

Annex B

ADS Air/Ground PICS/OICS



ATNP/WGA/WP A2/3/XX

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AERONAUTICAL TELECOMMUNICATION NETWORK PANEL

WORKING GROUP A SUBGROUP A2 (AIR/GROUND APPLICATIONS)

Toulouse 25th September - 4th October 2001

Agenda Item 6 : PICS and Interoperability

Airborne Automatic Dependent Surveillance Edition 2 PICS/OICS Proforma

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SUMMARY

This working paper contains the OPLINKP Profile PICS/OICS proforma tables for ADS Airborne Version 1 (Doc 9705 Second Edition).

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Table I-1: PICS/OICS Identification

Ref No	PICS/OICS Identification	Implementation PICS/OICS
I-1.1	Date of Statement (DD/MM/YY)	
I-1.2	PICS/OICS Serial Number	
	Profile Identification	Profile Details
I-1.3	Profile Name	
I-1.4	Version	
I-1.5	Profile Authority Name	
I-1.6	Profile Applicability (Areas, Countries, Organisations etc where the profile can be applied)	
I-1.7	Date of effect	
I-1.8	Other Information	

Table I-2: Supplier and Implementation Identification

Ref No	Supplier Information	Supplier Details
I-2.1	Organization Name	
I-2.2	Contact Name(s)	
I-2.3	Address	
I-2.4	Telephone Number	
I-2.5	Telex Number	
I-2.6	Fax Number	
I-2.7	E-mail Address	
I-2.8	Other Information	
	Implementation Information	Implementation Details
I-2.9	Implementation Name	
I-2.10	Implementation Version	
I-2.11	Hardware Name	
I-2.12	Hardware Version	
I-2.13	Operating System Name	
I-2.14	Operating System Version	
I-2.15	Special Configuration	
I-2.16	Other Information	

Table I-3: ADS Protocol Identification

Ref No		OPLINKP	Profile	Implementation
I-3.1	Protocol Standard (Title, reference, date)	ICAO Doc 9705 Edition Two - 1999		
I-3.2	ADS Protocol Version	Version 1		
I-3.3	Addenda, amendments and corrigenda implemented			
I-3.4	Defect Reports implemented			

Table S-1: ADS Protocol Options

Source: Chapter 8 - Subsetting Rules		OPLINKP Profile	Profile	IMP	Associated	
Ref No	Protocol Option	Status	Status	Support	Predicate	Notes
S-1.1	ADS-air-ASE	M			ADS/air	
S-1.2	ADS-ground-ASE	Not applicable to Airborne Systems			ADS/ground	
S-1.3	Demand contract supported	C			A-DC-FU	
S-1.4	Event contract supported	C			A-EC-FU	
S-1.5	Periodic contract supported	C			A-PC-FU	
S-1.6	Emergency contract supported	C.1			A-EM-FU	

OPLINKP Profile:

C.1 If (Periodic (A-PC-FU) or Event (A-EC-FU) contract supported) then **O** else —

Table S-2: ADS ASE Operational Configurations

Source: Chapter 8 - Subsetting Rules		OPLINKP Profile	Profile	IMP	
Ref No	List of Configurations: Ground ASE	Status	Status	Support	Notes
S-2.1	I. ADS/ground + G-DC-FU	Not applicable to Airborne Systems			Demand Contract Only
S-2.2	II. ADS/ground + G-EC-FU				Event and Emergency Contracts Only
S-2.3	III. ADS/ground + G-PC-FU				Periodic and Emergency Contracts Only
S-2.4	IV. ADS/ground + G-DC-FU + G-EC-FU				Demand, Event and Emergency Contracts Only
S-2.5	V. ADS/ground + G-DC-FU + G-PC-FU				Demand, Periodic and Emergency Contracts Only
S-2.6	VI. ADS/ground + G-EC-FU + G-PC-FU				Periodic, Event and Emergency Contracts Only
S-2.7	VII. ADS/ground + G-DC-FU + G-EC-FU + G-PC-FU				Demand, Periodic, Event and Emergency Contracts
	List of Configurations: Air ASE				
S-2.8	I. ADS/air + A-DC-FU	C.1			Demand Contract Only
S-2.9	II. ADS/air + A-EC-FU	C.1			Event Contract Only
S-2.10	III. ADS/air + A-PC-FU	C.1			Periodic Contract Only
S-2.11	IV. ADS/air + A-DC-FU + A-EC-FU	C.1			Demand and Event Contracts Only
S-2.12	V. ADS/air + A-DC-FU + A-PC-FU	C.1			Demand and Periodic Only
S-2.13	VI. ADS/air + A-EC-FU + A-PC-FU	C.1			Periodic and Event Contracts Only
S-2.14	VII. ADS/air + A-DC-FU + A-EC-FU + A-PC-FU	C.1			Demand, Periodic and Event Contracts Only
S-2.15	VIII. ADS/air + A-EC-FU + A-EM-FU	C.1			Event and Emergency Contracts Only
S-2.16	IX. ADS/air + A-PC-FU + A-EM-FU	C.1			Periodic and Emergency Contracts Only
S-2.17	X. ADS/air + A-DC-FU + A-EC-FU + A-EM-FU	C.1			Event, Demand and Emergency Contracts Only
S-2.18	XI. ADS/air + A-DC-FU + A-PC-FU + A-EM-FU	C.1			Periodic, Demand and Emergency Contracts Only
S-2.19	XII. ADS/air + A-EC-FU + A-PC-FU + A-EM-FU	C.1			Periodic, Event and Emergency Contracts Only
S-2.20	XIII. ADS/air + A-DC-FU + A-EC-FU + A-PC-FU + A-EM-FU	C.1			Demand, Event, Periodic and Emergency Contracts

OPLINKP Profile:

C.1 One and only one configuration must be supported.

Table S-3: Supported ADS Service Primitives

Source: Chapter 3 - Abstract Service		Sender (req, [cnf])			Receiver (ind, [rsp])			Notes
Ref No	Service Primitives	OPLINKP Profile	Profile Status	IMP Support	OPLINKP Profile	Profile Status	IMP Support	
S-3.1	ADS-demand-contract	—	—	—	M			See S-4
S-3.2	ADS-event-contract	—	—	—	M			See S-5
S-3.3	ADS-periodic-contract	—	—	—	M			See S-6
S-3.4	ADS-report	M			—	—	—	See S-7
S-3.5	ADS-cancel	—	—	—	M			See S-8
S-3.6	ADS-cancel-all-contracts	—	—	—	M			See S-8
S-3.7	ADS-emergency-report	C.1			—	—	—	See S-9
S-3.8	ADS-modify-emergency-contract	—	—	—	C.1			See S-10
S-3.9	ADS-cancel-emergency-contract	C.1			—	—	—	See S-9
S-3.10	ADS-user-abort	M			M			See S-11
S-3.11	ADS-provider-abort	—	—	—	M			See S-12

OPLINKP Profile:

C.1 If Emergency contract (A-EM-FU) supported then **M** else —

Table S-4: ADS Demand Contract Service - Airborne User (Indication, Response)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-4.1	Aircraft Address	Not visible to Airborne User						
S-4.1.1	Aircraft Address = Bit String SIZE(24)							
S-4.2	Class of Communication Service							
S-4.2.1	One from the abstract values: 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'							
S-4.3	Capability of the airborne system to interpret the terms of a demand contract							
S-4.3.1	Contract Details	C.1					See DemandContract (Table P-2)	
S-4.4	Capability of the airborne system to specify in a Reply the extent to which it is able to comply with the contract							
S-4.4.1	Negative Acknowledgement	C.1					See NegativeAcknowledgement (Table P-10)	
S-4.4.2	Noncompliance Notification	C.1					See NoncomplianceNotification (Table P-10)	
S-4.5	Capability of the airborne system to recognise and understand the ICAO Facility Designation of the ground system initiating the contract							
S-4.5.1	ICAO facility designation = IA5 String SIZE(4..8)	C.1						

OPLINKP Profile:

C.1 If Demand contract (A-DC-FU) supported then **M** else —

Table S-5: ADS Event Contract Service - Airborne User (Indication, Response)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-5.1	Aircraft Address	Not visible to Airborne User						
S-5.1.1	Aircraft Address = Bit String SIZE(24)							
S-5.2	Class of Communication Service							
S-5.2.1	One from the abstract values: 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'							
S-5.3	Capability of the airborne system to interpret the terms of an event contract							
S-5.3.1	Contract Details	C.1					See EventContract (Table P-3)	
S-5.4	Capability of the airborne system to specify in a Reply the extent to which it is able to comply with the contract							
S-5.4.1	Negative Acknowledgement	C.1					See NegativeAcknowledgement (Table P-10)	
S-5.4.2	Noncompliance Notification	C.1					See NoncomplianceNotification (Table P-10)	
S-5.4.3	Positive Acknowledgement = NULL	C.2						
S-5.5	Capability of the airborne system to recognise and understand the ICAO Facility Designation of the ground system initiating the contract							
S-5.5.1	ICAO facility designation = IA5 String SIZE(4..8)	C.1						

OPLINKP Profile:

- C.1 If Event contract (A-EC-FU) supported then **M** else —
C.2 If Event contract (A-EC-FU) supported then **O** else —

Table S-6: ADS Periodic Contract Service - Airborne User (Indication, Response)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
Ref No	Operational Elements	OPLINKP Profile	Operational Use		Implementation			
			Status	Cons	Status	Cons		
S-6.1	Aircraft Address	Not visible to Airborne User						
S-6.1.1	Aircraft Address = Bit String SIZE(24)							
S-6.2	Class of Communication Service							
S-6.2.1	One from the abstract values: 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'							
S-6.3	Capability of the airborne system to interpret the terms of a periodic contract							
S-6.3.1	Contract Details	C.1					See PeriodicContract (Table P-5)	
S-6.4	Capability of the airborne system to specify in a Reply the extent to which it is able to comply with the contract							
S-6.4.1	Negative Acknowledgement	C.1					See NegativeAcknowledgement (Table P-10)	
S-6.4.2	Noncompliance Notification	C.1					See NoncomplianceNotification (Table P-10)	
S-6.4.3	Positive Acknowledgement = NULL	C.2						
S-6.5	Capability of the airborne system to recognise and understand the ICAO Facility Designation of the ground system initiating the contract							
S-6.5.1	ICAO facility designation = IA5 String SIZE(4..8)	C.1						

OPLINKP Profile:

- C.1 If Periodic contract (A-PC-FU) supported then **M** else —
C.2 If Periodic contract (A-PC-FU) supported then **O** else —

Table S-7: ADS Report Service - Airborne User (Request)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-7.1	Capability of the airborne system to specify a contract type							
S-7.1.1	ENUMERATED ('Demand Contract', 'Event Contract', 'Periodic Contract')	M						
S-7.2	Capability of the airborne system to specify the Event Type that triggered the report							
S-7.2.1	Event Type	C.2					See EventTypeReported (Table P-8)	
S-7.3	Capability of the airborne system to specify a Positive Acknowledgement							
S-7.3.1	Positive Acknowledgement = NULL	M						
S-7.4	Capability of the airborne system to specify a report							
S-7.4.1	Demand Report Details	C.1					See ADSReport (Table P-6)	
S-7.4.2	Event Report Details	C.2					See ADSReport (Table P-8)	
S-7.4.3	Periodic Report Details	C.3					See ADSReport (Table P-9)	

OPLINKP Profile:

- C.1 If Demand contract (A-DC-FU) supported then **M** else —
- C.2 If Event contract (A-EC-FU) supported then **M** else —
- C.3 If Periodic contract (A-PC-FU) supported then **M** else —

Table S-8: ADS Cancel and ADS Cancel All Services - Airborne User (Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-8.1	Capability of the airborne system to understand the contract type to be cancelled							
S-8.1.1	Contract Type	C.1					See CancelContract (Table P-1)	
S-8.2	Capability of the airborne system to understand cancel all contracts	C.1						

OPLINKP Profile:C.1 If Periodic (G-PC-FU) or Event (G-EC-FU) contracts are supported then **M** else —

Table S-9: ADS Emergency Report Service - Airborne User (Response, Request)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-9.1	Capability of the airborne system to specify a Positive Acknowledgement of a modification							
S-9.1.1	Positive Acknowledgement = NULL	C.1						
S-9.2	Capability of the airborne system to specify an emergency report							
S-9.2.1	Emergency report Details	C.1					See ADSEmergencyReport (Table P-7)	
S-9.3	Capability of the airborne system to cancel an emergency contract	C.1						

OPLINKP Profile:C.1 If Emergency contract (A-EM-FU) supported then **M** else —

Table S-10: ADS Modify Emergency Contract Service - Airborne User (Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINK Profile	Profile Status	Cons	Implementation Status	Cons		
S-10.1	Capability of the airborne system to understand a Reporting Interval							
S-10.1.1	Reporting Interval	C.1					See ReportingInterval (table P-4)	

OPLINK Profile:C.1 If Emergency contract (A-EM-FU) supported then **M** else —

Table S-11: ADS User Abort Service - Airborne User (Request, Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-11.1	Capability of the airborne system to request a User Abort	M					a	
S-11.2	Capability of the airborne system to understand a User Abort	M						

Table S-12: ADS Provider Abort Service - Airborne User (Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
		OPLINKP Profile	Status	Cons	Implementation Status	Cons		
Ref No	Operational Elements							
S-13.1	Capability of the airborne system to understand a Provider Abort Reason							
S-13.1.1	Reason	M					See AbortReason (Table M-1)	

Table S-13: ADS ASE Technical Timers

Source: Chapter 5 - Protocol Definition			OICS						Notes						
			Operational Use												
Ref No	ADS Service	Timer	OPLINKP Profile		Status	Profile Recommended Value	Implementation								
			Status	Value			Status	Value							
S-13.1	ADS Demand Contract Timers														
S-13.1.1		t-DC-1	C.1	6 minutes											
S-13.1.2		t-DC-2	C.1	3 minutes 30 seconds											
Not used by Airborne Systems															
									S-13.2	ADS Event Contract Timers					
									S-13.2.1		t-EC-1	C.2	6 minutes		
									S-13.2.2		t-EC-2	C.2	6 minutes		
									S-13.3	ADS Periodic Contract Timers					
									S-13.3.1		t-PC-1	C.3	6 minutes		
									S-13.3.2		t-PC-2	C.3	Reporting Rate + 3 minutes		
S-13.3.3		t-PC-3	C.3	6 minutes											
S-13.4	ADS Emergency Contract Timers														
S-13.4.1		t-EM-1	C.4	Reporting Rate + 3 minutes											
S-13.4.2		t-EM-2	C.4	6 minutes											
S-13.4.3		t-EM-3	C.4	6 minutes											
S-13.5	ADS General Timers														
S-13.5.1		t-LI-2	M	6 minutes											

OPLINKP Profile:

- C.1 If Demand contract (A-DC-FU) supported then **M** else —
- C.2 If Event contract (A-EC-FU) supported then **M** else —
- C.3 If Periodic contract (A-PC-FU) supported then **M** else —
- C.4 If Emergency contract (A-EM-FU) supported then **M** else —

Table M-1: ADS Messages (top level)

