Airspaces

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Overview

Airspace classes according to ICAO

What is airspace? A simple question at first glance, but how about the details? Legislation states that airspace is the area that extends upwards over a certain part of the earth's surface. However, with more and more air traffic, it was no longer possible to simply categorize 'airspace' as being the same everywhere. Rules had become necessary.
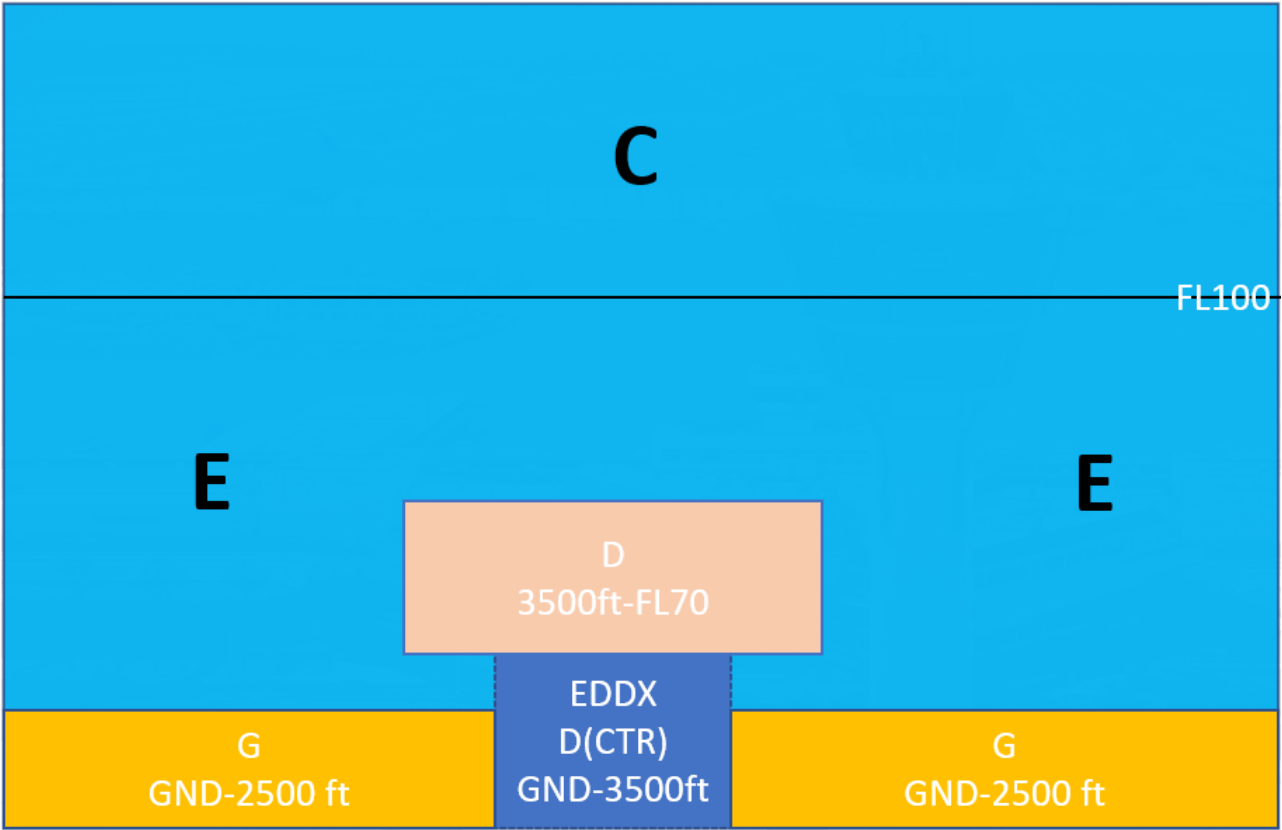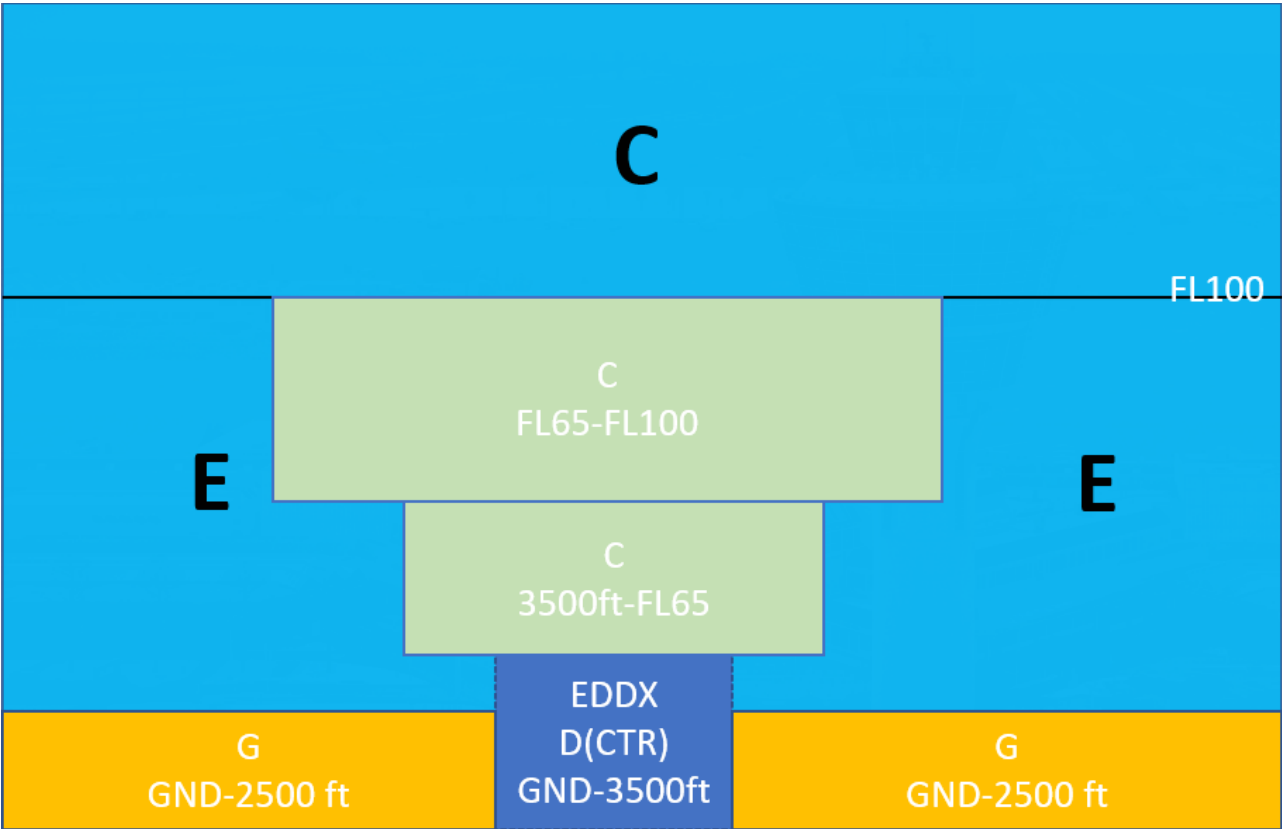
To this end, the ICAO (International Civil Aviation Organisation) introduced **airspace classes**. The categorisation of an airspace class regulates, among other things, who is allowed to fly in this airspace, whether they need clearance to do so, how fast they are allowed to fly and much more. In our everyday lives, this can be roughly compared to the introduction of different types of roads. Let's take a motorway as an example and compare it with a local road: while there is no speed limit on the German motorway, you are only allowed a top speed of 50 km/h in urban areas. Alternatively, let's take a look at who is allowed to drive there: Anyone can drive in urban areas, including cyclists. However, bicycles are not allowed on the motorway.
But now back from the road to the air: there are the airspace classes A, B, C, D, E, F and G. These in turn are divided into controlled airspaces (A-E), i.e. airspaces in which an IFR flight receives ATC service, and uncontrolled airspaces (F and G), in which there is only FIS and/or advisory service. A is the most restrictive airspace (for example, only IFR may fly here, VFR is absolutely prohibited), G is the least restricted airspace.

