
Octet 10: Parameter value (1st octet) = AFI value	bin(0100)	bin(1000)
Octet 11: Parameter value (2nd octet) = ATC unit identifier	high order digit	low order digit
Octet 12: Parameter value (3rd octet) = ATC unit selector	high order digit	low order digit
Octet 13: Reserved for future use	bin(0000)	bin(0000)
Octet 14: Reserved for future use	bin(0000)	bin(0000)
Octet 15: Reserved for future use	bin(0000)	bin(0000)

C.5.3.2. Other parameters described in ISO/IEC 8878 [Reference 12] shall not be used.

C.5.4. *Treatment of Addresses in INCOMING CALL Packets*

C.5.4.1. DTE Adresses

The calling DTE address in an INCOMING CALL packet shall be validated against a local list of valid remote DTE addresses for the system. If an invalid address is detected, the call shall be cleared.

NOTES

1. *The called DTE address, if present, in an INCOMING CALL packet, if present, may optionally also be validated against a list (typically of one item) of valid local DTE addresses for the system.*

2. *In some instances the DTE address of a unit may differ in value and/or length when the unit is acting as the calling or called system. Therefore, particular attention must be given to this issue when specifying or implementing the DTE address validation functionality*

C.5.4.2. NSAP Adresses

The calling NSAP address encoded as described above in an INCOMING CALL packet shall be validated against a local list of valid remote NSAP addresses for the system. If an invalid address should be detected, the call shall be cleared.

NOTE *The called NSAP address may optionally also be validated against a list of (typically of one item) valid local NSAP addresses for the system.*

C.5.5. *Data Transfer*

C.5.5.1. As described in ISO/IEC 8878 Annex A.5.3 [Reference 12], NSDUs are transferred in the User Data field of a DATA packet.

NOTE *As a consequence, it is prohibited to transmit more than one user message, such as an OLDI message, per X.25 packet or M-bit sequence.*

C.5.5.2. NSDUs longer than the maximum User Data allowed for the virtual circuit shall be segmented and transmitted in the User Data fields of a sequence of DATA packets where all except the last shall have both maximum length and the M-bit set (i.e. a More-bit-sequence).

C.5.5.3. On reception, the User Data fields of a More-bit-sequence shall be reassembled in order to form the received NSDU.

ANNEX D (Normative)

PROFILE-SPECIFIC PICS PROFORMAS

D.1. **Introduction**

D.1.1. The supplier of a protocol implementation which is claimed to conform to the specifications in Annexes A-C shall complete the following PICS proformas.

NOTE *Copyright release for PICS proformas: users of this Eurocontrol Standard Document may freely reproduce the PICS proformas in this Annex so that it can be used for the intended purpose and may further publish the completed PICS.*

D.1.2. A completed PICS proforma is the PICS for the implementation in question. The PICS is a statement of which capabilities and options of the protocol have been implemented.

D.1.3. The PICS can have a number of uses, including use:

— by the protocol implementor, as a check-list to reduce the risk of failure to conform to the standard through oversight;

— by the supplier and acquirer, or potential acquirer, of the implementation, as a detailed indication of the capabilities of the implementation, stated relative to the common basis for understanding provided by the standard PICS proforma;

— by the user, or potential user, of the implementation, as a basis for initially checking the possibility of interworking with another implementation (note that, while interworking can never be guaranteed, failure to interwork can often be predicted from incompatible PICSs);

— by a protocol tester, as the basis for selecting appropriate tests against which to assess the claim for conformance of the implementation.

D.2. **Instructions for Completing the PICS Proformas**

D.2.1. *General Structure of the PICS Proformas*

D.2.1.1. The Implementation Identification and Protocol Summary is the first part of each PICS proforma and shall be completed as indicated with the information necessary to identify fully both the supplier and the implementation.

D.2.1.2. The main part of the PICS proforma is a fixed-format questionnaire. Answers to the questionnaire items shall be provided in the rightmost column, either by simply marking an answer to indicate a restricted choice (usually Yes or No), or by entering a value or a set or range of values.

NOTES

1. *Each item is identified by a unique item reference in the first column; the second column contains the question to be answered; the third column contains the reference or references to the material that specifies the item in this Eurocontrol Standard. The remaining columns record the status of the item (whether support is mandatory, optional, prohibited or conditional) and provide space for the answers: see also below.*

2. *A supplier may also provide, or be required to provide, further information categorised as either Additional Information or Exception Information. When present, each kind of further information is to be provided in a further subclause of items labelled A<i> or X<i> respectively for cross-referencing purposes, where <i> is any unambiguous identification for the item (e.g. simply a numeral): there are no other restrictions on its format and presentation.*

D.2.1.3. A completed PICS proforma, including any Additional Information and Exception Information, shall be referred to as the Protocol Implementation Conformance Statement for the implementation in question.

NOTE *Where an implementation is capable of being configured in more than one way, a single PICS may be able to describe all such configurations. However, the supplier has the choice of providing more than one PICS, each covering some subset of the implementation's configuration capabilities, in case that makes for easier and clearer presentation of the information.*

D.2.2. *Additional Information*

Items of Additional Information allow a supplier to provide further information intended to assist the interpretation of the PICS.

NOTES

1. *It is not intended or expected that a large quantity will be supplied, and a PICS can be considered complete without any such information. Examples might be an outline of the ways in which a (single) implementation can be set up to operate in a variety of environments and configurations; or a brief rationale (based perhaps upon specific application needs) for the exclusion of features which, although optional, are nonetheless commonly present in implementations of this protocol.*

2. *References to items of Additional Information may be entered next to any answer in the questionnaire, and may be included in items of Exception Information.*

D.2.3. *Exception Information*

D.2.3.1. It may occasionally happen that a supplier will wish to answer an item with mandatory or prohibited status (after any conditions have been applied) in a way that conflicts with the indicated requirement. No pre-printed answer will be found in the Support column for this: instead, the supplier shall write the missing answer into the Support column, together with an X<i> reference to an item of Exception Information.

D.2.3.2. The supplier shall provide the appropriate rationale in the Exception item itself.

D.2.3.3. An implementation for which an Exception item is required in this way does not conform to this specification.

NOTE *A possible reason for the situation described above is that a defect in the standard has been reported, a correction for which is expected to change the requirement not met by the implementation.*

D.2.4. *Conditional Items*

D.2.4.1. Individual conditional items are indicated by a conditional symbol of the form '<item>: <s>' in the Status column, where '<item>' is an item reference that appears in the first column of the table for some other item, and '<s>' is a status symbol, M, O, O.<n> or X.

NOTE *A PICS proforma may contain a number of conditional items. These are items for which both the applicability of the item itself, and its status if it does apply (mandatory, optional or prohibited) are dependent upon whether or not certain other items are supported.*

D.2.4.2. If the item referenced by the conditional symbol is marked as supported, the conditional item is applicable, and its status is given by '<s>': the support column shall be completed in the usual way. Otherwise, the conditional item is not relevant and the Not Applicable (NA) answer shall be marked.

D.2.4.3. Each item whose reference is used in a conditional symbol is indicated by an asterisk in the Item column.

D.3. PICS Proforma for the Message Transfer Protocol

D.3.1. *Abbreviations and Special Symbols*

D.3.1.1. Status Symbols

M: Mandatory

O: Optional

D.3.1.2. Item References

Items in the PICS proforma are identified by mnemonic item references. PICS items dealing with related functions are identified by item references sharing the same initial letter or letter-pair (in capitals). There follows a list of those initials, in the order in which the groups of items occur in the PICS proforma.