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
M-1.1	ADS Aircraft PDUs											ADSAircraftPDUs ::= CHOICE	
M-1.1.1	ADS cancel emergency PDU	C.1					—	—	—	—	—	[0] NULL	
M-1.1.2	ADS demand report PDU	C.2					—	—	—	—	—	[1] ADSDemandReport	
M-1.1.3	ADS emergency report PDU	C.1					—	—	—	—	—	[2] ADSEmergency	
M-1.1.4	ADS event report PDU	C.3					—	—	—	—	—	[3] ADSEventReport	
M-1.1.5	ADS negative acknowledgement PDU	M					—	—	—	—	—	[4] NegativeAcknowledgement	
M-1.1.6	ADS noncompliance notification PDU	M					—	—	—	—	—	[5] NoncomplianceNotification	
M-1.1.7	ADS periodic report PDU	C.4					—	—	—	—	—	[6] ADSPeriodicReport	
M-1.1.8	ADS positive acknowledgement PDU	C.5					—	—	—	—	—	[7] PositiveAcknowledgement	
M-1.1.9	ADS provider abort PDU	M					—	—	—	—	—	[8] AbortReason	
M-1.1.10	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
M-1.2	ADS Ground PDUs											ADSGroundPDUs ::= CHOICE	
M-1.2.1	ADS cancel all contracts PDU	—	—	—	—	—	M					[0] NULL	
M-1.2.2	ADS cancel contract PDU	—	—	—	—	—	M					[1] CancelContract	
M-1.2.3	ADS cancel emergency acknowledgement PDU	—	—	—	—	—	C.1					[2] NULL	
M-1.2.4	ADS demand contract PDU	—	—	—	—	—	M					[3] DemandContract	
M-1.2.5	ADS event contract PDU	—	—	—	—	—	M					[4] EventContract	
M-1.2.6	ADS modify emergency contract PDU	—	—	—	—	—	C.1					[5] ModifyEmergency	
M-1.2.7	ADS periodic contract PDU	—	—	—	—	—	M					[6] PeriodicContract	
M-1.2.8	ADS provider abort PDU	—	—	—	—	—	M					[7] AbortReason	
M-1.2.9	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
M-1.3	Abort Reasons											AbortReason ::= ENUMERATED	
M-1.3.1	Communications service failure	M					M					(0) <i>communications-service-failure</i>	
M-1.3.2	Unrecoverable system error	M					M					(1) <i>unrecoverable-system-error</i>	
M-1.3.3	Invalid PDU	M					M					(2) <i>invalid-PDU</i>	
M-1.3.4	Sequence error	M					M					(3) <i>sequence-error</i>	
M-1.3.5	Timer expiry	M					M					(4) <i>timer-expiry</i>	
M-1.3.6	Cannot establish contact	—	—	—	—	—	M					(5) <i>cannot-establish-contact</i>	a
M-1.3.7	Undefined error	M					M					(6) <i>undefined-error</i>	
M-1.3.8	Dialogue end not accepted	M					M					(7) <i>dialogue-end-not-accepted</i>	
M-1.3.9	Unexpected PDU	M					M					(8) <i>unexpected-PDU</i>	
M-1.3.10	Decoding error	M					M					(9) <i>decoding-error</i>	
M-1.3.11	Invalid qos parameter	—	—	—	—	—	M					(10) <i>invalid-qos-parameter</i>	
M-1.3.12	Use of Extensibility	X					M					Use of Extensibility	

OPLINKP Profile:

- C.1 If Emergency contract (A-EM-FU) supported then **M** else —
- C.2 If Demand contract (A-DC-FU) supported then **M** else —
- C.3 If Event contract (A-EC-FU) supported then **M** else —
- C.4 If Periodic contract (A-PC-FU) supported then **M** else —
- C.5 If (Event (A-EC-FU) or Periodic (A-PC-FU) contracts) supported then **M** else —

Source: Chapter 4 - ASN.1		Send						Receive						ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status Cons		Implementation Status Cons		OPLINKP Profile	Profile Status Cons		Implementation Status Cons					

Notes
a Local error only

Table P-1: ADS Cancel Contract

Source: Chapter 4 - ASN.1															
Ref No	Operational Elements	Send						Receive						ASN.1 Protocol Elements	Notes
		OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons	OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons				
P-1.1	CancelContract												CancelContract ::= ENUMERATED		
P-1.1.1	Cancel event contract	—	—	—	—	—	M						(0) event-contract		
P-1.1.2	Cancel periodic contract	—	—	—	—	—	M						(1) periodic-contract		
P-1.1.3	Use of Extensibility	—	—	—	—	—	M						Use of Extensibility		

Table P-2: ADS Demand Contract Request

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-2.1	Demand Contract Request											DemandContract ::= SEQUENCE	
P-2.1.1	Aircraft address	—	—	—	—	—	C					[0] NULL (OPTIONAL)	
P-2.1.2	Projected profile	—	—	—	—	—	C					[1] NULL (OPTIONAL)	
P-2.1.3	Ground vector	—	—	—	—	—	C					[2] NULL (OPTIONAL)	
P-2.1.4	Air vector	—	—	—	—	—	C					[3] NULL (OPTIONAL)	
P-2.1.5	Met Info	—	—	—	—	—	C					[4] NULL (OPTIONAL)	
P-2.1.6	Short term intent	—	—	—	—	—	C					[5] ProjectionTime (OPTIONAL)	
P-2.1.7	Extended Projected Profile	—	—	—	—	—	C					[6] ExtendedProjectedProfileRequest (OPTIONAL)	
P-2.1.8	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-2.1.6	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-2.1.7	Extended Projected Profile Request											ExtendedProjectedProfileRequest ::= CHOICE	
P-2.1.7.1	Time interval (15 min - 20 hrs in units of 15 min)	—	—	—	—	—	C					[0] INTEGER (1..80)	
P-2.1.7.2	Number of way points (1 - 128)	—	—	—	—	—	C					[1] INTEGER (1..128)	

Table P-3: ADS Event Contract Request

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-3.1	Event Contract Request											EventContract ::= SEQUENCE	
P-3.1.1	Lateral Change	—	—	—	—	—	C					[0] LateralChange (OPTIONAL)	
P-3.1.2	Vertical Rate Change	—	—	—	—	—	C					[1] VerticalRateChange (OPTIONAL)	
P-3.1.3	Level Range	—	—	—	—	—	C					[2] LevelRange (OPTIONAL)	
P-3.1.4	Way point change	—	—	—	—	—	C					[3] NULL (OPTIONAL)	
P-3.1.5	Air Speed Change	—	—	—	—	—	C					[4] AirSpeedChange (OPTIONAL)	
P-3.1.6	Ground Speed Change	—	—	—	—	—	C					[5] GroundSpeedChange (OPTIONAL)	
P-3.1.7	Heading change	—	—	—	—	—	C					[6] DegreesDirection (OPTIONAL)	
P-3.1.8	Extended Projected Profile	—	—	—	—	—	C					[7] ExtendedProjectedProfileRequest (OPTIONAL)	
P-3.1.9	FOM change	—	—	—	—	—	C					[8] NULL (OPTIONAL)	
P-3.1.10	Track angle change	—	—	—	—	—	C					[9] DegreesDirection (OPTIONAL)	
P-3.1.11	Level Change	—	—	—	—	—	C					[10] LevelChange (OPTIONAL)	
P-3.1.12	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-3.1.1	Lateral Change (0 - 200 Nautical miles in units of 0.1 Nm)											INTEGER (0..2000)	
P-3.1.2	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-3.1.3	LevelRange											LevelRange ::= SEQUENCE	
P-3.1.3.1	Ceiling	—	—	—	—	—	M					Level	
P-3.1.3.2	Floor	—	—	—	—	—	M					Level	
P-3.1.3.1/2	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-75..10000)	
P-3.1.5	Air Speed Change											AirSpeedChange ::= CHOICE	
P-3.1.5.1	Mach number change (0.005 - 1.275 Mach in units of 0.005 Mach)	—	—	—	—	—	C					[0] INTEGER (1..255)	
P-3.1.5.2	IAS change (1 - 700 knots)	—	—	—	—	—	C					[1] INTEGER (1..700)	
P-3.1.6	Ground Speed Change (0 - 300 knots)											INTEGER (0..300)	
P-3.1.7/10	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-3.1.8	Extended Projected Profile Request											ExtendedProjectedProfileRequest ::= CHOICE	
P-3.1.8.1	Time interval (15 min - 20 hrs in units of 15 min)	—	—	—	—	—	C					[0] INTEGER (1..80)	
P-3.1.8.2	Number of way points (1 - 128)	—	—	—	—	—	C					[1] INTEGER (1..128)	
P-3.1.11	Level Change (10-5000 feet in 10s of feet)											INTEGER (1..500)	

Table P-4: ADS Modify Emergency Contract

Source: Chapter 4 - ASN.1																
Ref No	Operational Elements	Send						Receive						ASN.1 Protocol Elements	Notes	
		OPLINKP Profile	Profile		Implementation		OPLINKP Profile	Profile		Implementation						
		Status	Cons	Status	Cons	Status	Cons	Status	Cons	Status	Cons	Status	Cons			
P-4.1	Modify Emergency Contract	—	—	—	—	—	—	C.1						ReportingInterval		
P-4.2	Reporting Interval													ReportingInterval ::= CHOICE		
P-4.2.1	Seconds scale (1 - 59 seconds)	—	—	—	—	—	—	C						[0] INTEGER (1..59)		
P-4.2.1	Minutes scale (1min - 2hrs in minutes)	—	—	—	—	—	—	C						[1] INTEGER (1..120)		

OPLINKP Profile:C.1 If Emergency contract (A-EM-FU) supported then **M** else —

Table P-5: ADS Periodic Contract Request

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-5.1	Periodic Contract Request											PeriodicContract ::= SEQUENCE	
P-5.1.1	Reporting Interval	—	—	—	—	—	C					[0] ReportingInterval (OPTIONAL)	
P-5.1.2	Aircraft address modulus	—	—	—	—	—	C					[1] Modulus (OPTIONAL)	
P-5.1.3	Projected profile modulus	—	—	—	—	—	C					[2] Modulus (OPTIONAL)	
P-5.1.4	Ground vector modulus	—	—	—	—	—	C					[3] Modulus (OPTIONAL)	
P-5.1.5	Air vector modulus	—	—	—	—	—	C					[4] Modulus (OPTIONAL)	
P-5.1.6	Met Info modulus	—	—	—	—	—	C					[5] Modulus (OPTIONAL)	
P-5.1.7	Short Term Intent Modulus	—	—	—	—	—	C					[6] ShortTermIntentModulus (OPTIONAL)	
P-5.1.8	Extended Projected Profile Modulus	—	—	—	—	—	C					[7] ExtendedProjectedProfileRequest-Modulus (OPTIONAL)	
P-5.1.9	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-5.1.1	Reporting Interval											ReportingInterval ::= CHOICE	
P-5.1.1.1	Seconds scale (1 - 59 seconds)	—	—	—	—	—	C					[0] INTEGER (1..59)	
P-5.1.1.2	Minutes scale (1min - 2hrs in minutes)	—	—	—	—	—	C					[1] INTEGER (1..120)	
P-5.1.2-6	Modulus											INTEGER (1..255)	
P-5.1.7	Short Term Intent Modulus											ShortTermIntentModulus ::= SEQUENCE	
P-5.1.7.1	Modulus	—	—	—	—	—	M					Modulus	
P-5.1.7.2	ProjectionTime	—	—	—	—	—	M					ProjectionTime	
P-5.1.7.1	Modulus											INTEGER (1..255)	
P-5.1.7.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-5.1.8	Extended Projected Profile Request Modulus											ExtendedProjectedProfileRequestModulus ::= SEQUENCE	
P-5.1.8.1	Modulus	—	—	—	—	—	M					Modulus	
P-5.1.8.2	Extended Projected Profile Request	—	—	—	—	—	M					ExtendedProjectedProfileRequest	
P-5.1.8.1	Modulus											INTEGER (1..255)	
P-5.1.8.2	Extended Projected Profile Request											ExtendedProjectedProfileRequest ::= CHOICE	
P-5.1.8.2.1	Time interval (15 min - 20 hrs in units of 15 min)	—	—	—	—	—	C					[0] INTEGER (1..80)	
P-5.1.8.2.2	Number of way points (1 - 128)	—	—	—	—	—	C					[1] INTEGER (1..128)	

Table P-6: ADS Demand Report

Source: Chapter 4 - ASN.1														Notes
Ref No	Operational Elements	Send					Receive					ASN.1 Protocol Elements		
		OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons	OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons			
P-6.1	Demand Report											ADSDemandReport ::= SEQUENCE		
P-6.1.1	Demand Report	M					—	—	—	—	—	[0] ADSReport		
P-6.1.2	Positive acknowledgement	M					—	—	—	—	—	[1] NULL (OPTIONAL)		
P-6.1.3	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility		
P-6.1.1	ADS Report											ADSReport ::= SEQUENCE		
P-6.1.1.1	Position	M					—	—	—	—	—	[0] Position	See P-11	
P-6.1.1.2	Time Stamp	M					—	—	—	—	—	[1] DateTimeGroup	See P-11	
P-6.1.1.3	Figure Of Merit	M					—	—	—	—	—	[2] FigureOfMerit		
P-6.1.1.4	Aircraft Address	O					—	—	—	—	—	[3] AircraftAddress (OPTIONAL)		
P-6.1.1.5	Projected Profile	O					—	—	—	—	—	[4] ProjectedProfile (OPTIONAL)		
P-6.1.1.6	Ground Vector	O					—	—	—	—	—	[5] GroundVector (OPTIONAL)		
P-6.1.1.7	Air Vector	O					—	—	—	—	—	[6] AirVector (OPTIONAL)		
P-6.1.1.8	Met Info	O					—	—	—	—	—	[7] MetInfo (OPTIONAL)		
P-6.1.1.9	Short Term Intent	O					—	—	—	—	—	[8] ShortTermIntent (OPTIONAL)		
P-6.1.1.10	Extended Projected Profile	O					—	—	—	—	—	[9] ExtendedProjectedProfile (OPTIONAL)		
P-6.1.1.11	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility		
P-6.1.1.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE		
P-6.1.1.3.1	Positional Accuracy	M					—	—	—	—	—	PositionalAccuracy		
P-6.1.1.3.2	Multiple navigational units operating	M					—	—	—	—	—	BOOLEAN		
P-6.1.1.3.3	ACAS operational	M					—	—	—	—	—	BOOLEAN		
P-6.1.1.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED		
P-6.1.1.3.1.1	Complete loss	M					—	—	—	—	—	(0) complete-loss		
P-6.1.1.3.1.2	Under 30 nm	O					—	—	—	—	—	(1) under30nm		
P-6.1.1.3.1.3	Under 15 nm	O					—	—	—	—	—	(2) under15nm		
P-6.1.1.3.1.4	Under 8 nm	O					—	—	—	—	—	(3) under8nm		
P-6.1.1.3.1.5	Under 4 nm	O					—	—	—	—	—	(4) under4nm		
P-6.1.1.3.1.6	Under 1 nm	O					—	—	—	—	—	(5) under1nm		
P-6.1.1.3.1.7	Under 0.25 nm	O					—	—	—	—	—	(6) under-25nm		
P-6.1.1.3.1.8	Under 0.05 nm	O					—	—	—	—	—	(7) under-05nm		
P-6.1.1.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)		
P-6.1.1.5	Projected Profile											ProjectedProfile ::= SEQUENCE		
P-6.1.1.5.1	Next way point	M					—	—	—	—	—	Position	See P-11	
P-6.1.1.5.2	ETA at next way point	M					—	—	—	—	—	Eta		
P-6.1.1.5.3	Following way point	M					—	—	—	—	—	Position	See P-11	
P-6.1.1.5.2	ETA	M					—	—	—	—	—	Time	See P-11	
P-6.1.1.6	Ground Vector											GroundVector ::= SEQUENCE		
P-6.1.1.6.1	Track	M					—	—	—	—	—	DegreesDirection (OPTIONAL)	b	
P-6.1.1.6.2	Ground speed (-50 - 2200 knots)	M					—	—	—	—	—	INTEGER (-50..2200) (OPTIONAL)	b,d	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-6.1.1.6.3	Vertical Rate Change	M					—	—	—	—	—	VerticalRateChange (OPTIONAL)	b
P-6.1.1.6.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-6.1.1.6.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-6.1.1.7	Air Vector											AirVector ::= SEQUENCE	
P-6.1.1.7.1	Heading	M					—	—	—	—	—	[0] DegreesDirection (OPTIONAL)	b
P-6.1.1.7.2	Air Speed	M					—	—	—	—	—	[1] AirSpeed (OPTIONAL)	b
P-6.1.1.7.3	Vertical Rate Change	M					—	—	—	—	—	[2] VerticalRateChange (OPTIONAL)	b
P-6.1.1.7.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-6.1.1.7.2	AirSpeed											AirSpeed ::= CHOICE	
P-6.1.1.7.2.1	Mach	C					—	—	—	—	—	[0] Mach	a
P-6.1.1.7.2.2	IAS	C					—	—	—	—	—	[1] Ias	a
P-6.1.1.7.2.3	Mach and IAS	C					—	—	—	—	—	[2] SEQUENCE	a
P-6.1.1.7.2.3.1	Mach	M					—	—	—	—	—	Mach	
P-6.1.1.7.2.3.2	IAS	M					—	—	—	—	—	Ias	
P-6.1.1.7.2.2	Ias (0 - 1100 knots)											INTEGER (0..1100)	
P-6.1.1.7.2.1	Mach (0.5-4 Mach in units of 0.001 Mach)											INTEGER (500..4000)	
P-6.1.1.7.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-6.1.1.8	MetInfo											Weather ::= SEQUENCE	
P-6.1.1.8.1	Wind speed (0 - 300 knots)	O					—	—	—	—	—	[0] INTEGER (0..300) (OPTIONAL)	
P-6.1.1.8.2	Wind direction (1 - 360 degrees true N)	O					—	—	—	—	—	[1] INTEGER (1..360) (OPTIONAL)	
P-6.1.1.8.3	Temperature (-100 - 100 degrees C in units of 0.25 degrees)	O					—	—	—	—	—	[2] INTEGER (-400..400) (OPTIONAL)	
P-6.1.1.8.4	Turbulence (0 - 15)	O					—	—	—	—	—	[3] INTEGER (0..15) (OPTIONAL)	c
P-6.1.1.9	Short Term Intent											ShortTermIntent ::= SEQUENCE	
P-6.1.1.9.1	Following way point	M					—	—	—	—	—	Position	See P-11
P-6.1.1.9.2	Projection Time	M					—	—	—	—	—	ProjectionTime	
P-6.1.1.9.3	Intermediate Intent	M					—	—	—	—	—	IntermediateIntent	
P-6.1.1.9.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-6.1.1.9.3	Intermediate Intent											IntermediateIntent ::=	
P-6.1.1.9.3.1	Number of groups (0-7)	M					—	—	—	—	—	SEQUENCE SIZE(0..7) OF SEQUENCE	
P-6.1.1.9.3.1.1	Distance (1 - 8000 Nautical miles)	M					—	—	—	—	—	INTEGER (1..8000)	
P-6.1.1.9.3.1.2	Track	M					—	—	—	—	—	DegreesDirection	
P-6.1.1.9.3.1.3	Level	M					—	—	—	—	—	Level	
P-6.1.1.9.3.1.4	Projection Time	M					—	—	—	—	—	ProjectionTime	
P-6.1.1.9.3.1.2	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-6.1.1.9.3.1.3	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-750..100000)	
P-6.1.1.9.3.1.4	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-6.1.1.10	Extended Projected Profile											ExtendedProjectedProfile ::=	
P-6.1.1.10.1	Number of groups (1 - 128)	M					—	—	—	—	—	SEQUENCE SIZE(1..128) OF SEQUENCE	
P-6.1.1.10.1.1	Way point	M					—	—	—	—	—	Position	See P-11
P-6.1.1.10.1.2	ETA at each way point	M					—	—	—	—	—	Eta	
P-6.1.1.10.1.2	ETA	M					—	—	—	—	—	Time	See P-11

