OPERATIONAL DATA LINK PANEL (OPLINKP)

WORKING GROUP B MEETING

Berlin, Germany, 25 to 27 September 2000

SUMMARY OF DISCUSSIONS AND CONCLUSIONS

(Presented by the Rapporteur)

1. INTRODUCTION

1.1 The meeting was chaired by Mr. Jean-François Grout, and the Secretary of the OPLINKP, Mr. Chris Dalton provided advice and coordination support for the meeting.

1.2 Since the fifth meeting of the Automatic Dependent Surveillance Panel (ADSP/5, Montreal, 18 to 29 October 1999), Working Group B (WG/B) had progressed its work through correspondence and a working group meeting (21 to 24 March 2000, Rio de Janeiro, Brazil).

2. WORKING ARRANGEMENTS

2.1 The meeting was held in Berlin, Germany, and was attended by 11 panel members, and 17 advisors. A list of participants is at **Appendix A**.

2.2 A list of working papers is at **Appendix B**.

3. AGENDA

3.1 The meeting opened with a review of the draft agenda, which had been circulated by the Secretary. The meeting approved the following agenda:

Agenda Item 1 Development of ADS, CPDLC, D-FIS (D-ATIS) and AIDC amendment proposals for the Annexes, PANS-RAC, and associated guidance material to be contained in the *Manual of Air Traffic Services Data Link Applications* (Doc 9694)

Agenda Item 2 Any other business

4. **Agenda Item 1: Development of ADS, CPDLC, D-FIS (D-ATIS) and AIDC amendment proposals for the Annexes, PANS-RAC, and associated guidance material to be contained in the *Manual of Air Traffic Services Data Link Applications* (Doc 9694)**

4.1 WP/105 introduced proposed amendments to the *Manual of Air Traffic Services Data Link Applications* (Doc 9694), hereafter referred to as the *Manual*, reflecting discussions and coordination that had taken place in the field of D-ATIS and D-METAR since ADSP/5. It was recalled that the content of D-ATIS and D-METAR had been extensively reviewed at the Rio de Janeiro meeting. Only a few items were still felt to require additional work. The review process highlighted some minor changes to be made to the D-ATIS tables.

4.1.1 An inconsistency was found between the description of the transition level in field 3(c) and the example provided. This was rectified. The working group suggested that the unit of measurement should be displayed for the pressure value in field 5(c). This suggestion was made in order to ensure that when receiving pressure information the pilot would know exactly in which unit of measurement that information was being provided to him. This was felt to be particularly important as examples were given of misinterpretation of the pressure information in Voice-ATIS. This comment led the working group to further suggest that the fourth column of the tables be renamed "Examples for display" instead of "Examples" to stress the fact that this column reflected how the information should be displayed in the cockpit. An action was given to the working group to provide more information in the *Manual*, concerning the display requirements associated with D-ATIS and D-METAR.

4.1.2 The working group also suggested amending the note for field 5(c) to make it generic and explicit. A request was also made to the Secretary to verify with the Air Navigation Bureau Meteorology Section if there was a reason to use QNH in D-ATIS and Q in D-METAR to start the pressure field. If there was no specific requirement, the working group would favour the use of QNH. A similar question was raised regarding the use of MS in the temperature field in D-ATIS versus M in D-METAR.

4.1.3 Apart from those minor changes, the working group felt that the information, which can be found in **Appendix C**, was now ready for incorporation in the *Manual* and would not need to be any further reviewed by this working group. The working group would rely on the Secretary to propose which part of that information would need to go into the Procedures for Air Navigation Services — *Rules of the Air and Air Traffic Services* (PANS-RAC, Doc 4444).

4.2 The working group was then presented with WP/103 and WP/104 which dealt with the introduction of ATS interfacility data communications (AIDC) in the PANS-RAC. WP/103 introduced all the changes to Parts VIII and IX which had been approved during the Rio de Janeiro meeting. A number of tasks remained outstanding which were addressed. In particular, Part IX paragraph 4.2.5.2.1 was reworded to better explain the operational requirement for the General Executive Data message.

4.2.1 WP/104 provided additional information to be included in Part IX of the PANS-RAC on the AIDC transfer of control messages. This information was reviewed and amended to support its inclusion in the PANS-RAC. The result of the review process clarified the applicability of transfer of communication messages versus transfer of control messages. When the transfer of control conditions, as specified in the letter of

agreement between two ATSUs, did not need to be changed, there was no need to exchange transfer of control messages. The transfer of communication message can, in this case, be used to transfer communication and control of the flight. When transfer of control and transfer of communication are not simultaneous, the transfer of communication message is only used to transfer of communications. The transfer of control will take place later and may or may not use transfer of control messages. Transfer of control messages would mainly be used in cases where there would be a need to change the transfer of control conditions as expressed in the applicable letter(s) of agreement. Following this clarification, several paragraphs of Part IX were amended to reflect this. The working group also stated that although, in today's environment, certain messages were only used in non-radar airspace while others were only used in a radar airspace, it would not be appropriate to introduce such a distinction in the narrative. The text was therefore modified to reflect the fact that all the transfer messages were environment independent.

4.2.2 WP/104 also introduced a new appendix to the PANS-RAC that included information on the AIDC message requirements, sequencing, valid response and content. This appendix had only been partially reviewed in Rio de Janeiro and therefore was discussed in detail during the meeting. Definitions were provided to describe the two main coordination environments in which the AIDC messages would be used. Whereas this distinction was not required in Part IX, the new appendix to the PANS-RAC should identify the fact that different environments had different field requirements. The two environments were described as surveillance or procedural.

4.2.3 During the review of the data fields table, the point was made that coordination should allow for the transfer of aircraft climbing or descending, as well as aircraft being offset or deviating from the filed route. Also, the working group agreed with the need to allow for block levels to be exchanged during the coordination and transfer phase. As far as offset or deviation were concerned, the working group expressed the view that although this could be seen as an improvement, there was no mechanism in ground systems today to cater for such situations. When the deviation or the offset exceeded a certain threshold, the aircraft would be given a new route clearance. The working group therefore concluded that until a way was found to handle offsets and deviations without changing the route of the aircraft, no further action would be taken on this matter.

4.2.4 The working group suggested that the *aircraft address* should be added, as an optional field, to the notify and coordinate initial message as well as the General executive data message. This would allow for the confirmation of the message association by the receiving ATSU as well as provide the information to the receiving ATSU on those occasions when the information was missing from the flight plan.

4.2.5 The descriptions of the transfer messages were aligned with what had been proposed in updating Part IX of the PANS-RAC. The working group also decided to change the name of the “transfer request message” to “transfer communication request message” to better reflect its intended meaning. The consequential modification was made to the Part IX amendment proposal. The working group also agreed to delete the transfer control reject message as no requirement could be found to reject a transfer of control, so late in the coordination process. The working group also decided that the application status message was no longer required as the communication system would provide an equivalent level of service.

4.2.6 All the changes to Part VIII, IX and the new Appendix 6 to the PANS-RAC can be found in **Appendix D** to this Summary. The Secretary would now coordinate this material within the Secretariat and use it to prepare a formal proposed amendment to the PANS-RAC for the next meeting. The working group felt that this action would allow for the completion of the AIDC amendment process during the next WG/B meeting.

4.3 The working group was presented with the preliminary EUROCONTROL test of air/ground data link (PETAL) II interim report (WP/108). This report provided data on CPDLC exchanges between pilots and Maastricht controllers. It was noted that the PETAL II trials were a source of considerable feedback concerning the questions raised by the Human Factors Study Group(HFSG) (Rio de Janeiro meeting refers).

4.4 WP/107, WP/111 and WP/114 also provided the feedback requested at the Rio de Janeiro meeting on the recommendations made by the HFSG. These working papers allowed the working group to conclude on the recommendations made by the HFSG for which no conclusion had been given so far. The working group reviewed each remaining recommendation as follows:

a) Uplink messages 13, 14, 15, 16 (PANS-RAC, Appendix 5, Page A5-3 refers)

7	Notification that an instruction should be expected for the aircraft to commence climb at the specified time.	EXPECT CLIMB AT *(time)*	L	L	R
8	Notification that an instruction should be expected for the aircraft to commence climb at the specified position.	EXPECT CLIMB AT *(position)*	L	L	R
9	Notification that an instruction should be expected for the aircraft to commence descent at the specified time.	EXPECT DESCENT AT *(time)*	L	L	R
10	Notification that an instruction should be expected for the aircraft to commence descent at the specified position.	EXPECT DESCENT AT *(position)*	L	L	R
13	Notification that an instruction should be expected for the aircraft to commence climb at the specified time to the specified level.	AT *(time)* EXPECT CLIMB TO *(level)*	L	L	R
14	Notification that an instruction should be expected for the aircraft to commence climb at the specified position to the specified level.	AT *(position)* EXPECT CLIMB TO *(level)*	L	L	R
15	Notification that an instruction should be expected for the aircraft to commence descent at the specified time to the specified level.	AT *(time)* EXPECT DESCENT TO *(level)*	L	L	R
16	Notification that an instruction should be expected for the aircraft to commence descent at the specified position to the specified level.	AT *(position)* EXPECT DESCENT TO *(level)*	L	L	R

HFSG comment: There appeared to be a potential for pilots to confuse the content of the UMs 13, 14, 15 and 16 with the Instructions # 21, 22, 24 and 25 respectively. ***Recommendation:*** It was recommended to allow UMs 7, 8, 9 and 10 only, and to withdraw UMs 13, 14, 15 and 16.

OPLINK reply: after further analyses and feedback obtained from use of the message set, the working group concluded that the EXPECT messages could be ambiguous as to their intent. The recommendation was therefore supported and messages UM 13, 14, 15 and 16 would be proposed for removal from the CPDLC message set.

b) Uplink messages 185 & 186 (PANS-RAC, Page A5-4 refers)

185	Instruction that after passing the specified position a climb to the specified level is to commence and once reached the specified level is to be maintained.	AFTER PASSING *(position)* CLIMB TO *(level)*	N	M	W/U
186	Instruction that after passing the specified position a descent to the specified level is to commence and once reached the specified level is to be maintained.	AFTER PASSING *(position)* DESCEND TO *(level)*	N	M	W/U

HFSG comment: The messages were potentially ambiguous, because the moment of the level-change was not specified. ***Recommendation:*** Withdraw UMs 185 and 186, and use UMs 22 and 25 instead.

OPLINK reply: Messages 185 and 186 were also felt to be potentially ambiguous as they do not specify the moment at which the level change should start. The recommendation was therefore supported and messages UM 185 and 186 would be proposed for removal from the CPDLC message set.

c) Uplink message 35 (PANS-RAC, Page A5-5 refers)

35	Instruction that a cruise climb can commence once above the specified level.	CRUISE CLIMB ABOVE *(level)*	N	M	W/U

HFSG comment: UM 35 is potentially ambiguous, for it could be interpreted to mean "commence cruise climb to get above (level)". ***Recommendation:*** Suggested alternative text: WHEN ABOVE (*level*) COMMENCE CRUISE CLIMB.

OPLINK reply: the message was also felt to be ambiguous especially because this message should not be used in isolation. The decision was therefore taken to expand the message intent to highlight this point and to change the message element text in an attempt to remove the ambiguity associated with the present wording. The revised UM 35 would now read:

35	Instruction to be used in conjunction with an associated level instruction indicating that a cruise climb can commence once above the specified level.	WHEN ABOVE *(level)* COMMENCE CRUISE CLIMB ~~ABOVE *(level)*~~	N	M	W/U

d) Uplink messages 42, 43, 44 & 45 (PANS-RAC, Page A5-6 refers)

42	Notification that a level change instruction should be expected which will require the specified position to be crossed at the specified level.	EXPECT TO CROSS *(position)* AT *(level)*	L	L	R
43	Notification that a level change instruction should be expected which will require the specified position to be crossed at or above the specified level.	EXPECT TO CROSS *(position)* AT OR ABOVE *(level)*	L	L	R
44	Notification that a level change instruction should be expected which will require the specified position to be crossed at or below the specified level.	EXPECT TO CROSS *(position)* AT OR BELOW *(level)*	L	L	R
45	Notification that a level change instruction should be expected which will require the specified position to be crossed at the specified level which is to be maintained subsequently.	EXPECT TO CROSS *(position)* AT AND MAINTAIN *(level)*	L	L	R

HFSG comment: UMs 42, 43, 44 and 45 were potentially ambiguous when not followed by timely instructions.

OPLINK reply: after further analyses and feedback obtained from use of the message set, the working group concluded that the EXPECT messages could be ambiguous as to their intent. The recommendation was therefore supported and messages UM 42, 43, 44, and 45 would be proposed for removal from the CPDLC message set.

e) Uplink messages 61, 62 & 63 (PANS-RAC, Pages A5-7, A5-8 refer)

61	Instruction that the specified position is to be crossed at the specified level and speed, and the level and speed are to be maintained.	CROSS *(position)* AT AND MAINTAIN *(level)* AT *(speed)*	N	M	W/U
62	Instruction that at the specified time the specified position is to be crossed at the specified level and the level is to be maintained.	AT *(time)* CROSS *(position)* AT AND MAINTAIN *(level)*	N	M	W/U
63	Instruction that at the specified time the specified position is to be crossed at the specified level and speed, and the level and speed are to be maintained.	AT *(time)* CROSS *(position)* AT AND MAINTAIN *(level)* AT *(speed)*	N	M	W/U

HFSG comment: Because of the multiple elements that are alike in UMs 61, 62 and 63 there is a potential for error from the side of the air traffic controller. ***Recommendation***: nil

OPLINK reply: In Rio, no concerns were expressed by the working group and this was confirmed by the working group. It was even mentioned that those messages were even felt to be useful by the ATC community. The messages will therefore remain in the message set.

f) Uplink messages 70 & 71 (PANS-RAC, Page A5-8 refers)

70	Notification that a clearance may be issued to enable the aircraft to rejoin the cleared route at or before the specified position.	EXPECT BACK ON ROUTE BY *(position)*	L	L	R
71	Notification that a clearance may be issued to enable the aircraft to rejoin the cleared route at or before the specified time.	EXPECT BACK ON ROUTE BY *(time)*	L	L	R

HFSG comment: Notifications # 70 and 71 are potentially ambiguous when not followed by timely instructions. ***Recommendation***: nil.

OPLINK reply: After review by the different members, no evidence was found that these messages, mainly applicable in a radar/surveillance environment, could be ambiguous. The messages will therefore remain in the message set.

g) Uplink messages 88 & 77, 89 & 76, as well as 90 & 78 (PANS-RAC, Pages A5-9 and A5-10 refer)

76	Instruction to proceed, at the specified time, directly to the specified position.	AT *(time)* PROCEED DIRECT TO *(position)*	N	M	W/U
77	Instruction to proceed, at the specified position, directly to the next specified position.	AT *(position)* PROCEED DIRECT TO *(position)*	N	M	W/U
78	Instruction to proceed, upon reaching the specified level, directly to the specified position.	AT *(level)* PROCEED DIRECT TO *(position)*	N	M	W/U
88	Notification that a clearance to fly directly from the first specified position to the next specified position may be issued.	AT *(position)* EXPECT DIRECT TO *(position)*	L	L	R
89	Notification that a clearance to fly directly to the specified position commencing at the specified time may be issued.	AT *(time)* EXPECT DIRECT TO *(position)*	L	L	R
90	Notification that a clearance to fly directly to the specified position commencing when the specified level is reached may be issued.	AT *(level)* EXPECT DIRECT TO *(position)*	L	L	R

HFSG comment: There appears to be a potential for pilots to confuse the content of the UMs 88, 89 and 90 with the UMs 77, 76 and 78 respectively. ***Recommendation***: nil

OPLINK reply: These messages should not be confused because UM 76, 77 and 78 are instructions while UM 88, 89 and 90 are notification messages. The instruction will prompt a WILCO/UNABLE response in the cockpit which cannot be confused with an open response. The conclusion was that no changes should be made.

4.4.1 The working group was reminded that during the Rio de Janeiro meeting an action was identified to provide additional guidance as to how some of the downlink messages were expected to be used. This particularly applied to downlink message 103 — CANCELLING IFR. WP/114 raised an additional issue related to the use of conditional altitude change clearances (UM 21, 22, 24, 25). The paper stressed that the potential existed for the restriction *"AT"* contained in the beginning of these messages could be missed by aircrew leading to a premature execution of the clearance. The working group also noted that the use of a flight level, different from the one requested by the aircraft, may also confuse the pilot. This issue was perceived by some members of the working group to be one of the reasons for the increase in "level bust" situations. The working group was therefore given the action for the next meeting to suggest a change of text or to design a procedure in order to reduce the potential ambiguity raised by those four messages.