For the sake of simplicity, however, we will limit ourselves to the airspaces currently used in Germany, which are **C, D, E and G**. You can find an overview of these in the table below. For each air space class, the table shows whether and how different flight rules (VFR - visual flight rules and IFR - instrument flight rules) are separated from each other, what service the flight receives from air traffic control in this airspace, how fast it may fly, whether it must be in contact with a controller in this airspace (COM) and whether it requires an ATC clearance to enter this airspace.

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
C	IFR & VFR	IFR-IFR, IFR-VFR, VFR - Verkehrsinfo über anderen VFR	ATC	VFR – 250 kt IAS unter FL100	Ja	Ja
D	IFR & VFR	IFR – IFR IFR - Verkehrsinfo über VFR VFR - Verkehrsinfo über alle anderen Flüge	ATC	Alle Flüge – 250 kt IAS unter FL100	Ja	Ja
E	IFR & VFR	IFR – IFR Alle Flüge - Verkehrsinfo, soweit möglich	IFR – ATC VFR – FIS	Alle Flüge – 250 kt IAS unter FL100	IFR	IFR
G	IFR & VFR	/	FIS auf Anfage	Alle Flüge – 250 kt IAS unter FL100	IFR	Nein

You can find more information on airspaces under this link, although this is not mandatory for S1/S2 training.

In the two pictures you can see an example of what airspace structure in Germany might look like. The top image shows a large airport such as Munich, while the bottom image shows a smaller airport such as Bremen.

Top image (large airport – Munich):

- C
- FL100
- C FL65-FL100
- C 3500ft-FL65
- E (left)
- E (right)
- EDDX D(CTR) GND-3500ft
- G GND-2500 ft (left)
- G GND-2500 ft (right)

Bottom image (smaller airport – Bremen):

- C
- FL100
- E (left)
- E (right)
- D 3500ft-FL70
- EDDX D(CTR) GND-3500ft
- G GND-2500 ft (left)
- G GND-2500 ft (right)

Airspace class A

General

There are currently no class A airspaces in Germany. However, they are widespread in the rest of the world, e.g. in Australia, France, Italy, and Great Britain.

Airspace A is the most restrictive airspace of all, counts as controlled airspace and only permits IFR traffic. Let's take a look at the airspace rules.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
A	IFR	Alle Flüge	ATC	/	Ja	Ja

VMC Minima

As in all other airspaces, the following minima apply:

- Flight visibility above FL100: **8 km**
- Visibility below FL100: **5 km**
- Horizontal distance from clouds: **1500 m**
- Distance from clouds vertically: **1000 ft**

The VMC minima only serve as a guideline for pilots and do not mean that VFR flights are accepted.

Weiterführende Links

- [Classification of Airspace - Skybrary](#)

Airspace class B

General

There are currently no class B airspaces in Germany. They are also not common in the rest of the world, but are typical in the USA. After airspace A, airspace B is the second most restrictive airspace in existence. Airspace B is controlled airspace.

The following rules apply in airspace B.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
B	IFR & VFR	Alle Flüge	ATC	/	Ja	Ja

In contrast to class A airspace, VFR flights are permitted in Bravo airspace. However, these are separated from all other flights.