Notes:

- a At least one option must be supported
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Until the significance of the values is defined, the value 0 should be used
- d Negative values (-50 to -1) of Ground Speed should not be used

Table P-7: ADS Emergency Report

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-7.1	ADS Emergency											ADSEmergency ::= SEQUENCE	
P-7.1.1	Emergency Report	M					—	—	—	—	—	[0] ADSEmergencyReport	
P-7.1.2	Positive acknowledgement	M					—	—	—	—	—	[1] NULL (OPTIONAL)	
P-7.1.3	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-7.1.1	ADS Emergency Report											ADSEmergencyReport ::= SEQUENCE	
P-7.1.1.1	Position	M					—	—	—	—	—	[0] Position	See P-11
P-7.1.1.2	Time Stamp	M					—	—	—	—	—	[1] DateTimeGroup	See P-11
P-7.1.1.3	Figure Of Merit	M					—	—	—	—	—	[2] FigureOfMerit	
P-7.1.1.4	Aircraft Address	M					—	—	—	—	—	[3] AircraftAddress (OPTIONAL)	a
P-7.1.1.5	Ground Vector	M					—	—	—	—	—	[4] GroundVector (OPTIONAL)	a
P-7.1.1.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE	
P-7.1.1.3.1	Positional Accuracy	M					—	—	—	—	—	PositionalAccuracy	
P-7.1.1.3.2	Multiple navigational units operating	M					—	—	—	—	—	BOOLEAN	
P-7.1.1.3.3	ACAS operational	M					—	—	—	—	—	BOOLEAN	
P-7.1.1.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED	
P-7.1.1.3.1.1	Complete loss	M					—	—	—	—	—	(0) complete-loss	
P-7.1.1.3.1.2	Under 30 nm	O					—	—	—	—	—	(1) under30nm	
P-7.1.1.3.1.3	Under 15 nm	O					—	—	—	—	—	(2) under15nm	
P-7.1.1.3.1.4	Under 8 nm	O					—	—	—	—	—	(3) under8nm	
P-7.1.1.3.1.5	Under 4 nm	O					—	—	—	—	—	(4) under4nm	
P-7.1.1.3.1.6	Under 1 nm	O					—	—	—	—	—	(5) under1nm	
P-7.1.1.3.1.7	Under 0.25 nm	O					—	—	—	—	—	(6) under-25nm	
P-7.1.1.3.1.8	Under 0.05 nm	O					—	—	—	—	—	(7) under-05nm	
P-7.1.1.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)	
P-7.1.1.5	Ground Vector											GroundVector ::= SEQUENCE	
P-7.1.1.5.1	Track	M					—	—	—	—	—	DegreesDirection (OPTIONAL)	b
P-7.1.1.5.2	Ground speed (-50 - 2200 knots)	M					—	—	—	—	—	INTEGER (-50..2200) (OPTIONAL)	b, c
P-7.1.1.5.3	Vertical Rate Change	M					—	—	—	—	—	VerticalRateChange (OPTIONAL)	b
P-7.1.1.5.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-7.1.1.5.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		

Notes:

- a Required in every 5th report
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Negative values (-50 to -1) of Ground Speed should not be used

Table P-8: ADS Event Report

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-8.1	Event Report											ADSEventReport ::= SEQUENCE	
P-8.1.1	Type of Event Reported	M					—	—	—	—	—	[0] EventTypeReported	
P-8.1.2	Event Report	M					—	—	—	—	—	[1] ADSReport	
P-8.1.3	Positive acknowledgement	M					—	—	—	—	—	[2] NULL (OPTIONAL)	
P-8.1.4	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-8.1.1	Event Type Reported											EventTypeReported ::= ENUMERATED	
P-8.1.1.1	Lateral deviation change	C					—	—	—	—	—	(0) lateral-deviation-change	
P-8.1.1.2	Vertical rate change	C					—	—	—	—	—	(1) vertical-rate-change	
P-8.1.1.3	Level threshold	C					—	—	—	—	—	(2) level-threshold	
P-8.1.1.4	Way point change	C					—	—	—	—	—	(3) way-point-change	
P-8.1.1.5	Air speed change	C					—	—	—	—	—	(4) air-speed-change	
P-8.1.1.6	Ground speed change	C					—	—	—	—	—	(5) ground-speed-change	
P-8.1.1.7	Heading change	C					—	—	—	—	—	(6) heading-change	
P-8.1.1.8	Extended projected profile change	C					—	—	—	—	—	(7) extended-projected-profile-change	
P-8.1.1.9	FOM change	C					—	—	—	—	—	(8) fom-change	
P-8.1.1.10	Track angle change	C					—	—	—	—	—	(9) track-angle-change	
P-8.1.1.11	Level change	C					—	—	—	—	—	(10) level-change	
P-8.1.1.12	Baseline	O					—	—	—	—	—	(11) baseline	
P-8.1.1.13	Ability to detect events impaired	M					—	—	—	—	—	(12) ability-to-detect-events-impaired	
P-8.1.1.14	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-8.1.2	ADS Report											ADSReport ::= SEQUENCE	
P-8.1.2.1	Position	M					—	—	—	—	—	[0] Position	See P-11
P-8.1.2.2	Time Stamp	M					—	—	—	—	—	[1] DateTimeGroup	See P-11
P-8.1.2.3	Figure Of Merit	M					—	—	—	—	—	[2] FigureOfMerit	
P-8.1.2.4	Aircraft Address	O					—	—	—	—	—	[3] AircraftAddress (OPTIONAL)	
P-8.1.2.5	Projected Profile	O					—	—	—	—	—	[4] ProjectedProfile (OPTIONAL)	
P-8.1.2.6	Ground Vector	O					—	—	—	—	—	[5] GroundVector (OPTIONAL)	
P-8.1.2.7	Air Vector	O					—	—	—	—	—	[6] AirVector (OPTIONAL)	
P-8.1.2.8	Met Info	O					—	—	—	—	—	[7] MetInfo (OPTIONAL)	
P-8.1.2.9	Short Term Intent	O					—	—	—	—	—	[8] ShortTermIntent (OPTIONAL)	
P-8.1.2.10	Extended Projected Profile	O					—	—	—	—	—	[9] ExtendedProjectedProfile (OPTIONAL)	
P-8.1.2.11	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-8.1.2.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE	
P-8.1.2.3.1	Positional Accuracy	M					—	—	—	—	—	PositionalAccuracy	
P-8.1.2.3.2	Multiple navigational units operating	M					—	—	—	—	—	BOOLEAN	
P-8.1.2.3.3	ACAS operational	M					—	—	—	—	—	BOOLEAN	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-8.1.2.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED	
P-8.1.2.3.1.1	Complete loss	M					—	—	—	—	—	(0) complete-loss	
P-8.1.2.3.1.2	Under 30 nm	O					—	—	—	—	—	(1) under30nm	
P-8.1.2.3.1.3	Under 15 nm	O					—	—	—	—	—	(2) under15nm	
P-8.1.2.3.1.4	Under 8 nm	O					—	—	—	—	—	(3) under8nm	
P-8.1.2.3.1.5	Under 4 nm	O					—	—	—	—	—	(4) under4nm	
P-8.1.2.3.1.6	Under 1 nm	O					—	—	—	—	—	(5) under1nm	
P-8.1.2.3.1.7	Under 0.25 nm	O					—	—	—	—	—	(6) under-25nm	
P-8.1.2.3.1.8	Under 0.05 nm	O					—	—	—	—	—	(7) under-05nm	
P-8.1.2.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)	
P-8.1.2.5	Projected Profile											ProjectedProfile ::= SEQUENCE	
P-8.1.2.5.1	Next way point	M					—	—	—	—	—	Position	See P-11
P-8.1.2.5.2	ETA at next way point	M					—	—	—	—	—	Eta	
P-8.1.2.5.3	Following way point	M					—	—	—	—	—	Position	See P-11
P-8.1.2.5.2	ETA	M					—	—	—	—	—	Time	See P-11
P-8.1.2.6	Ground Vector											GroundVector ::= SEQUENCE	
P-8.1.2.6.1	Track	M					—	—	—	—	—	DegreesDirection (OPTIONAL)	b
P-8.1.2.6.2	Ground speed (-50 - 2200 knots)	M					—	—	—	—	—	INTEGER (-50..2200) (OPTIONAL)	b,d
P-8.1.2.6.3	Vertical Rate Change	M					—	—	—	—	—	VerticalRateChange (OPTIONAL)	b
P-8.1.2.6.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-8.1.2.6.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-8.1.2.7	Air Vector											AirVector ::= SEQUENCE	
P-8.1.2.7.1	Heading	M					—	—	—	—	—	[0] DegreesDirection (OPTIONAL)	b
P-8.1.2.7.2	Air Speed	M					—	—	—	—	—	[1] AirSpeed (OPTIONAL)	b
P-8.1.2.7.3	Vertical Rate Change	M					—	—	—	—	—	[2] VerticalRateChange (OPTIONAL)	b
P-8.1.2.7.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-8.1.2.7.2	AirSpeed											AirSpeed ::= CHOICE	
P-8.1.2.7.2.1	Mach	C					—	—	—	—	—	[0] Mach	a
P-8.1.2.7.2.2	IAS	C					—	—	—	—	—	[1] Ias	a
P-8.1.2.7.2.3	Mach and IAS	C					—	—	—	—	—	[2] SEQUENCE	a
P-8.1.2.7.2.3.1	Mach	M					—	—	—	—	—	Mach	
P-8.1.2.7.2.3.2	IAS	M					—	—	—	—	—	Ias	
P-8.1.2.7.2.2	Ias (0 - 1100 knots)											INTEGER (0..1100)	
P-8.1.2.7.2.1	Mach (0.5-4 Mach in units of 0.001 Mach)											INTEGER (500..4000)	
P-8.1.2.7.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-8.1.2.8	MetInfo											MetInfo ::= SEQUENCE	
P-8.1.2.8.1	Wind speed (0 - 300 knots)	O					—	—	—	—	—	[0] INTEGER (0..300) (OPTIONAL)	
P-8.1.2.8.2	Wind direction (1 - 360 degrees true N)	O					—	—	—	—	—	[1] INTEGER (1..360) (OPTIONAL)	
P-8.1.2.8.3	Temperature (-100 - 100 degrees C in units of 0.25 degrees)	O					—	—	—	—	—	[2] INTEGER (-400..400) (OPTIONAL)	
P-8.1.2.8.4	Turbulence (0 - 15)	O					—	—	—	—	—	[3] INTEGER (0..15) (OPTIONAL)	c
P-8.1.2.9	Short Term Intent											ShortTermIntent ::= SEQUENCE	
P-8.1.2.9.1	Following way point	M					—	—	—	—	—	Position	See P-11
P-8.1.2.9.2	Projection Time	M					—	—	—	—	—	ProjectionTime	
P-8.1.2.9.3	Intermediate Intent	M					—	—	—	—	—	IntermediateIntent	
P-8.1.2.9.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-8.1.2.9.3	Intermediate Intent											IntermediateIntent ::=	
P-8.1.2.9.3.1	Number of groups (0-7)	M					—	—	—	—	—	SEQUENCE SIZE(0..7) OF SEQUENCE	
P-8.1.2.9.3.1.1	Distance (1 - 8000 Nautical miles)	M					—	—	—	—	—	INTEGER (1..8000)	
P-8.1.2.9.3.1.2	Track	M					—	—	—	—	—	DegreesDirection	
P-8.1.2.9.3.1.3	Level	M					—	—	—	—	—	Level	
P-8.1.2.9.3.1.4	Projection Time	M					—	—	—	—	—	ProjectionTime	
P-8.1.2.9.3.1.2	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-8.1.2.9.3.1.3	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-750..100000)	
P-8.1.2.9.3.1.4	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-8.1.2.10	Extended Projected Profile											ExtendedProjectedProfile ::=	
P-8.1.2.10.1	Number of groups (1 - 128)	M					—	—	—	—	—	SEQUENCE SIZE(1..128) OF SEQUENCE	
P-8.1.2.10.1.1	Way point	M					—	—	—	—	—	Position	See P-11
P-8.1.2.10.1.2	ETA at each way point	M					—	—	—	—	—	Eta	
P-8.1.2.10.1.2	ETA	M					—	—	—	—	—	Time	See P-11

Notes:

- a At least one option must be supported
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Until the significance of the values is defined, the value 0 should be used
- d Negative values (-50 to -1) of Ground Speed should not be used

