

Obstacle Free Environment - A Pilot's Perspective -

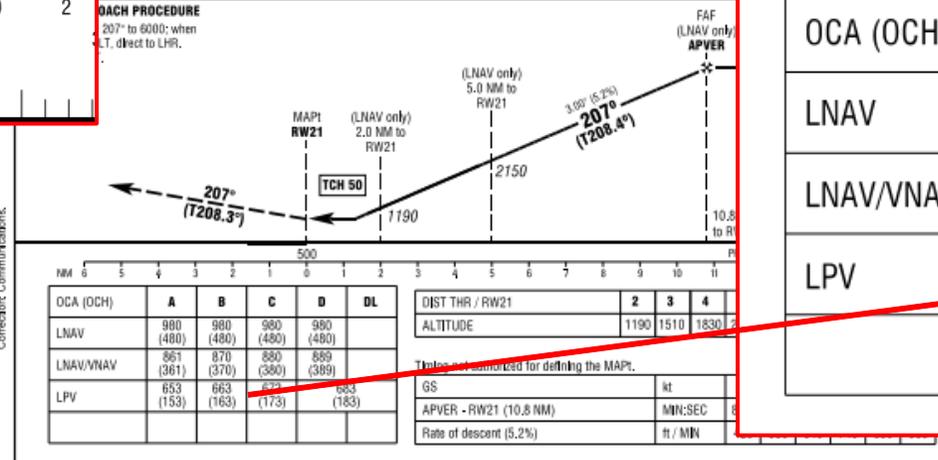
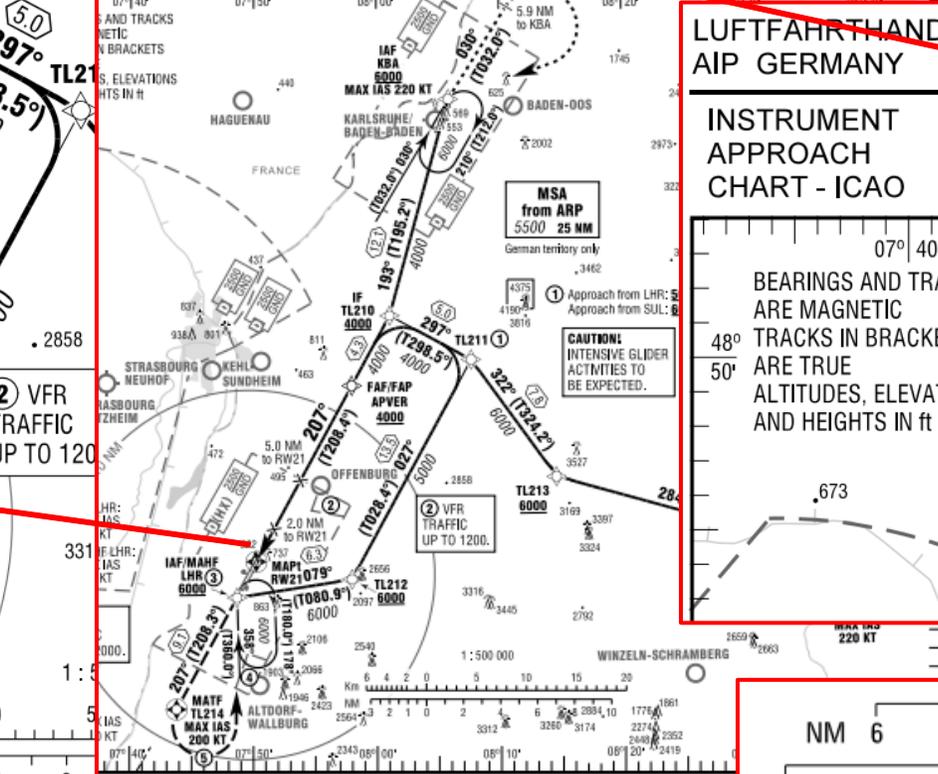
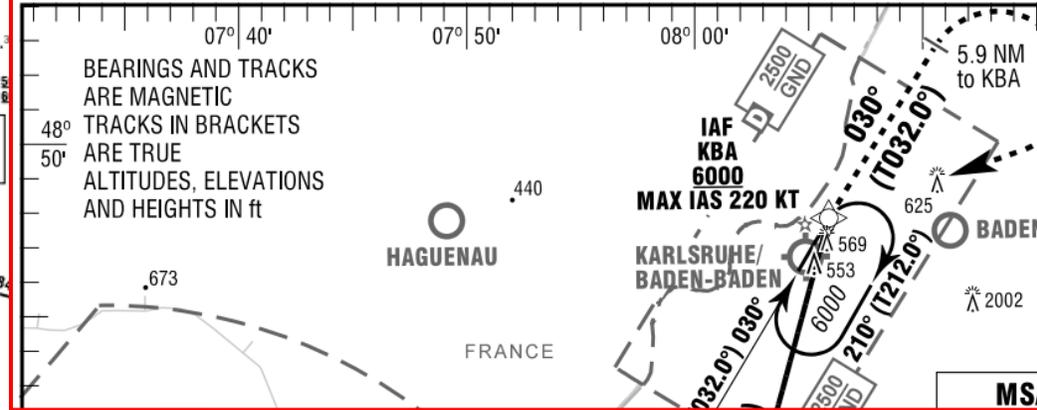
OFS will consist of different surfaces defining a volume of airspace free from obstacles, in the close vicinity of the runway, where operations are critical as they have nearly no flexibility to avoid obstacles.

