Patuxent River Navy Flying Club



Minimum Weather for a VFR Takeoff

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The Question

• What's the minimum ceiling and visibility for a VFR takeoff?

• That should be easy to figure out, right?

How to Determine the Minimum Weather Required to Takeoff VFR

- 1. Determine whether the surface surrounding the airport is congested, other than congested, or sparsely populated.
- 2. Consider published traffic pattern altitudes, if staying in the pattern. Determine if there are any noise abatement procedures (Airport/Facility Directory). Consider Part 93, Special Air Traffic Rules, restrictions (uncommon).
- 3. Determine the vertical and horizontal boundaries of Class E and G airspace near the field.
- 4. Determine the VFR Cloud clearances for the airspace over the field (at the minimum altitude determined above).
- 5. Add the minimum operating altitude to the "below" cloud clearance requirement. Use the appropriate visibility for the class of airspace.

Part 91

§91.119 Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

Pattern Altitude

From the AIM:

4-3-3. Traffic Patterns

At most airports and military air bases, traffic pattern altitudes for propeller–driven aircraft generally extend from 600 feet to as high as 1,500 feet above the ground.

Key to traffic pattern operations

1. Enter pattern in level flight, abeam the midpoint of the runway, at pattern altitude. (1,000' AGL is recommended pattern altitude unless established otherwise. . .)

Part 93 – Special Air Traffic Rules

• The airport name is enclosed in a rectangle.



Pattern Altitude (cont.)

What about:

§91.119 Minimum safe altitudes: General.

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) Anywhere. An altitude allowing...

The FAA doesn't consider the downwind portion of the pattern to be necessary for takeoff and landing.

Basic VFR Weather Minimums

Class A Not Applicable Not Ap Class B 3 statute miles Clear of Class C 3 statute miles 500 fee 1,000 f 2,000 f Class D 3 statute miles 500 fee 1,000 f 2,000 f Class E 2,000 f Less than 10,000 feet MSI 3 statute miles 500 fee	oplicable. of Clouds. et below. feet above. feet horizontal. et below. feet above. feet horizontal. et below. feet above. feet above. feet horizontal
Class B 3 statute miles Clear of	of Clouds. et below. feet above. feet horizontal. et below. feet above. feet horizontal. et below. feet above. feet above. feet horizontal
Class C 3 statute miles 500 fee 1,000 f 2,000 f Class D 3 statute miles 500 fee 1,000 f 2,000 f Class E: 2,000 feet MSI 3 statute miles	et below. feet above. feet horizontal. et below. feet above. feet horizontal. et below. feet above. feet above. feet horizontal
1,000 f 2,000 f Class D 3 statute miles 1,000 f 2,000 f 1,000 f 2,000 f 1,000 f 2,000 f 1,000 f 2,000 f	feet above. feet horizontal. et below. feet above. feet horizontal. et below. feet above. feet horizontal
2,000 f Class D 3 statute miles 500 fee 1,000 f 2,000 f Class E: 2,000 f Less than 10,000 feet MSI 3 statute miles 500 fee	feet horizontal. et below. feet above. feet horizontal. et below. feet above. feet horizontal
Class D 3 statute miles 500 fee 1,000 f 2,000 f Class E: 3 statute miles	et below. feet above. feet horizontal. et below. feet above. feet horizontal
1,000 f 2,000 f Class E: 1,000 f 2,000 f 2,000 f 2,000 f	feet above. feet horizontal. et below. feet above. feet horizontal
Class E: 2,000 f Less than 10,000 feet MSI 3 statute miles	feet horizontal. et below. feet above. feet horizontal
Class E:	et below. feet above. feet horizontal
Less than 10,000 feet MSL 3 statute miles 500 fee	et below. feet above. feet horizontal
	feet above. feet horizontal
1,000 f	feet horizontal
2,000 f	loot non Londan.
At or above 10,000 feet MSL 5 statute miles 1,000 f	feet below.
1,000 f	feet above.
1 statu horizor	ite mile ntal.
Class G:	
1,200 feet or less above the surface (regardless of MSL altitude)	
For aircraft other than helicopters:	
Day, except as provided in §91.155(b) 1 statute mile Clear c	of clouds.
Night, except as provided in §91.155(b) 3 statute miles 500 fee	et below.
1,000 f	feet above.
2,000 f	feet horizontal.
For helicopters:	
Day 1/2 statute mile Clear c	of clouds
Night, except as provided in §91.155(b) 1 statute mile Clear c	of clouds.
More than 1,200 feet above the surface but less than 10,000 feet MSL	
Day 1 statute mile 500 fee	et below.
1,000 f	feet above.
2,000 f	feet horizontal.
Night 3 statute miles 500 fee	et below.
1,000 f	feet above.
2,000 f	feet horizontal.
More than 1,200 feet above the surface and at or above 10,000 feet 5 statute miles 1,000 f MSL	feet below.
1,000 f	feet above.
1 statu borizor	ite mile