VMC Minima

As in all other airspaces, the following minima apply:

- Flight visibility above FL100: **8 km**
- Visibility below FL100: **5 km**
- Horizontal distance from clouds: **1500 m**
- Distance from clouds vertically: **1000 ft**

Further links

- [Classification of Airspace - Skybrary](#)

Airspace class C

General

In Germany, airspace above FL100 upwards (or FL130 upwards Alpine regions) generally is Class C airspace. This is not always labelled on the charts. Otherwise, Charlie is usually found in the local traffic control area of commercial airports above the control zone to separate VFR traffic from the generally fast, heavy, commercial IFR traffic when the traffic load in the airspace increases. Airspace C is controlled airspace.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
C	IFR & VFR	IFR-IFR, IFR-VFR, VFR - Verkehrsinfo über anderen VFR	ATC	VFR – 250 kt IAS unter FL100	Ja	Ja

In contrast to airspaces A and B, VFR flights have to independently separate from each other for the first time. We also have a speed limit for VFR traffic below FL100.

The EU stipulates that airspace class C must apply throughout Europe above FL195. However, as mentioned above, Germany is implementing this as low as FL100.

VMC Minima

As in all other airspaces, the following minima apply:

- Flight visibility above FL100: **8 km**
- Visibility below FL100: **5 km**
- Horizontal distance from clouds: **1500 m**
- Distance from clouds vertically: **1000 ft**

Further links

- [Classification of Airspace - Skybrary](#)

Airspace class D

General

In Germany, Delta is found in the local traffic control area of less frequented commercial airports in order to keep VFR apart traffic from the usually fast, heavy, commercial instrument flight traffic when the traffic load in the airspace increases. In addition, control zones in Germany are classified exclusively as delta airspace. Airspace D is controlled airspace.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
D	IFR & VFR	IFR – IFR IFR - Verkehrsinfo über VFR VFR - Verkehrsinfo über alle anderen Flüge	ATC	Alle Flüge – 250 kt IAS unter FL100	Ja	Ja

VMC Minima

As in all other airspaces, the following minima apply:

- Flight visibility above FL100: **8 km**
- Visibility below FL100: **5 km**
- Horizontal distance from clouds: **1500 m**
- Distance from clouds vertically: **1000 ft**

Special minimums in D(CTR):

- Ground visibility: **5 km**
- Ceiling: **1500 ft**

Further links

- [Classification of Airspace - Skybrary](#)

Control zone (D-CTR)

A **control zone** (CTR) is the controlled airspace in the immediate vicinity of a commercial airport or larger aerodrome. The responsible authority is a tower, which in reality operates mainly by sight. The radar screen only serves as support.

The control zone has some special features compared to other controlled airspace:

- It always has the ground (GND) as its lower limit, whereas a control area (i.e. all other controlled airspace that is not defined as a control zone) never extends to the ground.
- SVFR (special flights under visual flight rules) is possible in a control zone in order to enable landings / departures at controlled airports even in bad weather under certain conditions.
- Additional VFR minima:
  - Ground visibility: **5 km**
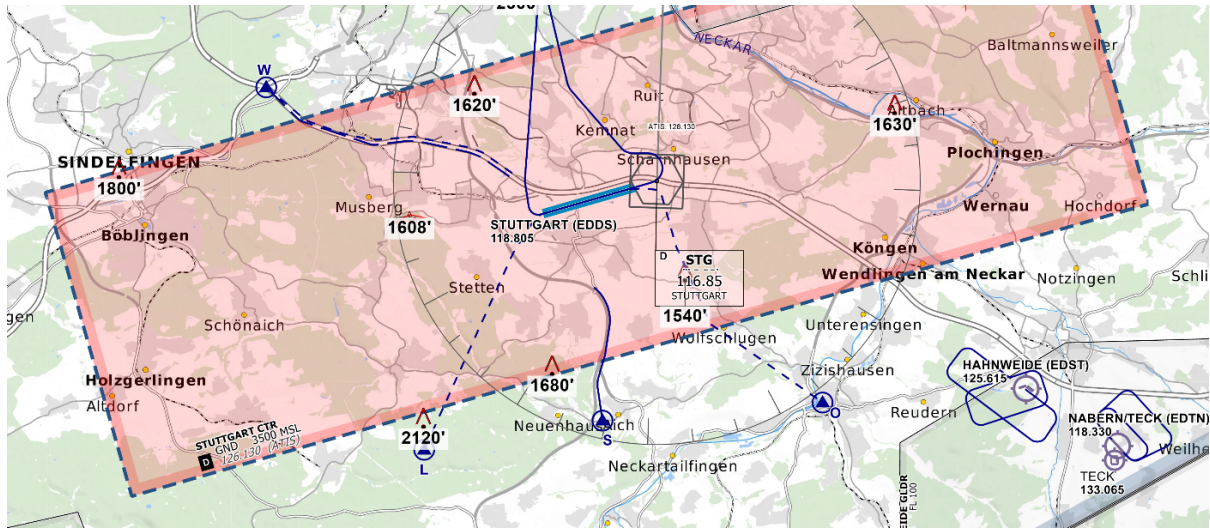 - Ceiling: **1500 ft**