Table P-9: ADS Periodic Report

Source: Chapter 4 - ASN.1														
Ref No	Operational Elements	Send					Receive					ASN.1 Protocol Elements	Notes	
		OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons	OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons			
P-9.1	Periodic Report											ADSPeriodicReport ::= SEQUENCE		
P-9.1.1	Periodic Report	M					—	—	—	—	—	[0] ADSReport		
P-9.1.2	Positive acknowledgement	M					—	—	—	—	—	[1] NULL (OPTIONAL)		
P-9.1.3	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility		
P-9.1.1	ADS Report											ADSReport ::= SEQUENCE		
P-9.1.1.1	Position	M					—	—	—	—	—	[0] Position	See P-11	
P-9.1.1.2	Time Stamp	M					—	—	—	—	—	[1] DateTimeGroup	See P-11	
P-9.1.1.3	Figure Of Merit	M					—	—	—	—	—	[2] FigureOfMerit		
P-9.1.1.4	Aircraft Address	O					—	—	—	—	—	[3] AircraftAddress (OPTIONAL)		
P-9.1.1.5	Projected Profile	O					—	—	—	—	—	[4] ProjectedProfile (OPTIONAL)		
P-9.1.1.6	Ground Vector	O					—	—	—	—	—	[5] GroundVector (OPTIONAL)		
P-9.1.1.7	Air Vector	O					—	—	—	—	—	[6] AirVector (OPTIONAL)		
P-9.1.1.8	Met Info	O					—	—	—	—	—	[7] MetInfo (OPTIONAL)		
P-9.1.1.9	Short Term Intent	O					—	—	—	—	—	[8] ShortTermIntent (OPTIONAL)		
P-9.1.1.10	Extended Projected Profile	O					—	—	—	—	—	[9] ExtendedProjectedProfile (OPTIONAL)		
P-9.1.1.11	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility		
P-9.1.1.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE		
P-9.1.1.3.1	Positional Accuracy	M					—	—	—	—	—	PositionalAccuracy		
P-9.1.1.3.2	Multiple navigational units operating	M					—	—	—	—	—	BOOLEAN		
P-9.1.1.3.3	ACAS operational	M					—	—	—	—	—	BOOLEAN		
P-9.1.1.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED		
P-9.1.1.3.1.1	Complete loss	M					—	—	—	—	—	(0) complete-loss		
P-9.1.1.3.1.2	Under 30 nm	O					—	—	—	—	—	(1) under30nm		
P-9.1.1.3.1.3	Under 15 nm	O					—	—	—	—	—	(2) under15nm		
P-9.1.1.3.1.4	Under 8 nm	O					—	—	—	—	—	(3) under8nm		
P-9.1.1.3.1.5	Under 4 nm	O					—	—	—	—	—	(4) under4nm		
P-9.1.1.3.1.6	Under 1 nm	O					—	—	—	—	—	(5) under1nm		
P-9.1.1.3.1.7	Under 0.25 nm	O					—	—	—	—	—	(6) under-25nm		
P-9.1.1.3.1.8	Under 0.05 nm	O					—	—	—	—	—	(7) under-05nm		
P-9.1.1.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)		
P-9.1.1.5	Projected Profile											ProjectedProfile ::= SEQUENCE		
P-9.1.1.5.1	Next way point	M					—	—	—	—	—	Position	See P-11	
P-9.1.1.5.2	ETA at next way point	M					—	—	—	—	—	Eta		
P-9.1.1.5.3	Following way point	M					—	—	—	—	—	Position	See P-11	
P-9.1.1.5.2	ETA	M					—	—	—	—	—	Time	See P-11	
P-9.1.1.6	Ground Vector											GroundVector ::= SEQUENCE		
P-9.1.1.6.1	Track	M					—	—	—	—	—	DegreesDirection (OPTIONAL)	b	
P-9.1.1.6.2	Ground speed (-50 - 2200 knots)	M					—	—	—	—	—	INTEGER (-50..2200) (OPTIONAL)	b,d	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-9.1.1.6.3	Vertical Rate Change	M					—	—	—	—	—	VerticalRateChange (OPTIONAL)	b
P-9.1.1.6.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-9.1.1.6.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-9.1.1.7	Air Vector											AirVector ::= SEQUENCE	
P-9.1.1.7.1	Heading	M					—	—	—	—	—	[0] DegreesDirection (OPTIONAL)	b
P-9.1.1.7.2	Air Speed	M					—	—	—	—	—	[1] AirSpeed (OPTIONAL)	b
P-9.1.1.7.3	Vertical Rate Change	M					—	—	—	—	—	[2] VerticalRateChange (OPTIONAL)	b
P-9.1.1.7.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-9.1.1.7.2	AirSpeed											AirSpeed ::= CHOICE	
P-9.1.1.7.2.1	Mach	C					—	—	—	—	—	[0] Mach	a
P-9.1.1.7.2.2	IAS	C					—	—	—	—	—	[1] Ias	a
P-9.1.1.7.2.3	Mach and IAS	C					—	—	—	—	—	[2] SEQUENCE	a
P-9.1.1.7.2.3.1	Mach	M					—	—	—	—	—	Mach	
P-9.1.1.7.2.3.2	IAS	M					—	—	—	—	—	Ias	
P-9.1.1.7.2.2	Ias (0 - 1100 knots)											INTEGER (0..1100)	
P-9.1.1.7.2.1	Mach (0.5-4 Mach in units of 0.001 Mach)											INTEGER (500..4000)	
P-9.1.1.7.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-9.1.1.8	MetInfo											MetInfo ::= SEQUENCE	
P-9.1.1.8.1	Wind speed (0 - 300 knots)	O					—	—	—	—	—	[0] INTEGER (0..300) (OPTIONAL)	
P-9.1.1.8.2	Wind direction (1 - 360 degrees true N)	O					—	—	—	—	—	[1] INTEGER (1..360) (OPTIONAL)	
P-9.1.1.8.3	Temperature (-100 - 100 degrees C in units of 0.25 degrees)	O					—	—	—	—	—	[2] INTEGER (-400..400) (OPTIONAL)	
P-9.1.1.8.4	Turbulence (0 - 15)	O					—	—	—	—	—	[3] INTEGER (0..15) (OPTIONAL)	c
P-9.1.1.9	Short Term Intent											ShortTermIntent ::= SEQUENCE	
P-9.1.1.9.1	Following way point	M					—	—	—	—	—	Position	See P-11
P-9.1.1.9.2	Projection Time	M					—	—	—	—	—	ProjectionTime	
P-9.1.1.9.3	Intermediate Intent	M					—	—	—	—	—	IntermediateIntent	
P-9.1.1.9.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-9.1.1.9.3	Intermediate Intent											IntermediateIntent ::=	
P-9.1.1.9.3.1	Number of groups (0-7)	M					—	—	—	—	—	SEQUENCE SIZE(0..7) OF SEQUENCE	
P-9.1.1.9.3.1.1	Distance (1 - 8000 Nautical miles)	M					—	—	—	—	—	INTEGER (1..8000)	
P-9.1.1.9.3.1.2	Track	M					—	—	—	—	—	DegreesDirection	
P-9.1.1.9.3.1.3	Level	M					—	—	—	—	—	Level	
P-9.1.1.9.3.1.4	Projection Time	M					—	—	—	—	—	ProjectionTime	
P-9.1.1.9.3.1.2	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	

Source: Chapter 4 - ASN.1																Notes			
Ref No	Operational Elements	Send						Receive						ASN.1 Protocol Elements					
		OPLINKP Profile	Profile Status Cons		Implementation Status Cons		OPLINKP Profile	Profile Status Cons		Implementation Status Cons									
P-9.1.1.9.3.1.3	Level (-750 - 100 000 feet in units of 10 ft)																	INTEGER (-750..100000)	
P-9.1.1.9.3.1.4	Projection Time (1min - 4 hrs in mins)																	INTEGER (1..240)	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-9.1.1.10	Extended Projected Profile											ExtendedProjectedProfile ::=	
P-9.1.1.10.1	Number of groups (1 - 128)	M					—	—	—	—	—	SEQUENCE SIZE(1..128) OF SEQUENCE	
P-9.1.1.10.1.1	Way point	M					—	—	—	—	—	Position	See P-11
P-9.1.1.10.1.2	ETA at each way point	M					—	—	—	—	—	Eta	
P-9.1.1.10.1.2	ETA	M					—	—	—	—	—	Time	See P-11

Notes:

- a At least one option must be supported
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Until the significance of the values is defined, the value 0 should be used
- d Negative values (-50 to -1) of Ground Speed should not be used

Table P-10: ADS Acknowledgements and Noncompliance Notification

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-10.1	Negative Acknowledgement											NegativeAcknowledgement ::= SEQUENCE	
P-10.1.1	Request Type	M					—	—	—	—	—	RequestType	
P-10.1.2	Reason	M					—	—	—	—	—	Reason	
P-10.1.1	Request Type											RequestType ::= ENUMERATED	
P-10.1.1.1	Event contract	M					—	—	—	—	—	(0) event-contract	
P-10.1.1.2	Periodic contract	M					—	—	—	—	—	(1) periodic-contract	
P-10.1.1.3	Demand contract	M					—	—	—	—	—	(2) demand-contract	
P-10.1.1.4	Cancel event contract	M					—	—	—	—	—	(3) cancel-event-contract	
P-10.1.1.5	Cancel periodic contract	M					—	—	—	—	—	(4) cancel-periodic-contract	
P-10.1.1.6	Modify emergency contract	M					—	—	—	—	—	(5) modify-emergency-contract	
P-10.1.1.7	Cancel all contracts	M					—	—	—	—	—	(6) cancel-all-contracts	
P-10.1.1.8	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-10.1.2	Reason											Reason ::= CHOICE	
P-10.1.2.1	ADS service unavailable	M					—	—	—	—	—	[0] NULL	
P-10.1.2.2	undefined	I					—	—	—	—	—	[1] NULL	
P-10.1.2.3	Maximum capacity exceeded	M					—	—	—	—	—	[2] GroundSystemsUsingService	
P-10.1.2.4	Undefined reason	M					—	—	—	—	—	[3] NULL	
P-10.1.2.5	Use of Extensibility	M					—	—	—	—	—	Use of Extensibility	
P-10.1.2.3	GroundSystemsUsingService											SEQUENCE OF IA5String SIZE(4..8)	
P-10.1.2.3.1	number of connected ground systems (4)	M					—	—	—	—	—	Not applicable	
P-10.2	NoncomplianceNotification											NoncomplianceNotification ::= CHOICE	
P-10.2.1	Demand Contract NCN	M					—	—	—	—	—	[0] SEQUENCE OF ReportType	
P-10.2.2	Event Contract NCN	M					—	—	—	—	—	[1] SEQUENCE OF EventTypeContracted	
P-10.2.3	Periodic Contract NCN	M					—	—	—	—	—	[2] SEQUENCE OF ReportTypeAndPeriod	
P-10.2.4	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-10.2.1	Report Type											ReportType ::= ENUMERATED	
P-10.2.1.1	Aircraft address	O					—	—	—	—	—	(0) aircraft-address	
P-10.2.1.2	Projected profile	O					—	—	—	—	—	(1) projected-profile	
P-10.2.1.3	Ground vector	O					—	—	—	—	—	(2) ground-vector	
P-10.2.1.4	Air vector	O					—	—	—	—	—	(3) air-vector	
P-10.2.1.5	Weather	O					—	—	—	—	—	(4) weather	
P-10.2.1.6	Short term intent	O					—	—	—	—	—	(5) short-term-intent	
P-10.2.1.7	Extended projected profile	O					—	—	—	—	—	(6) extended-projected-profile	
P-10.2.1.8	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-10.2.2	Event Type Contracted											EventTypeContracted ::= ENUMERATED	
P-10.2.2.1	Lateral deviation change	C					—	—	—	—	—	(0) lateral-deviation-change	
P-10.2.2.2	Vertical rate change	C					—	—	—	—	—	(1) vertical-rate-change	
P-10.2.2.3	Level threshold	C					—	—	—	—	—	(2) level-threshold	
P-10.2.2.4	Way point change	C					—	—	—	—	—	(3) way-point-change	
P-10.2.2.5	Air speed change	C					—	—	—	—	—	(4) air-speed-change	
P-10.2.2.6	Ground speed change	C					—	—	—	—	—	(5) ground-speed-change	
P-10.2.2.7	Heading change	C					—	—	—	—	—	(6) heading-change	
P-10.2.2.8	Extended projected profile change	C					—	—	—	—	—	(7) extended-projected-profile-change	
P-10.2.2.9	FOM change	C					—	—	—	—	—	(8) fom-change	
P-10.2.2.10	Track angle change	C					—	—	—	—	—	(9) track-angle-change	
P-10.2.2.11	Level change	C					—	—	—	—	—	(10) level-change	
P-10.2.2.12	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-10.2.3	Report Type And Period											ReportTypeAndPeriod ::= ENUMERATED	
P-10.2.3.1	Aircraft address	O					—	—	—	—	—	(0) aircraft-address	
P-10.2.3.2	Projected profile	O					—	—	—	—	—	(1) projected-profile	
P-10.2.3.3	Ground vector	O					—	—	—	—	—	(2) ground-vector	
P-10.2.3.4	Air vector	O					—	—	—	—	—	(3) air-vector	
P-10.2.3.5	Met Info	O					—	—	—	—	—	(4) met-info	
P-10.2.3.6	Short term intent	O					—	—	—	—	—	(5) short-term-intent	
P-10.2.3.7	Extended projected profile	O					—	—	—	—	—	(6) extended-projected-profile	
P-10.2.3.8	Reporting rate	O					—	—	—	—	—	(7) reporting-rate	
P-10.2.3.9	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-10.3	Positive Acknowledgement	M					—	—	—	—	—	RequestType	
P-10.3	Request Type											RequestType ::= ENUMERATED	
P-10.3.1	Event contract	M					—	—	—	—	—	(0) event-contract	
P-10.3.2	Periodic contract	M					—	—	—	—	—	(1) periodic-contract	
P-10.3.3	Demand contract	M					—	—	—	—	—	(2) demand-contract	
P-10.3.4	Cancel event contract	M					—	—	—	—	—	(3) cancel-event-contract	
P-10.3.5	Cancel periodic contract	M					—	—	—	—	—	(4) cancel-periodic-contract	
P-10.3.6	Modify emergency contract	M					—	—	—	—	—	(5) modify-emergency-contract	
P-10.3.7	Cancel all contracts	M					—	—	—	—	—	(6) cancel-all-contracts	
P-10.3.8	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	

Table P-11: Common Components in ADS Reports

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-11.1	Position											Position ::= SEQUENCE	
P-11.1.1	Latitude	M					—	—	—	—	—	Latitude	
P-11.1.2	Longitude	M					—	—	—	—	—	Longitude	
P-11.1.3	Level	M					—	—	—	—	—	Level	
P-11.1.1	Latitude											Latitude ::= SEQUENCE	
P-11.1.1.1	Sign	M					—	—	—	—	—	Sign	
P-11.1.1.2	Degrees (0 - 90 degrees)	M					—	—	—	—	—	INTEGER (0..90)	
P-11.1.1.3	Minutes (0 - 59 minutes)	M					—	—	—	—	—	INTEGER (0..59)	
P-11.1.1.4	Tenths of seconds (0 - 59.9 seconds in units of 0.1 second)	M					—	—	—	—	—	INTEGER (0..599)	
P-11.1.1.1	Sign											Sign ::= ENUMERATED	
P-11.1.1.1.1	Plus	M					—	—	—	—	—	(0) <i>plus</i>	
P-11.1.1.1.2	Minus	M					—	—	—	—	—	(1) <i>minus</i>	
P-11.1.2	Longitude											Longitude ::= SEQUENCE	
P-11.1.2.1	Sign	M					—	—	—	—	—	Sign	
P-11.1.2.2	Degrees (0 - 180 degrees)	M					—	—	—	—	—	INTEGER (0..180)	
P-11.1.2.3	Minutes (0 - 59 minutes)	M					—	—	—	—	—	INTEGER (0..59)	
P-11.1.2.4	Tenths of seconds (0 - 59.9 seconds in units of 0.1 second)	M					—	—	—	—	—	INTEGER (0..599)	
P-11.1.2.1	Sign											Sign ::= ENUMERATED	
P-11.1.2.1.1	Plus	M					—	—	—	—	—	(0) <i>plus</i>	
P-11.1.2.1.2	Minus	M					—	—	—	—	—	(1) <i>minus</i>	
P-11.1.3	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-750..100000)	
P-11.2	Date Time Group											DateTimeGroup ::= SEQUENCE	
P-11.2.1	Date	M					—	—	—	—	—	Date	
P-11.2.2	Time	M					—	—	—	—	—	Time	
P-11.2.1	Date											Date ::= SEQUENCE	
P-11.2.1.1	Year	M					—	—	—	—	—	Year	
P-11.2.1.2	Month	M					—	—	—	—	—	Month	
P-11.2.1.3	Day	M					—	—	—	—	—	Day	
P-11.2.1.1	Year (1996 - 2095)											INTEGER (1996..2095)	
P-11.2.1.2	Month (January(1) - December(12))											INTEGER (1..12)	
P-11.2.1.3	Day (Day(1) - Day(31))											INTEGER (1..31)	
P-11.3	Time											Time ::= SEQUENCE	

Source: Chapter 4 - ASN.1		Send					Receive					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-11.3.1	Hours	M					—	—	—	—	—	[0] TimeHours	
P-11.3.2	Minutes	M					—	—	—	—	—	[1] TimeMinutes	
P-11.3.3	Seconds	M					—	—	—	—	—	[2] TimeSeconds	
P-11.3.1	TimeHours (Midnight(0) - 23:00 hrs (11 PM))											INTEGER (0..23)	
P-11.3.2	TimeMinutes (0 -59 minutes)											INTEGER (0..59)	
P-11.3.3	TimeSeconds (0 -59 seconds)											INTEGER (0..59)	



ATNP/WGA/WP A2/3/XX

13 September 2001

AERONAUTICAL TELECOMMUNICATION NETWORK PANEL

WORKING GROUP A SUBGROUP A2 (AIR/GROUND APPLICATIONS)

Toulouse 25th September - 4th October 2001

Agenda Item 6 : PICS and Interoperability

Ground Automatic Dependent Surveillance Edition 2 PICS/OICS Proforma

Prepared by: Mike Harcourt

SUMMARY

This working paper contains the OPLINKP Profile PICS/OICS proforma tables for ADS Ground Version 1 (Doc 9705 Second Edition).