Basic VFR Exception for Night Pattern Operations

(b) Class G Airspace. Notwithstanding the provisions of paragraph (a) of this section, the following operations may be conducted in Class G airspace below 1,200 feet above the surface:

(2) Airplane, powered parachute, or weight-shift-control aircraft. If the visibility is less than 3 statute miles but not less than 1 statute mile during night hours and you are operating in an airport traffic pattern within $\frac{1}{2}$ mile of the runway, you may operate an airplane, powered parachute, or weight-shift-control aircraft clear of clouds.

How to Determine **Uncontrolled Airspace**



are indicated by center line. GRANT Prohibited, Restricted, and Warning Areas; Canadian Advisory, Danger, and Restricted Areas Alert Area and MOA -Military Operations Area Special Airport Traffic Area (See FAR 93 for details.) ADIZ - Air Defense Identification Zone (See FAR 91,215/AIM.) National Security Area **Terminal Radar Service** Area (TRSA)

MTR - Military Training Route



Class E Airspace greater than 700 ft. above surface.

Class E Airspace exists at 1200' AGL unless

otherwise designated as shown above.

Class E Airspace low altitude Federal Airways are indicated by center line. Intersection - Arrows are directed towards facilities which establish intersection.

Where Is the Uncontrolled Airspace?



Public Airports & Uncontrolled Airspace

Only one, paved, public airport exists within the Washington Sectional area where Class E airspace starts at 1200 feet.



Chorman (D74) 058°/50 NM from KNHK



Is St. Mary's Airport in a Congested Area? Yes



Difficult to Find Public Airports in "other than congested areas"

Lake Anna Airport (7W4) is an unusual example.



Lake Anna (7W4) 266°/64 NM from KNHK



Examples

Assume you're staying in the pattern during daytime.

St. Mary's County (2W6)

- 1000' AGL for congested area
- 91.118 Minimum requires Class E airspace (500' below)
- Answer: 1500' AGL and 3 SM

Lake Anna (7W4)

- 500' AGL for "other than congested" area
- Minimum allows Class G airspace (1 mile, clear of clouds)
- Answer: 600' AGL and clear of clouds, but must maintain 700' or below to use Class G minimums (beware vertical obstructions and 91.13 careless and reckless operation with pattern altitude below 1000' AGL)
- Answer for the PRNFC: 1500' AGL and 3 SM

Chorman (D74)

• Same as Lake Anna, but must maintain 1200' AGL or below to use Class G minimums

On a related note...

What does this mean???

(e) For the purpose of this section, an aircraft operating at the base altitude of a Class E airspace area is considered to be within the airspace directly below that area.

This rule can be used to transition from lower Class G airspace (and weather minimums) to Class E to get an IFR clearance—or the reverse to go from IFR to VFR in Class G.

• Consider Maximum Elevation Figures (MEF, shown in sectional quadrangles), Minimum Enroute Altitude (MEA), Minimum Obstruction Clearance Altitude (MOCA), and Minimum Reception Altitude (MRA)



- Nothing in this presentation is meant to encourage pushing your personal minimums.
- Know the rules and how the FAA is interpreting them.
- Situational awareness and good judgment are always required!