4.4.2 The working group also concluded that all the CPDLC message elements that were recommended for deletion should also be recommended for deletion from the voice phraseology, as the same potential for ambiguity existed in the voice environment. The Secretary was requested to review the voice phraseologies for possible consequential amendment.

4.4.3 WP/107 also presented some feedback on the use of some other CPDLC message elements resulting from the PETAL trials. Some of this feedback highlighted the need for a proper training of the pilots and controllers involved. The issue of message pairing was also raised as there had been some ongoing message pairing activities by various groups. In fact, the work was reported to be completed for the so-called Baseline 1 implementation. The working group recognized that there was some value in providing message pairing guidance to ensure that the airborne implementation would be able to support the operational requirements. It was also recognized that the exercise would not need to provide message pairing guidance for all the messages. Only the uplink messages requiring a "Y" response would need to be documented. As the work had already been done to a large extent, for the Baseline 1 implementation, the working group decided to examine the uplink messages which were not part of that list and, subsequent to this, review the work that had already been completed. This action was felt to be urgent as regional groups were already in the process of adding their own messages to the Baseline 1 list. A group composed of Mike Asbury, Walter Dollman, Jane Hamelink, Gregg Anderson, Jose Roca, Harold Martin and Laurent Teissier agreed to produce a working paper for the next meeting on this subject.

4.4.4 WP/107 was also asking for the definition of procedures for the manual termination of CPDLC. The working group did not believe that for global operations, it would be necessary to define such procedures. The working group understood that during the trial period, it could be necessary to manually terminate the CPDLC link but this should be part of the trial's protocol. The only situation that could require a manual termination that the working group could foresee at this stage, was to allow to break an infinite loop. The working group concluded that until clear operational requirements could be produced, there would be no need for any further work.

4.5 WP/113 provided useful information on current CPDLC message operational usage. The paper contained a table presenting data derived from six months of operations. The working group found the information very useful when reviewing the message set. In order to benefit even more from these statistics in the future, the working group suggested that additional information be provided. This could include round trip time, information on messages not used for operations versus messages prevented from being used and a comparison between messages that were controller initiated versus not. Walter Dollman agreed to provide updated information at each WG/B meeting.

4.6 WP/102 and WP/115 both addressed the Figure of Merit (FOM) definition as requested during the Rio de Janeiro meeting. WP/102 identified the need for the FOM to be able to reflect, in addition to the current values, better accuracies such as "GPS without selective availability", satellite-based augmentation system (SBAS) and ground-based augmentation system (GBAS). The reason given was to facilitate the application of appropriate closely spaced separations when those systems were used. These accuracies would also allow to monitor precision approaches and support airport surface surveillance applications such as runway incursion alert and conflict detection in general. The paper also identified the need to modify the accuracy value attached to FOM 7 in order to better reflect the 100 metres accuracy that "GPS without selective availability" provides 95% of the time. The paper followed on by suggesting that three new FOM values (8, 9, 10) should be added to the table to allow the aircraft to report accuracy equal or below 20 metres, equal or below 10 metres and equal or below 1 metre.

4.6.1 WP/115 addressed the FOM definition issue from a different perspective. The paper made the point that, at this stage, the current definition for the FOM would see only eight RNP types should FOM be applied to RNP. If more than eight FOM types (0 – 7) were to be specified then the ADS application would need to be modified to support the new types. The reporting of RNP being met by an aircraft is therefore limited, inflexible and could be misleading. The paper suggested instead that the FOM position accuracy parameter be defined such that it provided a direct indication of base level navigation accuracy information namely "Estimated Position of Uncertainty". This proposal had the advantage that the FOM would reflect the actual navigation performance rather than a value derived from that performance data. Work carried out by other ICAO panels suggested a long term need for a more dynamic indication of the performance being met by aviation systems.

4.6.2 The working group agreed that, even though the RGCSP requirement for information such as the FOM was not clear, the approach suggested in WP/115 would better cover requirements for information on the performance of the on-board navigation systems. The working group also agreed that if ADS was to be used for parallel approach operations or surface movement, then the increased accuracy would be required. This change of philosophy for the FOM had an impact on the FOM change event which would need to be addressed. The working group asked Walter Dollman and David Diez to provide for the next meeting, with the help of Gregg Anderson, a working paper providing a detailed definition of the FOM following the option briefly introduced in Appendix A to WP/115. This working paper should also elaborate on the operational requirement necessitating the provision of this information to the ground, as well as provide information as to how the FOM event change would work. This revised working paper would then be circulated to other ICAO panels for comments.

4.7 WP/106 built on the suggestion made in WP/102 to increase the accuracy of the FOM. The paper stated that if the accuracy of the navigation is reported with an increased accuracy to support parallel approach operations and airport surface surveillance applications, there would also be a requirement to increase the range and resolution of the reported position of the aircraft. The paper therefore suggested that the range and resolution of the parameters latitude and longitude be increased to 59.99 seconds and 0.01 respectively.

The working group agreed that this requirement was a direct result of the discussion on the FOM and that the two issues should be addressed at the same time. The working group asked that this matter be further progressed to define the operational requirements and explain as well, what would be the impact of such a requirement on aircraft systems. It was recognized that many of these issues associated with FOM would need to be coordinated with WG/A in relation to their work on ADS-B.

4.8 WP/109 presented operational requirements for determining operational capabilities. During the development of the air traffic system data link operational requirements, it was initially visualised that the implementation of the data link applications, both in aircraft installation and ground systems, might be on a functional basis, with either complete applications or ICAO approved subsets being implemented. These would depend upon system capabilities, regional requirements, etc. This has proved not to be the case. Initial, and possibly final, implementations within States or Regions may elect to use only some of the capabilities of the applications (a user-preferred subset of messages), and indeed within this subset, only a further subset of options within these messages. A need was therefore identified to develop an operational requirement to ensure air-ground operating compatibility in a data link environment.

4.8.1 Contrary to some earlier expectations, implementation of data link was being carried out in small steps, with groups of States, international organizations and industry coming together to develop pre-operational trials and early operational services using only those functionalities which were seen to be of greatest benefit within a particular State or Region. An aircraft which has the capability to carry out data link operations in one region may find that an adjacent Region requires a different capability – e.g. a different type of response, or a different set of options from what appears to be the same message. This could be both a human factors and a technical problem. On the human factors side, the human operator should not be presented with messages and/or options which cannot be used, and on the technical side, how can both end user systems positively know the exact capabilities of the other end user. The paper suggested six operational requirements which could be, if agreed, incorporated in the appropriate ICAO documentation. These were the following:

a) an air traffic service provider shall be able to identify the ADS contract capability of each aircraft to which an ADS service may be provided, including types of contract supported, functionality within each contract, the ranges and resolution of units used and the minimum periodic rate supported, prior to the aircraft being accepted for ADS data link operations;

b) likewise, the aircraft system shall be able to identify the ADS contract requirements required by an air traffic service provider, including types of contract supported, functionality within each contract, the ranges and resolution of units used and the required minimum periodic rate, if applicable, prior to the aircraft being accepted for ADS data link operations within its airspace;

c) an air traffic services provider shall be able to identify the CPDLC message set, message option set and ranges and resolution of units supported by an aircraft prior to offering CPDLC data link operations to that aircraft within the provider’s airspace;

d) likewise, the aircraft system shall be able to identify the CPDLC message set, message option set and ranges and resolution of units used, which are supported by an air traffic services provider, prior to the aircraft either initiating or being accepted for CPDLC data link operations within that provider’s airspace;

e) the pilot shall be able to identify the actual data link — flight information services offered by an air traffic services provider, including the capability to support contract operations, ranges and resolution of all units, prior to requesting any such services; and

f) sending air traffic service units shall be able to identify the AIDC message set, message option set and ranges and resolution of units used, which are supported by receiving air traffic services units, prior to initiating AIDC data link operations with the receiving air traffic services unit.

4.8.2 The working group was supportive of the general ideas expressed in the working paper. The working group felt that the requirements expressed should be tied to the ongoing work on the revision of the filed flight plan (FPL), especially on the issue of how to declare capabilities. The question was asked whether this kind of issue could delay the implementation of CNS/ATM. If that was the case, then this work would need to be urgently progressed. Concerning the detailed requirements, it was recognized that some of those requirements may not need to be implemented dynamically and that the provision of the relevant information in the appropriate State/Regional documentation could be sufficient.

4.8.3 The working group was then presented with WP/110 which gave information on how to meet the requirements expressed in WP/109 for ADS and CPDLC with the current SARPs. This paper was presented to stimulate the discussion rather than to provide solutions. The information was noted and will be useful for the future development of the means to determine operational capabilities once the operational requirements were validated. The working group concluded that the operational requirements expressed in WP/109 formed a good starting point but that further work was required to show what changes would be required to the Annexes and what impact this new capability would have on procedures and training.

5. Agenda Item 2: Any other business

5.1 WP/112 contained the latest version of the OPLINK Panel Lexicon of ATS Data Link Applications. The custodian of the document, Mr. Heribert Lafferton, summarized the changes from the previous version noting that additional or revised definitions had been included from North Atlantic Treaty Organization (*surveillance*), Air Traffic Management Operational Concept Panel (*airborne separation assurance, concept component, concept element, constraints, cooperative separation applications, enablers, functional service, homogeneous ATM area, operating context*), the draft RCP concept document (RCP parameters) and Annex 11 — *Air Traffic Services* (*human factors principles* and *human performance*).

5.2 WP/116 introduced the arrangements for the next WG/B, WG/C and WG/A meetings which would be held from 19 March to 30 March 2001, in the Los Angeles area. Members could expect additional information, including the formal invitation in the near future. A preliminary guide concerning the order of business is as follows:

a) WG/A: dates 19 to 21 March (2½ to 3 days, plus DP to be reviewed on morning of 26 March);

b) WG/C: 21 to 26 March (3 to 3½ days, plus weekend as required, plus DP to be reviewed morning of 30 March); and

c) WG/B: 27 to 30 March (3 days, plus DP to be reviewed morning of 30 March).

5.2.1 WG/B would concentrate on AIDC, the ADS FOM definition, the CPDLC uplink message pairings, the determination of operational capabilities and the FLIPCY service.

5.3 In conclusion, the working group noted that the considerable amount of work achieved was due, to no small extent, to the meeting organization and superb arrangements provided by German Air Navigation Services (DFS), the German-nominated member Mr. Heribert Lafferton and his advisor Mr. Raimund Weidermann. The group expressed appreciation to the hosts for the arrangements for the meeting.

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APPENDIX A

LIST OF PARTICIPANTS

Name	M/A/O*	Nominated by
Dollman, W.	M	Australia
Woods, J.	A	
Cirilo, C.	M	Brazil
Silva, S.	A	
MacLean, D.F.	M	Canada
Martin, H.	A	
Grout, J-F.	M	France
Teissier, L	A	
Lafferton, H.	M	Germany
Weidermann, R.	A	
Zacchei, M.	A	Italy
Arakami, I.	A	Japan
Izuka, S	A	
Abudaowd, H.	M	Saudi Arabia
Al Ghamdi, F.	A	
Diez, D.	M	Spain
Hietala, A	M	Sweden
Noren, P.	A	
Asbury, M.	M	United Kingdom
Anderson, G.	A	United States
Hamelink, J. Ms.	A	
Oishi, R.	A	
Kraft, T.	A	
Bailey, P.	A	EUROCONTROL
Dissing-Andersen, S.	A	
Roca, J.M.	A	
Desmarais, L	M	IATA
Robin, C.	M	IFATCA
Dalton, C.M. (ICAO)	Secretary	

*M = Member, A = Advisor, O = Observer.

APPENDIX B

LIST OF WORKING PAPERS

Working Paper No.	Agenda Item	Presented by	Title
101	-	Secretary	Administrative Arrangements, Agendas and proposed Timetable
102	1	D. Diez	Figure of Merit
103	1	Secretary	Introduction of AIDC in the PANS-RAC
104	1	J-F. Grout	Proposed changes to PANS-RAC to support the Introduction of AIDC
105	1	Secretary	Proposal to amend Doc 9694 to incorporate the D-ATIS and D-METAR
106	1	D. Diez	Latitude and Longitude
107	1	P. Béhier	Proposed amendments to CPDLC
108	1	P. Béhier	The PETAL II Interim Report
109	1	M. Asbury	The Operational Requirement for Determining Operational Capabilities
110	1	M. Asbury	Opening the Discussion on Possible Means of Meeting the Operational Requirement to Determine Operational Capabilities
111	1	M. Asbury	Response to the Flight Safety and Human Factors CPDLC Message assessment paper
112	2	H. Lafferton	Lexicon of ATS Data Link Applications
113	1	W. Dollman	CPDLC Message Set Operational Usage data
114	1	W. Dollman	Proposed HF Based Amendments to CPDLC
115	1	W. Dollman	ADS Figure of Merit (FOM) Position Accuracy Parameter Definition
116	2	D. Cherry	Proposal for the venue and dates for the next OPLINKP working group meetings
117	-	Rapporteur	Summary of Discussions and Conclusions

List of Information Papers

IP/101	-	-	SPOM (V.3 10 August 2000)
IP/102	-	-	SOPAC FIT and Combined PAC FIT Reports
	-	-	

— — — — — — — —

APPENDIX C

Template for D-ATIS

Key: M = inclusion mandatory, part of every message
C = inclusion conditional, dependent on meteorological conditions or operationally relevant conditions
O = inclusion optional

Table V-6-5.

Field 1 elements (as specified in Annex 11 paragraph 4.3.7):

— name of aerodrome;
— arrival and/or departure indicator;
— contract type, if communication is via D-ATIS;
— designator;
— time of observation, if appropriate;

Element	*Message intent*	
Field 1(a) Name of aerodrome (M)	ICAO location indicator (M)	nnnn
Field 1(b) arrival and/or departure indicator (O)	Indicator (C)	[ARR *or* DEP]
Field 1(c) contract type (O)	Contract type indicator (M)	/CONTRACT *or* /DEMAND
Field 1(d) designator (M)	ATIS designator (M)	ATIS *(letter of the ICAO spelling alphabet)*
Field 1(e) time of observation (M)	Time (M)	nnnnZ
Message element examples for display YUDO ARR/CONTRACT ATIS JULIET 0300Z YUDO DEP/CONTRACT ATIS BRAVO 0505Z YUDO DEMAND ATIS ROMEO 1205Z YUDO ATIS TANGO 0800Z		

Field 1(a)

Four letters being the ICAO four-letter location indicator of the aerodrome to which the ATIS message refers.

Note.— If, for display purposes the four letter location indicator is converted to the name of the aerodrome as published in the AIP, the English version of the name, as generally understood, should be used, e.g. AMSTERDAM, MILAN-LINATE, MILAN-MALPENSA.

Field 1(b)

A coded designator that indicates whether the information contained in the ATIS is arrival information or departure information. The designator is omitted if ATIS contains both arrival and departure information.

Field 1(c)

When included, an oblique stroke followed by a designator indicating if the ATIS is in response to a demand mode or a contract mode.

Note.— Airborne implementation may dictate that this information may be provided to the pilot by other means and not necessarily via a specific sub-field.

Field 1(d)

Provides the ability to identify individual ATIS messages sequentially, using a word of the ICAO spelling alphabet preceded by the word “ATIS”. The display of the letter of the ICAO spelling alphabet should be spelt out in full.

Field 1(e)

Time at which the meteorological observation was made. It is expressed as hours and minutes followed by a UTC identifier.

Note.— When the time of observation of operational items is significantly different from that of the meteorological items, the time applicable should also be included under Field 3(a).

Table V-6-6.