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Table I-1: PICS/OICS Identification

Ref No	PICS/OICS Identification	Implementation PICS/OICS
I-1.1	Date of Statement (DD/MM/YY)	
I-1.2	PICS/OICS Serial Number	
	Profile Identification	Profile Details
I-1.3	Profile Name	
I-1.4	Version	
I-1.5	Profile Authority Name	
I-1.6	Profile Applicability (Areas, Countries, Organisations etc where the profile can be applied)	
I-1.7	Date of effect	
I-1.8	Other Information	

Table I-2: Supplier and Implementation Identification

Ref No	Supplier Information	Supplier Details
I-2.1	Organization Name	
I-2.2	Contact Name(s)	
I-2.3	Address	
I-2.4	Telephone Number	
I-2.5	Telex Number	
I-2.6	Fax Number	
I-2.7	E-mail Address	
I-2.8	Other Information	
	Implementation Information	Implementation Details
I-2.9	Implementation Name	
I-2.10	Implementation Version	
I-2.11	Hardware Name	
I-2.12	Hardware Version	
I-2.13	Operating System Name	
I-2.14	Operating System Version	
I-2.15	Special Configuration	
I-2.16	Other Information	

Table I-3: ADS Protocol Identification

Ref No		OPLINKP	Profile	Implementation
I-3.1	Protocol Standard (Title, reference, date)	ICAO Doc 9705 Second Edition - 1999		
I-3.2	ADS Protocol Version	Version 1		
I-3.3	Addenda, amendments and corrigenda implemented			
I-3.4	Defect Reports implemented			

Table S-1: ADS Protocol Options

Source: Chapter 8 - Subsetting Rules		OPLINKP Profile	Profile	Imp	Associated	Notes
Ref No	Protocol Option	Status	Status	Support	Predicate	
S-1.1	ADS-air-ASE	Not applicable to Ground Systems			ADS/air	
S-1.2	ADS-ground-ASE	M			ADS/ground	
S-1.3	Demand contract supported	C			G-DC-FU	
S-1.4	Event and Emergency contracts supported	C			G-EC-FU	
S-1.5	Periodic and Emergency contracts supported	C			G-PC-FU	

Table S-2: ADS ASE Operational Configurations

Source: Chapter 8 - Subsetting Rules		OPLINKP Profile	Profile	Imp	Notes
Ref No	List of Configurations: Ground ASE	Status	Status	Support	
S-2.1	I. ADS/ground + G-DC-FU	C.1			Demand Contract Only
S-2.2	II. ADS/ground + G-EC-FU	C.1			Event and Emergency Contracts Only
S-2.3	III. ADS/ground + G-PC-FU	C.1			Periodic and Emergency Contracts Only
S-2.4	IV. ADS/ground + G-DC-FU + G-EC-FU	C.1			Demand, Event and Emergency Contracts Only
S-2.5	V. ADS/ground + G-DC-FU + G-PC-FU	C.1			Demand, Periodic and Emergency Contracts Only
S-2.6	VI. ADS/ground + G-EC-FU + G-PC-FU	C.1			Periodic, Event and Emergency Contracts Only
S-2.7	VII. ADS/ground + G-DC-FU + G-EC-FU + G-PC-FU	C.1			Demand, Periodic, Event and Emergency Contracts
	List of Configurations: Air ASE				
S-2.8	I. ADS/air + A-DC-FU	Not applicable to Ground Systems			Demand Contract Only
S-2.9	II. ADS/air + A-EC-FU				Event Contract Only
S-2.10	III. ADS/air + A-PC-FU				Periodic Contract Only
S-2.11	IV. ADS/air + A-DC-FU + A-EC-FU				Demand and Event Contracts Only
S-2.12	V. ADS/air + A-DC-FU + A-PC-FU				Demand and Periodic Only
S-2.13	VI. ADS/air + A-EC-FU + A-PC-FU				Periodic and Event Contracts Only
S-2.14	VII. ADS/air + A-DC-FU + A-EC-FU + A-PC-FU				Demand, Periodic and Event Contracts Only
S-2.15	VIII. ADS/air + A-EC-FU + A-EM-FU				Event and Emergency Contracts Only
S-2.16	IX. ADS/air + A-PC-FU + A-EM-FU				Periodic and Emergency Contracts Only
S-2.17	X. ADS/air + A-DC-FU + A-EC-FU + A-EM-FU				Event, Demand and Emergency Contracts Only
S-2.18	XI. ADS/air + A-DC-FU + A-PC-FU + A-EM-FU				Periodic, Demand and Emergency Contracts Only
S-2.19	XII. ADS/air + A-EC-FU + A-PC-FU + A-EM-FU				Periodic, Event and Emergency Contracts Only
S-2.20	XIII. ADS/air + A-DC-FU + A-EC-FU + A-PC-FU + A-EM-FU				Demand, Event, Periodic and Emergency Contracts

OPLINKP Profile:

C.1 One and only one configuration must be supported.

Table S-3: Supported ADS Service Primitives

Source: Chapter 3 - Abstract Service		Sender (req, [cnf])			Receiver (ind, [rsp])			Notes
Ref No	Service Primitives	OPLINKP Profile	Profile Status	Imp Support	OPLINKP Profile	Profile Status	Imp Support	
S-3.1	ADS-demand-contract	C.1			—	—	—	See S-4
S-3.2	ADS-event-contract	C.2			—	—	—	See S-5
S-3.3	ADS-periodic-contract	C.3			—	—	—	See S-6
S-3.4	ADS-report	—	—	—	M			See S-7
S-3.5	ADS-cancel	C.4			—	—	—	See S-8
S-3.6	ADS-cancel-all-contracts	C.5			—	—	—	See S-8
S-3.7	ADS-emergency-report	—	—	—	C.7			See S-9
S-3.8	ADS-modify-emergency-contract	C.6			—	—	—	See S-10
S-3.9	ADS-cancel-emergency-contract	—	—	—	C.7			See S-9
S-3.10	ADS-user-abort	M			M			See S-11
S-3.11	ADS-provider-abort	—	—	—	M			See S-12

OPLINKP Profile:

- C.1 If Demand contract (G-DC-FU) supported then **M** else —
- C.2 If Event contract (G-EC-FU) supported then **M** else —
- C.3 If Periodic contract (G-PC-FU) supported then **M** else —
- C.4 If ((Periodic (G-PC-FU) or Event (G-EC-FU) contract supported) and Cancel supported then **M** else —
- C.5 If ((Periodic (G-PC-FU) or Event (G-EC-FU) contract supported) and Cancel all contracts supported then **M** else —
- C.6 If (Periodic (G-PC-FU) or Event (G-EC-FU) contract) and Modify emergency contract supported then **M** else —
- C.7 If Periodic (G-PC-FU) or Event (G-EC-FU) contract supported then **M** else —

Table S-4: ADS Demand Contract Service - Ground User (Request, Confirmation)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-4.1	Capability of the ground system to specify an Aircraft Address							
S-4.1.1	Aircraft Address = Bit String SIZE(24)	C.1		—		—		
S-4.2	Capability of the ground system to request a Class of Communication Service							
S-4.2.1	One from the abstract values: 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'	C.2						
S-4.3	Capability of the ground system to specify the terms of a demand contract							
S-4.3.1	Contract Details	C.1					See DemandContract (Table P-2)	
S-4.4	Capability of the ground system to understand a Reply from an Aircraft							
S-4.4.1	Negative Acknowledgement	C.1					See NegativeAcknowledgement (Table P-10)	
S-4.4.2	Noncompliance Notification	C.1					See NoncomplianceNotification (Table P-10)	
S-4.5	Capability of the ground system to specify its own ICAO Facility Designation							
S-4.5.1	ICAO facility designation = IA5 String SIZE(4..8)	C.1						

OPLINKP Profile:

- C.1 If Demand contract (G-DC-FU) supported then **M** else —
C.2 If Demand contract (G-DC-FU) supported then **O** else —

Table S-5: ADS Event Contract Service - Ground User (Request, Confirmation)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-5.1	Capability of the ground system to specify an Aircraft Address							
S-5.1.1	Aircraft Address = Bit String SIZE(24)	C.1		—		—		
S-5.2	Capability of the ground system to request a Class of Communication Service							
S-5.2.1	One from the abstract values: 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'	C.2						
S-5.3	Capability of the ground system to specify the terms of an event contract							
S-5.3.1	Contract Details	C.1					See EventContract (Table P-3)	
S-5.4	Capability of the ground system to understand a Reply from an Aircraft							
S-5.4.1	Negative Acknowledgement	C.1					See NegativeAcknowledgement (Table P-10)	
S-5.4.2	Noncompliance Notification	C.1					See NoncomplianceNotification (Table P-10)	
S-5.4.3	Positive Acknowledgement = NULL	C.1						
S-5.5	Capability of the ground system to specify its own ICAO Facility Designation							
S-5.5.1	ICAO facility designation = IA5 String SIZE(4..8)	C.1						

OPLINKP Profile:

- C.1 If Event contract (G-EC-FU)supported then **M** else —
C.2 If Event contract (G-EC-FU)supported then **O** else —

Table S-6: ADS Periodic Contract Service - Ground User (Request, Confirmation)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-6.1	Capability of the ground system to specify an Aircraft Address							
S-6.1.1	Aircraft Address = Bit String SIZE(24)	C.1		—		—		
S-6.2	Capability of the ground system to request a Class of Communication Service							
S-6.2.1	One from the abstract values: 'A', 'B', 'C', 'D', 'E', 'F', 'G', 'H'	C.2						
S-6.3	Capability of the ground system to specify the terms of a periodic contract							
S-6.3.1	Contract Details	C.1					See PeriodicContract (Table P-5)	
S-6.4	Capability of the ground system to understand a Reply from an Aircraft							
S-6.4.1	Negative Acknowledgement	C.1					See NegativeAcknowledgement (Table P-10)	
S-6.4.2	Noncompliance Notification	C.1					See NoncomplianceNotification (Table P-10)	
S-6.4.3	Positive Acknowledgement = NULL	C.1						
S-6.5	Capability of the ground system to specify its own ICAO Facility Designation							
S-6.5.1	ICAO facility designation = IA5 String SIZE(4..8)	C.1						

OPLINKP Profile:

- C.1 If Periodic contract (G-PC-FU)supported then **M** else —
 C.2 If Periodic contract (G-PC-FU)supported then **O** else —

Table S-7: ADS Report Service - Ground User (Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-7.1	Capability of the ground system to understand a contract type							
S-7.1.1	ENUMERATED ('Demand Contract', 'Event Contact', 'Periodic Contract')	M						
S-7.2	Capability of the ground system to understand the Event Type that triggered the report							
S-7.2.1	Event Type	C.1					See EventTypeReported (Table P-8)	
S-7.3	Capability of the ground system to understand a Positive Acknowledgement							
S-7.3.1	Positive Acknowledgement = NULL	M						
S-7.4	Capability of the ground system to understand a report							
S-7.4.1	Report Details	M					See ADSDemandReport (Table P-6) or ADSEventReport (Table P-8) or ADSPeriodicReport (Table P-9)	

OPLINKP Profile:C.1 If Event contact (G-EC-FU) supported then **M** else —

Table S-8: ADS Cancel and ADS Cancel All Services - Ground User (Request, Confirmation)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Profile Cons	Implementation Status	Cons		
S-8.1	Capability of the ground system to support ADS Cancel Service	C.1						
S-8.1.1	Capability of the ground system to specify the contract type to be cancelled							
S-8.1.1.1	Contract Type	M					See CancelContract (Table P-1)	
S-8.1.2	Capability of the ground system to understand the contract type that has been confirmed as cancelled							
S-8.1.2.1	Contract Type	M					See CancelContract (Table P-1)	
S-8.2	Capability of the ground system to support ADS Cancel All Service	C.1						
S-8.2.1	Capability of the ground system to request "cancel all contracts"	M						
S-8.2.2	Capability of the ground system to understand the confirmation of "cancel all contracts"	M						

OPLINKP Profile:

C.1 If Periodic (G-PC-FU) or Event (G-EC-FU) contracts are supported then at least one must be supported else —

Table S-9: ADS Emergency Report Service - Ground User (Confirmation, Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-9.1	Capability of the ground system to understand a Positive Acknowledgement of a modify emergency contract	C.1						See S-10
S-9.2	Capability of the ground system to understand an emergency report							
S-9.2.1	Emergency report Details	C.2					See ADSEmergencyReport (Table P-7)	
S-9.3	Capability of the ground system to understand a cancel emergency contract	C.2						

OPLINKP Profile:

- C.1 If (Periodic (G-PC-FU) or Event (G-EC-FU) contract) and Modify Emergency Contract supported then **M** else —
- C.2 If Periodic (G-PC-FU) or Event (G-EC-FU) contract supported then **M** else —

Table S-10: ADS Modify Emergency Contract Service - Ground User (Request)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
S-10.1	Capability of the ground system to specify a Reporting Interval							
S-10.1.1	Reporting Interval	C.1					See ReportingInterval (table P-4)	

OPLINKP Profile:

C.1 If (Periodic (G-PC-FU) or Event (G-EC-FU) contract) and Modify Emergency Contract supported then **M** else —

Table S-11: ADS User Abort Service -Ground User (Request, Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
S-11.1	Capability of the ground system to send a User Abort	M					a	
S-11.2	Capability of the ground system to receive a User Abort	M						

Table S-12: ADS Provider Abort Service Ground User (Indication)

Source: Chapter 3 - Abstract Service		OICS					ASN.1 Description	Notes
		Operational Use						
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
S-12.1	Capability of the ground system to understand a Provider Abort Reason							
S-12.1.1	Reason	M					See AbortReason (Table M-1)	

Table S-13: ADS ASE Technical Timers

Source: Chapter 5 - Protocol Definition			OICS						Notes
			Operational Use						
Ref No	ADS Service	Timer	OPLINKP Profile		Status	Profile Recommended Value	Implementation		
			Status	Value			Status	Value	
S-13.1	ADS Demand Contract Timers								
S-13.1.1		t-DC-1	C.1	6 minutes					
S-13.1.2		t-DC-2	C.1	3 minutes 30 seconds					
S-13.2	ADS Event Contract Timers								
S-13.2.1		t-EC-1	C.2	6 minutes					
S-13.2.2		t-EC-2	C.2	6 minutes					
S-13.3	ADS Periodic Contract Timers								
S-13.3.1		t-PC-1	C.3	6 minutes					
S-13.3.2		t-PC-2	C.3	Reporting Rate + 3 minutes					
S-13.3.3		t-PC-3	C.3	6 minutes					
S-13.4	ADS Emergency Contract Timers								
S-13.4.1		t-EM-1	C.4	Reporting Rate + 3 minutes					
S-13.4.2		t-EM-2	C.5	6 minutes					
S-13.4.3		t-EM-3	M	6 minutes	Not used by Ground Systems				
S-13.5	ADS General Timers								
S-13.5.1		t-LI-2	M	6 minutes					

OPLINKP Profile:

- C.1 If Demand contract (G-DC-FU) supported then **M** else —
- C.2 If Event contract (G-EC-FU) supported then **M** else —
- C.3 If Periodic contract (G-PC-FU) supported then **M** else —
- C.4 If Emergency contract (G-EC-FU or G-PC-FU) supported then **M** else —
- C.5 If (Periodic (G-PC-FU) or Event (G-EC-FU) contract) and Modify Emergency Contract supported then **M** else —

Table M-1: ADS Messages (top level)

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINK Profile	Status	Cons	Implementation Status	Cons	OPLINK Profile	Status	Cons	Implementation Status	Cons		
M-1.1	ADS Aircraft PDUs											ADSAircraftPDUs ::= CHOICE	
M-1.1.1	ADS cancel emergency PDU	—	—	—	—	—	C.1					[0] NULL	
M-1.1.2	ADS demand report PDU	—	—	—	—	—	C.2					[1] ADSDemandReport	
M-1.1.3	ADS emergency report PDU	—	—	—	—	—	C.1					[2] ADSEmergency	
M-1.1.4	ADS event report PDU	—	—	—	—	—	C.3					[3] ADSEventReport	
M-1.1.5	ADS negative acknowledgement PDU	—	—	—	—	—	M					[4] NegativeAcknowledgement	
M-1.1.6	ADS noncompliance notification PDU	—	—	—	—	—	M					[5] NoncomplianceNotification	
M-1.1.7	ADS periodic report PDU	—	—	—	—	—	C.4					[6] ADSPeriodicReport	
M-1.1.8	ADS positive acknowledgement PDU	—	—	—	—	—	C.5					[7] PositiveAcknowledgement	
M-1.1.9	ADS provider abort PDU	—	—	—	—	—	M					[8] AbortReason	
M-1.1.10	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
M-1.2	ADS Ground PDUs											ADSGroundPDUs ::= CHOICE	
M-1.2.1	ADS cancel all contracts PDU	C					—	—	—	—	—	[0] NULL	
M-1.2.2	ADS cancel contract PDU	C					—	—	—	—	—	[1] CancelContract	
M-1.2.3	ADS cancel emergency acknowledgement PDU	C.1					—	—	—	—	—	[2] NULL	
M-1.2.4	ADS demand contract PDU	C.2					—	—	—	—	—	[3] DemandContract	
M-1.2.5	ADS event contract PDU	C.3					—	—	—	—	—	[4] EventContract	
M-1.2.6	ADS modify emergency contract PDU	C.1					—	—	—	—	—	[5] ModifyEmergency	
M-1.2.7	ADS periodic contract PDU	C.4					—	—	—	—	—	[6] PeriodicContract	
M-1.2.8	ADS provider abort PDU	M					—	—	—	—	—	[7] AbortReason	
M-1.2.9	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
M-1.3	Abort Reasons											AbortReason ::= ENUMERATED	
M-1.3.1	Communications service failure	M					M					(0) <i>communications-service-failure</i>	
M-1.3.2	Unrecoverable system error	M					M					(1) <i>unrecoverable-system-error</i>	
M-1.3.3	Invalid PDU	M					M					(2) <i>invalid-PDU</i>	
M-1.3.4	Sequence error	M					M					(3) <i>sequence-error</i>	
M-1.3.5	Timer expiry	M					M					(4) <i>timer-expiry</i>	
M-1.3.6	Cannot establish contact	—	—	—	—	—	M					(5) <i>cannot-establish-contact</i>	a
M-1.3.7	Undefined error	M					M					(6) <i>undefined-error</i>	
M-1.3.8	Dialogue end not accepted	—	—	—	—	—	M					(7) <i>dialogue-end-not-accepted</i>	
M-1.3.9	Unexpected PDU	M					M					(8) <i>unexpected-PDU</i>	
M-1.3.10	Decoding error	M					M					(9) <i>decoding-error</i>	
M-1.3.11	Invalid qos parameter	—	—	—	—	—	M					(10) <i>invalid-qos-parameter</i>	
M-1.3.12	Use of Extensibility	X					M					Use of Extensibility	