INSTRUMENT APPROACH CHART - ICAO
VAR 2° E
ELEV 511
OCH RELATED TO THR 21 ELEV 500
STRASBOURG APPROACH LAHR TOWER
LAHR RNP RWY 21 EGNOS CH 73320 E21A

LUFTFAHRTHANDBUCH DEUTSCHLAND
AIP GERMANY

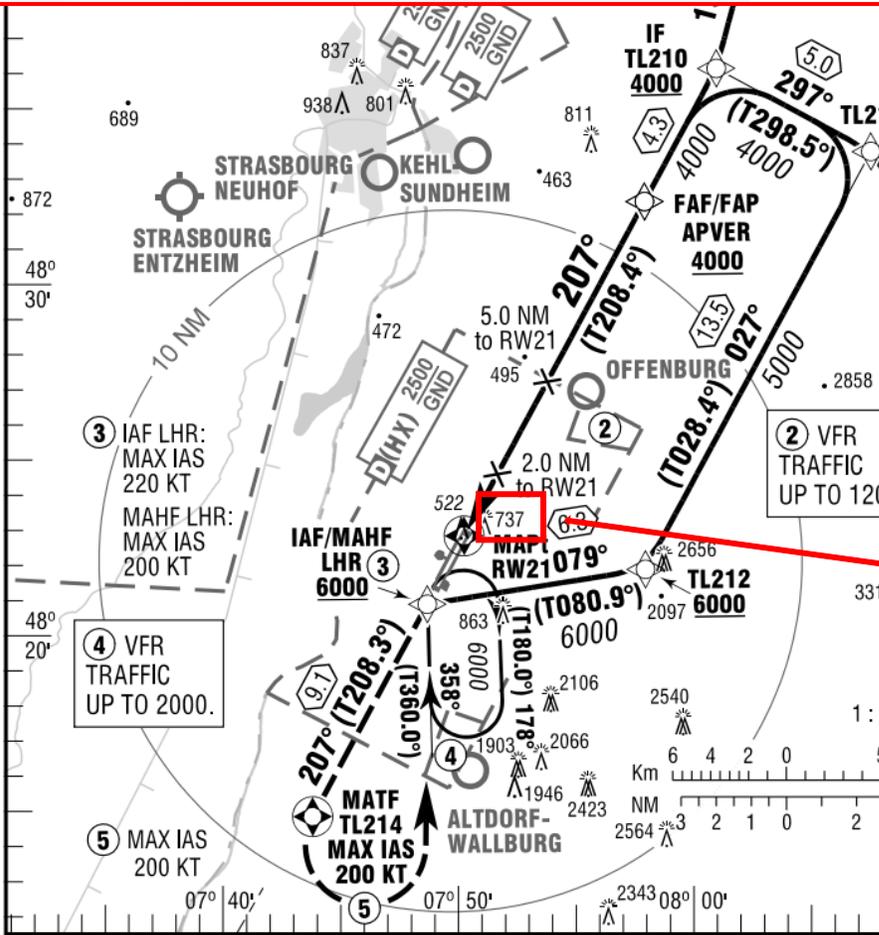
INSTRUMENT APPROACH CHART - ICAO

VAR 2° E
ELEV 511
OCH RELATED TO THR 21 ELEV 500
STRASBOURG LAHR TOWER



NM	6	5	4	3	2	1	0	1	2
OCA (OCH)									
LNAV									
LNAV/VNAV									
LPV									

≈ 50m



Approach synthetic vision EDTL 21 with SBAS LPV200.MOV



Instrument Approach Chart
(IAC) - ICAO

AD ELEV 1306ft

TRANSITION LEVEL by ATC
TRANSITION ALTITUDE 5000

ST. GALLEN-ALTENRHEIN LSZR
RNP RWY 10
0.8° OFFSET LEFT
ACFT CAT A/B/C



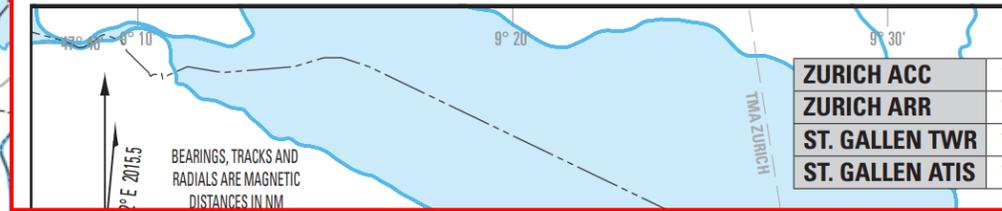
ZÜRICH ACC	133.905	128.050	EGNOS
ZÜRICH ARR	119.925	-	-
ST. GALLEN TWR	135.430	119.700	-
ST. GALLEN ATIS	123.780	-	-