Field 2 elements (as specified in Annex 11 paragraph 4.3.7):

— type of approach(es) to be expected;
— the runway(s) in use; status of arresting system constituting a potential hazard, if any;

Element	*Message intent*		
Field 2(a) type of approach(es) to be expected (C)	Expected type of approach identifier (C)	[EXPECT]	[EXPECT][*Free text*]
	identification of the instrument approach procedure or visual approach (C)[1]	[ILS *or* ILS/DME *or* LOCALIZER *or* VOR *or* VOR/DME *or* NDB *or* DME/ARC *or* RNAV *or* MLS *or* VSA] *(may be combined with free text if necessary)*	
	Circling indicator (C)	[CIRC][2]	
	runway (C)	[RWY nnn][3]	
Field 2(b) runway (s) in use (C)	Runway (M)	[TKOF *or* LDG] [IFR *or* VFR] RWY nnn	
Field 2(c) status of arresting system for runway(s) constituting a potential hazard if any (C)	name of element (M)	RAG	
	runway (O)	[RWY nnn]	
	location of the arresting system (M)	[TDZ *or* MID *or* END]	
	condition of the arresting system (M)	[UP *or* DOWN]	
Message element examples for display Combined Arrival/departure information ATIS: EXPECT ILS RWY09R LDG VFR RWY09L TKOF RWY09L RWY09R RAG RWY09L MID DOWN Arrival information ATIS (2 examples): PARALLEL ILS APPROACHES ARE IN PROGRESS RWY09L RWY09C VFR RWY09R EXPECT VOR ALFA CIRC RWY11 Departure Information ATIS (3 examples): EXPECT RWY24L RWY24R RAG RWY 24L MID UP RWY 24R MID DOWN RAG MID DOWN			

Field 2(a)

1. Description of the type of approach procedure(s) to be expected should be preceded by the word EXPECT (sent in the message, once only). The description of the type of approach should be identical in format to the identification of the instrument approach procedure expressed on the applicable instrument approach chart with the exception that no reference need be made to the name of the city or town, or area, which the aerodrome serves, or the name of the aerodrome. To facilitate this requirement, free text may be used for the entire Field 2(a) or as part of the identification of the instrument approach procedure.

On those occasions when more than one type of approach is specified for a given runway, the types may, optionally be separated by the word OR for display purposes e.g EXPECT ILS RWY 23 OR VOR RWY 23. Abbreviation of this example to, say EXPECT ILS OR VOR RWY 23 may not be possible on those occasions where the runway is embedded within the identification of the instrument approach procedure expressed on the instrument approach chart. The word OR may also optionally be used to separate types of approaches described for different runways.

On those occasions when visual approaches are frequently used, and identified as the type of approach to be expected, the default instrument approach should also be indicated on the ATIS, should the visual approach not be practicable. For example, EXPECT VSA OR ILS RWY 23. No more than two approaches, one of which may be VSA, should be expressed, per runway. This sub-field shall be omitted when D-ATIS message contains departure information only or local procedures do not require type of approach to be indicated (e.g. VFR only operations).

2. When required, the word CIRC is used to indicate that the prescribed instrument approach procedure final approach is not aligned with the indicated arrival runway(s).

3. The requirements for describing a runway in line with characteristics of runway designation markings are described in Annex 14, Volume I, beginning at paragraph 5.2.2.4. The description of the runway designation markings consist only of a two digit number and on parallel runways, an additional single letter (L, C or R).

Field 2(b)

For D-ATIS messages that contain both arrival and departure information this sub-field indicates the landing runway(s) and the departure runway(s) in use. It can also indicate if the particular runway or runways apply specifically to IFR or VFR, if necessary.

For D-ATIS messages that contain arrival information only this sub-field indicates the landing runway(s). It can also indicate if the particular runway or runways apply specifically to IFR or VFR, if necessary.

For D-ATIS messages that contain departure information only this sub-field indicates the departure runway(s). It can also indicate if the particular runway or runways apply specifically to IFR or VFR, if necessary.

A maximum of 6 runways are permitted for D-ATIS messages that contain both arrival and departure information; a maximum of 6 runways are permitted for D-ATIS messages that contain arrival information only; and a maximum of 6 runways are permitted for D-ATIS messages that contain departure information only. This sub-field may be omitted if the runway has been specified already as part of the *type of approach to be expected* (Field 2a).

Field 2(c)

Indicates the status of arresting system (gear) constituting a potential hazard, if any. This may optionally include the applicable runway. The location of the arresting system [using the abbreviations

TDZ (Touchdown zone), MID (Mid-point) or END (Stop-end)], shall be included, as well as the condition of the arresting system [UP (Up) or DOWN (Down)].

Table V-6-7.

Field 3 elements (as specified in Annex 11 paragraph 4.3.7):

— significant runway surface conditions and, if appropriate, braking action;
— holding delay, if appropriate;
— transition level, if applicable;
— other essential operational information;

Element	*Message Intent*		
Field 3(a) significant runway surface conditions, and if appropriate, braking action (C)	Name of the element (M)	RSCD	
	Time of observation in UTC (O)[1]	[nnnnZ]	[*free text*] [5]
	Runway(s) (O)[2]	[RWY nnn]	
	Cleared runway length (O)	[CLEARED RWY LENGTH nnnnM *(or* nnnnnFT)[3]]	
	Cleared runway width (O)	[CLEARED RWY WIDTH nnnM *(or* nnnFT)[3]]	
	Deposits over total runway length (O)	[CLEAR AND DRY *or* DAMP *or* WET *or* RIME OR FROSTED [PATCHES *or* COVERED] *or* ICE [PATCHES *or* COVERED] *or* SLUSH [PATCHES *or* COVERED] *or* DRY SNOW [PATCHES *or* COVERED] *or* WET SNOW [PATCHES *or* COVERED] *or* WATER [PATCHES *or* COVERED] *or* FLOODED *or* FROZEN RUTS OR RIDGES *or* COMPACTED OR ROLLED SNOW *or* DE-ICED *or* SANDED *or* DRIFTING SAND *or* RUBBER DEPOSITS *or* VOLCANIC ASH *or* TYPE OF DEPOSIT NOT REPORTED]	
	Mean depth (O)	[DEPTH nnnMM (*or* [.][n]nIN)[3]]	
	Friction measurements (braking action) (O)[4]	BA nnnnnn[BRD *or* GRT *or* MUM *or* RFT *or* SFH *or* SFL *or* SKH *or* SKL *or* TAP] *(and/or free text)* *or* BA nnn *or* BA GOOD *or* BA MEDIUM TO GOOD *or* BA MEDIUM *or* BA MEDIUM TO POOR *or* BA POOR *or* BA UNRELIABLE *or* BRAKING CONDITIONS NOT REPORTED	
	Other information (C) [5]	*free text*	

Element	*Message Intent*	
Field 3(b) Holding delay, if appropriate (C)	Name of the element (M)	DELAY
	relevant information (M)	*free text*
Field 3(c) Transition level (C)	Element name and transition level (M)	TRL Snnnn *or* TRL FLnnn
Field 3(d) other essential operational information, if required (C)	commence with oblique stroke (M)	/
	operational information (M)	*free text*
Message element examples for display RSCD RWY29 DAMP DELAY 30MIN TRL FL070/TWY GOLF NOT AVBL /BIRD HAZARD /AIR SHOW ACTIVITY TRL S0030		

Field 3(a)

1. On those occasions when a time of observation is to be included, this sub-field is limited to only one observation time. Any additional information should be placed in that part of the message that applies to Other Information.

2. If more than one runway has been indicated in Field 2 this sub-field may need to delineate the runways to which the conditions relate to.

3. Alternative specification for runway length and width or mean depth of contamination; unit of measurement not specified in Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*;

4. The braking action shall consist of an identifier (e.g. BA) followed by:

   a) braking action coefficient for each third of the runway and optionally, the type of measuring equipment used (the braking action coefficient shall consist of a six digit group, two digits for each third of the runway, representing the coefficient without the decimal point). Any additional information, such as temperature, may be included using free text; or

   b) estimated braking action for each third of the runway (consisting of a three digit group, one digit for each third of the runway); or

   c) a description of the braking action for the runway shall be given.

Table V-6-7a

Coefficient	*Estimate*	*Description*
40 and above	5	GOOD
39 to 36	4	MEDIUM TO GOOD
35 to 30	3	MEDIUM
29 to 26	2	MEDIUM TO POOR
25 and below	1	POOR
unreliable	9	UNRELIABLE
—	—	BRAKING CONDITIONS NOT REPORTED

Note.— Annex 11 uses the term "braking action". Whilst a term similar to this is used in Annex 14, Volume I, Attachment A, paragraph 6.6, braking action is not defined in the Annex. Instead, friction characteristics are determined and expressed according to the condition of the pavement.

5. Should additional information be deemed necessary, your attention is drawn to the rules governing the content and format of SNOWTAM (Annex 15 — *Aeronautical Information Services*). Acknowledging that information in an ATIS should be brief, the ATIS may make reference to specific NOTAM or SNOWTAM.

Field 3(b)

Indicates holding delay, if appropriate, using free text. It is preceded by the identifier DELAY. Holding delay, for the purpose of ATIS broadcast messages is understood to be the total holding time at or immediately prior to the initial approach to the destination aerodrome. The information about delays should be based on the actual delays being experienced at the time of the observation and may include an element of forecasting, i.e. when available trend information should be attached to the delay report. Examples of such forecasting might include INCREASING, INCREASING RAPIDLY, DECREASING, and DECREASING RAPIDLY.

Note.— Information on precise holding delay should be given by ATC through directed transmission in the form of expected approach time in accordance with procedures as laid down in PANS-RAC, Part IV, 12.1

Field 3(c)

Indicates transition level and should be included if the transition level is variable, or if it differs from the published transition level. In airspace where the SI unit is used, the flight level (four numerics) will be preceded by the letters TRL S. In airspace where the Non-SI alternative unit (foot) is used the appropriate flight level (three numerics) will be preceded by the letters TRL FL.

Field 3(d)

Preceded by an oblique stroke, this subfield indicates other essential operational information using free text.

Table V-6-8.

Field 4 elements (as specified in Annex 11 paragraph 4.3.7):

— surface wind direction and speed, including significant variations and, if surface wind sensors related specifically to the sections of the runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;
— visibility and, when applicable, RVR;
— present weather;
— cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

Element	*Detailed content*	*Template(s)*			*Examples for display*
Field 4(a) Surface wind (M)	Name of the element (O)	[WIND]			[3]240/15KMH (240/8KT);
	Runway (O)[1]	[RWY nnn]			
	Runway section (O)[2]	[TDZ]			[4]WIND 020/20KMH VRB BTN 350/ AND 070/;
	Wind direction (M)	nnn/	VRB BTN nnn/ AND nnn/ *or* VRB	CALM	(WIND 020/10KT VRB BTN 350/ AND 070/);
	Wind speed (M)	[ABV]nn[n]KMH *or* [ABV]nnKT			[5]VRB BTN 350/ AND 050/6KMH; (VRB BTN 350/ AND 050/3KT);
	Significant speed variations (C)[7]	MAX [ABV]nn[n] MNMnn			[6]WIND VRB6KMH (WIND VRB3KT);
	Significant directional variations (C)[4]	VRB BTN nnn/ AND nnn/	—		[7]120/12KMH MAX35 MNM8; (120/6KT MAX18 MNM4);
	Runway section (O)[2]	[MID]			[7]WIND 270/ABV 199KMH; (WIND 270/ABV 99KT);
					[8]CALM;
					[9]WIND RWY 18 TDZ 190/22KMH;

Element	*Detailed content*	*Template(s)*			*Examples for display*
Field 4(a) Surface wind (M) (Cont'd.)	Wind direction (M)	nnn/	VRB BTN nnn/ AND nnn/ *or* VRB	CALM	(WIND RWY 18 TDZ 190/11KT); [9]WIND RWY 27 TDZ 240/32KMH MAX54 MNM20 END 250/28KMH; (WIND RWY 27 TDZ 240/16KT MAX27 MNM10 END 250/14KT); [9]WIND RWY 14R MID 140/22KMH; (WIND RWY 14R MID 140/11KT);
	Wind speed (M)	[ABV]nn[n]KMH *or* [ABV]nnKT			
	Significant speed variations (C)[7]	MAX [ABV]nn[n] MNMnn			
	Significant directional variations (C)[4]	VRB BTN nnn/ AND nnn/	—		
	Runway section (O)[2]	[END]			
	Wind direction (M)	nnn/	VRB BTN nnn/ AND nnn/ *or* VRB	CALM	
	Wind speed (M)	[ABV]nn[n]KMH *or* [ABV]nnKT			
	Significant speed variations (C)[7]	MAX [ABV]nn[n] MNMnn			
	Significant directional variations (C)[4]	VRB BTN nnn/ AND nnn/	—		
Field 4(b) Visibility (M)[10] [11]	Name of the element (C)	VIS		CAVOK	VIS 350M VIS 7KM VIS RWY 09 TDZ 800M END 1200M VIS RWY 18 TDZ 6KM RWY 27 TDZ 4000M CAVOK
	Runway (O)[1]	[RWY nnn]			
	Runway section (O)[2]	[TDZ]			
	Visibility (M)	nnnnM *or* nnKM			
	Runway section (O)[2]	[END]			
	Visibility (M)	nnnnM *or* nnKM			

Element	*Detailed content*	*Template(s)*				*Examples for display*
Field 4(c) RVR (C)[12 13]	Name of the element (M)	RVR			CAVOK	RVR RWY 10 BLW 50M RVR RWY 14 ABV 1500M RVR RWY 32 400M RVR RWY 16 TDZ 600M MID 500M END 400M RVR RWY 26 500M RWY 20 800M RVR RWY 20 500M RVR RWY 12 ABV 1200M RVR RWY 10 BLW 150M RVR RWY16 TDZ NOT REPORTED END ABV 1500M
	Runway (C)	RWY nnn				
	Runway section (C)	TDZ				
	RVR (M)	[ABV *or* BLW] nnnnM *or* NOT REPORTED *or* NOT AVBL				
	Runway section (C)	MID				
	RVR (M)	[ABV *or* BLW] nnnnM *or* NOT REPORTED *or* NOT AVBL				
	Runway section (C)	END				
	RVR (M)	[ABV *or* BLW] nnnnM *or* NOT REPORTED *or* NOT AVBL				
Field 4(d) Present weather (C)[14]	Intensity or proximity of present weather (C)[14]	FBL *or* MOD *or* HVY	—	VC		
	Characteristics and type of present weather (M)[14]	DZ *or* RA SN *or* SG *or* PL *or* IC *or* GR *or* GS *or* DS *or* SS *or* TS *or* TSRA *or* TSSN *or* TSPL *or* TSGR *or* TSGS *or* SHRA *or* SHSN *or* SHPL *or* SHGR *or* SHGS *or* FZRA *or* FZDZ *or* BLSN *or* BLSA *or* BLDU *or* PO *or* FC	FG *or* BR *or* SA *or* DU *or* HZ *or* FU *or* VA *or* SQ *or* FZFG *or* DRSN *or* DRSA *or* DRDU *or* MIFG *or* BCFG *or* PRFG	FG *or* PO *or* FC *or* DS or SS or TS *or* SH *or* BLSN *or* BLSA *or* BLDU		MOD RA; HZ; VCFG; HVY TSRA; FG; VCSH; HVY DZ; VA; VCTS; FBL SN; MIFG; VCBLSA; HVY TSRASN; FBL SNRA; FBL DZ FG; HVY SHSN MOD BLSN

Element	*Detailed content*	*Template(s)*				*Examples for display*
Field 4(e) Cloud (M)[15]	Name of the element (O)	[CLD]			CAVOK	SCT 300M OVC 600M; (SCT 1000FT OVC 2000FT); BKN TCU 270M; (BKN TCU 900FT); CLD OBSC VER VIS 150M; (CLD OBSC VER VIS 500FT); SKC; CLD NSC CLD RWY 08 BKN 60M RWY 26 BKN 90M; (CLD RWY 08 BKN 200FT RWY 26 BKN 300FT)
	Runway (O)	[RWY nnn]				
	Cloud amount (M) or vertical visibility (O)	FEW *or* SCT *or* BKN *or* OVC	OBSC	SKC *or* NSC		
	Cloud type (C)	CB *or* TCU	—			
	Height of base (C)	nnnnnM [DIF *or* RAG *or* FLUC] *or* nnnnnFT [DIF *or* RAG *or* FLUC]	[VER VIS nnnM *or* VER VIS nnnnFT]			

Table V-6-8a. Template for reports in the ATIS code forms — alternative elements

Alternative elements	*Detailed content*	*Template(s)*		*Examples for display*
Visibility [alternative unit to Field 4(b)][16]	Statute Mile (SM) (incl. fractions)	VIS[n][n][17] [n][/][n][n]SM	CAVOK	VIS 1/16 SM; VIS 1 1/8 SM; VIS 2 3/4 SM; VIS 5 SM
RVR [alternative unit to Field 4(c)][16]	Feet (FT)	RVR nn[n] [n]nnnFT		RVR RWY 23L 900FT; RVR RWY 14 2400FT; RVR RWY 32 TDZ 800FT MID 600 FT; RVR RWY 05R 2400 FT; RVR RWY 16 TDZ NOT REPORTED END ABV 6000FT

Notes.—

1. Optional values for one or more runways;
2. Optional values for one or more sections of the runway(s) Wind and visibility information may be provided without indicating the runway or the section of the runway. In these cases it can be assumed that the information applies to either the full runway length (where runway has been indicated) or the full runway complex (when more than runway has been indicated;

3 — 6. Indicates the mean direction from which the surface wind is blowing, in degrees magnetic, rounded off to the nearest 10 degrees (three numerics), followed by an oblique stroke, followed by the wind speed (1-3 numerics) and the unit used for the wind speed (KMH or KT). When applicable, this may be followed by the variation of wind and/or speed variation. With regard to wind direction variation this can be described in three ways: a report of the two extreme directions (to be included if the directional variations ≥ 60 degrees and the wind speed > 6 km/h (3 kt))[4], or a range of wind directions followed by the mean speed (where surface winds are light and variable (6 km/h (or 3 kt) or less)[5] or indicate the wind direction by the term VRB followed by the mean speed, with no indication of the mean wind direction[6].