Characteristics

In Germany, control zones are classified as delta airspace without exception. Therefore, all rules that apply in 'normal' delta airspace also apply in these zones. Depending on the volume of traffic, control zones can also be kept active only temporarily - either defined by the operating hours of the aerodrome (e.g. 06:00 - 20:00 locally) or activated when required (e.g. approaching IFR traffic). Such temporarily active airspaces can be recognised on charts by the suffix (HX) - e.g. D(HX). When inactive, the classification of the general airspace structure applies (see further links).

Control zones can be recognised on the German ICAO map by the reddish coloring of the area of responsibility.

While instrument flight traffic mainly flies published procedures (e.g. an ILS approach or a SID) in and out of the control zone, mandatory reporting points are usually used for VFR, regulating entries and exits. More details are defined in the Standard Operating Procedures of the respective aerodrome.

Control *zone*

Stuttgart - © openflightmaps.org

Further links

- Airspace structure and visual flught rules in Germany, Deutsche Flugsicherung GmbH

Airspace class E

General

In Germany, airspace E usually extends from 2500 ft GND to FL100, provided it is not interrupted by airspace C or D. In the Alps, the airspace is raised to FL130, and lowered in the vicinity of commercial airports. There are 3 different lower limits. These are color-coded on the 1:1 000 000 route maps.

- 1000 ft AGL - pink
- 1700 ft AGL - blue
- 2500 ft AGL - green

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Airspace E is controlled airspace.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
E	IFR & VFR	IFR – IFR Alle Flüge - Verkehrsinfo, soweit möglich	IFR – ATC VFR – FIS	Alle Flüge – 250 kt IAS unter FL100	IFR	IFR

Important: In contrast to the other controlled airspaces, VFR traffic neither needs an active radio communication with air traffic control nor clearance to enter the airspace.

VMC Minima

As in all other airspaces, the following minima apply:

- Flight visibility above FL100: **8 km**
- Visibility below FL100: **5 km**
- Horizontal distance from clouds: **1500 m**
- Distance from clouds vertically: **1000 ft**

Further links

- [Classification of Airspace - Skybrary](#)

Airspace class F

General

There are currently no class F airspaces in Germany, and neither are there in the rest of the world. Airspace F is uncontrolled airspace.

The Standardised European Rules of the Air (SERA) also state that airspace F is only to be regarded as a temporary measure until it can be replaced by airspace of another class.

The following rules apply in airspace F.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
F	IFR & VFR	IFR – IFR, soweit möglich	IFR – ADVS Alle Flüge – FIS & ALRS	Alle Flüge – 250 kt IAS unter FL100	IFR	Nein

- ADVS = Advisory Service
- ALRS = Alerting Service

VMC Minima

- Flight visibility above FL100: **8 km**
- Flight visibility below FL100: **5 km**
- Distance from clouds horizontal: **1500 m**
- Distance from clouds vertical: **1000 ft**

According to SERA 5001 the minima may be reduced at or below 3000ft AMSL or 1000ft above GND (whichever is higher):

- Flight visibility: **1500 m** when aircraft are flying **140 kt IAS** or slower and are in low traffic areas
- Flight visibility: **800m for helicopters** when flying at a reasonable speed to avoid other traffic or obstacles
- Clear of clouds and ground in sight

Further links

- Classification of Airspace - Skybrary

Airspace class G

General

In Germany, Class G airspace extends from the ground or water to 2500 ft, provided it is not interrupted by airspaces C, D, D(CTR) or E. Airspace G is also the only uncontrolled airspace in Germany.

