

VFR	A	B	C	D	E	F	G
Separation between	NA	All	VFR & IFR	No Separation	No Separation	No Separation	No Separation
ATS	NA	FCS	FCS for sep to IFR, V/W: TIS & TAG UR	FCS, TI of VFR, TAG UR	FIS & TIS WP	FIS	FIS
V-Restriction	NA	NIL	250kias ∇ FL100	250kias ∇ FL100	250kias ∇ FL100	250kias ∇ FL100	250kias ∇ FL100
Wx-minima	NA		∇ FL100: 8 km. vis, 1000ft. over / under clouds - 1500m. horizontal ∇ FL100: 5 km. vis, 1000ft. over / under clouds - 1500m. horizontal				the higher of 3000ft. MSL / 1000ft. AGL & ∇ 140kias: 3km. vis., clear of clouds & surface in sight
Com	NA	2-way	2-way	2-way	None	None	None, except for TIA, TIZ
SSR	NA	A+C	Yes	No	No	No	No
Clear	NA	Yes	Yes	Yes	No	No	No

FCS: Flight Control Service
 TI: Traffic Information
 FIS: Flight Information Service
 FGS: Flight Guidance Service
 TAG: Traffic Avoidance Guidance
 UR: Upon Request
 WP: When Possible

IFR	A	B	C	D	E	G
Separation between	All	All	IFR & IFR, IFR & VFR	IFR & IFR	IFR & IFR	IFR & IFR WP
ATS	FCS	FCS	FCS	FCS, TI of VFR, TAG UR	FCS, TI of VFR WP	FIS & FGS
V-Restriction	None	None	None	250 ∇ FL100	250 ∇ FL100	250 ∇ FL100
Com	2-way	2-way	2-way	2-way	2-way	2-way
SSR	A+C	A+C	A+C	A+C	A+C	A+C
Clear	Yes	Yes	Yes	Yes	No	No

Aircraft Category	V _{at}	Range of Speeds for Initial approach	Range of Final Approach speeds	Max. Speed for Circling	Max Speed for Missed Approach
A	< 91	90 / 150 (110°)	70 / 100	100	100
B	91 / 120	120 / 180 (140°)	85 / 130	135	130
C	121 / 140	160 / 240	115 / 160	180	160
D	141 / 165	185 / 250	130 / 185	205	185
E	166 / 210	185 / 250	155 / 230	240	230

* - Max speed for reversal and racetrack procedures

APPLICATION OF WEATHER FORECASTS (TAFs & TRENDS) IN THE PLANNING STAGE

	DESTINATION (ETA \pm 1 HR)		T/O ALTERNATE (ETA \pm 1 HR)		DEST ALTERNATE (ETA \pm 1 HR)	
	Improvement	Deterioration	Improvement	Deterioration	Improvement	Deterioration
FM (alone), BECMG AT	- From the beginning of the change.		- Average wind must be within limits.		- Gusts can be disregarded.	
BECMG (alone), BECMG FM, BECMG TL, BECMG FM...TL	- Valid from the end of the period.		- Valid from the beginning of the period.		- Applicable except when showers.	
TEMPO (alone), TEMPO FM, TEMPO TL, TEMPO FM...TL, PROB 30/40 (alone)	- Improvements to be disregarded.		- Deterioration to be disregarded if showery type.		- Wind and gusts that exceed limits can be disregarded in showers.	
PROB TEMPO	- Deterioration to be disregarded.		- Improvements shall be disregarded.		- Can be disregarded.	

Aerodrome Temp C°	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
0°	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10°	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20°	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30°	40	60	80	110	120	140	150	170	190	280	380	570	760	950
-40°	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50°	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Function	0	10	20	30	40	50	60	70	80	90
Sine	0	0.173	0.342	0.500	0.642	0.766	0.866	0.939	0.984	1
Cosine	1	0.984	0.909	0.866	0.766	0.642	0.500	0.342	0.173	0
Tangent	0	0.176	0.363	0.577	0.839	1.191	1.732	2.747	5.671	---
Sound speed	30°C	20°C	10°C	0°C	-10°C	-20°C	-30°C	-40°C	-50°C	-60°C
M/s	349.7	343.6	337.5	331.4	325.3	319.2	313.1	307	300.1	294.8
Km/hr	1252.9	1236.9	1215	1193	1171.1	1149.1	1127.2	1105.2	1080.4	1061.3
Knots	676.5	667.9	656	644.2	632.3	620.5	608.6	596.8	583.4	573.1
Bank	0°	10°	15°	25°	30°	45°	60°	70°	75°	89°
G-load	1	1.01	1.03	1.10	1.15	1.41	2	2.92	3.86	57.29
V _s increase	1	1	1.01	1.04	1.07	1.18	1.41	1.70	1.96	7.57

IFR to VFR
 1. Obtain QNH from ATS.
 2. Descent to min. safe altitude in accordance to ATC clearance.
 3. When VMC below clouds, then cancel IFR.
 4. Continue in accordance to Visual Flight Rules.