AIP SWITZERLAND

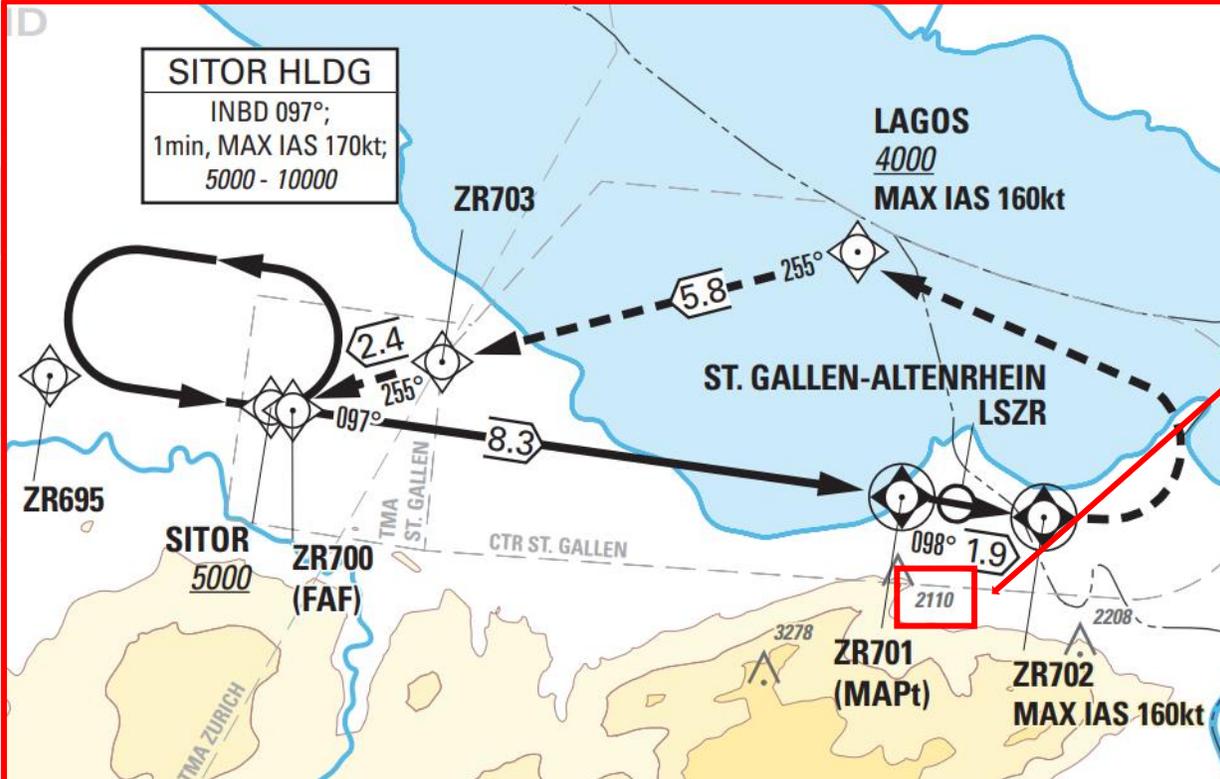
Instrument Approach Chart
(IAC) - ICAO

AD ELEV 1306ft

TRANSITION LEVEL by ATC
TRANSITION ALTITUDE 5000



ZÜRICH ACC	133.905
ZÜRICH ARR	119.925
ST. GALLEN TWR	135.430
ST. GALLEN ATIS	123.780



SITOR HLDG
INBD 097°;
1min, MAX IAS 170kt;
5000 - 10000

LAGOS 4000
MAX IAS 160kt

ST. GALLEN-ALTENRHEIN LSZR

ZR701 (MAPt)
ZR702
MAX IAS 160kt

Missed APCH climb gradient requirement	STRAIGHT-IN APPROACH		
	A	B	C
	OCA(H) LPV		
2.5%	1890 (590)	1910 (610)	1920 (620)
4.0%	1750 (450)	1760 (460)	1780 (480)
	DA(H) LPV		
4.0%	1810 (500)		
	OCA(H) LNAV		
2.5%	2180 (880)		
3.3%	2130 (830)		
CIRCLING ^{1) 3)}	A	B	C
	2170 (870)		2270 (970) ²⁾

COR: OCA(H), Note, MSA, VAR, Missed APCH PROC (WEF 21MAY2020)

Missed APCH climb gradient requirement	STRAIGHT-IN APPROACH		
	A	B	C
	OCA(H) LPV		
2.5%	1890 (590)	1910 (610)	1920 (620)
4.0%	1750 (450)	1760 (460)	1780 (480)
	DA(H) LPV		
4.0%	1810 (500)		
	OCA(H) LNAV		
2.5%	2180 (880)		
3.3%	2130 (830)		