In Golf airspace, IFR flights are only permitted on published IFR procedures.

Let's take a look at the airspace rules.

Rules

Luftraum	Art des Fluges	Staffelung	Service	Geschwindigkeit	COM	Freigabe
G	IFR & VFR	/	FIS auf Anfage	Alle Flüge – 250 kt IAS unter FL100	IFR	Nein

VMC Minima

- Flight visibility above FL100: 8 km
- Visibility below FL100: 5 km
- Horizontal distance from clouds: 1500 m
- Distance from clouds vertical: 1000 ft

According to SERA 5001 the minima may be reduced at/below 3000ft AMSL or 1000ft above GND (whichever is higher):

- Flight visibility: 1500 m when aircraft are flying 140 kt IAS or slower and are in low traffic areas
- Flight visibility: 800m for helicopters when flying at a reasonable speed to avoid other traffic or obstacles
- Clear of clouds and ground in sight

For the military, the following reduced VMC minima apply at/below 3000ft AMSL or 1000ft above GND (whichever is higher):

- Flight visibility:
  - 5km for jets
  - 3km for propeller aircraft
  - 800m for helicopters
- Clear of clouds and ground in sight

Further links

- [Classification of Airspace - Skybrary](#)

Aerodrome Traffic Zone (ATZ)

An **Aerodrome Traffic Zone** (ATZ) is intended to protect traffic around a highly frequented, uncontrolled aerodrome. As little traffic as possible should fly into the ATZ if it does not also land there. An ATZ is only active if the aerodrome in the zone is active. If it is not, the ATZ is also inactive (see AIP). An ATZ does not affect the airspace class; all rules of the airspace in which the ATZ is located still apply.

