

## **New standard instrument arrival routes (STAR) for Frankfurt Airport (EDDF)**

Dear Sir or Madam

DFS is planning to introduce two new standard instrument arrival routes (STAR) for Frankfurt Airport via the waypoints EMPAX and ASPAT/ PETIX which will enable continuous descent operations. The routes will be published with programmed flight levels and speed restrictions (each waypoint has a maximum and minimum flight level).

The routes are planned to go into operation on the following dates

- the route via EMPAX on 13 October 2016
- the route via ASPAT/PETIX on 8 December 2016

The AIP RMK concerning the airway requires aircraft equipped for RNAV1 to include the arrival route in the flight plan (e.g. AIP RMK T163: "After EMPAX, flights with DEST EDDF complying with RNAV1 shall file EMPAX STAR").

A sample tabular description for landing direction 07 of the planned publication for EMPAX arrivals to Frankfurt Airport is included in this letter.

Please note that it is mandatory to use the published flight levels and speed restrictions on the new routes. Any deviations from these may only be made when coordinated with ATC.

If the traffic situation allows, the clearance for the new arrival routes will use the phraseology DESCEND VIA (e.g. DESCEND VIA EMPAX 1W FL240). If no clearance is issued for the arrival route, ATC expects the aircraft to follow the lateral profile of the STAR. This means the descent shall be conducted according to the individual clearances of the air traffic controllers.

Current and future phraseology differ as follows:

Current phraseology in accordance with Nfl 1-667-16, item 7.24:

7.24 Freigaben auf Ein- und Abflugstrecken  
Clearances on a STAR / SID

G: **DESCEND VIA** (designator) (level)

G: **DESCEND VIA** (designator) (level) **CANCEL LEVEL / SPEED RESTRICTION(S)** \*AT (significant point)\*

Additions to current phraseology in accordance with AMDT 7 ICAO Doc 4444 10 NOV 2016

... clearance to descend on a STAR which has published level and/or speed restrictions, where the pilot is to descend to the cleared level and comply with published level restrictions, follow the lateral profile of the STAR and comply with published speed restrictions or ATC issued speed control instructions.	ff) <b>DESCEND VIA STAR TO (level)</b>
... clearance to cancel level restrictions of a STAR during descent	gg) <b>[DESCEND VIA STAR TO (level)], CANCEL LEVEL RESTRICTION(S)</b>
... clearance to cancel specific level restrictions of a STAR during descent	hh) <b>[DESCEND VIA STAR TO (level)], CANCEL LEVEL RESTRICTION(S) AT (point(s))</b>
... clearance to cancel speed restrictions of a STAR during descent	ii) <b>[DESCEND VIA STAR TO (level)], CANCEL SPEED RESTRICTION(S)</b>
... clearance to cancel specific speed restrictions of a STAR during descent	jj) <b>[DESCEND VIA STAR TO (level)], CANCEL SPEED RESTRICTION(S) AT (point(s))</b>
... clearance to descend and to cancel speed and level restrictions of a STAR	kk) <b>DESCEND UNRESTRICTED TO (level) or DESCEND TO (level), CANCEL LEVEL AND SPEED RESTRICTIONS</b>

AD 2 EDDF 3-1-14  
Effective: 13 OCT 2016

FRANKFURT MAIN (SOUTH)  
RWY 07R

LUFTFAHRTHANDBUCH DEUTSCHLAND  
AIP GERMANY  
STANDARD ARRIVAL  
ROUTES-INSTRUMENT (STAR)  
RNAV (GPS, DME/DME, DME/DME/IRU)