Friction taken @ DER, Midpoint & Stop end	Measured or calculated coefficient	Estimated surface friction
0.40 - and above	-	Good (5)
0.36 - 0.39	-	Medium to good (4)
0.30 - 0.35	-	Medium (3)
0.26 - 0.29	-	Medium to poor (2)
0.25 - and below	-	Poor (1)
9	-	Unreliable (9)

VALUES OF A GIVEN WINDSPEED	DIRECTION	X-WIND	HEADWIND
Wind 10° off:	17% \Rightarrow 1/6	98% \Rightarrow 1/1	
Wind 20° off:	34% \Rightarrow 1/3	93% \Rightarrow 7/8	
Wind 30° off:	50% \Rightarrow 1/2	86% \Rightarrow 5/6	
Wind 40° off:	64% \Rightarrow 2/3	76% \Rightarrow 3/4	
Wind 50° off:	76% \Rightarrow 3/4	64% \Rightarrow 2/3	
Wind 60° off:	86% \Rightarrow 5/6	50% \Rightarrow 1/2	
Wind 70° off:	93% \Rightarrow 7/8	34% \Rightarrow 1/3	
Wind 80° off:	98% \Rightarrow 1/1	17% \Rightarrow 1/6	
Wind 90° off:	100% \Rightarrow 1/1	0% \Rightarrow 0	

WEATHER SIGNATURE DECODER

MI	-	Shallow	BL	-	Blowing
BC	-	Patches	SH	-	Showers
PR	-	Partial	FZ	-	Freezing
DR	-	Drifting	TS	-	Thunderstorm
DZ	-	Drizzle	IC	-	Ice Crystals
RA	-	Rain	PL	-	Ice Pellets
SN	-	Snow	GR	-	Hail
SG	-	Snowgrains	GS	-	Small hail/snow pellets
BR	-	Mist	DU	-	Widespread dust
FG	-	Fog	SA	-	Sand
FU	-	Smoke	HZ	-	Haze
VA	-	Volcanic ash	PO	-	Dust / sand whirls
SQ	-	Squalls	DS	-	Dust storm
FC	-	Funnel cloud	SS	-	Sand storm

SNOWTAM / MOTNE DECODER

D_r D_r Runway designator
 - Runway designator is expressed by 2 digits. If parallel runways: the runway to the Right has 50 added to the digit. Ex. 22R will be shown as 72.
 - 88 indicates "All runways". - 99 indicates that no new info is available.

E_r Runway deposits (snow, ice, slush, water or drifts)
 0: Clear and Dry, 1: Damp, 2: Wet or Water patches, 3: Rime or frost covered (depth normally less than 1 mm.), 4: Dry snow, 5: Wet snow, 6: Slush, 7: Ice, 8: Compacted or rolled snow, 9: Frozen ruts or ridges, /: Deposit type not reported.

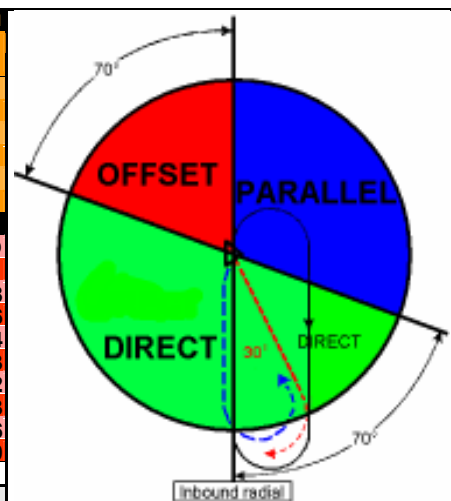
C_r Extent of runway contamination
 1: Less than 10% of runway covered, 2: 11% to 25% of runway covered, 5: 26% to 50% of runway covered, 9: 51% to 100% of runway covered, /: Not reported.

e_r e_r Depth of deposit - average depth or highest if very significant
 00: less than 1 mm, 01: 1 mm, 02: 2 mm, etc., 10: 10 mm, up to 90 mm!
 Thereafter: 92: 10 cm, 93: 15 cm, 94: 20 cm, 95: 25 cm, 96: 30 cm,
 97: 35 cm, 98: 40 cm or more, 99: Runways non-operational due to snow, slush, ice, drifts or clearance is in progress. Depth not reported,
 //: Depth of deposit not measurable but of no operational significance.

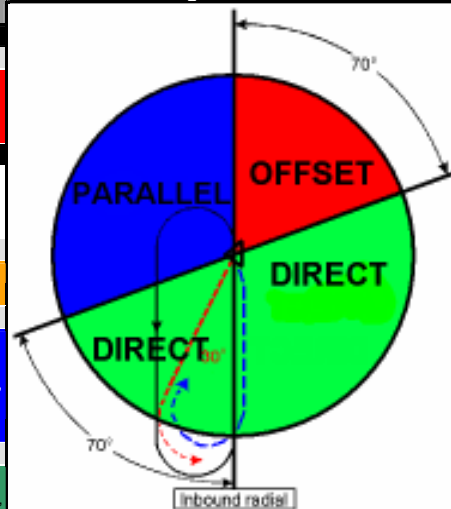
B_r B_r Friction coefficient or braking action
 Either: 28: Friction coefficient = .28, 35: Friction coefficient = .35. etc. OR
 Braking Action: 95: good, 94: medium to good, 93: medium, 92: medium to poor, 91: poor, 99: unreliable. //: Braking action not reported.