7. With regard to speed variation this can be described as the maximum and minimum values of the wind speed attained (to be included if the maximum is exceeding the mean speed by 20 km/h (10 kt)).

8. The term CALM would be used when winds are calm.

9. If surface wind sensors related to the sections of the runway(s) are necessary, and observations are available, the indication of the runway and the section of the runway (TDZ, MID or END) to which the information refers. Whilst use of the term WIND is optional, preceding the wind information in these circumstances with the term WIND would assist in differentiating this information from other fields that also commence with RWY.

10. Commencing with the identifier VIS (except when CAVOK is used), indicates the visibility representative of the take-off and climb-out area for local reports for departing aircraft and/or the visibility representative of the approach and landing area for local reports for landing aircraft. The unit of measurement used for the observation shall be included. The term CAVOK may replace this element whenever the conditions as specified in the PANS-RAC (Doc 4444), Part IX, paragraph 4.3.2.3.9 prevail. This element will allow for the option of providing the visibility on a per runway basis and additionally, if the particular ATIS provides both arrival and departure information, the option of providing two visibilities for each runway designated; one visibility representative of the take-off and climb out area and one visibility representative of the approach and landing area.

11. Alternative specification for visibility is described in Table V-6-8a, where unit of measurement is not specified in *Annex 5 — Units of Measurement to be Used in Air and Ground Operations*;

12. To be included if visibility or RVR < 1500 m; the RVR is reported with an indication of units used, and if it is reported for more than one runway, the runways to which the value refer are indicated. If RVR is observed for more than one position along a runway the option of indicating where the RVR was measured (TDZ, MID and/or END) should be included. When the value of the observation is above or below the maximum or minimum value that can be determined by the system (1500 m and 50 m), the inclusion of the terms ABV (above) and BLW (below) may be incorporated in the ATIS information. Also the terms NOT REPORTED and NOT AVBL (not available) may be used. MNM and MAX RVR values and tendency values are not included in ATIS.
RVR information may be provided without indicating the section of the runway where only one value is given. In this case it can be assumed that the RVR value is representative of the touchdown zone. The many variables associated with providing more than one RVR for a runway necessitates a clear indication as to which values are associated with which section of the runway.

13. Alternative specification for RVR is described in Table V-6-8a, where unit of measurement is not specified in *Annex 5 — Units of Measurement to be Used in Air and Ground Operations*;

14. Indication of the present weather, whenever applicable, in terms of type and characteristics which are qualified with respect to intensity or proximity to the aerodrome. One or more (up to a maximum of three) of the present weather phenomena abbreviations should be used, as necessary, together with an indication, where appropriate, of the characteristics and intensity or proximity to the aerodrome. The following general rules apply:

i) an indication of intensity or proximity, as appropriate should be included first;
ii) this is followed by both the characteristics and the type of weather phenomena. For example, HVY TSRA or VC FG;
iii) where two or three different types of weather are observed, they should be reported in two separate groups, in the form “HVY DZ FG” or “FBL DZ VC FG”, where the intensity or proximity indicator refers to the weather phenomenon which follows the indicator and;
iv) different types of precipitation occurring at the time of the observation should be reported as one single group with the dominant type of precipitation reported first, preceded by only one intensity qualifier which refers to the intensity of the total precipitation, in the form “HVY TSRASN” or “FBL SNRA FG”.

15. An indication of the cloud amount below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater, using the abbreviations FEW, SCT, BKN, or OVC (up to four cloud layers may be expressed); an indication of the type of cloud (CB or TCU only) and height of cloud base above aerodrome elevation. The sequence for the information shall be as follows:
i) the lowest layer or mass, regardless of amount, reported as SCT, BKN, or OVC, as appropriate;
ii) the next layer or mass, covering more than 2/8, reported as SCT, BKN or OVC, as appropriate;
iii) the next higher layer or mass, covering more than 4/8, reported as BKN or OVC as appropriate; and
iv) CB and/or TCU clouds, whenever observed and not reported in previous parts of the report.
Additionally, the minimum height of the cloud may be followed by the relevant abbreviation DIF (diffuse), RAG (ragged) or FLUC (fluctuating rapidly), if appropriate
OR
The term SKC
OR
The term NSC
OR
The term [CLD] OBSC, and when available, followed by the term VER VIS; the vertical visibility; and the units used

16. Alternative specifications sometimes used by States, where unit of measurement is not specified in Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*.

17. A space shall be coded between whole numbers and fractions.

Table V-6-9.

Field 5 elements (as specified in Annex 11 paragraph 4.3.7):

— air temperature;
— dew point temperature;
— altimeter setting(s);

Element	*Detailed content*	*Template(s)*	*Examples for display*
Field 5(a) Air temperature (M)	Name of the element and Air temperature (M)	T[MS]nn	T17; TMS8;
Field 5(b) Dew point temperature (M)	Name of the element and Dew-point temperature (M)	DP[MS]nn	DP15; DPMS18;
Field 5(c) Pressure values (M)	Name of the element and QNH (M)	QNH nnnnHPA *or* AnnnnIN	QNH 0995HPA; QNH 1009HPA; QNH 1022HPA QFE 1001HPA;
	Name of the element and QFE (O)	QFE [RWY nnn] nnnnHPA [RWY nnn nnnnHPA]	QNH 0987HPA QFE RWY 18 0956HPA RWY 24 0955HPA; A2992IN; A3013IN

Notes.—

Field 5(a)

After the letter “T” an indication of the air temperature (one or two numerics). For a temperature below zero degrees Celsius the value should be preceded by “MS”.

Field 5(b)

After the letters “DP” an indication of the dew point temperature (one or two numerics). For a dew point temperature below zero degrees Celsius the value should be preceded by “MS”.

Field 5(c)

After the letters “QNH” and a SPACE (or the letter A) an indication of the aerodrome pressure value. 4 numerics shall be utilized and the unit of measurement will also be displayed
AND OPTIONALLY
The letters “QFE” (and a SPACE) followed by indication(s) of the QFE(s). If more than one QFE value is indicated, each QFE value will indicate the runway to which it refers.

Display characteristics shall ensure that the value presented can be identified as the QNH or the QFE.

Table V-6-10.

Field 6 elements (as specified in Annex 11 paragraph 4.3.7):

— any available information on significant meteorological phenomena in the approach and climb-out areas including wind shear, and information on recent weather of operational significance;
— trend-type landing forecast, when available; and
— specific ATIS instructions.

Element	*Detailed content*	*Template(s)*				*Examples for display*
Field 6(a) Supplementary information (C)[1]	Significant met. phenomena (C)	CB *or* TS *or* MOD TURB *or* SEV TURB *or* WS *or* GR *or* SEV SQL *or* MOD ICE *or* SEV ICE *or* FZDZ *or* FZRA *or* SEV MTW *or* SS *or* DS *or* BLSN *or* FC			*free text*	FC IN APCH; CB IN CLIMB-OUT RETS; WS IN APCH WIND AT 60M 360/50KMH;
	Location of the phenomena (C)	IN APCH *or* IN CLIMB-OUT *or* RWYnnn				WS RWY 12;
	Recent weather (C)	REFZDZ *or* REFZRA *or* REDZ *or* RE[SH]RA *or* RE[SH]SN *or* RE[SH]SG *or* RE[SH]PL *or* REIC *or* RE[SH]GR *or* RE[SH]GS *or* REBLSN *or* RESS *or* REDS *or* RETS *or* REFC *or* REVA				REFZRA
Field 6(b) Trend forecast (O)[2]	Name of the element (M)	TREND				
	Change indicator (M)	NOSIG	BECMG or TEMPO			TREND NOSIG;
	Period of change (C)		FMnnnn *and/or* TLnnnn *or* ATnnnn			TREND BECMG FEW 600M; (TREND BECMG FEW 2000FT);
	Wind (C)		nnn/[ABV]nn[n]KMH [MAX[ABV]nn[n]] *or* nnn/[ABV]nnKT[MAX[ABV] nn]			TREND TEMPO 250/70KMH MAX 100; (TREND TEMPO 250/35KT MAX 50); TREND BECMG AT1800 VIS 10KM NSW;
	Visibility (C)		VIS nnnn *or* VIS nnKM		CAVOK	TREND BECMG TL1700 VIS 800M FG; TREND BECMG FM1030 TL1130 CAVOK;
	Weather phenomenon: intensity (C)		FBL *or* MOD *or* HVY	—	NSW	TREND TEMPO TL1200 VIS 600M BECMG AT1200 VIS 8KM NSW NSC;

Element	*Detailed content*	*Template(s)*					*Examples for display*
Field 6(b) Trend forecast (O)[2] (Cont'd.)	Weather phenomenon: characteristics and type (C)		DZ *or* RA *or* SN *or* SG *or* PL *or* IC *or* GR *or* GS *or* DS *or* SS *or* TS TSRA *or* TSSN *or* TSPL *or* TSGR *or* TSGS *or* SHRA *or* SHSN *or* SHPL *or* SHGR *or* SHGS or FZRA or FZDZ *or* BLSN *or* BLSA *or* BLDU *or* PO *or* FC	FG *or* BR *or* SA *or* DU *or* HZ *or* FU *or* VA *or* SQ *or* FZFG *or* DRSN *or* DRSA *or* DRDU *or* MIFG *or* BCFG *or* PRFG	NSW (Cont'd.)	CAVOK	TREND TEMPO FM0300 TL0430 MOD FZRA; TREND BECMG FM1900 VIS 500M HVY SNRA; TREND BECMG FM1100 FBL SN TEMPO FM1130 MOD BLSN;
	Cloud amount and vertical visibility(C)		FEW *or* SCT *or* BKN *or* OVC	OBSC	SKC *or* NSC		TREND BECMG AT1130 OVC 300M; (TREND BECMG AT1130 OVC 1000FT)
	Cloud type (C)		CB *or* TCU	—			TREND TEMPO TL1530 HVY SHRA BKN CB 360M; (TREND TEMPO TL1530 HVY SHRA BKN CB 1200FT);
	Height of base or the value of vertical visibility (C)		nnnnnM *or* nnnnnFT	[VER VIS nnnM *or* VER VIS nnnFT]			

Element	*Detailed content*	*Template(s)*	*Examples for display*
Field 6(c) ATIS instructions (C)	Instructions (M)	[*free text*]	RPT RECEIPT OF ATIS UNIFORM ON FIRST CTC WITH DONLON CONTROL

Notes.—

1. Any of the phenomena, or combinations thereof (maximum of three significant met. phenomena and a maximum of three recent weathers). Abbreviated plain language to be used to amplify the phenomena, as necessary.
2. To be included subject to Regional Air Navigation Agreement. maximum of three change indicator groups. Refer to the Notes that follow Table V-6-8 for additional requirements.
3. Indicates specific instructions if required and should include instructions for acknowledging receipt of the current ATIS message on initial contact with the appropriate ATS unit;

Table V-7-11. Ranges and resolutions for the numerical and alphanumeric elements included in the ATIS message

Element	*Range*	*Resolution*	*Maximum characters*
Air temperature; Dew-point temperature [Field 5] °C	-80 – +60	1	
ATIS instructions [Field 6(c)]			64 characters
Cleared runway length [Field 3(a)] M (feet – alternative unit) FT	300 – 6500 1000 – 20000	10 100	
Cleared runway width [Field 3(a)] M (feet – alternative unit) FT	10 – 130 30 – 400	1 10	
Cloud: height of base: M M FT FT	0 – 3 000 3 000 – 20 000 0 – 10 000 10 000 – 60 000	30 300 100 1 000	
Friction measurements (type of measuring equipment) [Field 3(a)].			50 characters
Holding delay [Field 3(b)]			200 characters
Identification of the instrument approach procedure or visual approach [Field 2(a)] *See "Type of approach to be expected" below.*			50 characters
Mean depth [Field 3(a)] MM (feet – alternative unit) inches	1 – 400 .01 – .09 1 – 20	1 0.01 0.5	
Other essential operational information [Field 3(d)]			250 characters
Other information [Field 3(a)]			500 characters
QNH or QFE hPa (inches of mercury – alternative unit)[4]A	0500 – 1100 22.00 – 32.00	1 0.01	

Element	*Range*	*Resolution*	*Maximum characters*
Runway [various fields] (no units)	01 – 36	1	Maximum 6 runways
RVR M M M	0 – 400 400 – 800 800 – 1500	25 50 100	
RVR FT (Feet – alternative unit) FT FT	0 – 1000 1000 – 3000 3000 – 6000	100 200 500	
significant runway surface conditions, and if appropriate, braking action [Field 3(a)]			256 characters
Supplementary information – where ATIS includes arrival **or** departure information [Field 6(a)]			128 characters
Supplementary information – where ATIS includes arrival **and** departure information [Field 6(a)]			256 characters
Time	0000 – 2359	1	
Transition level 10's of metres (SI) 100's of feet (non-SI) [Field 3(c)]	0030 – 0610 010 – 200	1 5	
Type of approach to be expected [Field 2(a)] Also see "Identification of the instrument approach procedure or visual approach" above			64 characters
Vertical visibility: M FT	0 – 600 0 – 2 000	30 100	
Visibility (Statute Miles SM incl. fractions – SM alternative unit)[4] SM SM SM	0 – 3/8 3/8 – 2 2 – 3 3 – 15 15 – 50	1/16 1/8 1/4 1 5	
Visibility: M M KM	0 – 500 500 – 4900 5 – 10	50 100 1	
Wind speed: KMH KT	1 – 199 1 – 99	1 1	
Wind direction: degrees°	010 – 360	10	

Editorial Note.— Delete the appendix to this chapter in toto and replace with the following new text.

Appendix to Chapter 6

D-ATIS MESSAGE EXCHANGE RATES

1. Table V-1-A1 details the possible message exchange rates in the environments specified. The rates shown are the expected averages, per flight.

2. The operational requirement for the provision of ATIS exists only within Terminal and Aerodrome areas.

3. Departing aircraft will generally check the ATIS 30 minutes before pushback or taxi, and continue in the contract mode when changeable meteorological conditions are present.

4. Arriving aircraft generally begin to receive ATIS information within 200NM of the aerodrome of intended landing. When changeable meteorological conditions cause a potential for deviations, the aircraft will check the conditions at alternate aerodromes, thus the need for multiple contracts for these conditions.

5. The figures in Table V-1-A1 are expressed in terms of changeable meteorological conditions where ATIS changes are occurring every 10-15 minutes. Thus, the figures indicated represent a worst case scenario.

Table V-1-A1. Exchange Rates Expected for D-ATIS Messages

	Terminal area high-density	*Aerodrome (includes approach, taxi and departure)*
Combined, or Arrival, or Departure ATIS	2 contracts, 5 D-ATIS replies per contract	1 contract, 2 D-ATIS replies
Instantaneous number of aircraft to be supported per ATSU	450	250

End of new text

Chapter 7
DFIS AVIATION ROUTINE WEATHER REPORT (METAR) SERVICE DESCRIPTION

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OPERATING METHOD WITH DATA LINK

Service description

7.10 The METAR report contains the latest available weather report for the specified aerodrome.

7.10.1 The content of the data link METAR will be identical and updated simultaneously as that which is distributed by any other means (i.e. voice, AFTN).