— MTsy, MTop, MTst, Mtor	message types
— MAE, MAR, MCI, MDT, MAV	procedures
— MEsu, MEsd, MEhb, Mety	encodings
— MNmsg message	size
— Ts, Tr	timers

D.3.2. *Identification*

Table 1

Message Transfer Implementation Identification

Supplier	
Contact point for queries about the PICS	
Implementation name/version	
Machine name/version	
Operating system name/version	
Other hardware and operating systems claimed	
System name (if applicable)	

D.3.3. *Protocol Implementation*

Table 2

Message Transfer Protocol Implementation

Item	Feature	References	Status	Support
	Are the following message types supported:	A.4.2		
MTsy	— system messages?		M	Yes ☐
MTop	— operational messages?		M	Yes ☐
MTst	— status messages?		O	No ☐ Yes ☐
MTor	— operator messages?		O	No ☐ Yes ☐
MAE	Association establishment procedures	A.4.3	M	Yes ☐
MAR	Association release procedure	A.4.5	M	Yes ☐
MCI	Association integrity procedure	A.4.7	M	Yes ☐
MDT	Data transfer procedure	A.4.4	M	Yes ☐
MAV	Association recovery procedure	A.4.9	M	Yes ☐
	Encoding of System Message:	A.4.10.1, A.4.10.3		
MEsu	— STARTUP?	A.4.10.3	M	Yes ☐
MEsd	— SHUTDOWN?	A.4.10.3	M	Yes ☐
MEhb	— HEARTBEAT?	A.4.10.3	M	Yes ☐
MEty	Encoding of TYP field for other message types	A.4.10.1, A.4.10.4	M	Yes ☐
MNmsg	Maximum message body size supported	A.4.10.2	at least 4 096 octets	Value:
	Timer values supported:	A.4.7		
Ts	— Association integrity heartbeat		M	Yes ☐ Values:
Tr	— Association integrity timeout		Tr > 2Ts	Yes ☐ Values:

D.4. **PICS Proforma for the Message Header Protocol**

D.4.1. *Abbreviations and Special Symbols*

D.4.1.1. Status Symbols

M	mandatory
O	optional
O.<n>	optional, but support of at least one of the group of options labelled by the same numeral <n> is required
X	prohibited
<item>	conditional-item symbol, dependent upon the support marked for <item> (see D.2.4)

D.4.1.2. Abbreviations

NA not applicable

D.4.1.3. Item References

Items in the PICS proforma are identified by mnemonic item references. PICS items dealing with related functions are identified by item references sharing the same initial letter or letter-pair (in capitals). There follows a list of those initials, in the order in which the groups of items occur in the PICS proforma.

— IHC1, IHC2, IHC3, IHC4, IHCC connection establishment

— IHR1, IHR2 connection release

— IHT1, IHTx data transfer

— Tcr timer

D.4.2. *Identification*

Table 3

Message Header Implementation Identification

Supplier	
Contact point for queries about the PICS	
Implementation name/version	
Machine name/version	
Operating system name/version	
Other hardware and operating systems claimed	
System name (if applicable)	

D.4.3. *Protocol Implementation*

Table 4

Message Header Protocol Implementation

Item	Feature	References	Status	Support
	Does the connection establishment procedure:	B.4.1		
IHC1 (*)	— use N-Connect?		O.1	Yes ☐ No ☐
IHC2 (*)	— rely on a pre-established network connection?		O.1	No ☐ Yes ☐
IHC3	— reset the pre-established connection		**IHC2**: O	NA ☐ Yes ☐ No ☐
IHC4 (*)	— retry the N-Connect automatically		**IHC1**: O	NA ☐ No ☐ Yes ☐
IHCC	Connection collision resolution procedure	B.4.2	M	Yes ☐
	Does the connection release procedure:	B.4.3		
IHR1	— use N-Disconnect?		**IHC1**: M **IHC2**: X	NA ☐ Yes ☐ No ☐
IHR2	— retain the network connection		**IHC2**: M **IHC1**: X	NA ☐ No ☐ Yes ☐
IHT1	Data Transfer PDU encoding	B.4.4	M	Yes ☐
IHTx	Use of the fields ADEST, DEST, AEMM, EMM, and ADR with values other than '40'H	B.4.4	O	No ☐ Yes ☐
	Timer values supported:			
Tcr	— Connection establishment retry timer	B.4.1	**IHC4**: M	NA ☐ No ☐ Yes ☐ Values:

NOTES:

1. IHC1 is used in items IHC4, IHR1 and IHR2.
2. IHC2 is used in items IHC3, IHR1 and IHR2.
3. IHC4 is used in item Tcr.

D.5. **PICS Proforma for the Network Protocol**

D.5.1. *Abbreviations and Special Symbols*

D.5.1.1. Status Symbols

M mandatory

O optional

D.5.1.2. Item References

Items in the PICS proforma are identified by mnemonic item references. PICS items dealing with related functions are identified by item references sharing the same initial letter or letter-pair (in capitals). There follows a list of those initials, in the order in which the groups of items occur in the PICS proforma.

— SNDCP1	protocol ID field
— NCRdae, NCRgae, NCCx, NDRx	parameters in protocol messages
— NCD1, NCD2, NCN1, NCN2	validation of addresses
— NDT	data transfer

D.5.2. *Identification*

Table 5

Network Implementation Identification

Supplier	
Contact point for queries about the PICS	
Implementation name/version	
Machine name/version	
Operating system name/version	
Other hardware and operating systems claimed	
System name (if applicable)	

D.5.3. *Protocol Implementation*

Table 6

Network Protocol Implementation

Item	Feature	References	Status	Support
SNDCP1	Protocol ID field in Call User Data field of CALL REQUEST	C.5.1	M	Yes ☐
	Parameters in N-CR message:	C.5.1		
NCRdae	— called address extension		M	Yes ☐
NCRgae	— calling address extension		M	Yes ☐
NCCx	Parameters in N-CC message: none	C.5.1	M	Yes ☐
NDRx	Parameters in N-DR message: none	C.5.1	M	Yes ☐
	Validation of addresses:	C.5.4		
NCD1	— calling DTE address		M	Yes ☐
NCD2	— called DTE address		O	No ☐ Yes ☐
NCN1	— calling NSAP address		M	Yes ☐
NCN2	— called NSAP address		O	No ☐ Yes ☐
NDT	Data transfer procedures	C.5.5	M	Yes ☐

NOTE — 'address extensions' are those encoded in the Call User Data field according to ISO/IEC 8878 Annex A.5 [Reference 12], and not the X.25 address extension facilities, whose use is prohibited in this protocol.

ANNEX E (Normative)

PROFILE REQUIREMENTS LIST

E.1. **Introduction**

E.1.1. This Annex provides the PRL for the FDE ICD profile defined in this Eurocontrol Standard Document. The Implementation Conformance Statement for an implementation claiming conformance to this profile shall be generated in accordance with the instructions given below.

NOTE *The proformas in this Annex are based on those accompanying the referenced base standards.*

E.1.2. A conforming implementation shall satisfy the mandatory conformance requirements of the base standards referenced in this profile.

E.2. **The Role of the PRL and PICS Proformas**

The status of this section (E.2) is informative: it does not constitute a provision of this Part of this Eurocontrol Standard.

— The objective of presenting the conformance requirements in the tabular form of the PRL and PICS proformas is to provide a check-list of the features which must or may be implemented. The underlying concepts are defined and described in ISO/IEC 9646-1 [Reference 14] (ITU-T Recommendation X.290 is equivalent) and ISO/IEC TR 10000-1 [Reference 2].