OPLINK Profile:

- C.1 If Emergency contract (G-EC-FU or G-PC-FU) supported then M else —
- C.2 If Demand contract (G-DC-FU) supported then M else —
- C.3 If Event contract (G-EC-FU) supported then M else —
- C.4 If Periodic contract (G-PC-FU) supported then M else —
- C.5 If (Event (G-EC-FU) or Periodic (G-PC-FU) contracts) supported then M else —

Source: Chapter 4 - ASN.1		Send - Ground ASE						Receive - Ground ASE						ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status Cons		Implementation Status Cons		OPLINKP Profile	Profile Status Cons		Implementation Status Cons					

Notes

a Locally generated error not sent over the link

Table P-1: ADS Cancel Contract

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-1.1	CancelContract											CancelContract ::= ENUMERATED	
P-1.1.1	Cancel event contract	C					—	—	—	—	—	(0) event-contract	
P-1.1.2	Cancel periodic contract	C					—	—	—	—	—	(1) periodic-contract	
P-1.1.3	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	

Table P-2: ADS Demand Contract Request

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-2.1	Demand Contract Request											DemandContract ::= SEQUENCE	
P-2.1.1	Aircraft address	C					—	—	—	—	—	[0] NULL (OPTIONAL)	
P-2.1.2	Projected profile	C					—	—	—	—	—	[1] NULL (OPTIONAL)	
P-2.1.3	Ground vector	C					—	—	—	—	—	[2] NULL (OPTIONAL)	
P-2.1.4	Air vector	C					—	—	—	—	—	[3] NULL (OPTIONAL)	
P-2.1.5	Met-info	C					—	—	—	—	—	[4] NULL (OPTIONAL)	
P-2.1.6	Short term intent	C					—	—	—	—	—	[5] ProjectionTime (OPTIONAL)	
P-2.1.7	Extended Projected Profile	C					—	—	—	—	—	[6] ExtendedProjectedProfileRequest (OPTIONAL)	
P-2.1.8	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-2.1.6	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-2.1.7	Extended Projected Profile Request											ExtendedProjectedProfileRequest ::= CHOICE	
P-2.1.7.1	Time interval (15 min - 20 hrs in units of 15 min)	C					—	—	—	—	—	[0] INTEGER (1..80)	
P-2.1.7.2	Number of way points (1 - 128)	C					—	—	—	—	—	[1] INTEGER (1..128)	

Table P-3: ADS Event Contract Request

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-3.1	Event Contract Request											EventContract ::= SEQUENCE	
P-3.1.1	Lateral Change	C					—	—	—	—	—	[0] LateralChange (OPTIONAL)	
P-3.1.2	Vertical Rate Change	C					—	—	—	—	—	[1] VerticalRateChange (OPTIONAL)	
P-3.1.3	Level Range	C					—	—	—	—	—	[2] LevelRange (OPTIONAL)	
P-3.1.4	Way point change	C					—	—	—	—	—	[3] NULL (OPTIONAL)	
P-3.1.5	Air Speed Change	C					—	—	—	—	—	[4] AirSpeedChange (OPTIONAL)	
P-3.1.6	Ground Speed Change	C					—	—	—	—	—	[5] GroundSpeedChange (OPTIONAL)	
P-3.1.7	Heading change	C					—	—	—	—	—	[6] DegreesDirection (OPTIONAL)	
P-3.1.8	Extended Projected Profile	C					—	—	—	—	—	[7] ExtendedProjectedProfileRequest (OPTIONAL)	
P-3.1.9	FOM change	C					—	—	—	—	—	[8] NULL (OPTIONAL)	
P-3.1.10	Track angle change	C					—	—	—	—	—	[9] DegreesDirection (OPTIONAL)	
P-3.1.11	Level Change	C					—	—	—	—	—	[10] LevelChange (OPTIONAL)	
P-3.1.12	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-3.1.1	Lateral Change (0 - 200 Nautical miles in units of 0.1 Nm)											INTEGER (0..2000)	
P-3.1.2	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-3.1.3	LevelRange											LevelRange ::= SEQUENCE	
P-3.1.3.1	Ceiling	M					—	—	—	—	—	Level	
P-3.1.3.2	Floor	M					—	—	—	—	—	Level	
P-3.1.3.1/2	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-75..10000)	
P-3.1.5	Air Speed Change											AirSpeedChange ::= CHOICE	
P-3.1.5.1	Mach number change (0.005 - 1.275 Mach in units of 0.005 Mach)	C					—	—	—	—	—	[0] INTEGER (1..255)	
P-3.1.5.2	IAS change (1 - 700 knots)	C					—	—	—	—	—	[1] INTEGER (1..700)	
P-3.1.6	Ground Speed Change (0 - 300 knots)											INTEGER (0..300)	
P-3.1.7/10	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-3.1.8	Extended Projected Profile Request											ExtendedProjectedProfileRequest ::= CHOICE	
P-3.1.8.1	Time interval (15 min - 20 hrs in units of 15 min)	C					—	—	—	—	—	[0] INTEGER (1..80)	
P-3.1.8.2	Number of way points (1 - 128)	C					—	—	—	—	—	[1] INTEGER (1..128)	
P-3.1.11	Level Change (10-5000 feet in 10s of feet)											INTEGER (1..500)	

Table P-4: ADS Modify Emergency Contract

Source: Chapter 4 - ASN.1														Notes
Ref No	Operational Elements	Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements		
		OPLINKP Profile	Profile		Implementation		OPLINKP Profile	Profile		Implementation				
			Status	Cons	Status	Cons		Status	Cons	Status	Cons			
P-4.1	Modify Emergency Contract	C.1					—	—	—	—	—	ReportingInterval		
P-4.2	Reporting Interval											ReportingInterval ::= CHOICE		
P-4.2.1	Seconds scale (1 - 59 seconds)	C					—	—	—	—	—	[0] INTEGER (1..59)		
P-4.2.1	Minutes scale (1min - 2hrs in minutes)	C					—	—	—	—	—	[1] INTEGER (1..120)		

OPLINKP Profile:C.1 If Emergency contract (G-EC-FU or G-PC-FU) supported then **M** else —

Table P-5: ADS Periodic Contract Request

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-5.1	Periodic Contract Request											PeriodicContract ::= SEQUENCE	
P-5.1.1	Reporting Interval	C					—	—	—	—	—	[0] ReportingInterval (OPTIONAL)	
P-5.1.2	Aircraft address modulus	C					—	—	—	—	—	[1] Modulus (OPTIONAL)	
P-5.1.3	Projected profile modulus	C					—	—	—	—	—	[2] Modulus (OPTIONAL)	
P-5.1.4	Ground vector modulus	C					—	—	—	—	—	[3] Modulus (OPTIONAL)	
P-5.1.5	Air vector modulus	C					—	—	—	—	—	[4] Modulus (OPTIONAL)	
P-5.1.6	Met info modulus	C					—	—	—	—	—	[5] Modulus (OPTIONAL)	
P-5.1.7	Short Term Intent Modulus	C					—	—	—	—	—	[6] ShortTermIntentModulus (OPTIONAL)	
P-5.1.8	Extended Projected Profile Modulus	C					—	—	—	—	—	[7] ExtendedProjectedProfileRequest-Modulus (OPTIONAL)	
P-5.1.9	Use of Extensibility	X					—	—	—	—	—	Use of Extensibility	
P-5.1.1	Reporting Interval											ReportingInterval ::= CHOICE	
P-5.1.1.1	Seconds scale (1 - 59 seconds)	C					—	—	—	—	—	[0] INTEGER (1..59)	
P-5.1.1.2	Minutes scale (1min - 2hrs in minutes)	C					—	—	—	—	—	[1] INTEGER (1..120)	
P-5.1.2-6	Modulus											INTEGER (1..255)	
P-5.1.7	Short Term Intent Modulus											ShortTermIntentModulus ::= SEQUENCE	
P-5.1.7.1	Modulus	M					—	—	—	—	—	Modulus	
P-5.1.7.2	ProjectionTime	M					—	—	—	—	—	ProjectionTime	
P-5.1.7.1	Modulus											INTEGER (1..255)	
P-5.1.7.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-5.1.8	Extended Projected Profile Request Modulus											ExtendedProjectedProfileRequestModulus ::= SEQUENCE	
P-5.1.8.1	Modulus	M					—	—	—	—	—	Modulus	
P-5.1.8.2	Extended Projected Profile Request	M					—	—	—	—	—	ExtendedProjectedProfileRequest	
P-5.1.8.1	Modulus											INTEGER (1..255)	
P-5.1.8.2	Extended Projected Profile Request											ExtendedProjectedProfileRequest ::= CHOICE	
P-5.1.8.2.1	Time interval (15 min - 20 hrs in units of 15 min)	C					—	—	—	—	—	[0] INTEGER (1..80)	
P-5.1.8.2.2	Number of way points (1 - 128)	C					—	—	—	—	—	[1] INTEGER (1..128)	

Table P-6: ADS Demand Report

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-6.1	Demand Report											ADSDemandReport ::= SEQUENCE	
P-6.1.1	Demand Report	—	—	—	—	—	M					[0] ADSReport	
P-6.1.2	Positive acknowledgement	—	—	—	—	—	M					[1] NULL (OPTIONAL)	
P-6.1.3	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-6.1.1	ADS Report											ADSReport ::= SEQUENCE	
P-6.1.1.1	Position	—	—	—	—	—	M					[0] Position	See P-11
P-6.1.1.2	Time Stamp	—	—	—	—	—	M					[1] DateTimeGroup	See P-11
P-6.1.1.3	Figure Of Merit	—	—	—	—	—	M					[2] FigureOfMerit	
P-6.1.1.4	Aircraft Address	—	—	—	—	—	O					[3] AircraftAddress (OPTIONAL)	
P-6.1.1.5	Projected Profile	—	—	—	—	—	O					[4] ProjectedProfile (OPTIONAL)	
P-6.1.1.6	Ground Vector	—	—	—	—	—	O					[5] GroundVector (OPTIONAL)	
P-6.1.1.7	Air Vector	—	—	—	—	—	O					[6] AirVector (OPTIONAL)	
P-6.1.1.8	Met Info	—	—	—	—	—	O					[7] MetInfo (OPTIONAL)	
P-6.1.1.9	Short Term Intent	—	—	—	—	—	O					[8] ShortTermIntent (OPTIONAL)	
P-6.1.1.10	Extended Projected Profile	—	—	—	—	—	O					[9] ExtendedProjectedProfile (OPTIONAL)	
P-6.1.1.11	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-6.1.1.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE	
P-6.1.1.3.1	Positional Accuracy	—	—	—	—	—	M					PositionalAccuracy	
P-6.1.1.3.2	Multiple navigational units operating	—	—	—	—	—	M					BOOLEAN	
P-6.1.1.3.3	ACAS operational	—	—	—	—	—	M					BOOLEAN	
P-6.1.1.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED	
P-6.1.1.3.1.1	Complete loss	—	—	—	—	—	M					(0) complete-loss	
P-6.1.1.3.1.2	Under 30 nm	—	—	—	—	—	O					(1) under30nm	
P-6.1.1.3.1.3	Under 15 nm	—	—	—	—	—	O					(2) under15nm	
P-6.1.1.3.1.4	Under 8 nm	—	—	—	—	—	O					(3) under8nm	
P-6.1.1.3.1.5	Under 4 nm	—	—	—	—	—	O					(4) under4nm	
P-6.1.1.3.1.6	Under 1 nm	—	—	—	—	—	O					(5) under1nm	
P-6.1.1.3.1.7	Under 0.25 nm	—	—	—	—	—	O					(6) under-25nm	
P-6.1.1.3.1.8	Under 0.05 nm	—	—	—	—	—	O					(7) under-05nm	
P-6.1.1.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)	
P-6.1.1.5	Projected Profile											ProjectedProfile ::= SEQUENCE	
P-6.1.1.5.1	Next way point	—	—	—	—	—	M					Position	See P-11
P-6.1.1.5.2	ETA at next way point	—	—	—	—	—	M					Eta	
P-6.1.1.5.3	Following way point	—	—	—	—	—	M					Position	See P-11
P-6.1.1.5.2	ETA											Time	See P-11
P-6.1.1.6	Ground Vector											GroundVector ::= SEQUENCE	
P-6.1.1.6.1	Track	—	—	—	—	—	M					DegreesDirection (OPTIONAL)	b
P-6.1.1.6.2	Ground speed (-50 - 2200 knots)	—	—	—	—	—	M					INTEGER (-50..2200) (OPTIONAL)	b,d

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-6.1.1.6.3	Vertical Rate Change	—	—	—	—	—	M					VerticalRateChange (OPTIONAL)	b
P-6.1.1.6.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-6.1.1.6.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-6.1.1.7	Air Vector											AirVector ::= SEQUENCE	
P-6.1.1.7.1	Heading	—	—	—	—	—	M					[0] DegreesDirection (OPTIONAL)	b
P-6.1.1.7.2	Air Speed	—	—	—	—	—	M					[1] AirSpeed (OPTIONAL)	b
P-6.1.1.7.3	Vertical Rate Change	—	—	—	—	—	M					[2] VerticalRateChange (OPTIONAL)	b
P-6.1.1.7.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-6.1.1.7.2	AirSpeed											AirSpeed ::= CHOICE	
P-6.1.1.7.2.1	Mach	—	—	—	—	—	C					[0] Mach	a
P-6.1.1.7.2.2	IAS	—	—	—	—	—	C					[1] Ias	a
P-6.1.1.7.2.3	Mach and IAS	—	—	—	—	—	C					[2] SEQUENCE	a
P-6.1.1.7.2.3.1	Mach	—	—	—	—	—	M					Mach	
P-6.1.1.7.2.3.2	IAS	—	—	—	—	—	M					Ias	
P-6.1.1.7.2.2	Ias (0 - 1100 knots)											INTEGER (0..1100)	
P-6.1.1.7.2.1	Mach (0.5-4 Mach in units of 0.001 Mach)											INTEGER (500..4000)	
P-6.1.1.7.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-6.1.1.8	MetInfo											Weather ::= SEQUENCE	
P-6.1.1.8.1	Wind speed (0 - 300 knots)	—	—	—	—	—	O					[0] INTEGER (0..300) (OPTIONAL)	
P-6.1.1.8.2	Wind direction (1 - 360 degrees true N)	—	—	—	—	—	O					[1] INTEGER (1..360) (OPTIONAL)	
P-6.1.1.8.3	Temperature (-100 - 100 degrees C in units of 0.25 degrees)	—	—	—	—	—	O					[2] INTEGER (-400..400) (OPTIONAL)	
P-6.1.1.8.4	Turbulence (0 - 15)	—	—	—	—	—	O					[3] INTEGER (0..15) (OPTIONAL)	c
P-6.1.1.9	Short Term Intent											ShortTermIntent ::= SEQUENCE	
P-6.1.1.9.1	Following way point	—	—	—	—	—	M					Position	See P-11
P-6.1.1.9.2	Projection Time	—	—	—	—	—	M					ProjectionTime	
P-6.1.1.9.3	Intermediate Intent	—	—	—	—	—	M					IntermediateIntent	
P-6.1.1.9.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-6.1.1.9.3	Intermediate Intent											IntermediateIntent ::=	
P-6.1.1.9.3.1	Number of groups (0-7)	—	—	—	—	—	M					SEQUENCE SIZE(0..7) OF SEQUENCE	
P-6.1.1.9.3.1.1	Distance (1 - 8000 Nautical miles)	—	—	—	—	—	M					INTEGER (1..8000)	
P-6.1.1.9.3.1.2	Track	—	—	—	—	—	M					DegreesDirection	
P-6.1.1.9.3.1.3	Level	—	—	—	—	—	M					Level	
P-6.1.1.9.3.1.4	Projection Time	—	—	—	—	—	M					ProjectionTime	
P-6.1.1.9.3.1.2	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	