## NEW PROCEDURE

EMPAX ONE ECHO											
EMPAX 1E											
Recommended Path Terminator	Waypoint Identifier	Coordinates	Fly Over	(True Track*) Mag Track*	Distance (NM)	Turn Direction	Altitude (ft) / Flight Level	Speed Limit (kt IAS)	Vertical Path Angle (°)	NAV-Specification	Remarks
IF	EMPAX	N 48 27 43.05 E 008 59 53.34	-	-	-	-	FL380- FL290+	-	-	RNAV-1	-
TF	NELLI	N 48 37 39.55 E 009 01 24.54	-	(T005.8) 004	10.0	-	FL320- FL280+	-	-	RNAV-1	-
TF	KOVAN	N 48 52 56.59 E 009 05 03.45	-	(T008.9) 007	15.5	-	FL270- FL220+	-	-	RNAV-1	-
TF	XIBGI	N 49 00 30.21 E 009 06 08.09	-	(T005.4) 003	7.6	-	FL240- FL200+	-	-	RNAV-1	-
TF	XINLA	N 49 17 01.13 E 009 08 29.79	-	(T005.3) 003	16.6	-	FL190- FL160+	-	-	RNAV-1	-
TF	XOPMO	N 49 36 00.42 E 009 15 14.54	-	(T013.0) 011	19.5	-	FL110- FL100+	280-	-	RNAV-1	-
TF	ADNIS	N 49 42 00.33 E 009 17 23.55	-	(T013.1) 011	6.2	-	@FL100	280-	-	RNAV-1	-
TF	PSA	N 49 51 44.07 E 009 20 53.97	-	(T013.1) 011	10.0	-	-	-	-	RNAV-1	-
TF	CHA	N 49 55 15.97 E 009 02 23.32	-	(T286.6) 285	12.5	-	-	-	-	RNAV-1	-
TF	DF635	N 49 58 56.74 E 008 43 00.98	-	(T286.5) 285	13.0	-	-	-	-	RNAV-1	-
TF	DF636	N 49 55 36.32 E 008 29 08.06	-	(T249.6) 248	9.6	-	FL80+	-	-	RNAV-1	-
TF	DF640	N 49 52 59.30 E 008 18 18.40	-	(T249.6) 248	7.5	-	-	-	-	RNAV-1	-
TF	DF641	N 49 51 32.73 E 008 12 22.52	-	(T249.6) 248	4.1	-	-	-	-	RNAV-1	-
TF	DF642	N 49 50 07.98 E 008 06 35.09	-	(T249.6) 248	4.0	-	-	-	-	RNAV-1	-
TF	DF643	N 49 48 42.94 E 008 00 48.00	-	(T249.6) 248	4.0	-	-	-	-	RNAV-1	-
TF	DF644	N 49 47 17.60 E 007 55 01.26	-	(T249.6) 248	4.0	-	A4000+	-	-	RNAV-1	-

## RNAV HOLDING IDENTIFICATION

Recommended Path Terminator	Holding Fix	Coordinates	Inbound (True Track*) Mag Track*	Speed Limit (kt IAS)	Altitude (ft) / Flight Level	Time / Distance outbound	Turn Direction	Remarks
HM	PSA	N 49 51 44.07 E 009 20 53.97	(T291.6) 290	230-	A5000+/FL100-	1 min	R	-
HM	CHA	N 49 55 15.97 E 009 02 23.32	(T286.5) 285	230-	A4000+/FL100-	1 min	R	-

AD 2 EDDF 4-2-3A  
Effective: 13 OCT 2016

FRANKFURT MAIN  
RWY 07R

LUFTFAHRTHANDBUCH DEUTSCHLAND  
AIP GERMANY  
ILS Z CAT II & III OR LOC Z  
INITIAL APPROACH FROM DF644  
RNAV (GPS, DME/DME, DME/DME/IRU)

## NEW AIP PAGE

TO BE USED IN CONJUNCTION WITH RNAV STAR CONTAINING THE SUFFIX "E"

ILS Z OR LOC Z RWY 07R INITIAL APPROACH FROM DF644												
Approach Segment	Recommended Path Terminator	Waypoint Identifier	Coordinates	Fly Over	(True Track*) Mag Track*	Distance (NM)	Turn Direction	Altitude (ft) / Flight Level	Speed Limit (kt IAS)	Vertical Path Angle (°) / TCH (ft)	NAV-Specification	Remarks
Initial APCH from DF644	IF	DF644	N 49 47 17.60 E 007 55 01.26	-	-	-	-	A4000+	-	-	RNAV-1	-
	TF	DF654	N 49 51 57.93 E 007 52 16.05	-	(T339.1) 337	5.0	R	-	-	-	RNAV-1	-
	CF	DF653	N 49 53 23.41 E 007 58 03.28	-	(T069.1) 068	4.0	-	-	-	-	RNAV-1	-
	CF	DF652	N 49 54 48.60 E 008 03 50.85	-	(T069.1) 068	4.0	-	-	-	-	RNAV-1	-
	CF	DF651	N 49 56 13.49 E 008 09 38.78	-	(T069.1) 068	4.0	-	A4000+	-	-	RNAV-1	-

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