— A profile combines and selects the options of several base standards in order to fulfil a specific information processing function. Each base standard has a PICS proforma, listing the requirements of the standard. The PRL comprises the subset of the base standard PICS proforma items that are constrained by the profile, together with the specific profile requirements; it defines answers required on the base standard PICS proformas to conform with the profile. In addition, the PRL will contain PICS-type items which are specific to the profile (at the least, there will be a item testing whether all the required PICS proformas have been correctly completed); these items must be completed together with the base standard PICS proformas. The completed proformas together constitute the profile Implementation Conformance Statement (ICS).

— Following the methodology of ISO/IEC TR 10000-1 [Reference 2], a claim of conformance to a profile has to be supported by PICS proformas completed in accordance with the PRL. The use of this material will depend on the procurement approach for an FDE ICD implementation.

— Several possible approaches to an FDE implementation can be imagined:

  — In-house implementation by a National Administration or Organisation: the PRL should be used as the basis of the requirements specification and acceptance test specification for the implementation; the completed ICS should be produced as part of the acceptance procedure.

  — Implementation of the profile by a contractor: the material will be used and produced as for an in-house implementation, but the contractor should provide the ICS and the need for this must be a contractual requirement.

  — Implementation of the profile by a contractor as part of a turn-key or system integration contract: the material will be used and produced as for an in-house implementation, but the contractor must be required to do this internally as well as providing the completed ICS. Conformance to the profile ensures, for instance, that a supplier working for two administrations cannot introduce its proprietary protocols to meet the FDE requirement and thus helps to give control to the contracting administrations.

— Integration of off-the-shelf products into a profile implementation in any of the previous cases: the supplier of a product should be required to provide those PICS proformas relevant to the product completed in accordance with the PRL given here and to warrant the conformance of the product with the applicable profile requirements; this PICS can then be forwarded as part of the profile ICS.

— Following implementation, the ICS should be maintained as part of the documentation of the implementation; it can be used to predict interoperability with other administrations, and to identify changes that may be needed in moving to different protocols.

E.3. **Notation**

E.3.1. The following notations from ISO/IEC TR 10000-1 [Reference 2] are used in the PRL to indicate the status of features:

m : mandatory

o : optional

- : not applicable (i.e. logically impossible in the scope of the profile)

x : excluded

NOTES

1. *Two-character combinations may be used, in which case the first character refers to the static (implementation) status, and the second to the dynamic (use); thus 'mo' means 'mandatory to be implemented, optional to be used'.*

2. *The 'o.<n>' notation is used to show a set of selectable options (i.e. at least one of the set must be implemented) with the same identifier n.*

3. *A feature marked 'x' may nonetheless be part of an implementation so long as it is not used when the implementation is operating in conformance with the profile.*

4. *Use of features marked 'x' would require bilateral agreement. In this event, the status of the features should be revised as they may be of interest to other implementations.*

E.3.2. The following predicate notation is used:

<predicate>:: introduces a group of items, all of which are conditional on <predicate> (the extent of the group is shown by the layout).

<predicate>: introduces a single item which is conditional on <predicate>.

NOTE *In each case, the predicate may be the identifier of a profile feature, or a boolean combination of predicates ('¬' is the symbol for logical negation).*

E.3.3. Base standard requirements are shown using the equivalent notations in upper case (i.e. M, O, O.<n>, X).

E.4. **Instructions for Completing the PICS Proformas**

E.4.1. To provide the profile ICS, the PICS proformas for the referenced base standards shall be completed, together with the additional profile-related PICS items provided in this Annex.

E.4.2. Where this profile refines the features of the base standards, the requirements expressed in this PRL shall be applied (as indicated in PRL items with a 'Profile features' column) to constrain the allowable responses in the base standard PICS proformas.

E.4.3. Where this profile makes additional requirements, the response column for such items shall be completed. In this column, each response shall either be selected from the indicated set of responses, or comprise a parameter value or values or range of values as requested.

E.4.4. If a mandatory requirement is not satisfied, exception information must be supplied, by entering a reference X<i>, where <i> is a unique identifier, to an accompanying rationale for the non-compliance.

NOTE *A possible reason for such an exception is compliance with a pending defect report on a provision of the profile; if the defect report is accepted, the implementation will then be conformant.*

E.5. **References**

E.5.1. This profile references the following protocol specifications:

— Message Transfer Protocol (Annex A to this Eurocontrol Standard Document);

— Message Header Protocol (Annex B to this Eurocontrol Standard Document);

— Connection-mode Network Protocol using ISO/IEC 8208 (Annex C to this Eurocontrol Standard Document);

— ISO/IEC 7776 [Reference 6];

— Physical Layer Standards called up by ITU-T Recommendation X.25 (1993) clause 1 [Reference 1].

E.5.2. As there are no explicit PICS proformas for the relevant Physical Layer Standards, the interim physical layer PICS proformas in ISO/IEC ISP 10609-9 clause A.4 [Reference 8] shall be used.

E.6. **Conformance Statement**

E.6.1. *Conformance Overview*

Table 1

Conformance Overview

Supplier	
Contact point for queries about the PICS	
Implementation name/version	
Machine name/version	
Operating system name/version	
Other hardware and operating systems claimed	
System name (if applicable)	
Date of statement	
Have the features of the base standards been implemented in accordance with requirements of this PRL?	
— Annexe A of this profile	Yes ☐
— Annexe B of this profile	Yes ☐
— Annexe C of this profile	Yes ☐
— ISO/IEC 8208	Yes ☐
— ISO/IEC 7776	Yes ☐
— ITU-TX.25(1993) clause 1	Yes ☐
Are the completed PICS proformas for the base standards attached?	Yes ☐

NOTE — Failure to respond «Yes» to all of these questions indicates a failure of conformance to this profile

E.6.2. *Dynamic Conformance Requirements*

Table 2

Dynamic Conformance Requirements

Are TSDU sizes of at least 4 097 octets supported?	Yes ☐
Are NSDU sizes of at least 4 105 octets supported?	Yes ☐
Is the concatenation and segmentation of TSDUs prohibited?	Yes ☐
Is the Non-standard Default Packet Size of 256 supported for both directions of transmission?	Yes ☐
Are NSAP addresses sent only in the format defined in Annex C?	Yes ☐
Is D-bit set to 0 in CALL REQUEST, CALL ACCEPTED and DATA packets?	Yes ☐

E.7. **Upper Layer Requirements**

Table 3

Message Transfer Protocol

Base Standard Features				Profile Features	
Item	Message Transfer Protocol	References	Status	References	Status
MTst	— status messages	A.4.2	O		ox
MTor	— operator messages	A.4.2	O		ox

E.8. **Lower Layer Requirements**

E.8.1. *Transport Layer Requirements*

Table 4

Message Header Protocol

Base Standard Features				Profile Features	
Item	Message Header Protocol	References	Status	References	Status
IHTx	Use of the fields ADEST, DEST, AEMM, EMM and ADR with values other than '40'H	B.4.4	O		ox

E.8.2. *Network Layer Requirements*

The PRLs given in this section are based on the PICS proforma for ISO/IEC 8208:1993 [Reference 7]. The entries in the 'References' column under 'Base standard features' of the following tables are references to clauses in that standard.