7.10.2 The data link METAR operates in a demand mode only.

7.11 The pilot transmits a METAR request message to the appropriate ground system.

7.12 If the METAR request is valid, and the METAR information is available, the ground system initiates a reply using the most current data available in the METAR data base and transmits a METAR message to the aircraft.

7.12.1 If the METAR request is valid, and the system detects that the requested METAR information can be retrieved but is not yet available or cannot be sent within the required response time, then it:

i) sends a processing message, and

ii) when the information becomes available, sends a METAR Reply message.

7.13 If the METAR request is valid, but the METAR information is not available, the ground system transmits a ~~service not available response~~REJECT message to the aircraft indicating that the METAR is unavailable.

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Termination conditions

7.21 Use of the METAR data link service is closed by the aircraft system:

a) upon receipt of the METAR reply message; or

b) upon receipt of the ~~service not available~~REJECT message.

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INFORMATION EXCHANGES

7.23 Table V-7-1 contains the required METAR data. Tables V-7-2a and V-7-2b contain details of specific data required using the METAR/SPECI code forms. Table V-7-3 provides information on the Ranges and resolutions for the numerical elements included in the meteorological message in the METAR/SPECI code forms.

Table V-7-1. METAR service information exchange

Message	*Information required*	*Event/trigger*	*Source/destination*	*Alert*	*Response required*
METAR request	**Mandatory**: Message type ~~Airport identification~~Location indicator	Pilot input	Aircraft/ground system	None required	Yes
METAR reply	**Mandatory**: ~~Airport identification~~Location indicator Date and time (UTC) METAR report type METAR-coded weather elements **Mandatory if applicable**:* Free text remarks modifying or expanding on METAR-coded weather elements.	Receipt of a valid METAR Request	Ground system/ aircraft	Medium	No
~~METAR termination~~	~~Airport identification~~	~~Aircraft or ground system~~	~~Aircraft/ground system~~ ~~Ground system/aircraft~~	~~Pilot: medium; ground system: none required~~	~~No~~

* Shall not be disseminated internationally.

Note.— Specific content will vary depending on weather conditions and the METAR report type. For more detailed information on D-METAR contents, refer to the ranges and resolutions contained in the tables below. The detailed requirements on which reports in the METAR code form are based are contained in Annex 3 - Meteorological Service for International Air Navigation.~~*ICAO Annex 3* Meteorological Service for International Air Navigation and *WMO Publication No. 306,* Manual on Codes, *Volume I.*~~

Insert new text as follows:

Table V-7-2. Template for reports in the METAR/SPECI code forms

Key: M = inclusion mandatory, part of every message
C = inclusion conditional, dependent on meteorological conditions or method of observation
O = inclusion optional

Note.— Information pertaining to numbers in superscript can be found after Table V-7-3.

Element	*Detailed content*	*Template(s)*		*Examples*
Identification of the type of report (M)	Type of the report (M)	METAR *or* SPECI		METAR; SPECI
Location indicator (M)	ICAO Location indicator (M)	nnnn		YUDO[1]
Time of the observation (M)	Date and time of the observation in UTC	nnnnnnZ		221630Z
—[2]	Indicator of the method of observation (C)[3]	AUTO		AUTO
Surface wind (M)	Wind direction (M)	nnn	VRB	24015KMH; (24008KT); (24004MPS[4]); 19022KMH; (19011KT); (19006MPS[4]); VRB06KMH; (VRB03KT); (VRB02MPS[4]); 00000KMH; (00000KT); (00000MPS[4]) 12012G35KMH; (12006G18KT); (12003G09MPS[4]) 24032G54KMH; (24016G27KT); (24008G14MPS[4]); 02020KMH 350V070; (02010KT 350V070); (02005MPS[4] 350V070);
	Wind speed (M)	[P]nn[n]		
	Significant speed variations (C)[5]	G[P]nn[n]		
	Units of measurement (M)	KMH *or* KT *or* MPS		
	Significant directional variations (C)[6]	nnnVnnn	—	

Element	*Detailed content*	*Template(s)*				*Examples*
Visibility (M) [7]	Minimum visibility (M)	nnnn			CAVOK	0350; 7000; 9999; 0800E; 1100SE 7000NW; 1200S 6000W; CAVOK;
	Direction of the minimum visibility (C)[8]	N *or* NE *or* E *or* SE *or* S *or* SW *or* W *or* NW				
	Maximum visibility (C)[9]	nnnn				
	Direction of the maximum visibility (C)[9]	N *or* NE *or* E *or* SE *or* S *or* SW *or* W *or* NW				
RVR (C)[10 11]	Name of the element (M)	R				R10/M0050; R14L/P1500; R32/0400; R16L/0650 R16C/0500 R16R/0450; R26/0550N R20/0800D; R20/0700V1200; R09/0375V0600U; R12/1100U; R19/0350VP1200; R10/M0150V0500D;
	Runway (M)	nn[n]/				
	RVR (M)	[P *or* M]nnnn				
	RVR variations (C)[12]	V[P *or* M]nnnn				
	RVR past tendency (C)[13]	U, D *or* N				
Present weather (C)[14 15]	Intensity or proximity of present weather (C)[16]	- *or* +	—	VC		RA; +TSRA; +DZ; -SN; HZ; FG; VA; MIFG; VCFG; VCSH; VCTS; VCBLSA; +TSRASN; -SNRA; -DZ FG; +SHSN BLSN
	Characteristics and type of present weather (M)[14]	DZ *or* RA *or* SN *or* SG *or* PL *or* IC *or* GR *or* GS *or* DS *or* SS *or* TS TSRA *or* TSSN *or* TSPL *or* TSGR *or* TSGS *or* SHRA *or* SHSN *or* SHPL *or* SHGR *or* SHGS *or* FZRA *or* FZDZ *or* BLSN *or* BLSA *or* BLDU *or* PO *or* FC	FG *or* BR *or* SA *or* DU *or* HZ *or* FU *or* VA *or* SQ *or* FZFG *or* DRSN *or* DRSA *or* DRDU *or* MIFG *or* BCFG *or* PRFG	FG *or* PO *or* FC *or* DS *or* SS *or* TS *or* SH *or* BLSN *or* BLSA *or* BLDU		

Element	*Detailed content*		*Template(s)*				*Examples*
Cloud (M)[17]	Cloud amount and height of base *or* vertical visibility (M)		FEWnnn *or* SCTnnn *or* BKNnnn *or* OVCnnn	Vvnnn *or* VV///	SKC *or* NSC		SCT010 OVC020; BKN009TCU; SCT008 BKN025CB; VV005; VV///; SKC; NSC;
	Cloud type (C)[14]		CB *or* TCU	—			
Air and dew point temperature (M)	Air and dew point temperatures (M)		[M]nn/[M]nn				17/10; 02/M08; M01/M10
Pressure values (M)	Name of the element (M)		Q *or* A				Q0995; Q1009; Q1022; Q0987; A2991[4]; A3027[4]
	QNH (M)		nnnn				
Supplementary information (C)[14 22]	Recent weather (C)[14 15]		REFZDZ *or* REFZRA *or* REDZ *or* RE[SH]RA *or* RE[SH]SN *or* RE[SH]SG *or* RE[SH]PL *or* REIC *or* RE[SH]GR *or* RE[SH]GS *or* REBLSN *or* RESS *or* REDS *or* RETS *or* REFC *or* REVA				REFZRA; RETS
	Wind shear (C)[14]		WS RWYnn[n] *or* WS ALL RWY				WS RWY03; WS ALL RWY
	Sea-surface temperature and state of the sea (C)		W[M]nn/Sn				W15/S2
	State of the runway (C)	Runway designator	nn				99421594
		Runway deposits	n *or* /				
		Extent of runway contamination	n *or* /				
		Depth of deposit	nn *or* //				
		Friction coefficient	nn *or* //				
Trend forecast (O)[18]	Change indicator (M)		NOSIG	BECMG or TEMPO			NOSIG; BECMG FEW020; TEMPO 25070G100KMH; (TEMPO 25035G50KT); (TEMPO25019G27MPS); BECMG FM1030 TL1130 CAVOK; BECMG TL1700 0800 FG;
	Period of change (C)[14]			FMnnnn *and/or* TLnnnn *or* ATnnnn			
	Wind and significant speed variations and units of measurement(C)[14 5 19]			nnn[P]nn[n][G[P]nn[n]]KMH or nnn[P]nn[G[P]nn]KT or nnn[P]nn[G[P]nnMPS			
	Visibility (C)[14]			nnnn		CAVOK	
	Weather phenomenon: intensity (C)[16]			- *or* +	—	NSW	

Element	*Detailed content*	*Template(s)*					*Examples*
	Weather phenomenon: characteristics and type (C)[14 15 16]		DZ *or* RA *or* SN *or* SG *or* PL *or* IC *or* GR *or* GS *or* DS *or* SS *or* TS TSRA *or* TSSN *or* TSPL *or* TSGR *or* TSGS *or* SHRA *or* SHSN *or* SHPL *or* SHGR *or* SHGS or FZRA or FZDZ *or* BLSN *or* BLSA *or* BLDU *or* PO *or* FC	FG *or* BR *or* SA *or* DU *or* HZ *or* FU *or* VA *or* SQ *or* FZFG *or* DRSN *or* DRSA *or* DRDU *or* MIFG *or* BCFG *or* PRFG			BECMG AT1800 9000 NSW; BECMG FM1900 0500 +SNRA; BECMG FM1100 -SN TEMPO FM1130 BLSN; TEMPO FM0330 TL0430 FZRA; TEMPO TL1200 0600 BECMG AT1200 8000 NSW NSC; BECMG AT1130 OVC010; TEMPO TL1430 +SHRA BKN012CB;
	Cloud amount and height of base or vertical visibility (C)[16]		FEWnnn or SCTnnn or BKNnnn or OVCnnn	VVnnn or VV///	SKC or NSC		
	Cloud type (C)[16]		CB or TCU	—			
—[2]	Remark section (O)[20]	RMK *followed by free text*					—

Table V-7-2b. Template for reports in the METAR/SPECI code forms — alternative elements

Alternative elements	*Detailed content*	*Template(s)*	*Examples*
Visibility (alternative unit)	Statute Mile (SM) (incl. fractions)[4]	VIS[n][n][21] [n][/][n][n]SM	VIS 1/16 SM; VIS 1 1/8 SM; VIS 2 3/4 SM; VIS 5 SM
RVR (alternative unit)	Feet (FT)[4]	RVR nn[n] [n]nnnFT	RVR RWY 23L 900FT; RVR RWY 14 2400FT; RVR RWY 32 TDZ 800FT MID 600 FT; RVR RWY 05R 2400 FT; RVR RWY 16 TDZ NOT REPORTED END ABV 6000FT

Table V-7-3. Ranges and resolutions for the numerical elements included in the meteorological message in the METAR/SPECI code forms

Element		*Range*	*Resolution*
Runway (no units)		01 – 36	1
Wind direction: °true		000 – 360	10
Wind speed: KMH		00 – 199	1
KT		00 – 99	1
MPS		00 – 50	1
Visibility: M		0000 – 0500	50
M		0500 – 5000	100
M		5000 – 9000	1000
M		9000 – 9999	999
Visibility (Statute Miles SM		0 – 3/8	1/16
incl. fractions – SM		3/8 – 2	1/8
alternative unit)[4] SM		2 – 3	1/4
SM		3 – 15	1
SM		15 – 50	5
RVR M		0000 – 0400	25
M		0400 – 0800	50
M		0800 – 1500	100
RVR FT		0 – 1000	100
(Feet – alternative unit)[4] FT		1000 – 3000	200
FT		3000 – 6000	500
Vertical visibility: 30's of M (100's of FT)		000 – 020	1
Cloud: height of base: 30's M		000 – 100	1
(100's FT)		100 – 600	10
Air temperature; Dew-point temperature °C		-80 – +60	1
QNH hPa		0850 – 1100	1
QNH (inches of mercury – alternative unit)[4]		2200 — 3200	1
Sea-surface temperature °C		-10 — +40	1
State of the sea no units		0 — 9	1
State of the runway	Runway designator	01 – 36; 51 – 86; 88; 99	1
	Runway deposits	0 – 9	1
	Extent of runway contamination	1;2;5;9	–
	Depth of deposit	00 – 90; 92 – 99	1
	Friction coefficient	00 – 95; 99	1

Notes.—

1. Fictitious location;
2. Element not specified in Annex 3 — *Meteorological Service for International Air Navigation* but may be used at some airports;
3. To be included if the report is fully automated;
4. Unit not specified in Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*;
5. To be included if the maximum is exceeding the mean speed by 20 km/h (10 kt);
6. To be included if the directional variations ≥ 60° and the wind speed > 6 km/h (3 kt);

7. Alternative specification for visibility described in Tables V-7-2b and V-7-3, where unit of measurement not specified in Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*;
8. To be included if the visibility in one or more directions is more than 50 per cent above the minimum visibility;
9. To be included if the minimum visibility is less than 1500 m and the visibility in another direction is more than 5000m;
10. Alternative specification for runway visual range described in Tables V-7-2b and V-7-3, where unit of measurement not specified in Annex 5 — *Units of Measurement to be Used in Air and Ground Operations*.
11. To be included if visibility or RVR < 1500 m for up to a maximum of four runways;
12. To be included if the one-minute RVR values during the 10-minute period immediately preceding the observation vary from the mean value more than 50 m or more than 20 per cent, whichever is greater, the one-minute mean minimum and the one-minute mean maximum values are reported (instead of the 10-minute mean value);
13. To be included if the 10-minute period preceding the observation have shown a distinct tendency such that the mean RVR during the first 5 minutes varies by 100 m or more from the mean during the second 5 minutes of the period;
14. To be included whenever applicable;
15. One or more, up to a maximum of three, groups;
16. To be included whenever applicable. No qualifier for *moderate* intensity;
17. Up to four cloud layers;
18. To be included subject to Regional Air Navigation Agreement (maximum of three change indicator groups);
19. Units of measurement included whenever the surface wind information is indicated; and
20. Section containing information included by national decision which shall not be disseminated internationally. Maximum character size is 256 characters.
21. A space shall be coded between whole numbers and fractions.
22. State of the runway information to be included subject to Regional Air Navigation Agreement.

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APPENDIX D

PROCEDURES FOR AIR NAVIGATION SERVICES — RULES OF THE AIR AND AIR TRAFFIC SERVICES (DOC 4444)

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PART VIII. CO-ORDINATION

1. General

1.1 In circumstances where an aircraft is experiencing an emergency or has declared minimum fuel, or in any other situation wherein the safety of the aircraft is not assured, the type of emergency and the circumstances experienced by the aircraft shall be reported by the transferring unit to the accepting unit and any other air traffic services unit that may be concerned with the flight and to the associated rescue coordination centres, if necessary.~~included in the co-ordination message.~~

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4. Co-ordination in respect of the provision of air traffic control service

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4.2 Co-ordination between units providing area control service within contiguous control areas

4.2.1 Area control centres shall forward from centre to centre, as the flight progresses, necessary flight plan and control information. When so required by agreement between the appropriate ATS authorities to assist in the separation of aircraft, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region boundaries shall also be provided to the air traffic services units in charge of the flight information regions adjacent to such routes or portions of routes.

Note 1.— Such a route or portion of route is often referred to as an area of common interest, the extent of which is usually determined by the required separation minima.

Note 2.— See also 2.4.

4.2.2 The information specified in 4.2.1 shall be transmitted in sufficient time to permit reception and analysis of the data by the receiving centre(s) and necessary co-ordination between the ~~two~~ centres concerned.

Note.— See Part IX and ~~Appendix 3~~ Appendices 3 and 6 for details regarding messages, their content and time of transmission. For details regarding format for the Air Traffic Services Interfacility Data Communication (AIDC) messages see Annex 10, Volume III, Part I, and the Manual of Technical Provisions for the Aeronautical Telecommunications Network (ATN) (Doc 9705).

