



EUROCAE ED-122 / RTCA DO-306

Oceanic SPR Standard

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History



▶ SCI89 / WG53

- 1 EDI00 / DO 258 : Interoperability Requirements for ATS Applications Using ARINC 622 Data Communications
=> FANS I/A implementations
- 2 Revision A of EDI00 / DO 258
=> FANS I/A+ implementations
- 3 EDI22 / DO306 : Safety and Performance Standard for Air Traffic Datalink Services in Oceanic and Remote Airspace
=> FANS I/A+ Safety and Perfo requirements
- 4 Change I to EDI22 / DO306 (done by SC214 / WG78)
=> ITP Messages and Procedures

▶ Note: Number of FANS I/A (+) avionics have been certified before release of EDI22/DO306





ED-122 / DO-306

Scope



- ▶ **ATS functions supported by
ATS Data Link Services and Applications**
 - ▶ Route Conformance Monitoring (RCM)
 - ⇒ **ensure that the aircraft conforms to the current flight plan**
 - ▶ Separation Assurance (SA)
 - ⇒ **apply separation minima depending on aircraft capabilities**
(50 NM longitudinal, 30 NM lateral or 30 NM longitudinal separation where data link services are required, and lateral separation greater than or equal to 50 NM and time-based longitudinal separation where data link services can be used)
 - ▶ ReRoute (RR)
 - ⇒ **air-initiated route update**
 - ▶ Weather Deviations (WD) and
 - ▶ In Trail Procedures using ADS-B (ITP)
 - ⇒ **air-initiated vertical maneuver using ADS-B ITP capability**
- ▶ **With traceability to ICAO Operational Requirements (Annexes and PANS ATM as relevant)**

ATS Functions

Route conformance monitoring

Weather deviations

Separation assurance

Rerouting

ITP

**Data Link
Initiation
Capability
(DLIC)**

**Ats Facility
Notification
(AFN)**

**Connection Establishment,
Termination and Transfers
(CE, CT, TC)**

**Clearance and
Request Delivery
(CRD)**

**Controller Pilot
Data Link
Communications
(CPDLC)**

**Information Exchange
and Reporting
(IER)**

**Position
Reporting
(PR)**

**Automatic
Dependence
Surveillance
Contract
(ADS-C)**

- ▶ Oceanic SPR provides requirements for ATS Data Link services and Applications
 - ▶ Functional definition
 - ▶ Operating Methods for services
 - ▶ Message definition for applications
 - ▶ Safety Objectives and derived Safety Requirements
 - ▶ Performance Requirements
 - ▶ Early RCP concept for CPDLC, no formal RSP
 - Communication Transaction Time
 - Maximum transaction time
 - Nominal transaction time (95%)
 - Continuity, Availability and Integrity
 - Allocations to human and technical ATM/CNS elements (i.e. the aircraft system, ATS Provider and Air-Ground Communications Service Provider)
 - ▶ RCP240D and Surv180 for reduced separations
 - ▶ RCP400D and Surv400 for other separations



RCP (time) in ED-122 / DO-306



RCP type	RCP 240/D		RCP 400/D	
Time Parameter	ET	95%	ET	95%
Time Value	240	210	400	350
RCP Time Allocations				
Initiator	30	30	30	30
TRN	210	180	370	320
TRN Time Allocations				
Responder	60	60	60	60
RCTP	150	120	310	260
RCTP Time Allocation				
Aircraft	15	10	15	10
Communication service	120	100	280	240
ATS unit	15	10	15	10
<i>Note: Values shown in seconds.</i>				



Pseudo-RSP (time) in ED-122 / DO-306



Pseudo RSP180

Position report delivery times	Periodic, Waypoint, or Lateral Deviation Event	
Time Parameter	ET	95%
Time Value	180	90
Time Allocation		
Aircraft	5	3
Communication service	170	84
ATS unit	5	3
<i>Note: Values shown in seconds.</i>		

Pseudo RSP400

Position report delivery times	Periodic, Waypoint, or Lateral Deviation Event	
Time Parameter	ET	95%
Time Value	400	300
Time Allocation		
Aircraft	30	15
Communication service	340	270
ATS unit	30	15
<i>Note: Values shown in seconds.</i>		



Beyond ED-122 / DO-306



- ▶ Oceanic SPR does not provides any link with supporting technologies
- ▶ Only in-service monitoring can demonstrate if a given air-ground technology can meet performance requirements
- ▶ Today, FAA recognizes (source AC20-140B)
 - ▶ For RCPI20
 - ▶ VDL2
 - ▶ For RCP240/RSPI80
 - ▶ VDL 0/A, VDL2, SATCOM (Inmarsat), SATCOM (Iridium)
 - ▶ For RCP400/RSPI80
 - ▶ HF DL

Note: Other means are investigated (e.g. VDL Mode A/0 for RCPI20)



QUESTIONS ?