E.8.2.1. General DTE Characteristics

Table 5

General DTE Characteristics

Base Standard Features				Profile Features	
Item	General DTE Characteristics	References	Status	References	Status
	Service supported:				
Vs	— virtual call		O.1		m
Vp	— permanent virtual circuit		O.1		x
	Environments supported:	3, 3.2			
Ec/3	— DTE/DCE(1993)		O.2	6.3.2	o.2
Ec/8	— DTE/DCE(1988)		O.2	6.3.2	o.2
Ec/4	— DTE/DCE(1984)		O.2	6.3.2	o.2
Ec/0	— DTE/DCE(1980)		O.2	6.3.2	o.2
Et/t	— DTE/DTE in fixed role as DTE		O.2	6.3.2	o.2
Et/c	— DTE/DTE in fixed role as DCE		**Vs**: O.2	6.3.2	o.2
Et/d	— DTE/DTE with dynamic role selection	4.5	**Vs**: O.2		x
	Packet sequence numbering supported:				
M8	— Modulo 8	13.2, 12.1.1, Table 3	O.3		m
M128	— Modulo 128	13.2, 12.1.1, Table 3	O.3		x
	Reference Number optional user facility supported, for alternative Logical Channel Identifier assignment:	13.29, 13.29.1, 13.29.2, 13.29.3, 13.29.4, Fig 31			
RNa	— without reversion to use of logical channel ranges	13.29.2.1	**Et**: O ¬**Et**: X		x
RNb	— with possible reversion to use logical channel ranges	13.29.2.1	**Et**: O ¬**Et**: X		x

E.8.2.2. Procedures, Packet Types and Packet Formats

Table 6

Packet Layer Functions Independent of Logical Channels

Base Standard Features				Profile Features	
Item	Packet Layer Functions Independent of Logical Channels	References	Status	References	Status
	Are the following packet layer functions supported:				
Z2s	Sending diagnostic packet	12.7, Table 24	**Et**: O **¬Et**: X		x
Z4i	Initiating On-line Facility Registration:	13.1, 13.1.1.1, 13.1.1.3, 13.1.1.4	O		ox
	— send REGISTRATION REQUEST	12.9.1			
	— receive REGISTRATION CONFIRMATION	12.9.2, Table 10			
Z4r	Responding to On-line Facility Registration:	13.1, 13.1.1.1, 13.1.1.4	**Et**: O		–
	— receive REGISTRATION REQUEST	12.9.1			
	— send REGISTRATION CONFIRMATION	12.9.2, Table 10			

Table 7

Call Setup

Base Standard Features				Profile Features	
Item	Call Setup	References	Status	References	Status
	Are outgoing Virtual Calls supported:	5.2.1, 5.2.5, Table 33			
S1a	— Fast Select, no restriction on response?	5.2.4, 13.16	O		x
S1b	— Fast Select with restricted response?	13.16	O		x
S1c	— non-Fast Select?	5.2.4	O		m
SP1b	CALL REQUEST, basic format	12.2.3.1	**S1c**: M **S1ab**: O.4		m
SP1e	send CALL REQUEST, extended format	12.2.3.1, 12.2.3.2	**S1ab**: O.4		x
SP2b	receive CALL CONNECTED, basic format	12.2.4.1	**S1ac**: M		m
SP2e	receive CALL CONNECTED, extended format	12.2.4.1, 12.2.4.2	**S1a**: M		–

Base Standard Features				Profile Features	
Item	Call Setup	References	Status	References	Status
	Is alternative addressing supported for outgoing Virtual Calls:	13.28			
	— using A = 1 and expanded Address Block format?	13.28.2.1, 12.2.1.2	**Ec/3**: O **¬Ec/3**: X		x
	— using the Called Address Extension Facility?	13.28.2.2.	**Ec/3**: O **¬Ec/3**: X		x
	Are incoming Virtual Calls supported:	5.2.2, 5.2.5, Table 33			
S2a	— Fast Select with acceptance possible?	5.2.3, 13.17	O		–
S2b	— Fast Select, always cleared?	13.17	O		m
S2c	— non-Fast Select with acceptance possible?	5.2.3	O		m
S2d	— non-Fast Select, always cleared?	5.2.3	O		x
SP3b	receive INCOMING CALL, basic format	12.2.3.1	**S2**: M		m
SP3e	receive INCOMING CALL, extended format	12.2.3.1, 12.2.3.2	**S2ab**: M **S2axc**: O.5		–
SP4b	send CALL ACCEPTED, basic format	12.2.4.1	**S2c**: M **S2axc**: O.5		m
SP4e	send CALL ACCEPTED, extended format	12.2.4.1, 12.2.4.2	**S2axc**: O.5 **S2anc**: O		–
	Is D-bit negotiation supported:				
DN1	— for outgoing Virtual Calls	6.3	**S1ac**: O		m
DN2	— for incoming Virtual Calls	6.3	**S1ac**: O		m

NOTE The D-bit shall always be negociated to 0.

Table 8

Call Clearing

Base Standard Features				Profile Features	
Item	Call Clearing	References	Status	References	Status
	Is call clearing supported, for:	5.5.4, Table 33			
C1	— response to indication of clearing	5.5.2	O		m

Base Standard Features				Profile Features	
Item	Call Clearing	References	Status	References	Status
C2a	— aborting an outgoing Virtual Call attempt?	5.4, 5.5.1, 5.5.3	**S1**: O		o
C2b	— rejecting an incoming Virtual Call?	5.3, 5.5.1, 5.5.3	**S2bd**: M **S2acxbd**: O		m
C2c	— originating clearing of an established Virtual Call?	5.5.1, 5.5.3	O		o
CP1b	receive CLEAR INDICATION, basic format	12.2.5.1	**Cany**: M		m
CP1e	receive CLEAR INDICATION, extended format	12.2.5.1, 12.2.5.2	**Cany**: M		–
CP2b	send CLEAR CONFIRMATION, basic format	12.2.6.1	**C1**: M		m
CP2e	send CLEAR CONFIRMATION, extended format	12.2.6.1, 12.2.6.2	**C1rn**: M		x
CP3b	send CLEAR REQUEST, basic format	12.2.5.1	**C2a**: M **C2bcxa**: O.6		m
CP3e	send CLEAR REQUEST, extended format	12.2.5.1,12.2.5.2	**C2bcxa**: O.6 **C2axbc**: X		x
CP4b	receive CLEAR CONFIRMATION, basic format	12.2.6.1	**C2**: M		m
CP4e	receive CLEAR CONFIRMATION, extended format	12.2.6.1, 12.2.6.2	**C2rnci**: M		–

Table 9

Resetting of Logical Channels

Base Standard Features				Profile Features	
Item	Resetting of Logical Channels	References	Status	References	Status
	Is resetting supported:	8, 8.4, Table 34			
RSi	— as initiator? send RESET REQUEST receive RESET CONFIRMATION/INDICATION	8.1, 8.3 12.5.1 12.5.2, 12.5.1	O		mm
RSr	— as responder? receive RESET INDICATION send RESET CONFIRMATION	8.2 12.5.1 12.5.2	O		mm

Table 10

Error Procedures

Base Standard Features				Profile Features	
Item	Error Procedures (Virtual Call Service)	References	Status	References	Status
	Is ERROR-C procedure:	5.2.1, 5.4, 8.1, Table 33			
W1a	— clear the Virtual Call?		O.7		m
W1b	— restart the packet layer?		O.7		x
	Is ERROR-R procedure for virtual calls:	6.3, 6.4, 6.6, 6.8.1, 6.8.2, 7.1.3, 7.1.4, 8.2, 11.2.1, 13.4.1, Tables 34-36			
W2sc	— restart the packet layer?		O.8		x

Table 11

Interrupt Transfer

Base Standard Features				Profile Features	
Item	Interrupt Transfer	References	Status	References	Status
Is	Is sending interrupts supported?	6.8, 6.8.1, 6.8.3, Table 35	O		ox
	— send INTERRUPT REQUEST	12.3.2			
	receive INTERRUPT CONFIRMATION	12.3.3			
Ir	Is receiving interrupts supported?	6.8, 6.8.2, 6.8.3 Table 35	O		–
	— receive INTERRUPT INDICATION	12.3.2			
	— send INTERRUPT CONFIRMATION	12.3.3			