4.2.3 If the departure aerodrome of an aircraft is not a sufficient distance from the boundary of an adjacent control area to permit transmission of the necessary flight plan and control information to the

accepting centre after take-off and allow adequate time for reception, analysis and co-ordination, the transferring centre shall, prior to ~~clearing the aircraft~~ departure, forward the data required by 4.2.1 to the accepting centre together with a request for acceptance in accordance with 4.2.5.

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4.3 Co-ordination between a unit providing area control service and a unit providing approach control service

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4.3.2 *Exchange of movement and control data*

4.3.2.1 From the unit providing approach control service to the area control centre. The unit providing approach control service shall keep the area control centre promptly advised of pertinent data on controlled traffic such as:

a) lowest vacant level at the holding point available for use by the area control centre;

b) expected type of instrument approach procedure;

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f) cancellations by aircraft of their IFR flights, if these will affect levels at the holding point or expected approach times of other aircraft;

g) departure times of departing aircraft or if agreed between the two ATC units concerned, the estimated time at the boundary;

h) all available information relating to overdue or unreported aircraft;

i) missed approaches.

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4.6 Failure of automated coordination

4.6.1 The failure of automated coordination shall be presented to the controller in a clear and distinct manner. The controller shall then facilitate the required coordination using prescribed alternative methods.

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PART IX. AIR TRAFFIC SERVICES MESSAGES

1. Categories of messages

1.1 The messages listed below are authorized for transmission via the aeronautical fixed service (including the aeronautical telecommunications network (ATN) and the aeronautical fixed telecommunication network (AFTN), direct-speech circuits or digital data interchange between air traffic services units, and direct teletypewriter and computer-computer circuits), or via the aeronautical mobile service, as applicable. They are classified in categories relating to their use by the air traffic services and providing an approximate indication of their importance.

Note.— The Priority Indicator in parentheses after each type of message is that specified in Annex 10 (Vol. II, Chapter 4) for application when the message is transmitted on the AFTN. The priority for all ATS interfacility data communication (AIDC) messages using the ATN shall be "normal priority flight safety messages" as determined by the ATN Internet protocol priority categorization.

1.2 Emergency messages

This category comprises:

a) distress messages and distress traffic, including alerting messages relating to a distress phase (SS);

b) urgency messages, including alerting messages relating to an alert phase or to an uncertainty phase (SS);

c) other messages concerning known or suspected emergencies which do not fall under a) or b) above, and radiocommunication failure messages (FF or higher as required).

Note.— When the messages in a) and b) and, if required, in c) above are filed with the public telecommunication service, the Priority Indicator SVH, assigned to telegrams relating to the safety of life, is to be used in accordance with Article 25 of the International Telecommunication Convention, Malaga, 1973.

1.3 Movement and control messages

This category comprises:

a) filed flight plan messages and associated update messages (FF), including:

— filed flight plan messages
— delay messages
— modification messages
— flight plan cancellation messages
— departure messages
— arrival messages;

b) co-ordination messages (FF), including:

— current flight plan messages
— estimate messages
— co-ordination messages
— acceptance messages
— logical acknowledgement messages;

c) AIDC coordination messages, including:

— notification messages
— coordination messages
— general information messages
— application management messages

~~c~~d) supplementary messages (FF), including:

— request flight plan messages
— request supplementary flight plan messages
— supplementary flight plan messages;

~~d~~e) control messages (FF), including:

— clearance messages
— transfer of control messages
— flow control messages
— position report and air-report messages.

1.4 Flight information messages

This category comprises:

a) messages containing traffic information (FF);

b) messages containing meteorological information (FF or GG);

c) messages concerning the operation of aeronautical facilities (GG);

d) messages containing essential aerodrome information (GG);

e) messages concerning air traffic incident reports (FF).

1.5 When justified by the requirement for special handling, messages ~~in the fixed service~~ transmitted via the AFTN should be assigned the Priority Indicator DD in place of the normal Priority Indicator.

2. General provisions

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2.2 Use of AIDC messages

2.2.1 AIDC messages shall be used to exchange information between ATC units in accordance with the provisions below, subject to regional air navigation agreements.

Note.— See Appendix 6 for a description of the contents of each AIDC message

2.2.2 Where AIDC messages are transmitted via the ATN, the messages shall utilize the packed encoding rules using abstract syntax notation.one (ASN.1).

Note 1.— Provisions and information on the ASN.1 packed encoding rules are contained in Annex 10, Volume II, Part I and the Manual of Technical Provisions for the Aeronautical Telecommunications Network (ATN) (Doc 9705). Guidance material concerning the operational use of AIDC messages is contained in the Manual of Air Traffic Services Data Link Applications (Doc 9694).

Note 2.— Information on the content of AIDC addressing rules is contained in Annex 10, Volume II, Part I and the Manual of Technical Provisions for the Aeronautical Telecommunications Network (ATN) (Doc 9705).

2.3~~2.2~~ Preparation and transmission of messages

~~2.2.1~~2.3.1 ~~Air~~ Except as provided for in 2.4.2, air traffic services messages shall be prepared and transmitted with standard texts in a standard format and in accordance with standard data conventions, as and when prescribed in Appendix 3.

2.3.2 Where AIDC messages are transmitted via the AFTN, the format for the AIDC messages shall, as far as practicable comply with the appropriate data fields contained in Appendix 3. Formats that do not comply with data fields contained in Appendix 3 or data fields used that are additional to those contained in Appendix 3, including the two letter priority indicator and the message type designator shall be in accordance with regional air navigation agreements.

~~2.2.2~~2.3.3 When messages are exchanged orally between the relevant air traffic services units, an oral acknowledgement shall constitute evidence of receipt of the message. No confirmation in written form directly between controllers shall therefore be required. The confirmation of oral coordination via the exchange of messages between automated systems shall be required unless special arrangements have been made between the units concerned.

Note.— See Annex 11, Chapter 6, regarding the requirement for recording of direct-speech communications.

3. Methods of message exchange

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3.6 Filed flight plan data and associated update messages

3.6.1 Filed flight plan data and associated update messages shall be addressed simultaneously to the first en-route control centre, to all other ATS units along the route of flight which are unable to obtain or process current flight plan data, and to air traffic flow management units concerned.

3.6.2 Where the distribution of data to the appropriate addressees is delegated to a specified unit, such filed flight plan data and updates thereto shall be addressed only to that unit.

3.7 Co-ordination and transfer data

3.7.1 Progression of a flight between successive control sectors and/or control centres shall be effected by a co-ordination and transfer process comprising the following stages:

a) the announcement of the flight in order to prepare for coordination as necessary; ~~and the proposed conditions of transfer of control; and~~

b) proposal of conditions of transfer of control;

c) coordination, if necessary, and acceptance of conditions of transfer of control; and

~~b~~d) ~~co-ordination of the conditions of~~ transfer ~~and acceptance~~ followed by the assumption of communication and control by the receiving unit.

3.7.2 ~~The~~ Except as provided for in 3.7.3, the announcement of the flight shall be by a current flight plan message containing all relevant ATS data or by an estimate message containing the proposed conditions of transfer. An estimate message shall be used only when updated basic flight plan data is already available at the receiving ATS unit.

3.7.3 Where AIDC messages are used, the announcement of the flight shall be by a notification or coordinate initial message containing all relevant ATS data.

~~3.7.3~~3.7.4 A receiving ATS unit to whom the proposed conditions of transfer are not acceptable shall decline to accept the aircraft as proposed and shall initiate further co-ordination by proposing alternative acceptable conditions.

~~3.7.4~~3.7.5 ~~The~~ Except as provided for in 3.7.6, the co-ordination process shall be considered to be completed as soon as the proposed conditions contained in the current flight plan message, or in the estimate message or in one or more counter-proposals, are accepted by an operational or logical procedure.

3.7.6 Where AIDC messages are used, the coordination process shall be considered to be completed as soon as the coordinate initial message or a counter proposal (coordinate negotiate message) has been accepted.

~~3.7.5~~3.7.7 ~~Unless~~Except as provided for in 3.7.8, unless an operational acknowledgement is ~~received~~ transmitted, a logical acknowledgement message shall be automatically transmitted by the receiving computer

in order to ensure the integrity of the co-ordination process employing computer-to-computer links. This message shall be transmitted when the transfer data has been received and processed to the point that, in the event of a temporary failure by the receiving computer, the information will be brought to the attention of the appropriate air traffic controller.

3.7.8 Where AIDC messages are used, an applications accept message shall be automatically transmitted by the receiving computer in order to ensure the integrity of the coordination process employing computer-to-computer links. This message shall be transmitted when the coordination, general information or transfer data has been received and processed to the point that, in the event of a temporary failure by the receiving computer, the information will be brought to the attention of the appropriate air traffic controller.

3.7.~~6~~9 The transfer of control shall be either explicit or, by agreement between the two units concerned, implicit, i.e. no communication need be exchanged between the transferring and accepting units.

3.7.~~7~~10 When the transfer of control involves exchange of data, the proposal for transfer shall include radar information if appropriate. Since the proposal relates to previously accepted co-ordination data, further co-ordination shall normally not be required. However, acceptance shall be required.

3.7.~~8~~11 If after receipt of radar information the accepting centre is unable to identify the aircraft immediately, additional communication shall ensue to obtain new radar information, if appropriate.

3.7.~~9~~12 When control has been assumed of the transferred aircraft the accepting unit shall complete the transfer of control process by communicating assumption of control to the transferring unit, unless special arrangements have been made between the units concerned.

3.8 Supplementary data

3.8.1 When basic flight plan data or supplementary flight plan data are required, request messages shall be addressed to the ATS unit which is most likely to have access to the required data.

Note.— See 4.2.7~~4~~.2.1 and 4.2.7~~4~~.3.1 for ATS units to which request messages shall be addressed.

3.8.2 If the requested information is available, a filed or a supplementary flight plan message shall be transmitted.

4. Message types and their application

4.1 Emergency messages

4.1.1 The various circumstances surrounding each known or suspected emergency situation preclude the specification of standard message types to provide for emergency communications, except as described in 4.1.2 ~~and~~, 4.1.3 and 4.1.4 below.

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4.1.4 *Free Text Emergency messages (AIDC, Appendix 6 refers)*

4.1.4.1 Whenever operational information needs to be transmitted concerning an aircraft known or believed to be in a state of emergency and the information cannot be formatted to comply with any other AIDC message type, a free text emergency message shall be sent.

4.1.4.2 The following are some examples of circumstances which could justify the use of a Free text emergency message:

a) reports of emergency calls or emergency locator transmission reports;

b) messages concerning unlawful interference or bomb warnings;

c) messages concerning serious illness or disturbance among passengers;

d) sudden alteration in flight profile due to technical or navigational failure; and

e) communication failure.

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4.2 Movement and control messages

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4.2.3 *Co-ordination messages (Appendix 3 refers)*

Note.— The provisions governing co-ordination are contained in Part VIII. Phraseology to be used in voice communication is contained in Part X. See paragraph 4.2.4 below for the provisions governing AIDC coordination messages, as prescribed in Appendix 6.

4.2.3.1 Co-ordination messages comprise:

— current flight plan messages (4.2.3.2)
— estimate messages (4.2.3.3)
— co-ordination messages (4.2.3.4)
— acceptance messages (4.2.3.5)
— logical acknowledgement messages (4.2.3.6).

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4.2.4 AIDC coordination messages (as prescribed in Appendix 6)

4.2.4.1 AIDC coordination messages comprise:

— Notify messages (4.2.4.2)
— Coordinate Initial messages (4.2.4.3)
— Coordinate Negotiate messages (4.2.4.4)
— Coordinate Accept messages (4.2.4.5)
— Coordinate Reject messages (4.2.4.6)

— Coordinate Cancel messages (4.2.4.7)
— Coordinate Update messages (4.2.4.8)
— Coordinate Standby messages (4.2.4.9)

4.2.4.2 *Notify messages*

4.2.4.2.1 Notify messages shall be transmitted to air traffic services units for which coordination for the flight will ultimately be required. This shall include the next receiving air traffic services unit. The Notify message shall be sent at or prior to a bilaterally agreed time or position before the common boundary with the first air traffic services unit that the flight will be coordinated with. In all cases this agreed time shall occur prior to the initial coordination dialogue.

4.2.4.2.2 Amendments to a previously transmitted Notify message including changes to the cleared route, shall be communicated by means of another Notify message. This may necessitate a change to the air traffic services units to which the amendment is sent.

4.2.4.3 *Coordinate Initial messages*

4.2.4.3.1 A Coordinate Initial message shall be transmitted by each area control centre to the next area control centre and from the last area control centre to the approach control unit serving the destination aerodrome or aerodrome control if such a unit does not exist, for each controlled flight, and for each flight provided with air traffic advisory service along routes or portions of routes where it has been determined by the appropriate ATS authority that adequate point-to-point communications exist and that conditions are otherwise suitable for forwarding coordination information.

4.2.4.3.2 Basic flight plan data shall be included in the message if a notification message has not been transmitted and it is probable that basic flight plan data has not been distributed to the next centre, e.g. a Current Flight Plan (CPL) message may be used to include basic flight plan data and an Estimate (EST) message where such data is not required.

4.2.4.3.3 When an aircraft traverses a very limited portion of a control area where, by agreement between the appropriate ATS authorities concerned, coordination of air traffic through that portion of the control area has been delegated to, and is effected directly between, the two centres whose control areas are separated by that portion, Coordinate Initial messages shall be transmitted directly between such units.

4.2.4.3.4 A Coordinate Initial message shall be transmitted in sufficient time to permit each air traffic services unit concerned to receive the information at least 20 minutes before the time at which the aircraft is estimated to pass the transfer of control point or boundary point at which it comes under the control of such unit, unless another period of time has been prescribed by the appropriate ATS authority. This procedure shall apply whether or not the ATS unit responsible for origination of the message has assumed control of, or established contact with, the aircraft by the time the transmission is to be effected.

4.2.4.3.5 When a Coordinate Initial message is transmitted to a centre which is not using automatic data processing equipment, the period of time specified in 4.2.4.3.4 may be insufficient, in which case an increased lead-time shall be agreed.

4.2.4.3.6 In addition to the mandatory fields a Coordinate Initial message shall include information concerning the flight from the part of the route immediately prior to the point of entry into the next control area or advisory airspace to the destination aerodrome.

4.2.4.4 *Coordinate Negotiate messages*

4.2.4.4.1 A Coordinate Negotiate message shall be transmitted during the coordination process by an accepting unit to the transferring unit when the former wishes to propose a change to coordination data as contained in a previously received Coordinate Initial message.

4.2.4.4.2 Normally, when a change is proposed to a Coordinate Negotiate message, direct speech circuits shall be used to resolve the issue. However, where so agreed between two units, a Coordinate Negotiate message shall be transmitted to the accepting unit. The message exchange is repeated until the coordination process is completed by the transmission of a Coordinate Accept message by one of the units.

4.2.4.4.3 A Coordinate Negotiate message shall be transmitted to the other unit if one of the units concerned wishes to coordinate a change to the conditions of transfer after the coordination process has been completed, thus re-initiating the coordination process. The previously agreed coordination conditions remain valid until the re-initiated process is completed by a Coordinate Accept message.

4.2.4.5 *Coordinate Accept messages*

4.2.4.5.1 Unless special arrangements have been made between the units concerned in accordance with Part VIII, 4.2.5, a Coordinate Accept message shall be transmitted by the unit receiving a Coordinate Initial or Coordinate Negotiate message to indicate that the proposed transfer conditions in the message are accepted.

4.2.4.6 *Coordinate Reject messages*

4.2.4.6.1 A Coordinate Reject message shall be sent when the accepting unit wishes to reject a proposed coordination (using a Coordinate Initial or Coordinate Negotiate message) and does not wish to make a counter-proposal by the use of a Coordinate Negotiate message.

4.2.4.6.2 The acknowledgement of a Coordinate Reject message terminates the coordination dialogue; a new coordination sequence will be required if the reject is in response to a Coordinate Initial message; the previously agreed coordination conditions remain valid if it is in response to a Coordinate Negotiate message.

4.2.4.7 *Coordinate Cancel messages*

4.2.4.7.1 A Coordinate Cancel message shall be transmitted by the transferring unit to abrogate the existing notification of a flight if it is delayed indefinitely or the route or level is amended such that the flight is not expected to enter the airspace of the accepting unit directly from that of the transferring unit. A further notification message is transmitted if the flight data is again amended such that the flight will enter the airspace of the accepting unit and a firm boundary estimate is available.