Source: Chapter 4 - ASN.1		Send - Ground ASE						Receive - Ground ASE				ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-6.1.1.9.3.1.3	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-750..100000)	
P-6.1.1.9.3.1.4	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-6.1.1.10	Extended Projected Profile											ExtendedProjectedProfile ::=	
P-6.1.1.10.1	Number of groups (1 - 128)	—	—	—	—	—	M					SEQUENCE SIZE(1..128) OF SEQUENCE	
P-6.1.1.10.1.1	Way point	—	—	—	—	—	M					Position	See P-11
P-6.1.1.10.1.2	ETA at each way point	—	—	—	—	—	M					Eta	
P-6.1.1.10.1.2	ETA	—	—	—	—	—	M					Time	See P-11

Notes:

- a At least one option must be supported
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Until the significance of the values is defined, the value 0 should be used
- d Negative values (-50 to -1) of Ground Speed should not be used

Table P-7: ADS Emergency Report

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-7.1	ADS Emergency											ADSEmergency ::= SEQUENCE	
P-7.1.1	Emergency Report	—	—	—	—	—	M					[0] ADSEmergencyReport	
P-7.1.2	Positive acknowledgement	—	—	—	—	—	M					[1] NULL (OPTIONAL)	
P-7.1.3	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-7.1.1	ADS Emergency Report											ADSEmergencyReport ::= SEQUENCE	
P-7.1.1.1	Position	—	—	—	—	—	M					[0] Position	See P-11
P-7.1.1.2	Time Stamp	—	—	—	—	—	M					[1] DateTimeGroup	See P-11
P-7.1.1.3	Figure Of Merit	—	—	—	—	—	M					[2] FigureOfMerit	
P-7.1.1.4	Aircraft Address	—	—	—	—	—	M					[3] AircraftAddress (OPTIONAL)	a
P-7.1.1.5	Ground Vector	—	—	—	—	—	M					[4] GroundVector (OPTIONAL)	a
P-7.1.1.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE	
P-7.1.1.3.1	Positional Accuracy	—	—	—	—	—	M					PositionalAccuracy	
P-7.1.1.3.2	Multiple navigational units operating	—	—	—	—	—	M					BOOLEAN	
P-7.1.1.3.3	ACAS operational	—	—	—	—	—	M					BOOLEAN	
P-7.1.1.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED	
P-7.1.1.3.1.1	Complete loss	—	—	—	—	—	M					(0) complete-loss	
P-7.1.1.3.1.2	Under 30 nm	—	—	—	—	—	O					(1) under30nm	
P-7.1.1.3.1.3	Under 15 nm	—	—	—	—	—	O					(2) under15nm	
P-7.1.1.3.1.4	Under 8 nm	—	—	—	—	—	O					(3) under8nm	
P-7.1.1.3.1.5	Under 4 nm	—	—	—	—	—	O					(4) under4nm	
P-7.1.1.3.1.6	Under 1 nm	—	—	—	—	—	O					(5) under1nm	
P-7.1.1.3.1.7	Under 0.25 nm	—	—	—	—	—	O					(6) under-25nm	
P-7.1.1.3.1.8	Under 0.05 nm	—	—	—	—	—	O					(7) under-05nm	
P-7.1.1.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)	
P-7.1.1.5	Ground Vector											GroundVector ::= SEQUENCE	
P-7.1.1.5.1	Track	—	—	—	—	—	M					DegreesDirection (OPTIONAL)	b
P-7.1.1.5.2	Ground speed (-50 - 2200 knots)	—	—	—	—	—	M					INTEGER (-50..2200) (OPTIONAL)	b, c
P-7.1.1.5.3	Vertical Rate Change	—	—	—	—	—	M					VerticalRateChange (OPTIONAL)	b
P-7.1.1.5.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-7.1.1.5.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		

Notes:

- a Required in every 5th report
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Negative values (-50 to -1) of Ground Speed should not be used

Table P-8: ADS Event Report

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINK Profile	Profile Status	Cons	Implementation Status	Cons	OPLINK Profile	Profile Status	Cons	Implementation Status	Cons		
P-8.1	Event Report											ADSEventReport ::= SEQUENCE	
P-8.1.1	Type of Event Reported	—	—	—	—	—	M					[0] EventTypeReported	
P-8.1.2	Event Report	—	—	—	—	—	M					[1] ADSReport	
P-8.1.3	Positive acknowledgement	—	—	—	—	—	M					[2] NULL (OPTIONAL)	
P-8.1.4	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-8.1.1	Event Type Reported											EventTypeReported ::= ENUMERATED	
P-8.1.1.1	Lateral deviation change	—	—	—	—	—	C					(0) lateral-deviation-change	
P-8.1.1.2	Vertical rate change	—	—	—	—	—	C					(1) vertical-rate-change	
P-8.1.1.3	Level threshold	—	—	—	—	—	C					(2) level-threshold	
P-8.1.1.4	Way point change	—	—	—	—	—	C					(3) way-point-change	
P-8.1.1.5	Air speed change	—	—	—	—	—	C					(4) air-speed-change	
P-8.1.1.6	Ground speed change	—	—	—	—	—	C					(5) ground-speed-change	
P-8.1.1.7	Heading change	—	—	—	—	—	C					(6) heading-change	
P-8.1.1.8	Extended projected profile change	—	—	—	—	—	C					(7) extended-projected-profile-change	
P-8.1.1.9	FOM change	—	—	—	—	—	C					(8) fom-change	
P-8.1.1.10	Track angle change	—	—	—	—	—	C					(9) track-angle-change	
P-8.1.1.11	Level change	—	—	—	—	—	C					(10) level-change	
P-8.1.1.12	Baseline	—	—	—	—	—	O					(11) baseline	
P-8.1.1.13	Ability to detect events impaired	—	—	—	—	—	M					(12) ability-to-detect-events-impaired	
P-8.1.1.14	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-8.1.2	ADS Report											ADSReport ::= SEQUENCE	
P-8.1.2.1	Position	—	—	—	—	—	M					[0] Position	See P-11
P-8.1.2.2	Time Stamp	—	—	—	—	—	M					[1] DateTimeGroup	See P-11
P-8.1.2.3	Figure Of Merit	—	—	—	—	—	M					[2] FigureOfMerit	
P-8.1.2.4	Aircraft Address	—	—	—	—	—	O					[3] AircraftAddress (OPTIONAL)	
P-8.1.2.5	Projected Profile	—	—	—	—	—	O					[4] ProjectedProfile (OPTIONAL)	
P-8.1.2.6	Ground Vector	—	—	—	—	—	O					[5] GroundVector (OPTIONAL)	
P-8.1.2.7	Air Vector	—	—	—	—	—	O					[6] AirVector (OPTIONAL)	
P-8.1.2.8	Met Info	—	—	—	—	—	O					[7] MetInfo (OPTIONAL)	
P-8.1.2.9	Short Term Intent	—	—	—	—	—	O					[8] ShortTermIntent (OPTIONAL)	
P-8.1.2.10	Extended Projected Profile	—	—	—	—	—	O					[9] ExtendedProjectedProfile (OPTIONAL)	
P-8.1.2.11	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-8.1.2.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE	
P-8.1.2.3.1	Positional Accuracy	—	—	—	—	—	M					PositionalAccuracy	
P-8.1.2.3.2	Multiple navigational units operating	—	—	—	—	—	M					BOOLEAN	
P-8.1.2.3.3	ACAS operational	—	—	—	—	—	M					BOOLEAN	
P-8.1.2.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED	
P-8.1.2.3.1.1	Complete loss	—	—	—	—	—	M					(0) complete-loss	
P-8.1.2.3.1.2	Under 30 nm	—	—	—	—	—	O					(1) under30nm	
P-8.1.2.3.1.3	Under 15 nm	—	—	—	—	—	O					(2) under15nm	

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-8.1.2.3.1.4	Under 8 nm	—	—	—	—	—	O					(3) under8nm	
P-8.1.2.3.1.5	Under 4 nm	—	—	—	—	—	O					(4) under4nm	
P-8.1.2.3.1.6	Under 1 nm	—	—	—	—	—	O					(5) under1nm	
P-8.1.2.3.1.7	Under 0.25 nm	—	—	—	—	—	O					(6) under-25nm	
P-8.1.2.3.1.8	Under 0.05 nm	—	—	—	—	—	O					(7) under-05nm	
P-8.1.2.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)	
P-8.1.2.5	Projected Profile											ProjectedProfile ::= SEQUENCE	
P-8.1.2.5.1	Next way point	—	—	—	—	—	M					Position	See P-11
P-8.1.2.5.2	ETA at next way point	—	—	—	—	—	M					Eta	
P-8.1.2.5.3	Following way point	—	—	—	—	—	M					Position	See P-11
P-8.1.2.5.2	ETA	—	—	—	—	—	M					Time	See P-11
P-8.1.2.6	Ground Vector											GroundVector ::= SEQUENCE	
P-8.1.2.6.1	Track	—	—	—	—	—	M					DegreesDirection (OPTIONAL)	b
P-8.1.2.6.2	Ground speed (-50 - 2200 knots)	—	—	—	—	—	M					INTEGER (-50..2200) (OPTIONAL)	b,d
P-8.1.2.6.3	Vertical Rate Change	—	—	—	—	—	M					VerticalRateChange (OPTIONAL)	b
P-8.1.2.6.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-8.1.2.6.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-8.1.2.7	Air Vector											AirVector ::= SEQUENCE	
P-8.1.2.7.1	Heading	—	—	—	—	—	M					[0] DegreesDirection (OPTIONAL)	b
P-8.1.2.7.2	Air Speed	—	—	—	—	—	M					[1] AirSpeed (OPTIONAL)	b
P-8.1.2.7.3	Vertical Rate Change	—	—	—	—	—	M					[2] VerticalRateChange (OPTIONAL)	b
P-8.1.2.7.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-8.1.2.7.2	AirSpeed											AirSpeed ::= CHOICE	
P-8.1.2.7.2.1	Mach	—	—	—	—	—	C					[0] Mach	a
P-8.1.2.7.2.2	IAS	—	—	—	—	—	C					[1] Ias	a
P-8.1.2.7.2.3	Mach and IAS	—	—	—	—	—	C					[2] SEQUENCE	a
P-8.1.2.7.2.3.1	Mach	—	—	—	—	—	M					Mach	
P-8.1.2.7.2.3.2	IAS	—	—	—	—	—	M					Ias	
P-8.1.2.7.2.2	Ias (0 - 1100 knots)											INTEGER (0..1100)	
P-8.1.2.7.2.1	Mach (0.5-4 Mach in units of 0.001 Mach)											INTEGER (500..4000)	
P-8.1.2.7.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-8.1.2.8	MetInfo											MetInfo ::= SEQUENCE	
P-8.1.2.8.1	Wind speed (0 - 300 knots)	—	—	—	—	—	O					[0] INTEGER (0..300) (OPTIONAL)	
P-8.1.2.8.2	Wind direction (1 - 360 degrees true N)	—	—	—	—	—	O					[1] INTEGER (1..360) (OPTIONAL)	

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-8.1.2.8.3	Temperature (-100 - 100 degrees C in units of 0.25 degrees)	—	—	—	—	—	O					[2] INTEGER (-400..400) (OPTIONAL)	
P-8.1.2.8.4	Turbulence (0 - 15)	—	—	—	—	—	O					[3] INTEGER (0..15) (OPTIONAL)	c
P-8.1.2.9	Short Term Intent	—	—	—	—	—						ShortTermIntent ::= SEQUENCE	
P-8.1.2.9.1	Following way point	—	—	—	—	—	M					Position	See P-11
P-8.1.2.9.2	Projection Time	—	—	—	—	—	M					ProjectionTime	
P-8.1.2.9.3	Intermediate Intent	—	—	—	—	—	M					IntermediateIntent	
P-8.1.2.9.2	Projection Time (1min - 4 hrs in mins)	—	—	—	—	—						INTEGER (1..240)	
P-8.1.2.9.3	Intermediate Intent	—	—	—	—	—						IntermediateIntent ::=	
P-8.1.2.9.3.1	Number of groups (0-7)	—	—	—	—	—	M					SEQUENCE SIZE(0..7) OF SEQUENCE	
P-8.1.2.9.3.1.1	Distance (1 - 8000 Nautical miles)	—	—	—	—	—	M					INTEGER (1..8000)	
P-8.1.2.9.3.1.2	Track	—	—	—	—	—	M					DegreesDirection	
P-8.1.2.9.3.1.3	Level	—	—	—	—	—	M					Level	
P-8.1.2.9.3.1.4	Projection Time	—	—	—	—	—	M					ProjectionTime	
P-8.1.2.9.3.1.2	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)	—	—	—	—	—						INTEGER (1..3600)	
P-8.1.2.9.3.1.3	Level (-750 - 100 000 feet in units of 10 ft)	—	—	—	—	—						INTEGER (-750..100000)	
P-8.1.2.9.3.1.4	Projection Time (1min - 4 hrs in mins)	—	—	—	—	—						INTEGER (1..240)	
P-8.1.2.10	Extended Projected Profile	—	—	—	—	—						ExtendedProjectedProfile ::=	
P-8.1.2.10.1	Number of groups (1 - 128)	—	—	—	—	—	M					SEQUENCE SIZE(1..128) OF SEQUENCE	
P-8.1.2.10.1.1	Way point	—	—	—	—	—	M					Position	See P-11
P-8.1.2.10.1.2	ETA at each way point	—	—	—	—	—	M					Eta	
P-8.1.2.10.1.2	ETA	—	—	—	—	—	M					Time	See P-11

Notes:

- a At least one option must be supported
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Until the significance of the values is defined, the value 0 should be used
- d Negative values (-50 to -1) of Ground Speed should not be used

Table P-9: ADS Periodic Report

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements		Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons	ASN.1 Protocol Elements		
P-9.1	Periodic Report											ADSPeriodicReport ::= SEQUENCE		
P-9.1.1	Periodic Report	—	—	—	—	—	M					[0] ADSReport		
P-9.1.2	Positive acknowledgement	—	—	—	—	—	M					[1] NULL (OPTIONAL)		
P-9.1.3	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility		
P-9.1.1	ADS Report											ADSReport ::= SEQUENCE		
P-9.1.1.1	Position	—	—	—	—	—	M					[0] Position		See P-11
P-9.1.1.2	Time Stamp	—	—	—	—	—	M					[1] DateTimeGroup		See P-11
P-9.1.1.3	Figure Of Merit	—	—	—	—	—	M					[2] FigureOfMerit		
P-9.1.1.4	Aircraft Address	—	—	—	—	—	O					[3] AircraftAddress (OPTIONAL)		
P-9.1.1.5	Projected Profile	—	—	—	—	—	O					[4] ProjectedProfile (OPTIONAL)		
P-9.1.1.6	Ground Vector	—	—	—	—	—	O					[5] GroundVector (OPTIONAL)		
P-9.1.1.7	Air Vector	—	—	—	—	—	O					[6] AirVector (OPTIONAL)		
P-9.1.1.8	Met Info	—	—	—	—	—	O					[7] MetInfo (OPTIONAL)		
P-9.1.1.9	Short Term Intent	—	—	—	—	—	O					[8] ShortTermIntent (OPTIONAL)		
P-9.1.1.10	Extended Projected Profile	—	—	—	—	—	O					[9] ExtendedProjectedProfile (OPTIONAL)		
P-9.1.1.11	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility		
P-9.1.1.3	Figure Of Merit											FigureOfMerit ::= SEQUENCE		
P-9.1.1.3.1	Positional Accuracy	—	—	—	—	—	M					PositionalAccuracy		
P-9.1.1.3.2	Multiple navigational units operating	—	—	—	—	—	M					BOOLEAN		
P-9.1.1.3.3	ACAS operational	—	—	—	—	—	M					BOOLEAN		
P-9.1.1.3.1	Positional Accuracy											PositionalAccuracy ::= ENUMERATED		
P-9.1.1.3.1.1	Complete loss	—	—	—	—	—	M					(0) complete-loss		
P-9.1.1.3.1.2	Under 30 nm	—	—	—	—	—	O					(1) under30nm		
P-9.1.1.3.1.3	Under 15 nm	—	—	—	—	—	O					(2) under15nm		
P-9.1.1.3.1.4	Under 8 nm	—	—	—	—	—	O					(3) under8nm		
P-9.1.1.3.1.5	Under 4 nm	—	—	—	—	—	O					(4) under4nm		
P-9.1.1.3.1.6	Under 1 nm	—	—	—	—	—	O					(5) under1nm		
P-9.1.1.3.1.7	Under 0.25 nm	—	—	—	—	—	O					(6) under-25nm		
P-9.1.1.3.1.8	Under 0.05 nm	—	—	—	—	—	O					(7) under-05nm		
P-9.1.1.4	AircraftAddress ICAO Airframe Id											BIT String SIZE(24)		
P-9.1.1.5	Projected Profile											ProjectedProfile ::= SEQUENCE		
P-9.1.1.5.1	Next way point	—	—	—	—	—	M					Position		See P-11
P-9.1.1.5.2	ETA at next way point	—	—	—	—	—	M					Eta		
P-9.1.1.5.3	Following way point	—	—	—	—	—	M					Position		See P-11
P-9.1.1.5.2	ETA	—	—	—	—	—	M					Time		See P-11
P-9.1.1.6	Ground Vector											GroundVector ::= SEQUENCE		
P-9.1.1.6.1	Track	—	—	—	—	—	M					DegreesDirection (OPTIONAL)		b
P-9.1.1.6.2	Ground speed (-50 - 2200 knots)	—	—	—	—	—	M					INTEGER (-50..2200) (OPTIONAL)		b,d