Table 12

Sending Data

Base Standard Features				Profile Features	
Item	Sending Data	References	Status	References	Status
DS1	Is sending of DATA packets supported?	6, 6.1, 7.1.1, 7.1.2, 7.1.3, 12.3.1	O		mm
	Are the following supported:				
DS2	— send-window rotation on receiving updated P(R) values?	7.1, 7.1.2, 7.1.3	O		mm

Base Standard Features				Profile Features	
Item	Sending Data	References	Status	References	Status
DS4a	— sending M = 0 in DATA packets?	6.4, 6.5, 6.7	M		mo.9
DS4b	— sending M = 1 in DATA packets?	6.4, 6.5, 6.7	O		mo.9
DS5a	— sending Q = 0 in DATA packets?	6.6	O.10		mm
DS5b	— sending Q = 1 in DATA packets?	6.6	O.10		ox
DS6	— responding to packet retransmission requests (received REJECT packets)?	13.4.2 12.8	**Et**: O		–
	— Window Rotation Timer procedure:				
DS7a	— ERROR-R action on expiry	11.2.1(a)	O		ox
DS7b	— packet retransmission on expiry	11.2.1(b)	**Et**: O ¬**Et**: X		ox
DS8	— discard of over-length flow control packets (instead of ERROR-R)?	Table 36 Note 2	O		ox

Table 13

Receiving Data

Base Standard Features				Profile Features	
Item	Receiving Data	References	Status	References	Status
DR1	Is receiving of DATA packets supported?	6, 6.1, 6.2, 7.1.1, 7.1.2, 7.1.3, 12.3.1	O		mm
	Are the following supported:				
DR2	— receive-window rotation by sending updated P(R)values?	7.1.2, 7.1.3	O		mm
DR3	— flow control by sending RECEIVE NOT READY and RECEIVE READY?	7.1.5, 7.1.6, 12.4.1, 12.4.2	O		mm
DR4b	— receiving M = 1 in DATA packets?	6.4, 6.5, 6.7	O		mm
DR5a	— receiving Q = 0 in DATA packets?	6.6	O.11		mm
DR5b	— receiving Q = 1 in DATA packets?	6.6	O.11		–
DR6	— requesting packet retransmission by sending REJECT packets?	13.4.1, 12.8	O		ox
	— recovery from receipt of DATA packets containing invalid P(S), by:				

Base Standard Features				Profile Features	
Item	Receiving Data	References	Status	References	Status
DR7a	— ERROR-R action?	11.3(a)	O.12		mm
DR7b	— requesting packet retransmission?	11.3(b)	O.12		ox
DR7c	— ignoring the packet and waiting for a correct retransmitted packet?	11.3(c)	O.12		ox
	— recovery from receipt of DATA packets with invalid User Data field, by:				
DR8a	— ERROR-R action?	11.3(a)	O.13		mm
DR8b	— requesting packet retransmission?	11.3(b)	O.13		ox
DR8c	— ignoring the packet and waiting for a correct retransmitted packet?	11.3(c)	O.13		ox
DR9	— Window Status Transmission Timer procedure?	11.2.2	O		ox

Table 14

Delivery Confirmation

Base Standard Features				Profile Features	
Item	Delivery Confirmation	References	Status	References	Status
DC	Is Delivery Confirmation supported?	6.3, 6.5, 6.7, 7.1.4	O		x

E.8.2.3. Miscellaneous Features and Options

Table 15

Values of Cause and Diagnostic Codes

Base Standard Features				Status	
Item	Values of Cause and Diagnostic Codes	References	Profile Features	References	Status
	In RESTART REQUEST packets sent:	12.6.1.1, 12.6.1.2, Tables 24-25			
Y1d	— Cause = 128, private diagnostic codes		O.14		ox
	In RESTART INDICATION packets received:	12.6.1.1, Table 9, 12.6.1.2			
Y2b	— Cause not 0 or 128, any diagnostic code value		**EC**: M ¬**EC**: O		m

Base Standard Features				Status	
Item	Values of Cause and Diagnostic Codes	References	Profile Features	References	Status
	In CLEAR REQUEST packets sent:	12.2.3.1.1, 12.2.3.1.2, Tables 24-25			
Y3d	— Cause = 128, private diagnostic codes		O.15		ox
	In CLEAR INDICATION packets received:	12.2.3.1.1, Table 7, 12.2.3.1.2,			
Y4b	— Cause not 0 or 128, any diagnostic code value		**EC**: M ¬**EC**: O		m
	In RESET REQUEST packets sent:	12.5.1.1, 12.5.1.2, Tables 24-25			
Y5d	— Cause = 128, private diagnostic codes		O.16		ox
	In RESET INDICATION packets received:	12.5.1.1, Table 8, 12.5.1.2			
Y6b	— Cause not 0 or 128, any diagnostic code value		**EC**: M ¬**EC**: O		m

E.8.2.4. Facilities

Table 16

Facilities Sent in CALL REQUEST Packets

Base Standard Features				Profile Features	
Item	Facilities Sent in CALL REQUEST Packets	References	Status	References	Status
FS1pi	Flow Control Parameter Negotiation, packet size	13.12, 15.2.2.1.1	O		x
FS1wi	Flow Control Parameter Negotiation, window size	13.12, 15.2.2.1.2	O		x
FS2ib	Basic Throughput Class Negotiation	13.13, 15.2.2.2.1, Table 20a	O		x
FS2ie	Extended Throughput Class Negotiation	13.13, 15.2.2.2.2, Table 20b	O		x
FS3b	Closed User Group Selection, basic format	13.14.6, 15.2.2.3.1	O		o
FS3e	Closed User Group Selection, extended format	13.14.6, 15.2.2.3.2	O		x
FS4b	Closed User Group With Outgoing Access Selection, basic format	13.14.7, 15.2.2.4.1	O		x

Base Standard Features				Profile Features	
Item	Facilities Sent in CALL REQUEST Packets	References	Status	References	Status
FS4e	Closed User Group With Outgoing Access Selection, extended format	13.14.7, 15.2.2.4.2	O		x
FS5	Bilateral Closed User Group Selection	13.15, 15.2.2.5	O		x
FS6a	Fast Select	13.16, 15.2.2.6	O		x
FS6b	Reverse Charging	13.18, 15.2.2.6	O		x
FS6c	ICRD Status Selection	13.25.4.2, 15.2.2.6	O		x
FS7i	Network User Identification	13.21, 13.21.3, 15.2.2.7	O		x
FS8i	Charging Information, requesting service	13.22, 15.2.2.8.1	O		x
FS9b	RPOA selection, basic format	13.23, 13.23.2, 15.2.2.9.1	O		x
FS9e	RPOA selection, extended format	13.23, 13.23.2, 15.2.2.9.2	O		x
FS12	Transit Delay Selection and Indication	13.27, 15.2.2.13	O		x
FS99i	Local non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FS98i	Remote non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FS20i	Facility Marker, CCITT-specified DTE facilities	15.1	O		x
FS21i	Calling Address Extension	14.1, 15.3.2.1			x
FS22i	Called Address Extension	14.2, 15.3.2.2			x
FS23ib	Minimum Throughput Class Negotiation, basic format	14.3, 15.3.2.3.1, Table 20a	O		x
FS23ie	Minimum Throughput Class Negotiation, extended format	14.3, 15.3.2.3.2, Table 20b	O		
FS24i	End-to-end Transit Delay Negotiation	14.4, 15.3.2.4	O		x
FS25i	Expedited Data Negotiation	14.7, 15.3.2.7	O		x
FS26i	Priority	14.5, 15.3.2.5	O		x
FS27i	Protection	14.6, 15.3.2.6	O		x