CIRCLING ^{1) 2)}	A	B	C
	2170 (870)		2270 (970) ²⁾

DIST THR	ROD							
	8.3	8	7	6	5	4	3	2
DIST THR	8.6	8.3	7.3	6.3	5.3	4.3	3.3	2.3
ALT FT	5000	4890	4460	4040	3610	3190	2760	2340

NOTE
¹⁾ Circling north of AP only.
²⁾ MAX IAS 160kt due to airspace.
³⁾ Remain within CTR.

CAUTION
 - 0.2 NM before THR 10 Visual Segment Surface (VSS) penetrated trees up to 1380ft AMSL.
 - This is not a standard approach angle.
 - On 4° APCH angle and GS > 140kt resulting ROD will be > 1000ft

[Approach LSZR St.Gallen switzerland.mp4](#)



Obstacle Free Environment

- A Pilot's Perspective -

- Reliable information is essential
- Maintain the ideal world as good as possible
- Most relevant for departure:
 - Accuracy of navigation
 - Wingspan
 - Aircraft-performance and usability
 - Abnormal operation (e.g. one-engine-inop)
- Most relevant for approach:
 - Accuracy of navigation
 - Wingspan
 - Approach-speed
 - Visibility
 - Missed approach procedures (incl. A/C-performance and abnormals)