Notes: 1. If friction coefficient is below .40 the lowest value is reported otherwise the mean level is issued.
 2. 99 - is used when the measuring equipment gives unreliable values due to wet or loose snow or slush.
 3. // - is reported if the braking action cannot be reported (e.g. due to WIP, Runway not-operational, runway conditions not available due to airport closure, etc.)

Example: 7254592 means:
 "Runway 22R is contaminated by wet snow that covers between 26% and 50% of the runway.
 Depth is 45 mm and braking action is medium to poor."



Actual heading minus inbound radial:
 Answer between: 360 and 110 Parallel entry
 Answer between: 110 and 290 Direct entry
 Answer between: 290 and 360 Offset entry
 The data above applies to Righthand holdings only
 Remember to subtract from 360 if answer is negative
 5 degrees flexibility on either side of sector boundaries
 The data below applies to Lefthand holdings only
 Answer between: 250 and 360 Parallel entry
 Answer between: 070 and 250 Direct entry
 Answer between: 360 and 070 Offset entry
 Actual heading minus inbound radial:



1 km \Rightarrow 3280 ft \Rightarrow 3300 ft	100 m \Rightarrow 328 ft	330 ft
2 km \Rightarrow 6560 ft \Rightarrow 6500 ft	200 m \Rightarrow 656 ft	650 ft
3 km \Rightarrow 9840 ft \Rightarrow 9900 ft	300 m \Rightarrow 984 ft	1000 ft
4 km \Rightarrow 13120 ft \Rightarrow 13100 ft	400 m \Rightarrow 1312 ft	1300 ft
5 km \Rightarrow 16400 ft \Rightarrow 16400 ft	500 m \Rightarrow 1640 ft	1650 ft
6 km \Rightarrow 19680 ft \Rightarrow 19700 ft	600 m \Rightarrow 1968 ft	1950 ft
7 km \Rightarrow 22960 ft \Rightarrow 23000 ft	700 m \Rightarrow 2296 ft	2300 ft
8 km \Rightarrow 26240 ft \Rightarrow 26200 ft	800 m \Rightarrow 2624 ft	2600 ft
9 km \Rightarrow 29520 ft \Rightarrow 29500 ft	900 m \Rightarrow 2952 ft	3000 ft
10 km \Rightarrow 32800 ft \Rightarrow 32800 ft		

DME out on ILS:	Altitude in feet
Alt in feet on ILS:	300
ROD on 3° GP:	DME x 300
	Groundspeed x 10
	2

Altitude increase in mountainous areas
 Wind speed !!Rule of thumb only!!
 31 - 40 kts: Increase altitude by 500 ft.
 41 - 50 kts: Increase altitude by 1000 ft.
 51 - 60 kts: Increase altitude by 1500 ft.
 Above 60 kts: Increase altitude by 2000 ft.

DP when DME available
 MDH = Distance from TDZ to level on a 3 degree glide slope
 DP on a timed approach
 MDH = Seconds to be subtracted from timing to Mapt.
 ROD on GP if other than 3°:
 GP (angle) x SF x 100 = ROD (ft. / min)
 Dist point Distance A \Rightarrow B x GS return
 A to PET: GS Proceed + GS return
 Time to Dist point A to PET
 PET: GS proceed / 60

RADIOFAILURE PROCEDURE
 1. If VMC: Continue as such and land at nearest suitable AD. RDO prescribed or not.
 2. For 20 minutes after trying to establish radio communication over mandatory reporting point; maintain latest cleared heading and altitude.
 If MSA is higher: Then MSA, and then adjust flight according to filed flight plan.
 3. Continue according to filed flightplan route to navaid at destination.
 Hold there until descent is initiated.
 4. Commence descent overhead the above mentioned navaid, at the time that deviates the least from either:
 The latest time the PIC has received and acknowledged or if not applicable.
 The time that deviates the least from the current flightplan.
 5. Perform a normal instrument approach as prescribed for the applicable navaid.
 6. Land to the best of your intent within 30 minutes after ETA or valid flightplan.

Celsius to Fahrenheit
 ((Celsius * 2) minus 10%) + 32
 Fahrenheit to Celsius
 ((Fahrenheit -32) / 2) plus 10%)
 Feet to meter:
 Feet x 0.304878
 Meter to feet:
 Meters x 3.281

Feet to inches:	Feet x 12
Gallon to liter:	Gallon x 3,785
Kilo to pound:	Kilo x 2,21
Avgas: 6,02 lbs / USG	0,71 kg / liter
JET A1: 6,84 lbs / USG	0,81 Kg / liter
1 hPa equals:	0,001 bar
1 bar equals:	14,504 PSI
1 PSI equals:	2,036 inch/hg @ 0° C
1 inch/Hg equals:	25,4 mm/Hg
1 mm/Hg equals:	1,333 hPa
1 hPa equals:	0,0295 inches of Hg
1 inch/ Hg equals:	33,863 hPa