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-9.1.1.6.3	Vertical Rate Change	—	—	—	—	—	M					VerticalRateChange (OPTIONAL)	b
P-9.1.1.6.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-9.1.1.6.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-9.1.1.7	Air Vector											AirVector ::= SEQUENCE	
P-9.1.1.7.1	Heading	—	—	—	—	—	M					[0] DegreesDirection (OPTIONAL)	b
P-9.1.1.7.2	Air Speed	—	—	—	—	—	M					[1] AirSpeed (OPTIONAL)	b
P-9.1.1.7.3	Vertical Rate Change	—	—	—	—	—	M					[2] VerticalRateChange (OPTIONAL)	b
P-9.1.1.7.1	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	
P-9.1.1.7.2	AirSpeed											AirSpeed ::= CHOICE	
P-9.1.1.7.2.1	Mach	—	—	—	—	—	C					[0] Mach	a
P-9.1.1.7.2.2	IAS	—	—	—	—	—	C					[1] Ias	a
P-9.1.1.7.2.3	Mach and IAS	—	—	—	—	—	C					[2] SEQUENCE	a
P-9.1.1.7.2.3.1	Mach	—	—	—	—	—	M					Mach	
P-9.1.1.7.2.3.2	IAS	—	—	—	—	—	M					Ias	
P-9.1.1.7.2.2	Ias (0 - 1100 knots)											INTEGER (0..1100)	
P-9.1.1.7.2.1	Mach (0.5-4 Mach in units of 0.001 Mach)											INTEGER (500..4000)	
P-9.1.1.7.3	VerticalRateChange (-30000 - 30000 feet per minute in units of 10 feet/minute)											INTEGER (-3000..3000)	
P-9.1.1.8	MetInfo											MetInfo ::= SEQUENCE	
P-9.1.1.8.1	Wind speed (0 - 300 knots)	—	—	—	—	—	O					[0] INTEGER (0..300) (OPTIONAL)	
P-9.1.1.8.2	Wind direction (1 - 360 degrees true N)	—	—	—	—	—	O					[1] INTEGER (1..360) (OPTIONAL)	
P-9.1.1.8.3	Temperature (-100 - 100 degrees C in units of 0.25 degrees)	—	—	—	—	—	O					[2] INTEGER (-400..400) (OPTIONAL)	
P-9.1.1.8.4	Turbulence (0 - 15)	—	—	—	—	—	O					[3] INTEGER (0..15) (OPTIONAL)	c
P-9.1.1.9	Short Term Intent											ShortTermIntent ::= SEQUENCE	
P-9.1.1.9.1	Following way point	—	—	—	—	—	M					Position	See P-11
P-9.1.1.9.2	Projection Time	—	—	—	—	—	M					ProjectionTime	
P-9.1.1.9.3	Intermediate Intent	—	—	—	—	—	M					IntermediateIntent	
P-9.1.1.9.2	Projection Time (1min - 4 hrs in mins)											INTEGER (1..240)	
P-9.1.1.9.3	Intermediate Intent											IntermediateIntent ::=	
P-9.1.1.9.3.1	Number of groups (0-7)	—	—	—	—	—	M					SEQUENCE SIZE(0..7) OF SEQUENCE	
P-9.1.1.9.3.1.1	Distance (1 - 8000 Nautical miles)	—	—	—	—	—	M					INTEGER (1..8000)	
P-9.1.1.9.3.1.2	Track	—	—	—	—	—	M					DegreesDirection	
P-9.1.1.9.3.1.3	Level	—	—	—	—	—	M					Level	
P-9.1.1.9.3.1.4	Projection Time	—	—	—	—	—	M					ProjectionTime	
P-9.1.1.9.3.1.2	Degrees Direction (0.1 - 360 degrees in units of 0.1 degrees)											INTEGER (1..3600)	

Source: Chapter 4 - ASN.1																
Ref No	Operational Elements	Send - Ground ASE						Receive - Ground ASE						ASN.1 Protocol Elements	Notes	
		OPLINKP Profile	Profile Status Cons		Implementation Status Cons		OPLINKP Profile	Profile Status Cons		Implementation Status Cons						
P-9.1.1.9.3.1.3	Level (~750 - 100 000 feet in units of 10 ft)													INTEGER (-750..100000)		
P-9.1.1.9.3.1.4	Projection Time (1min - 4 hrs in mins)													INTEGER (1..240)		

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-9.1.1.10	Extended Projected Profile											ExtendedProjectedProfile ::=	
P-9.1.1.10.1	Number of groups (1 - 128)	—	—	—	—	—	M					SEQUENCE SIZE(1..128) OF SEQUENCE	
P-9.1.1.10.1.1	Way point	—	—	—	—	—	M					Position	See P-11
P-9.1.1.10.1.2	ETA at each way point	—	—	—	—	—	M					Eta	
P-9.1.1.10.1.2	ETA	—	—	—	—	—	M					Time	See P-11

Notes:

- a At least one option must be supported
- b Although these elements are optional in ASN.1, all 3 must be supplied in Air Vector or Ground Vector
- c Until the significance of the values is defined, the value 0 should be used
- d Negative values (-50 to -1) of Ground Speed should not be used

Table P-10: ADS Acknowledgements and Noncompliance Notification

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Status	Cons	OPLINKP Profile	Status	Cons	Status	Cons		
P-10.1	Negative Acknowledgement											NegativeAcknowledgement ::= SEQUENCE	
P-10.1.1	Request Type	—	—	—	—	—	M					RequestType	
P-10.1.2	Reason	—	—	—	—	—	M					Reason	
P-10.1.1	Request Type											RequestType ::= ENUMERATED	
P-10.1.1.1	Event contract	—	—	—	—	—	M					(0) event-contract	
P-10.1.1.2	Periodic contract	—	—	—	—	—	M					(1) periodic-contract	
P-10.1.1.3	Demand contract	—	—	—	—	—	M					(2) demand-contract	
P-10.1.1.4	Cancel event contract	—	—	—	—	—	M					(3) cancel-event-contract	
P-10.1.1.5	Cancel periodic contract	—	—	—	—	—	M					(4) cancel-periodic-contract	
P-10.1.1.6	Modify emergency contract	—	—	—	—	—	M					(5) modify-emergency-contract	
P-10.1.1.7	Cancel all contracts	—	—	—	—	—	M					(6) cancel-all-contracts	
P-10.1.1.8	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-10.1.2	Reason											Reason ::= CHOICE	
P-10.1.2.1	ADS service unavailable	—	—	—	—	—	M					[0] NULL	
P-10.1.2.2	undefined	—	—	—	—	—	I					[1] NULL	
P-10.1.2.3	Maximum capacity exceeded	—	—	—	—	—	M					[2] GroundSystemsUsingService	
P-10.1.2.4	Undefined reason	—	—	—	—	—	M					[3] NULL	
P-10.1.2.5	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-10.1.2.3	GroundSystemsUsingService											SEQUENCE OF IA5String SIZE(4..8)	
P-10.1.2.3.1	number of connected ground systems (4)	—	—	—	—	—	M					Not applicable	
P-10.2	NoncomplianceNotification											NoncomplianceNotification ::= CHOICE	
P-10.2.1	Demand Contract NCN	—	—	—	—	—	M					[0] SEQUENCE OF ReportType	
P-10.2.2	Event Contract NCN	—	—	—	—	—	M					[1] SEQUENCE OF EventTypeContracted	
P-10.2.3	Periodic Contract NCN	—	—	—	—	—	M					[2] SEQUENCE OF ReportTypeAndPeriod	
P-10.2.4	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-10.2.1	Report Type											ReportType ::= ENUMERATED	
P-10.2.1.1	Aircraft address	—	—	—	—	—	O					(0) aircraft-address	
P-10.2.1.2	Projected profile	—	—	—	—	—	O					(1) projected-profile	
P-10.2.1.3	Ground vector	—	—	—	—	—	O					(2) ground-vector	
P-10.2.1.4	Air vector	—	—	—	—	—	O					(3) air-vector	
P-10.2.1.5	Weather	—	—	—	—	—	O					(4) weather	
P-10.2.1.6	Short term intent	—	—	—	—	—	O					(5) short-term-intent	
P-10.2.1.7	Extended projected profile	—	—	—	—	—	O					(6) extended-projected-profile	
P-10.2.1.8	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-10.2.2	Event Type Contracted											EventTypeContracted ::= ENUMERATED	
P-10.2.2.1	Lateral deviation change	—	—	—	—	—	C					(0) lateral-deviation-change	
P-10.2.2.2	Vertical rate change	—	—	—	—	—	C					(1) vertical-rate-change	
P-10.2.2.3	Level threshold	—	—	—	—	—	C					(2) level-threshold	
P-10.2.2.4	Way point change	—	—	—	—	—	C					(3) way-point-change	
P-10.2.2.5	Air speed change	—	—	—	—	—	C					(4) air-speed-change	
P-10.2.2.6	Ground speed change	—	—	—	—	—	C					(5) ground-speed-change	
P-10.2.2.7	Heading change	—	—	—	—	—	C					(6) heading-change	
P-10.2.2.8	Extended projected profile change	—	—	—	—	—	C					(7) extended-projected-profile-change	
P-10.2.2.9	FOM change	—	—	—	—	—	C					(8) fom-change	
P-10.2.2.10	Track angle change	—	—	—	—	—	C					(9) track-angle-change	
P-10.2.2.11	Level change	—	—	—	—	—	C					(10) level-change	
P-10.2.2.12	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-10.2.3	Report Type And Period											ReportTypeAndPeriod ::= ENUMERATED	
P-10.2.3.1	Aircraft address	—	—	—	—	—	O					(0) aircraft-address	
P-10.2.3.2	Projected profile	—	—	—	—	—	O					(1) projected-profile	
P-10.2.3.3	Ground vector	—	—	—	—	—	O					(2) ground-vector	
P-10.2.3.4	Air vector	—	—	—	—	—	O					(3) air-vector	
P-10.2.3.5	Met Info	—	—	—	—	—	O					(4) met-info	
P-10.2.3.6	Short term intent	—	—	—	—	—	O					(5) short-term-intent	
P-10.2.3.7	Extended projected profile	—	—	—	—	—	O					(6) extended-projected-profile	
P-10.2.3.8	Reporting rate	—	—	—	—	—	O					(7) reporting-rate	
P-10.2.3.9	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	
P-10.3	Positive Acknowledgement	—	—	—	—	—	M					RequestType	
P-10.3	Request Type											RequestType ::= ENUMERATED	
P-10.3.1	Event contract	—	—	—	—	—	M					(0) event-contract	
P-10.3.2	Periodic contract	—	—	—	—	—	M					(1) periodic-contract	
P-10.3.3	Demand contract	—	—	—	—	—	M					(2) demand-contract	
P-10.3.4	Cancel event contract	—	—	—	—	—	M					(3) cancel-event-contract	
P-10.3.5	Cancel periodic contract	—	—	—	—	—	M					(4) cancel-periodic-contract	
P-10.3.6	Modify emergency contract	—	—	—	—	—	M					(5) modify-emergency-contract	
P-10.3.7	Cancel all contracts	—	—	—	—	—	M					(6) cancel-all-contracts	
P-10.3.8	Use of Extensibility	—	—	—	—	—	M					Use of Extensibility	

Table P-11: Common Components in ADS Reports

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Status	Cons	Implementation Status	Cons	OPLINKP Profile	Status	Cons	Implementation Status	Cons		
P-11.1	Position											Position ::= SEQUENCE	
P-11.1.1	Latitude	—	—	—	—	—	M					Latitude	
P-11.1.2	Longitude	—	—	—	—	—	M					Longitude	
P-11.1.3	Level	—	—	—	—	—	M					Level	
P-11.1.1	Latitude											Latitude ::= SEQUENCE	
P-11.1.1.1	Sign	—	—	—	—	—	M					Sign	
P-11.1.1.2	Degrees (0 - 90 degrees)	—	—	—	—	—	M					INTEGER (0..90)	
P-11.1.1.3	Minutes (0 - 59 minutes)	—	—	—	—	—	M					INTEGER (0..59)	
P-11.1.1.4	Tenths of seconds (0 - 59.9 seconds in units of 0.1 second)	—	—	—	—	—	M					INTEGER (0..599)	
P-11.1.1.1	Sign											Sign ::= ENUMERATED	
P-11.1.1.1.1	Plus	—	—	—	—	—	M					(0) <i>plus</i>	
P-11.1.1.1.2	Minus	—	—	—	—	—	M					(1) <i>minus</i>	
P-11.1.2	Longitude											Longitude ::= SEQUENCE	
P-11.1.2.1	Sign	—	—	—	—	—	M					Sign	
P-11.1.2.2	Degrees (0 - 180 degrees)	—	—	—	—	—	M					INTEGER (0..180)	
P-11.1.2.3	Minutes (0 - 59 minutes)	—	—	—	—	—	M					INTEGER (0..59)	
P-11.1.2.4	Tenths of seconds (0 - 59.9 seconds in units of 0.1 second)	—	—	—	—	—	M					INTEGER (0..599)	
P-11.1.2.1	Sign											Sign ::= ENUMERATED	
P-11.1.2.1.1	Plus	—	—	—	—	—	M					(0) <i>plus</i>	
P-11.1.2.1.2	Minus	—	—	—	—	—	M					(1) <i>minus</i>	
P-11.1.3	Level (-750 - 100 000 feet in units of 10 ft)											INTEGER (-750..100000)	
P-11.2	Date Time Group											DateTimeGroup ::= SEQUENCE	
P-11.2.1	Date	—	—	—	—	—	M					Date	
P-11.2.2	Time	—	—	—	—	—	M					Time	
P-11.2.1	Date											Date ::= SEQUENCE	
P-11.2.1.1	Year	—	—	—	—	—	M					Year	
P-11.2.1.2	Month	—	—	—	—	—	M					Month	
P-11.2.1.3	Day	—	—	—	—	—	M					Day	
P-11.2.1.1	Year (1996 - 2095)											INTEGER (1996..2095)	
P-11.2.1.2	Month (January(1) - December(12))											INTEGER (1..12)	
P-11.2.1.3	Day (Day(1) - Day(31))											INTEGER (1..31)	
P-11.3	Time											Time ::= SEQUENCE	

Source: Chapter 4 - ASN.1		Send - Ground ASE					Receive - Ground ASE					ASN.1 Protocol Elements	Notes
Ref No	Operational Elements	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons	OPLINKP Profile	Profile Status	Cons	Implementation Status	Cons		
P-11.3.1	Hours	—	—	—	—	—	M					[0] TimeHours	
P-11.3.2	Minutes	—	—	—	—	—	M					[1] TimeMinutes	
P-11.3.3	Seconds	—	—	—	—	—	M					[2] TimeSeconds	
P-11.3.1	TimeHours (Midnight(0) - 23:00 hrs (11 PM))											INTEGER (0..23)	
P-11.3.2	TimeMinutes (0 -59 minutes)											INTEGER (0..59)	
P-11.3.3	TimeSeconds (0 -59 seconds)											INTEGER (0..59)	