4.2.4.7.2 A Coordinate Cancel message shall be transmitted by the transferring unit to abrogate the existing coordination of a flight if it is delayed indefinitely or the route or level is amended such that the current coordination must be abrogated but a new coordination is not yet required. The message includes information on whether a new coordination based on the current boundary point is to be expected later or, alternatively, whether the current control parameters (route, level) result in the flight not being expected to enter the airspace of the accepting unit. If a new coordination is required immediately, a Coordinate Update message is sent in which case the cancellation of the original coordination is implicit when the accepting unit accepts the revision.

4.2.4.8 *Coordinate Update messages*

4.2.4.8.1 A Coordinate Update message shall be sent when the coordination conditions change following the transmission of a coordinate initial message. Where updates to coordination are accepted automatically, it is important that changes to the conditions are not made when the flight is close to the boundary. Therefore, the latest time prior to the boundary at which such a change may be sent without prior manual coordination, shall be agreed bilaterally.

4.2.4.9 *Coordinate Standby messages*

4.2.4.9.1 The Coordinate Standby message shall be sent from the unit receiving a message to indicate to the sending unit that the proposal has been received and has been referred for manual acceptance.

4.2.5 *General Information messages*

4.2.5.1 General Point

4.2.5.1.1 The General Point message shall be transmitted to draw the attention of the receiving unit to a flight to support verbal discussion. The content of the message permits details of a flight previously unknown to the receiving unit to be displayed if required. For example, a flight planned to operate at a level below a division flight level which is now requesting a level above the division flight level, the subject of which needs to be discussed with the appropriate controller in the “upper” unit.

4.2.5.2 General Executive Data

4.2.5.2.1 The General Executive Data message is sent either by the transferring ATSU to the receiving ATSU or from the receiving ATSU to the transferring ATSU to inform the unit of modification to data pertaining to the control environment of a coordinated flight. In the former case, data may include such information as the current cleared flight level, and if applicable, speed restrictions, climb/descent restrictions and the heading assigned to the flight. Data sent from the receiving ATSU comprises the radiotelephony frequency to which the flight is to be transferred. An operational acknowledgement is not required although an application acceptance message is required provided that the data can be made available for presentation to the appropriate controller.

4.2.5.3 Free Text General

4.2.5.3.1 The Free Text General message shall be used to transmit operational information which cannot be formatted to comply with any other message type and for plain language statements. Normally the information would be presented directly to the controller responsible for the flight or to the controller expecting to receive responsibility for the flight. When the message does not refer to a specific flight, a facility designation shall be used to allow for the information to be presented to the appropriate ATS position.

4.2.6 *Application management messages*

4.2.6.1 Application Accept

4.2.6.1.1 Except for another Application management message, or a message containing invalid data, the Application Accept message shall be sent by the receiving unit for each message that has been received, processed, found free of errors and, where relevant, is available for presentation to a control position.

4.2.6.2 Application Error

4.2.6.2.1 The Application Reject message shall be sent by the receiving unit to the sending unit to reject a message that has been received but for which an error has been detected. A code is included that identifies the nature of the error. Regional air navigation agreement shall be the basis for specifying the codes that are available to the ATS units concerned.

Note.— Information concerning the available ATN application error codes can be found in the Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN) (Doc 9705) Volume III paragraph 3.2.7.1.1.

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4.2.7~~4~~ *Supplementary messages*

4.2.7~~4~~.1 Supplementary messages comprise:

— request flight plan messages (4.2.7~~4~~.2)
— request supplementary flight plan messages (4.2.7~~4~~.3)
— supplementary flight plan messages (4.2.7~~4~~.4).

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4.2.8~~5~~ Control messages

4.2.8~~5~~.1 Control messages comprise:

— clearance messages (4.2.8~~5~~.2)
— AIDC transfer of control messages (4.2.8~~5~~.3)
— flow control messages (4.2.5~~8~~.4)
— position report and air-report messages (4.2.5~~8~~.5).

4.2.5~~8~~.2 *Clearance messages*

Note.— Provisions governing clearances are contained in Part II, Section 10, and Part III, Sections 10 to 13. The following paragraphs set forth the contents of clearance messages together with certain procedures relating to the transmission thereof. Procedures governing the use of CPDLC for clearance delivery are contained in Part XI. Specifications regarding the intent, message attributes and display options can be found in Appendix 5.~~formats and data conventions to be used have not yet been developed by ICAO.~~

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4.2.8~~5~~.3 *AIDC Transfer of control messages*

Note.— The provisions governing transfer of control are contained in Annex 11, 3.6.2, and in Part VIII of this document. Phraseology to be used in voice communications is contained in Part X, 3.5, of this document. See Appendix 6 for a description of the contents of each AIDC message.~~ Format and data conventions for automated interchange of transfer of control messages have not yet been developed.~~

4.2.8.3.1 AIDC transfer of control messages comprise:

— Transfer Initiate (4.2.8.3.2)
— Transfer Conditions Proposal (4.2.8.3.3)
— Transfer Conditions Accept (4.2.8.3.4)
— Transfer Communication Request (4.2.8.3.5)
— Transfer Communication (4.2.8.3.6)
— Transfer Communication Assume (4.2.8.3.7)
— Transfer Control (4.2.8.3.8)
— Transfer Control Assume (4.2.8.3.9)

4.2.8.3.1.1 Transfer messages address requirements for transfer of control, handover initiation and dialogue and transfer of communication. Transfer of control is required in a procedural environment where authority to issue control instructions is transferred from the transferring unit to the accepting unit, irrespective of the unit with which the flight is in communication.

4.2.8.3.1.2 Where transfer of control conditions are specified in letters of agreement transfer of control dialogues may be used to cope with the need for early release of control on some flights.

4.2.8.3.1.3 Transfer of communication messages are used where transfer of control conditions are specified in letters of agreement but where it is required to indicate that a flight has been instructed to establish communication with the receiving unit in accordance with radar handover procedures.

4.2.8.3.2 *Transfer Initiate message*

4.2.8.3.2.1 The Transfer Initiate message shall be transmitted automatically from the transferring unit to the accepting unit and initiates the transfer phase. Any executive control data and optionally, track data is included.

4.2.8.3.2.2 The Transfer Initiate message informs the accepting unit of the current control environment of the flight, e.g. current cleared flight level, heading if applicable, in order to prepare the accepting controller to receive the flight. All such data must be displayed to the accepting controller.

4.2.8.3.2.3 The Transfer Initiate message alleviates the need for the transferring controller to verbally provide the executive control data to the receiving controller while allowing the automatic update of the flight plan data in the receiving ATSU.

4.2.8.3.3 *Transfer Conditions Proposal message*

4.2.8.3.3.1 The Transfer Conditions Proposal message shall be used to manually handoff a flight to the receiving controller.

4.2.8.3.3.2 The Transfer Conditions Proposal message offers transfer of communication and control to the accepting controller together with updated control environment data.

Note.— The terms of the transfer of control contained in the relevant letter of agreement may restrict control of the aircraft until the aircraft has reached the transfer of control point.

4.2.8.3.4 *Transfer Conditions Accept message*

4.2.8.3.4.1 The Transfer Conditions Accept messages shall indicate the willingness of the accepting controller to accept transfer of communication and control of the flight in response to a Transfer Conditions Proposal message.

4.2.8.3.4.2 Where required, the radiotelephony frequency on which the flight is to establish communication with the receiving unit may be included.

4.2.8.3.5 *Transfer Communication Request message*

4.2.8.3.5.1 The Transfer Communication Request message shall be used by the accepting controller to request transfer of communication. The message shall be used when the accepting controller requires communication to be established with the flight immediately. The message would normally be responded with a Transfer Communication message.

4.2.8.3.6 *Transfer Communication message*

4.2.8.3.6.1 The Transfer Communication message shall be used to indicate that the transferring controller has instructed the flight to establish communication with the receiving controller. On receipt of this message the accepting controller shall ensure that communication is established within a short period of time. The transferring controller may, optionally, specify release conditions for transfer of control.

4.2.8.3.7 *Transfer Communication Assume message*

4.2.8.3.7.1 The Transfer Communication Assume message shall indicate that the accepting unit has established communication with the flight and completes the radar handover.

4.2.8.3.8 *Transfer Control message*

4.2.8.3.8.1 The Transfer Control message indicates that the transferring unit wishes to transfer control responsibility to the accepting unit prior to the designated transfer of control point and solicits a response.

4.2.8.3.8.2 The accepting unit shall respond either with a Transfer Conditions Accept message or by the use of voice communication to negotiate conditions for acceptance. The possibility to reject manually a Transfer Control request of a coordinated flight is not available.

4.2.8.3.9 *Transfer Control Assume message*

4.2.8.3.9.1 The Transfer Control Assume message shall indicate that the accepting controller has assumed control responsibility of the flight from the transferring controller. The receipt of this message completes the transfer of control procedure.

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***PROCEDURES FOR AIR NAVIGATION SERVICES — RULES OF THE AIR AND AIR TRAFFIC SERVICES* (DOC 4444)**

Proposed New Appendix

New text

APPENDIX 6

ATS Interfacility Data Communications (AIDC)

1. Introduction

1.1 General

1.1.1 This appendix describes the types of message and their contents to be used for operational communications between ATSU computer systems. This type of data transfer is referred to as ATS Interfacility Data Communications (AIDC) and is to be the basis for migration of data communications to the Aeronautical Telecommunications Network (ATN).

1.1.2 It is not the intention that controllers see the messages, but their operational content is required to be displayed or made available to the controllers in accordance with the display capability and procedures at the unit concerned. Whilst the majority of flight data is provided by the system, it is a pre-requisite that certain items of operational data required to be transferred can be entered at the controller working position.

1.1.3 AIDC messages contain items of data referred to as data fields. In most cases a data field is used in more than one message. In order to avoid duplication the data fields are described only once, in Table 1 AIDC Data Fields in section 2. Reference is made in the table to the appropriate section where the description of an AIDC field would include text from elsewhere in the PANS-RAC.

1.1.4 The messages themselves are described in section 3 and seq.

1.2 Coordination Environments

1.2.1 ATC procedures vary significantly, depending on the control environment. For the purpose of this document the environments are addressed as surveillance and procedural and in some instances the same type of message requires the inclusion of different data in differing environments. A surveillance environment is an environment where radar and/or ADS are available and allow controllers to positively identify the traffic.

1.2.2 In a surveillance environment, radar and/or ADS are available to the controllers at sector positions on both sides of a common boundary and traffic is identified by information presented on a situation display. Such facilities permit surveillance handover procedures to be available.

1.2.3 A procedural environment addresses those areas where surveillance handover procedures are not available, e.g. oceanic and remote areas and environments where the required surveillance capability exists at neither or only one of the ATSU's. In such areas, transfer procedures may differ from those used in a surveillance environment.

1.3 Message composition

1.3.1 An AIDC message is composed of a message header and a sequence of fields of data. Each message shall contain all the mandatory fields and all relevant optional fields.

1.3.2 The message header contains a message identification, a time stamp (yyyymmddhhmmss) and a message sequence number. The message sequence number progresses sequentially from 0 to 99999, thence repeats from 0 for all messages sent to the same addressee, regardless of the type of message. The Notify, Coordinate Initial and Coordinate Update message headers contain in addition the identifier of the sending and receiving ATSU. These identifiers shall not be greater than eight characters in length.

2. **ATS Interfacility Data Communication – Data Fields**

2.1 The data elements included in ATS Interfacility Data Communication messages and the messages in which they are used are given in Table 1. The content of each message in terms of mandatory and optional elements are included in section 3 et seq.

Data field	Format	Notes
Aircraft Address	6 hexadecimal	
Aircraft Identification	2 – 7 alphanumerics	As specified for element (a) of field type 7 in Appendix 3
Aircraft Registration	2 – 7 characters	
Boundary fix	Special instance of 'fix' as described below	
Boundary Estimate Data	A generic term encompassing fix, time and level data and optionally supplementary crossing data and condition	Elements (a), (b) and (c) and optionally elements (d) and (e) as specified for field type 14 in Appendix 3
CNS equipment	1 – 24 elements, each containing a 1 letter communication or navigation equipment identifier followed optionally by a status indicator. 1 – 3 elements, each containing a 1 letter surveillance equipment identifier.	Elements (a) and (b) specified for field type 10 in Appendix 3
Departure aerodrome	4 letters	ICAO location indicator
Destination aerodrome	4 letters	ICAO location indicator
Direct clearance	Two fixes as described in 'Fix' below	A null indicator can be inserted as the first point.

Data field	Format	Notes
Distance	1 – 4 digits	Distance in nautical miles
Error Code	1 – 3 digits	Code referencing the field where an error is found
Error Data	1 – 256 alphanumerics	Erroneous data found in a received message
Executive Data	A generic term encompassing one or more of the following: Level Heading or direct clearance Vertical rate Speed	
Facility designation	1 - 8 characters	The assigned address of the unit to which the message is being sent expressed as the ICAO four-letter location indicator or the ICAO eight-letter combined location indicator, three letters designator and an additional letter.
Fix	Generically: (i) A fix name; (ii) A fix name and magnetic bearing and distance; (iii) Latitude and longitude in the format: -Two digits plus the letter N or S indicating whole degrees latitude followed by three digits plus the letter E or W indicating whole degrees longitude; or -Four digits plus the letter N or S indicating degrees and minutes latitude followed by five digits plus the letter E or W indicating degrees and minutes longitude.	In case (ii), the value ranges are: Bearing 001-360 Distance 1-999
Fix name	2 - 5 characters	
Flight Rules	1 letter	As specified for the first element of field type 8 in Appendix 3
Free Text	1 – 200 characters	
Frequency	KHz 2 850 - 28 000 MHz 117.975 - 137.000 MHz 225.000 - 399.975 Numerical 117.975 - 137.000 Digit string 12 digits	Radiotelephony frequency as specified for RTF in CPDLC
Heading	3 digits	Magnetic heading within range 001 - 360

Data field	Format	Notes
Level*	Letter A followed by 3 digits, or letter F followed by 3 digits, or letter S followed by 4 digits, or letter M followed by 4 digits	Level data in the format specified for field 15, paragraph (b) Cruising Level in Appendix 3
Number of Aircraft	1 – 2 digits	Used if more than one aircraft in the flight. As specified for element (a) of field type 9 in Appendix 3
Other information	Elements of field 18 not included elsewhere in this table	As specified in Appendix 3.
Position	Fix, or Navaid, or Airport	As specified for CPDLC
Release indication	A generic term encompassing one or more of the following: One of the letters : C, D, T or F Frequency Position	Signifies that the flight is released for climb, descent, turns or y released for all actions
Remarks	1-200 alphanumerics	
Route		As specified for field type 15 in Appendix 3
Sector designator	1-5 alphanumerics	
Selcal	4 letters	As specified for element /SEL of field type 18 in Appendix 3
Speed	Letter N followed by 4 digits or Letter K followed by 4 digits or Letter M followed by 3 digits	True Air Speed as specified in field type 15, paragraph (a) Cruising Speed in Appendix 3
SSR Code	Letter A followed by 4 octal digits	Mode A code on which the aircraft is or will be responding
Status and reason for cancellation	Status: three characters, plus: Reason three characters	
Supplementary Crossing Data and Condition	Level plus an indicator which signifies: At or above the level; At or below the level	This data is as specified in field type 14, elements (d) and (e) in Appendix 3, and is used in association with level data in order to coordinate climbing and descending traffic
Time	Four or six digits	Time in hours and minutes (hhmm) or hours, minutes and seconds (hhmmss)
Track Data	A generic term encompassing one or more of the following : Position And optionally Time	The position of the flight as determined by surveillance and used to identify the track to the accepting ATSU
Type of Aircraft	Letter plus 1 – 3 alphanumeric	As specified for element (b) of field type 9 in Appendix 3

Data field	Format	Notes
Type of flight	1 letter	As specified for the second element of field type 8 in Appendix 3
Vertical Rate	3 – 5 digits with optional +/-indicator or, alternatively, a Null indicator	Minimum or maximum rate of climb or descent together with greater or less than indicator. Null indicator is used to indicate cancellation of the restriction.
Wake turbulence category	1 letter	As specified for the third element of field type 9 in Appendix 3

Table 1 AIDC Data Fields

* Level can be either one or two levels to indicate a block level.