Table 17

Facilities Sent in CALL ACCEPT Packets

Base Standard Features				Profile Features	
Item	Facilities Sent in CALL ACCEPT Packets	References	Status	References	Status
FS1pr	Flow Control Parameter Negotiation, packet size	13.12, 15.2.2.1.1, Table 13	O		x
FS1wr	Flow Control Parameter Negotiation, window size	13.12, 15.2.2.1.2, Table 13	O		x
FS2rb	Basic Throughput Class Negotiation	13.13, 15.2.2.2.1, Table 20a	O		x
FS2re	Extended Throughput Class Negotiation	13.13, 15.2.2.2.2, Table 20b	O		x
FS7r	Network User Identification	13.21, 13.21.3 15.2.2.7	O		x
FS8r	Charging Information, requesting service	13.22, 15.2.2.8.1	O		x
FS10r	Called Line Address Modified Notification	13.26, 15.2.2.12	O		x
FS99r	Local non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FS98r	Remote non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FS20r	Facility Marker, CCITT-specified DTE facilities	15.1	O		x
FS22r	Called Address Extension	14.2, 15.3.2.2	O		x
FS24r	End-to-end Transit Delay Negotiation	14.4, 15.3.2.4	O		x
FS25r	Expedited Data Negotiation	14.7, 15.3.2.7	O		x
FS26r	Priority	14.5, 15.3.2.5	O		x
FS27r	Protection	14.6, 15.3.2.6	O		x

Table 18

Facilities Sent in CLEAR REQUEST Packets

Base Standard Features				Profile Features	
Item	Facilities Sent in CLEAR REQUEST Packets	References	Status	References	Status
FS10d	Called Line Address Modified Notification	13.26, 15.2.2.12	O		x
FS13	Call Deflection Selection	13.25.2.2, 15.2.2.10	O		x
FS99d	Local non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x

Base Standard Features				Profile Features	
Item	Facilities Sent in CLEAR REQUEST Packets	References	Status	References	Status
FS98d	Remote non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FS20d	Facility Marker, CCITT-specified DTE facilities	15.1	O		x
FS22d	Called Address Extension	14.2, 15.3.2.2	O		x

Table 19

Facilities Received in INCOMING CALL Packets

Base Standard Features				Profile Features	
Item	Facilities Received in INCOMING CALL Packets	References	Status	References	Status
FR1pi	Flow Control Parameter Negotiation, packet size	13.12, 15.2.2.1.1	O		x
FR1wi	Flow Control Parameter Negotiation, window size	13.12, 15.2.2.1.2	O		x
FR2ib	Basic Throughput Class Negotiation	13.13, 15.2.2.2.1 Table, 20a	O		x
FR2ie	Extended Throughput Class Negotiation	13.13, 15.2.2.2.2 Table, 20b	O		x
FR3b	Closed User Group Selection, basic format	13.14.6, 15.2.2.3.1	O		o
FR3e	Closed User Group Selection, extended format	13.14.6, 15.2.2.3.2	O		x
FR4b	Closed User Group With Outgoing Access Selection, basic format	13.4.7, 15.2.2.4.1	O		x
FR4e	Closed User Group With Outgoing Access Selection, extended format	13.4.7, 15.2.2.4.2	O		x
FR5	Bilateral Closed User Group Selection	13.15, 15.2.2.5	O		x
FR6a	Fast Select	13.16, 13.17, 15.2.2.6	O		x
FR6b	Reverse Charging	13.18, 13.19, 15.2.2.6	O		x
FR11	Call Redirection or Call Deflection Notification	13.25.3, 15.2.2.11	O		x
FR12i	Transit Delay Selection and Indication	13.27, 15.2.2.13	O		x
FR99i	Local non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x

Base Standard Features				Profile Features	
Item	Facilities Received in INCOMING CALL Packets	References	Status	References	Status
FR20i	Facility Marker, CCITT-specified DTE facilities	15.1	O		x
FR21	Calling Address Extension	14.1, 15.3.2.1			x
FR22i	Called Address Extension	14.2, 15.3.2.2			x
FR23b	Minimum Throughput Class Negotiation, basic format	14.3, 15.3.2.3.1, Table 20a	O		x
FR23e	Minimum Throughput Class Negotiation, extended format	14.3, 15.3.2.3.2, Table 20b	O		x
FR24i	End-to-end Transit Delay Negotiation	14.4, 15.3.2.4	O		x
FR25i	Expedited Data Negotiation	14.7, 15.3.2.7	O		x
FR26i	Priority	14.5, 15.3.2.5	O		x
FR27i	Protection	14.6, 15.3.2.6	O		x

Table 20

Facilities Received in CALL CONNECTED Packets

Base Standard Features				Profile Features	
Item	Facilities Received in CALL CONNECTED Packets	References	Status	References	Status
FR1pr	Flow Control Parameter Negotiation, packet size	13.12, 15.2.2.1.1, Table 14	O		x
FR1wr	Flow Control Parameter Negotiation, window size	13.12, 15.2.2.1.2, Table 14	O		x
FR2rb	Basic Throughput Class Negotiation	13.13, 15.2.2.2.1, Table 20a	O		x
FR2re	Extended Throughput Class Negotiation	13.13, 15.2.2.2.2, Table 20b	O		x
FR10r	Called Line Address Modified Notification	13.26, 15.2.2.12	O		x
FR12r	Transit Delay Selection and Indication	13.27, 15.2.2.13	O		x
FR99r	Local non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FR20r	Facility Marker, CCITT-specified DTE facilities	15.1	O		x
FR22r	Called Address Extension	14.2, 15.3.2.2	O		x
FR24r	End-to-end Transit Delay Negotiation	14.4, 15.3.2.4	O		x
FR25r	Expedited Data Negotiation	14.7, 15.3.2.7	O		x
FR26r	Priority	14.5, 15.3.2.5	O		x
FR27r	Protection	14.6, 15.3.2.6	O		x

Table 21

Facilities Received in CLEAR INDICATION Packets

Base Standard Features				Profile Features	
Item	Facilities Received in CLEAR INDICATION Packets	References	Status	References	Status
FR8ad	Charging information, monetary unit	13.22, 15.2.2.8.2	O		x
FR8bd	Charging information, segment count	13.22, 15.2.2.8.3	O		x
FR8cd	Charging information, call duration	13.22, 15.2.2.8.4	O		x
FR10d	Called Line Address Modified Notification	13.26, 15.2.2.12	O		x
FR99d	Local non-X.25 facilities, following Facility Marker	15.1, Table 18	O		x
FR20d	Facility Marker, ITU-T-specified DTE facilities	15.1	O		x
FR22d	Called Address Extension	14.2, 15.3.2.2	O		x

Table 22

Facilities Received in CLEAR CONFIRMATION Packets

Base Standard Features				Profile Features	
Item	Facilities Received in CLEAR CONFIRMATION Packets	References	Status	References	Status
FR8af	Charging information, monetary unit	13.22, 15.2.2.8.2	O		x
FR8bf	Charging information, segment count	13.22, 15.2.2.8.3	O		x
FR8cf	Charging information, call duration	13.22, 15.2.2.8.4	O		x

E.8.2.5. Parameter Values and Ranges

Table 23

Parameter Values and Ranges

Base Standard Features				Profile Features	
Item	Parameter Values and Ranges	References	Status	References	Status
	What values are supported:				
V1s	— Default packet sizes (sending)?	16.2.2.5	16, 32, 64, 128, 256, 512, 1 024, 2 048, 4 096 octets	6.3.2	At least 128 and 256
V1r	— Default packet sizes (receiving)?	16.2.2.5	16, 32, 64, 128, 256, 512, 1 024, 2 048, 4 096 octets	6.3.2	At least 128 and 256
V2s	— Default window sizes, sending?	16.2.2.6	(**M8:** in the range 1-7)		2
V2r	— Default window sizes, receiving?	16.2.2.6	(**M8:** in the range 1-7)		2

E.8.3. *Datalink Layer Requirements*

The PRLs given in this section are based on the PICS proforma for ISO/IEC 7776:1994 [Reference 6]. The entries in the 'References' column under 'Base standard features' of the following tables are references to clauses in that standard.