There are currently two aerodromes in Germany with an ATZ: Cochstedt and Egelbach.
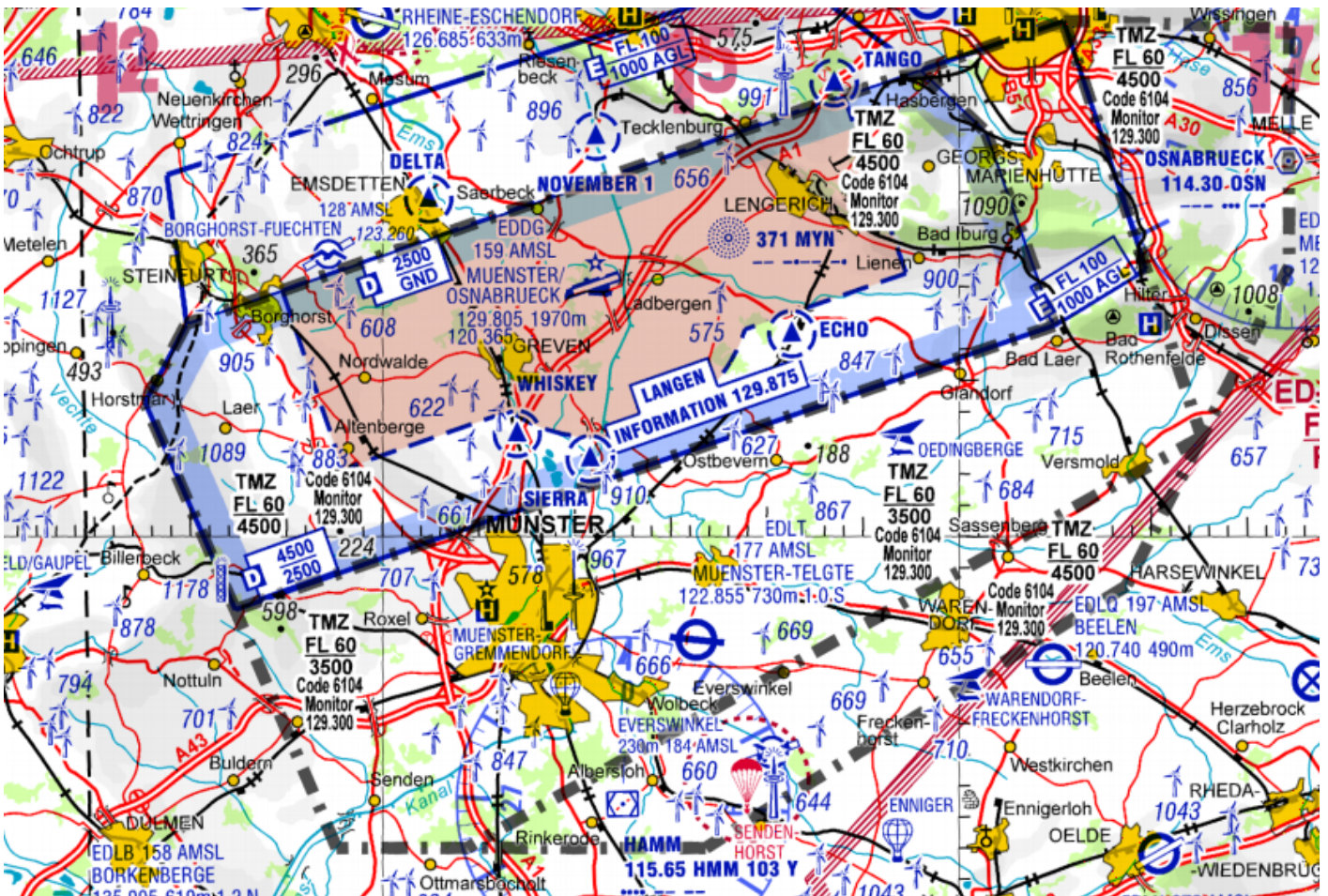
Characteristics

- Entries and exits to an ATZ are only possible via specified routes; direct entry/exit is generally not possible
- Crossing an ATZ is generally prohibited
- An ATZ can also be set up temporarily. In Germany, this was the case around the Tannheim airfield at the Tannkosh Fly-In, where a large number of pilots meet at a small airfield.

Transponder Mandatory Zone (TMZ)

A **Transponder Mandatory Zone** (TMZ) is a defined area where carrying and using a transponder transmitting the barometric altitude of the aircraft's altimeter is mandatory.

The pilot must set the published TMZ code in the transponder before flying into a TMZ. In addition, the pilot must listen to the corresponding published frequency and be available for two way voice communication at all times.