3. **Notification**

3.1 Notify

3.1.1 Purpose

3.1.1.1 The Notify message satisfies the following operational requirements:

a) provide advance information and revisions thereto from an ATSU on a flight that is expected subsequently to enter the Area of Interest of another ATSU;

b) provide for acquisition of missing flight plan data;

c) facilitate early correlation of radar tracks; and

d) facilitate accurate short-term sector load assessment.

3.1.2 Sequence

3.1.2.1 When used, the notify message precedes any subsequent coordination message and is sent by the transferring ATSU to ATSUs for which coordination will ultimately be required. A notify message is not required when the sending ATSU is the aerodrome of departure or the approach control unit serving the aerodrome of departure. If a coordinate initial message is immediately due for transmission, the notify message should not be sent.

3.1.3 Content

3.1.3.1 Mandatory Fields

3.1.3.1.1 The Notify message includes the following items of data:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

— Type of aircraft
— Number of aircraft if more than one in the flight
— Boundary estimate data

3.1.3.2 Conditional Fields

3.1.3.2.1 The Selcal and aircraft registration are to be included in notify messages used in a procedural environment. The SSR code is to be included in notify messages used in a surveillance environment.

3.1.3.3 Optional Items

3.1.3.3.1 The following items may be included if agreed between the ATSUs concerned:

— Aircraft address
— Route
— Flight rules
— Type of flight
— Wake turbulence category
— CNS equipment
— Other information

4. **Notification**

4.1 Coordination

4.1.1 Coordinate Initial

4.1.1.1 Purpose

4.1.1.1.1 The Coordination Initial message satisfies the following operational requirements:

a) replace the verbal boundary estimate by transmitting automatically details of a flight and transfer conditions from one ATC unit to the next prior to the transfer of communication;

b) update the basic flight plan data in the receiving ATC unit with the most recent information;

c) coordinate a flight before departure in order to comply with the approval request procedure;

d) initiate a coordination dialogue between ATSUs;

e) facilitate distribution and display of flight plan data within the receiving ATC unit to the working positions involved; and

f) expedite display of code /callsign correlated data blocks in the receiving ATC unit.

4.1.1.2 Sequence

4.1.1.2.1 A coordinate initial message is sent by the transferring ATSU after the notify message, except in the situations described in 3.1.2.

4.1.1.3 Content

4.1.1.3.1 The Coordination Initial message includes the following items mandatory fields of data:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome
— Number and type of Aircraft
— Boundary estimate data

4.1.1.3.2 The number of aircraft shall be included if there are more than one aircraft in the flight.

4.1.1.3.3 Additional fields are to be included depending on the control environment:

a) Procedural Environment: Selcal, Aircraft registration, Route, Flight rules, Type of flight, Wake turbulence category, CNS equipment, other information; and

b) Surveillance Environment: SSR code.

4.1.1.3.4 Optional items may be included in messages if agreed between the ATSUs concerned: Aircraft address, Flight rules, Type of flight, Wake turbulence category, CNS equipment, Route, Other information.

4.1.2 Coordinate Negotiate

4.1.2.1 Purpose

4.1.2.1.1 The coordinate negotiate message satisfies the following operational requirements:

a) to forward a counter proposal from the accepting controller to the transferring controller as a reply to an coordinate initial message; and

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

4.1.2.2 Sequence

4.1.2.2.1 The coordinate negotiate message follows a coordinate initial message each time one of the two ATSUs involved in the coordination wishes to propose a change to the coordination conditions. The coordinate negotiate message shall not be sent after a time/distance before the boundary specified in the letters of agreement between the ATSUs.

4.1.2.3 Content

4.1.2.3.1 The Coordinate Negotiate message shall include the following mandatory items of data:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

4.1.2.3.2 The Boundary estimate data shall be included in messages used in a procedural environment. Level and/or route shall be included in messages used in a surveillance environment.

4.1.3 Coordinate Accept

4.1.3.1 Purpose

4.1.3.1.1 The Coordinate Accept message is used to indicate the acceptance of the proposed transfer conditions during the ATC coordination and transfer phases.

4.1.3.2 Sequence

4.1.3.2.1 The coordinate accept message is the response to a coordinate initial, a coordinate negotiate or a coordinate update message.

4.1.3.3 Content

4.1.3.3.1 The following items are mandatory in a procedural environment:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

Note.— In a surveillance environment, no data is mandatory other than the reference to the message to which the coordinate accept message is in response.

4.1.3.3.2 The field RTF frequency, is optional in a surveillance environment.

4.1.4 Coordinate Cancel

4.1.4.1 Purpose

4.1.4.1.1 The coordinate cancel message indicates to the receiving ATSU that all coordination and/or notification previously received for a flight is being cancelled.

Note.— This message is not a replacement for a Cancellation (CNL) message and is not used to erase the basic flight plan data.

4.1.4.2 Sequence

4.1.4.2.1 A coordinate cancel message is sent by the transferring ATSU each time notification or coordination messages concerning a flight have already been exchanged between two ATSUs and the coordination/notification is being cancelled.

4.1.4.3 Content

4.1.4.3.1 The Coordinate Cancel message includes the following mandatory fields of data:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

4.1.4.3.2 The Boundary fix shall be included in a surveillance environment.

4.1.4.3.3 The reason for cancellation of notification or coordination and the resultant coordination status is optional.

4.1.5 Coordinate Reject

4.1.5.1 Purpose

4.1.5.1.1 The coordinate reject message indicates that the proposed coordination is unacceptable and no counter-proposal is being proposed. Any existing coordination remains as previously coordinated.

4.1.5.2 Sequence

4.1.5.2.1 The coordinate reject message is sent by the accepting unit after a coordinate initial or by the transferring unit after a coordinate negotiate message.

4.1.5.3 Content

4.1.5.3.1 Within a surveillance environment, no data, other than the reference of the message containing the proposal being rejected is required.

4.1.5.3.2 In a procedural environment, the coordinate reject message shall include the following items of data:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

4.1.6 Coordinate Standby

4.1.6.1 Purpose

4.1.6.1.1 The coordinate standby message is used in to indicate that the message has been received, the data has been referred to a controller and/or other ATSU and a response will be sent in due course.

4.1.6.2 Sequence

4.1.6.3 The coordinate standby message is sent as a response to any coordinate initial, coordinate negotiate or coordinate update message each time the ATSU receiving the coordination message is not in a position to immediately answer to the coordination message.

4.1.6.4 Content

4.1.6.4.1 In a surveillance environment, no data other than the reference of the message containing the proposal being acknowledged is required.

4.1.6.4.2 In a procedural environment, the coordinate reject message shall include the following items of data:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

4.1.7 Coordinate Update

4.1.7.1 Purpose

4.1.7.1.1 The coordinate update message is used to send the revised coordination conditions each time the coordination conditions change prior to an agreed time before the boundary crossing.

4.1.7.2 Sequence

4.1.7.2.1 The coordinate update message is sent by the transferring ATSU following a coordinate initial message.

4.1.7.3 Content

4.1.7.3.1 The Coordinate Update message includes the following mandatory fields:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome
— Boundary estimate data

4.1.7.3.2 The Route field may be included in coordinate update messages used in a procedural environment.

4.1.7.3.3 The SSR field may be included in coordinate update messages used in a surveillance environment.

5. **Transfer Messages**

5.1 Transfer Initiate

5.1.1 Purpose

5.1.1.1 The Transfer Initiate message is used in a surveillance environment to initiate the transfer phase and pass executive data and optionally track data from the transferring unit to the accepting unit. The existence of the transfer phase permits the transferring controller to be aware that information is available to the accepting controller.

5.1.2 Sequence

5.1.2.1 The transfer initiate message is sent in a surveillance environment by the transferring ATSU at a time or distance before the boundary is planned to be crossed but not before coordination has been completed. This message may also be sent as a response to a transfer request message (from the accepting ATSU) for a flight not yet in the transfer phase.

5.1.3 Content

5.1.3.1 The following data is mandatory in the Transfer Initiate message:

— aircraft identification
— executive data

5.1.3.2 The Track data field may be included if agreed between the ATSUs concerned.

5.2 Transfer Conditions Proposal

5.2.1 Purpose

5.2.1.1 The Transfer Conditions Proposal message offers transfer of communication and control to the accepting controller in a surveillance environment together with updated executive data if necessary.

Note.— Transfer of communication is not to be confused with transfer of control conditions contained in the Letter of Agreement between the ATSUs concerned. It should be noted that transfer of communication and transfer of control do not necessarily occur simultaneously.

Secretariat Note.— Add the following definition in Part I:
Transfer of communications. The procedure whereby a flight ceases communication with an ATSU and immediately establishes communication with the next ATSU.

5.2.2 Sequence

5.2.2.1 The transfer conditions proposal message is sent by the transferring controller after the coordination exchanges are completed when the transferring controller wants to handoff the flight. If sent before the transfer phase has been initiated, this message immediately initiates the transfer phase and replaces the transfer initiate message.

5.2.3 Content

5.2.3.1 The aircraft identification is mandatory in the Transfer Conditions Proposal message.

5.2.3.2 Executive data is included if sent before the transfer phase has been initiated or previously sent data is now out of date.

5.3 Transfer Conditions Accept

5.3.1 Purpose

5.3.1.1 The Transfer Conditions Accept message indicates the willingness of the accepting controller to accept transfer of communication and control of the flight in response to a Transfer Conditions Proposal message. This message can be used by the accepting controller to inform the transferring controller of a frequency on which the accepting controller can be contacted by the aircraft.

5.3.2 Sequence

5.3.2.1 The transfer conditions accept message is sent by the accepting controller to indicate acceptance of the flight under the conditions proposed in the transfer conditions proposal message.

5.3.3 Content

5.3.3.1 The aircraft identification is mandatory in the Transfer Conditions Accept message.

5.3.3.2 The frequency may be included if agreed between the ATSUs concerned.

5.4 Transfer Communication Request

5.4.1 Purpose

5.4.1.1 The Transfer Communication Request message is an unsolicited request by the accepting controller to establish communication with the flight on frequency immediately.

5.4.2 Sequence

5.4.2.1 The transfer communication request message is sent by the accepting controller after the coordination exchanges are completed. The transfer communication message is sent when the flight is instructed to contact the accepting unit.

5.4.2.2 If a transfer communication request message is received by the transferring ATSU prior to the initiation of the transfer phase, a transfer initiation message is returned immediately.

5.4.3 Content

5.4.3.1 The aircraft identification is mandatory in the Transfer Communication Request message.

5.4.3.2 The frequency may be included if agreed between the ATSUs concerned.

5.5 Transfer Communication

5.5.1 Purpose

5.5.1.1 The Transfer Communication message shall be used to indicate that the transferring controller has instructed the flight to establish communication with the receiving controller. On receipt of this message the accepting controller shall ensure that communication is established with the flight within a short time. The controller may optionally specify release conditions for transfer of control.

5.5.2 Sequence

5.5.2.1 The transfer communication message is sent by the transferring ATSU to the accepting ATSU after the coordination exchanges are completed. If sent before the transfer phase has been initiated, this message immediately initiates the transfer phase and replaces the transfer initiate message. No other AIDC messages for that flight can be sent by the transferring unit, after the Transfer Communication message, until receiving the transfer communication assume message.

5.5.3 Content

5.5.3.1 The aircraft identification is mandatory in the Transfer Communication message.

5.5.3.2 The following items are to be included if agreed between the ATSUs concerned:

— Executive data
— Release indications

5.6 Transfer Communication Assume

5.6.1 Purpose

5.6.1.1 The Transfer Communication Assume message is used to indicate that the accepting ATSU has established communication with the flight.

5.6.2 Sequence

5.6.2.1 The transfer communication assume message is sent by the accepting ATSU when the flight has established communications with it.

5.6.3 Content

5.6.3.1 The aircraft identification is mandatory in the Transfer Communication Assume message.

5.7 Transfer Control

5.7.1 Purpose

5.7.1.1 The Transfer Control message indicates that the transferring unit wishes to transfer control responsibility to the accepting unit prior to the designated transfer of control point.

5.7.2 Sequence

5.7.2.1 The transfer control message is sent by the transferring ATSU after the coordination exchanges are completed. This message is used in place of the transfer initiate or transfer conditions proposal message to indicate transfer of control.

5.7.3 Content

5.7.3.1 The aircraft identification is mandatory in the Transfer Control message.

5.7.3.2 The following items may be included if agreed between the ATSUs concerned:

— Departure aerodrome
— Destination aerodrome
— Executive data

5.8 Transfer Control Assume

5.8.1 Purpose

5.8.1.1 The Transfer Control Assume message is used to indicate that the accepting ATSU has assumed control responsibility of the flight from the transferring unit.

5.8.2 Sequence

5.8.2.1 The transfer control assume message is sent by the accepting ATSU as a positive response to the transfer control message.

5.8.3 Content

5.8.3.1 The aircraft identification is mandatory in the Transfer Control Assume message.

5.8.3.2 The following items are to be included if agreed between the administrations concerned:

— Departure aerodrome

— Destination aerodrome

6. **General Information**

6.1 General Point

6.1.1 Purpose

6.1.1.1 The General Point message is used to perform the following functions:

a) draw the attention of a controller, which may or may not be the receiving controller, to a specified flight; and

b) pass basic flight data when the receiving ATSU does not hold details of the flight.

6.1.2 Content

6.1.2.1 The General Point message shall include the following mandatory fields:

— Aircraft identification
— Departure aerodrome
— Destination aerodrome

6.1.2.2 The following items are optional:

— Sector designator (sending)
— Sector designator (receiving)
— Aircraft address
— Position
— Level
— SSR Code
— Type of aircraft
— Number of aircraft if more than one in the flight
— Wake turbulence category
— Flight rules
— Type of flight
— CNS equipment
— Route
— Other information

Note.— The position and level provide the current aircraft position and level.

6.2 General Executive Data

6.2.1 Purpose

6.2.1.1 The General Executive Data message is sent either by the transferring ATSU to the receiving ATSU or from the receiving ATSU to the transferring ATSU to inform the unit of modification to data pertaining to the control environment of a coordinated flight. In the former case, data includes, inter alia, the current cleared flight level, speed restrictions and if applicable the heading assigned to the flight. Data sent from the receiving ATSU comprises the radiotelephony frequency to which the flight is to be transferred.

6.2.2 Sequence

6.2.2.1 The general executive data message is sent by the transferring ATSU or the accepting ATSU after coordination messages have been exchanged and after the initiation of the transfer phase. An operational acknowledgement is not required although an application acceptance message is required.

6.2.3 Content

6.2.3.1 The Aircraft identification is required to be included in the general executive data message.

6.2.3.2 Messages sent from the transferring unit shall contain one or more items of executive data. Only the items of executive data which have changed are included.

6.2.3.3 Messages sent from the accepting unit shall contain the radiotelephony frequency on which it is required to communicate with the flight.

6.3 Free Text Emergency

6.3.1 Purpose

6.3.1.1 The Free Text Emergency message is used for the exchange of free text relating to emergency conditions.

6.3.1.2 Sequence

6.3.1.3 The free text emergency message is used each time an emergency requires the exchange of information via AIDC.

6.3.2 Content

6.3.2.1 The message contains either a facility designation or aircraft identification and the free text.

6.4 Free Text General

6.4.1 Purpose

6.4.1.1 The Free Text General message is used for the exchange of free text relating to non-emergency conditions.

6.4.2 Sequence

6.4.2.1 The free text general message is used each time a situation requires the exchange of information via AIDC.

6.4.3 Content

6.4.3.1 The message contains either a facility designation or aircraft identification and the free text.

7. **Applications Management Messages**

7.1 Applications Accept

7.1.1 Purpose

7.1.1.1 The Application Accept message shall be sent by the receiving unit for each message (except for another Application management message, or a message containing invalid data) that has been received, processed, found free of errors and, where relevant, is available for presentation to a control position.

7.1.2 Content

7.1.2.1 The message contains only the reference of the message being accepted.

7.2 Applications Error

7.2.1 Purpose

7.2.1.1 The Applications Error message notifies the sender that the message has been received but that an error has been detected within it. A code is included that identifies the nature of the error.

7.2.2 Sequence

7.2.2.1 The application error is sent as a response to any coordination or transfer message each time an error has been detected within it.

7.2.3 Content

7.2.3.1 The message contains the reference to the message to which it is in acknowledgement together with the error code and error data.

End of new text

— END —