Table 24

Datalink Protocol

Base Standard Features				Profile Features	
Item	Data Link Protocol	References	Status	References	Status
Lm	Multilink procedure	6	O		ox
Lc	DTE/DCE operation	1, 5.1	M		mo.1
Lt	DTE/DTE operation	1, 5.1	O		mo.1
M8	Basic (Modulo 8) operation	1, 3, 4.1.1	O.1		mm
M128	Extended (Modulo 128) operation	1, 3, 4.1.1	O.1		ox
T4	Timer T4 procedure	5.3.2, 5.6.1	O		mm
SPN1	Maximum number (N1) of bits in an I-frame	5.7.3	N1 ≥ 1 080		N1 ≥ 2 104
SPk	Maximum number of outstanding frames (k)	5.7.4	$1 \leq k \leq 7$		$k = 7$

E.8.4. *Physical Layer Requirements*

See ISO/IEC TR 10609-9 clause A.4 [Reference 8].

ANNEX F (Informative)

CONFORMANCE TESTING METHODOLOGY

F.1. Introduction

F.1.1. It is important that implementations of this ICD are such that there is a high level of confidence for interoperation between Air Traffic Control Centres (ATCCs) interworking across the interface.

F.1.2. Implementations of the interface are undertaken by member states in a manner that is likely to rely on procurement from various sources. To achieve a high level of confidence that such implementations will interoperate, a common set of conformance test requirements is required to standardise preparation for test, testing and presentation of results.

F.2. Purpose and Scope

F.2.1. This Annex defines requirements for the testing of conformance of implementations of this Eurocontrol Standard of which this Annex is a part.

F.2.2. It identifies mechanisms whereby confidence in the declared interface is established through a process of test to validate the claim.

F.3. Bibliography

The following document is relevant to the testing of implementations of this Eurocontrol Standard Document:

Eurocontrol (Maastricht Upper Area Control (UAC) Systems Division) FDE ICD Part 1 Integration Test Plan Version 1.0, dated 10 May 1996 [Reference 15].

F.4. Development Methods and Practices

F.4.1. Implementations of the ICD can be effected using certain options and versions of the ICD itself. In order to establish the potential for interworking, a Member State implementing the interface must identify which parts of the ICD are supported with a defined statement as to the capability and what limitations, if any, on variable parameters are supported.

F.4.2. Any implementation should be subject to a conformance test as described below.

F.5. Tests

F.5.1. *Introduction*

F.5.1.1. In order to provide confidence in and support for FDE Interface within an ATCC to the interworking between co-operating FDE applications, it is desirable for each to be tested for conformance to the standards of which this Annex forms a part. Such testing is against the external behaviour of the System Under Test (SUT) and is intended to test for interworking rather than the serviceability of the end system.

F.5.1.2. The results of such testing can serve as evidence in support of claims of conformance made in accordance with Section 5.1 of this part of this Eurocontrol Standard Document. The PICS proformas and PRLs called up by this profile specification can be used as the basis of conformance tests; in addition, international standards (e.g. ISO/IEC 8208 [Reference 7]) may already have abstract test suites defined that can be used in conformance testing.

F.5.1.3. The intention of this document is to provide for a standardised programme of test relying on a standardised test suite, use of which should lead to comparability of test results, wide acceptance of such test results and a minimisation of conformance testing required. The standardised test suite has been developed, in part, by Eurocontrol.

F.5.1.4. Based on Figure 2, the testing of the complete end system takes the form of tests on the lower 3 layers. It is advisable that testing include tests on the FDE application, Status, System and Operator Messages.

F.5.1.5. Each test described below should be conducted in order. The latter test will only be successful if the lower layers are functioning correctly and it is likely that this will be ascertained with the earlier tests.

F.5.1.6. Notwithstanding the above, the testing described in this section is voluntary.

F.5.2. *Testing of the Lower Layers (Layers 1-3)*

In support of the requirement for inter-operation between any one ATCC and its peers, it is recommended that any testing shall be based on the use of the test plan given in the Eurocontrol (Maastricht UAC Systems Division) FDE ICD Integration Test Plan. Test procedures are to be bilaterally agreed between co-operating ATCCs.

F.5.3. *Testing of the Application Layer*

A series of bilaterally agreed tests should be agreed and conducted between co-operating ATCCs.

F.5.4. *Certification*

The results of tests should be recorded and agreed between the co-operating parties.

F.5.5. *Notification*

Member states should pass details of the results of any tests to Eurocontrol.

ANNEX G (Informative)

ASSIGNMENT OF ATC UNIT IDENTIFIERS

The following table shows the ATC unit identifiers assigned as at April 22nd, 1997. The Eurocontrol can provide information on the current assignment of identifiers. The table also shows in hexadecimal the binary encoding of the identifier as part of the NSAP address encoding defined in Annex C.

Table 1

ATC Unit Identifiers

ATC Unit Identifier	Encoding	Description
00		Reserved
01	'01'H	CATCAS, Copenhagen
02	'02'H	MADAP, Maastricht
03	'03'H	ZKSD, Frankfurt/Main
04	'04'H	CANAC Brussels
05	'05'H	Generic CAUTRA, France
06	'06'H	Dublin
07	'07'H	Shannon
08	'08'H	LATCC, London
09	'09'H	Oslo ATCC
10	'10'H	Karlsruhe ATCC
11	'11'H	Langen (future German system)
12	'12'H	FATMI-system, Tampere
13	'13'H	ROVA-system, Rovaniemi
14	'14'H	VAS, Vienna
15	'15'H	CFMU Haren
16	'16'H	CFMU Brétigny
17	'17'H	Geneva ACC/FMP
18	'18'H	Zurich ACC/FMP
19	'19'H	Barcelona
20	'20'H	Madrid
21	'21'H	Palma
22	'22'H	Milan
23	'23'H	Rome
24	'24'H	Jersey
25	'25'H	Shanwick
26	'26'H	Athis-Mons
27	'27'H	Reims
28	'28'H	Brest
29	'29'H	Bordeaux

ATC Unit Identifier	Encoding	Description
30	'30'H	Aix-en-Provence
31	'31'H	Bratislava
32	'32'H	Stockholm-Arlanda
33	'33'H	Malmö-Sturup
34	'34'H	Sundsvall
35	'35'H	Lisbon
36	'36'H	Seville
37	'37'H	Gran Canaria
38	'38'H	Prague
39	'39'H	Amsterdam
40	'40'H	LIZ Offenbach
41	'41'H	German Military System
42	'42'H	German Military System
43	'43'H	German Military System
44	'44'H	German Military System
45	'45'H	German Military System
46	'46'H	German Military System
47	'47'H	German Military System
48	'48'H	German Military System
49	'49'H	German Military System
50	'50'H	Munchen (Future German System)
51	'51'H	Zagreb
52	'52'H	Hahn Airport, Germany
53	'53'H	Santa Maria FIR
54	'54'H	Ljubljana
55	'55'H	Belgian Military System
56	'56'H	Budapest
57	'57'H	Warsaw

ANNEX H (Informative)

GUIDANCE ON RELIABILITY, AVAILABILITY AND SECURITY

H.1. Introduction

It is expected that ATC applications such as OLDI shall make use of interconnected X.25 networks and/or public or private telecommunication services. As a consequence, it is deemed necessary to provide guidance to FDE ICD Part 1 implementations.

