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## AF1 — Extended Arrival Management and Performance Based Navigation in high density Terminal Manoeuvring Area

*Extended Arrival Management (AMAN) and Performance Based Navigation (PBN) in high density Terminal Manoeuvring Areas (TMAs) improves the precision of the approach trajectory and facilitates air traffic sequencing at an earlier stage. Extended AMAN supports extension of the planning horizon out to a minimum of 180-200 nautical miles, up to and including the Top of Descent of arrival flights. PBN in high density TMAs covers the development and implementation of fuel efficient and/or environmental friendly procedures for arrival and departure (Required Navigation Performance 1 Standard Instrument Departures (RNP 1 SIDs), Standard Arrival Routes (STARs)) and approach (Required Navigation Performance Approach (RNP APCH)).*

### Geographical Scope

Extended AMAN and PBN in high density TMAs and associated en-route sectors shall be operated at the following airports: London-Heathrow, Paris-CDG, London-Gatwick, Paris-Orly, London-Stansted, Milan-Malpensa, Frankfurt International, Madrid-Barajas, Amsterdam Schiphol, Munich Franz Josef Strauss, Rome-Fiumicino, Barcelona El Prat, Zurich Kloten (1), Düsseldorf International, Brussels National, Oslo Gardermoen (2), Stockholm-Arlanda, Berlin Brandenburg Airport, Manchester Ringway, Palma De Mallorca Son San Juan, Copenhagen Kastrup, Vienna Schwechat, Dublin, Nice Cote d'Azur.

Extended AMAN and PBN in high density TMAs should be operated at the Istanbul Ataturk Airport.

- (1) Subject to incorporation of this Regulation into Agreement between the European Community and the Swiss Confederation on Air Transport.
- (2) Subject to incorporation of this Regulation into EEA Agreement.

### Deployment Target Date

ATS providers and the Network Manager shall ensure that ATS units providing ATC services within the terminal airspace of the airports referred to in the Geographical Scope and the associated en-route sectors operate Extended AMAN and PBN in high density TMAs as from 1 January 2024.

### Need for Synchronisation

The deployment of Extended AMAN and PBN in high density TMAs functionality shall be coordinated due to the potential network performance impact of delayed implementation in the airports referred to in the Geographical Scope. From a technical perspective the deployment of targeted system and procedural changes shall be synchronised in order to ensure that the performance objectives are met. The synchronisation of investments shall involve multiple airport operators and air navigation service providers. Furthermore, synchronisation during the related industrialisation phase shall take place, in particular among supply industry.

### Interdependencies with other ATM functionalities

- Data exchange between ATS units, in particular concerning Extended AMAN, shall be implemented using System Wide Information Management (SWIM) services where iSWIM functionality referred to in AF 5 is available
- Downlink trajectory information as specified in AF 6, where available, shall be used by the AMAN

### Essential Prerequisites

There are no prerequisites for this functionality. An existing AMAN facilitates the operational integration of this ATM functionality into existing systems.



### ATM Sub-Functionalities

Code	Title	Related Elements
S-AF1.1	AMAN extended to En-Route Airspace	SOL OI EN OBJ ICAO
S-AF1.2	Enhanced Terminal Airspace using RNP-Based Operations	SOL OI EN OBJ ICAO