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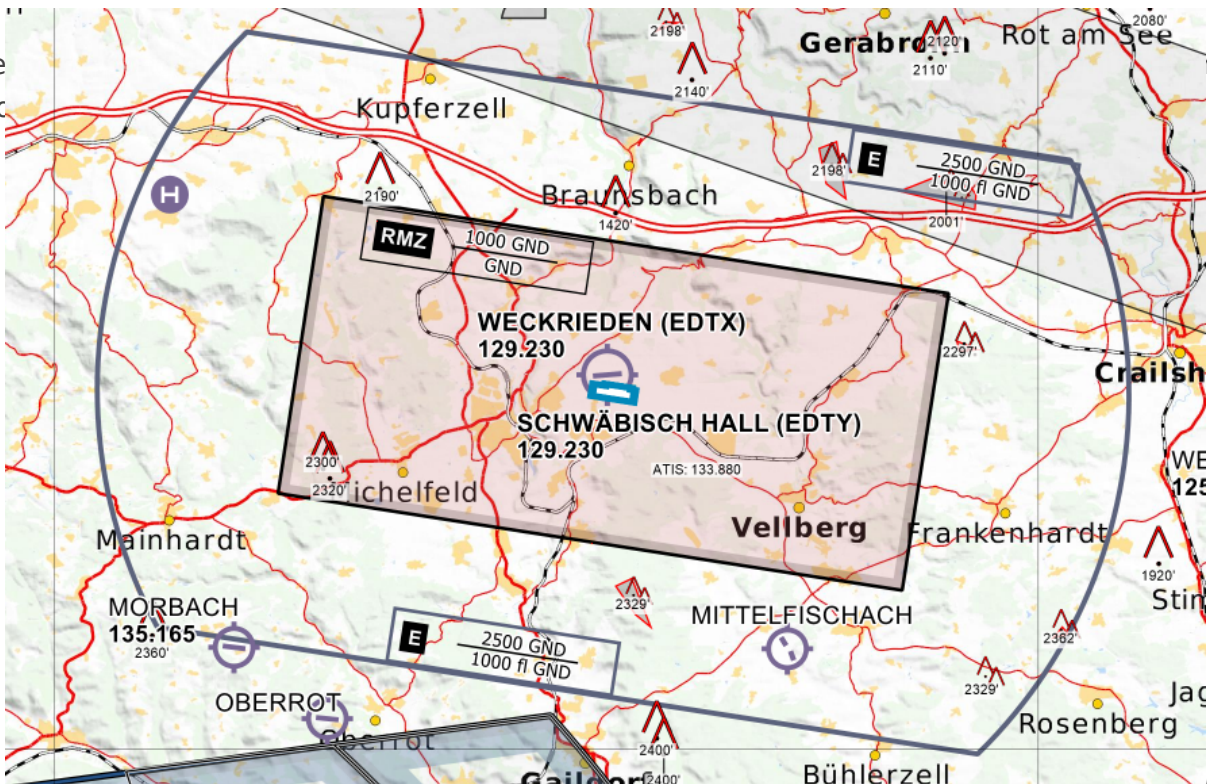
Radio Mandatory Zone (RMZ)

IFR arrivals and departures require increased attention in the vicinity of aerodromes, which is why so-called **Radio Mandatory Zones** (RMZ) have been introduced at aerodromes with IFR traffic. These are airspace class G and therefore uncontrolled.

The AIP for Germany states that aircraft intending to fly into an RMZ must make an introductory call on the published frequency to declare their intentions. In the example, the published frequency of 'Schwäbisch Hall Information' should be used and the following content transmitted:

- Identification of the called station
- Call sign and aircraft type
- Location, level and intentions

Durchflug RMZ / Transition through RMZ		
Station	**German**	**English**
Pilot	Schwäbisch Hall Information, DELFE	Schwäbisch Hall Information, DELFE
ATC	DELFE, Schwäbisch Hall Information	DELFE, Schwäbisch Hall Information
Pilot	DELFE, C172, 5 NM nördlich Braunsbach, 2000 Fuß, werde in die RMZ einfliegen und entlang des Kocher Richtung Süden verlassen	DELFE, C172, 5 NM north of Braunsbach, 2000 feet, will cross RMZ southbound via the River Kocher
ATC	DELFE, verstanden, QNH 1008, Verkehr, C152 im kurzen Endanflug Piste 28	DELFE, roger, QNH 1008, traffic, C152 on short final runway 28
Pilot	DELFE, QNH 1008, Verkehr in Sicht, bleibe frei	DELFE, QNH 1008, traffic in sight, will stay clear
Pilot	DELFE über Rosengarten, 2000 Fuß, hat die RMZ verlassen	DELFE over Rosengarten, 2000 feet, left the RMZ
ATC	DELFE, verstanden, tschüss	DELFE, roger, bye

During the flight through the RMZ, the pilot must continually monitor the frequency. Initiatial calls by pilots are made in the same way as traffic pattern messages and do not need to be acknowledged or confirmed by AFIS. Pilots intending to land or take off at the aerodrome will generally continue to use the shorter introductory call to establish communication.

If the ... made on Unicc...

Schwäbisch Hall EDTY - © openflightmaps.org