H.2. Purpose and Scope

H.2.1. The purpose of this Annex is to give guidance on issues relating to reliability, availability and security.

H.2.2. The scope of this Annex is based on two scenarios. The first scenario is a point-to-point connection over leased line. The second scenario is based within an interconnected X.25 network environment.

NOTE *For the second scenario, issues relating to the interconnection of the X25 networks are not considered.*

H.2.3. It is assured that implementations are physically protected against intrusion, power failures and other external threats that can affect normal operation.

H.3. Bibliography

The following document is a detailed technical analysis of which this Annex is an overview:

Eurocontrol FDE ICD Part 1: Reliability, Availability and Security — Technical Report [Reference 16].

H.4. Leased Line Implementations

H.4.1. *Reliability*

To increase service reliability, leased line, PSTN, Integrated Services Digital Network (ISDN) cables must follow physically different paths and linked to different telecommunication operator switches (this must be specified to the telecommunication operator).

H.4.2. *Availability*

H.4.2.1. Due to long setup times on PSTN which are incompatible with time constraining applications, ISDN should be used as a backup medium.

H.4.2.2. In event of DTE switchover, the standby DTE should generate a DISC frame to accelerate connection re-establishment.

H.4.3. *Security*

H.4.3.1. When using ISDN as backup medium, the called ISDN terminal adapter (TA) should validate the caller's E.164 address [Reference 18].

H.4.3.2. The calling DTE should comply to ITU-T Recommendation X.32 [Reference 17] by including caller identification and for authentication information.

H.4.4. *Configuration Example*

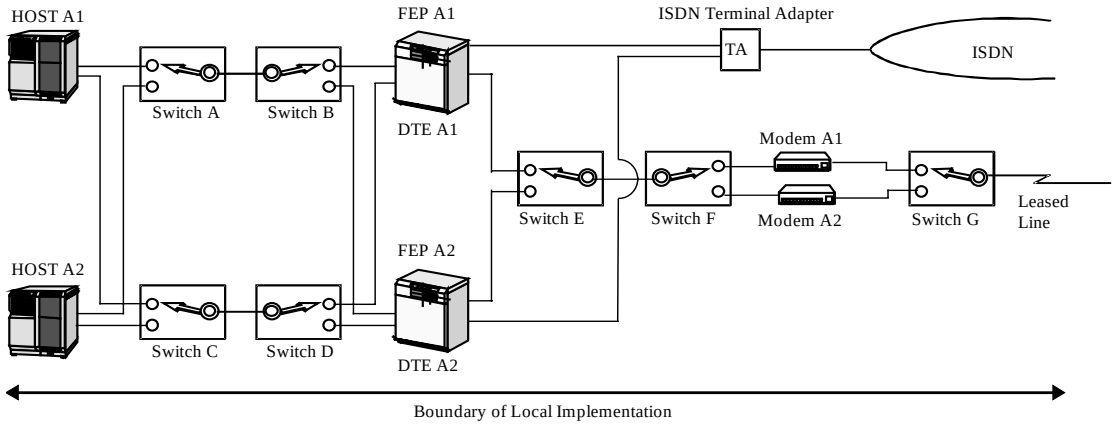


Figure H.1

Leased Line Configuration Example

H.5. **Network Implementation**

H.5.1. *Reliability*

To increase service reliability, hosts on a given site should be connected to two DCEs belonging to different network switches (this requirement should be specified to the network operator).

H.5.2. *Availability*

H.5.2.1. The hunt group facility should be used so as to be able to assign a single X.121 address [Reference 20] to the DCEs located on a given site, thereby optimising network routing and limiting unsuccessful calls.

H.5.2.2. In the event other call mechanisms are implemented resulting in a different called DTE address value in the CALL REQUEST and CALL ACCEPT packets, the calling DTE should be configured so there is no impact on the setting up of the call.

H.5.2.3. In the event of DCE disconnection due to a network failure and a second access to the network is available, call re-establishment should be made via this second access.

H.5.3. *Security*

Within the scope of this Annex, the Closed User Group (CUG) facility is the only applicable network facility that should be used.

H.6. **General Guidance for Leased Line and Network Implementations**

H.6.1. *Reliability*

H.6.1.1. As a full host switchover can be long, it is advantageous to consider the use a front-end processor (FEP) to cater for host failures.

H.6.1.2. An architecture based on an FEP can increase service reliability.

NOTE *Inclusion of a transport stack in the profile specification may be developed in the context of a future FDE ICD Part 2 standard.*

H.6.2. *Availability*

When a call is unsuccessful, the calling site should make a second call using the second X.121 address (if available).

H.6.3. *Systems Management*

H.6.3.1. The use of switches that are automatically toggled by scanning of the interface signals should be used where possible.

H.6.3.2. A local error indication during data transmission can be used to trigger a host switchover.

H.6.3.3. The switchover of a FEP should generate a TC-disconnect to ensure the local host is in the IDLE state.

H.6.3.4. On expiry of the time-outs on the X.25 network or datalink layers, the higher layers should be released.

H.6.3.5. A total FEP failure should generate a TC-disconnect.

H.6.3.6. The management system should poll the Message Transfer Protocol layer (Annex A) and check the state machine to distinguish between a Message Transfer Protocol failure and an application failure.

H.6.4. *Configuration Example*

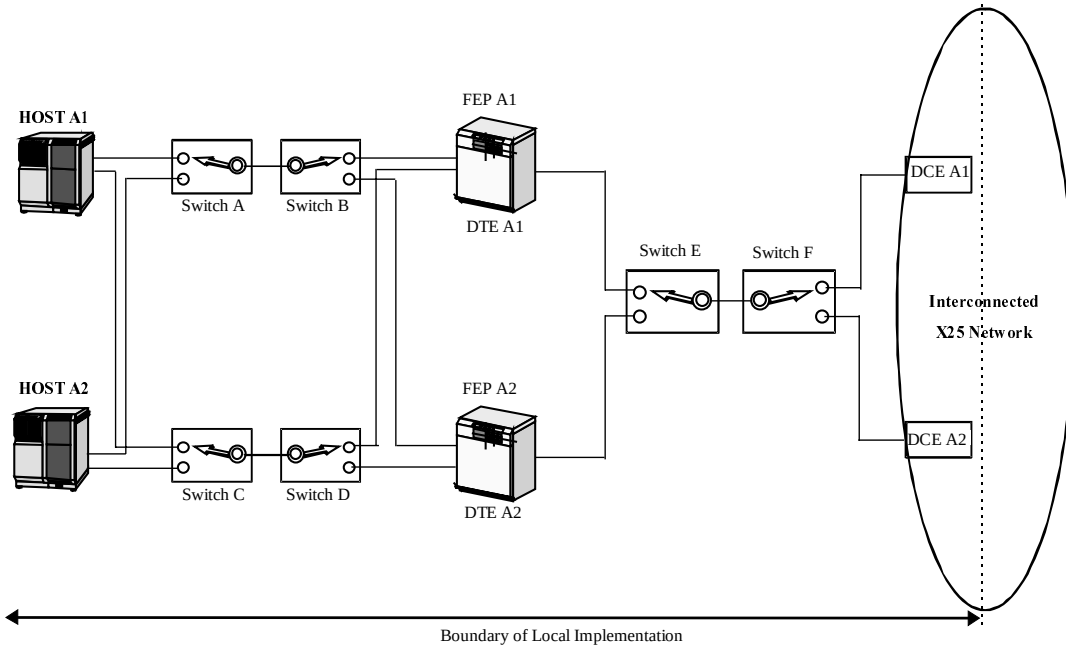


Figure H.2

Network Configuration Example