

Free Route Airspace Around The World

OPSGROUP Team

9 June, 2022



The amount of Free Route Airspace (FRA) you have available to you on your worldwide flights is growing. Here is a look at some of the new regions opening up, some that have been there for a while and some of the ones which probably never will be...

A quick overview of what it is.

Free Route Airspace is where you are allowed to fly direct rather than point to point.

*"Free route airspace (FRA) is a specified airspace within which users may **freely plan a route** between a defined entry point and a defined exit point, with the possibility to route via intermediate (published or unpublished) significant points, **without reference to the ATS route network**, subject to airspace availability."*

Now, there are usually some limits to this:

- Your direct segment can only be 200nm long otherwise you're going to have to file an intermediate point
- You'll also need an intermediate point anytime there is a level change or change in flight rules
- You can take DCTs that cross FIR boundaries, but will need to coordinate in advance for this.

Then there are the aircraft requirements (otherwise you'll be sticking to the published routes). These are general and not all FRA airspace will have the same requirements:

- Mode S transponder
- ADS-C
- CPDLC (not everywhere, but most)

The New One: Africa.

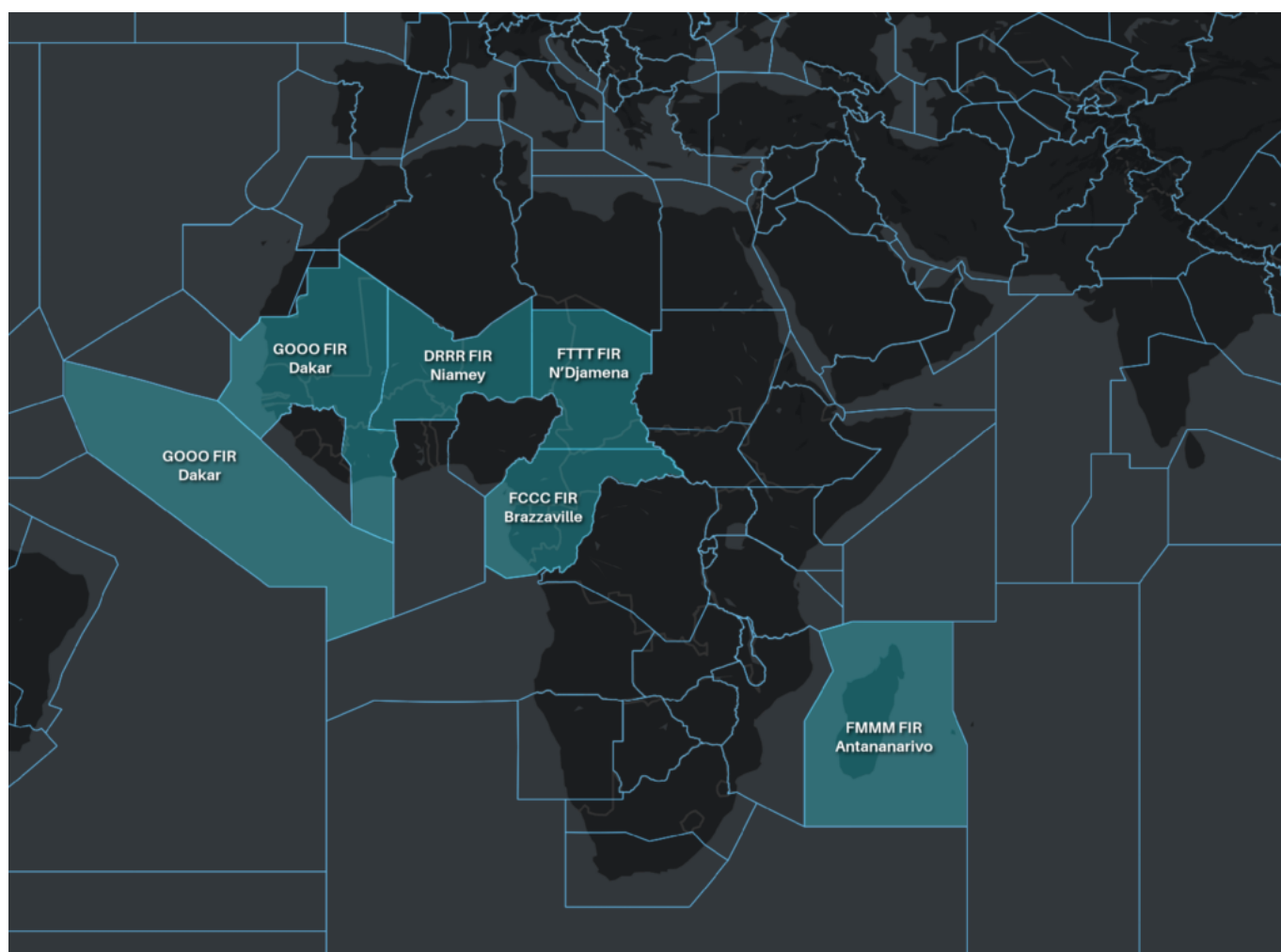
(Well, parts of it).

This actually came in during Covid because ASECNA (the air traffic folk for the region) wanted to help with fuel savings and efficiency for all the struggling airlines. Nice of them. Even nicer is they have now **extended it until at least October 2022**.

If you are flying through the FMMM/Antananarivo, FCCC/Brazzaville, DRRR/Niamey, FTTT/N'Djamena, G000/Dakar oceanic or terrestrial FIRs **above FL290** then you can basically take directs.

Of course, **there are some limits** – free routing through **restricted airspace** will generally not be possible when that airspace is active, and bits of the normal airspace might occasionally not be available either. So you will have to **keep an eye out for notams** on these.

All the info on Africa's FRA is published in AIC 27-22 which you can find right here.



The FRA regions of Africa

The United Kingdom

We wrote a big old post on this back in December 2021 because it was the *“biggest airspace change ever implemented in the United Kingdom”* (their words not ours).

The major-ness of this is that it covers areas in the **North Atlantic, Scotland, England and Northern**

The legal stuff for the implementation is all in here if you want a read.

They also have a jumbo document with all the planning requirements if you need it.

Maastricht. (Yes, we know this is part of Europe).

Maastricht of course have free route airspace. The Maastricht Upper Control Area (MUAC) has had it from FL245-FL660 since a long time. Here's their page on it.

Some fairly standard stuff applies:

- You can't file within 2.5nm of the lateral boundary
- Directs do need to connect to SIDs, STARs (if required)
- There are published enter and exit point for the MUAC region

They have something new too though.

Now, this isn't FRA stuff, but is "making routing through airspace more efficient" stuff so we figured a good thing to add in here too.

The big change is the **"dualisation" of the N125 route**. *What is this?* Well, its a busy route that used to be bi-directional and have aircraft climbing and descending which was a mess. So now it is two parallel routes.

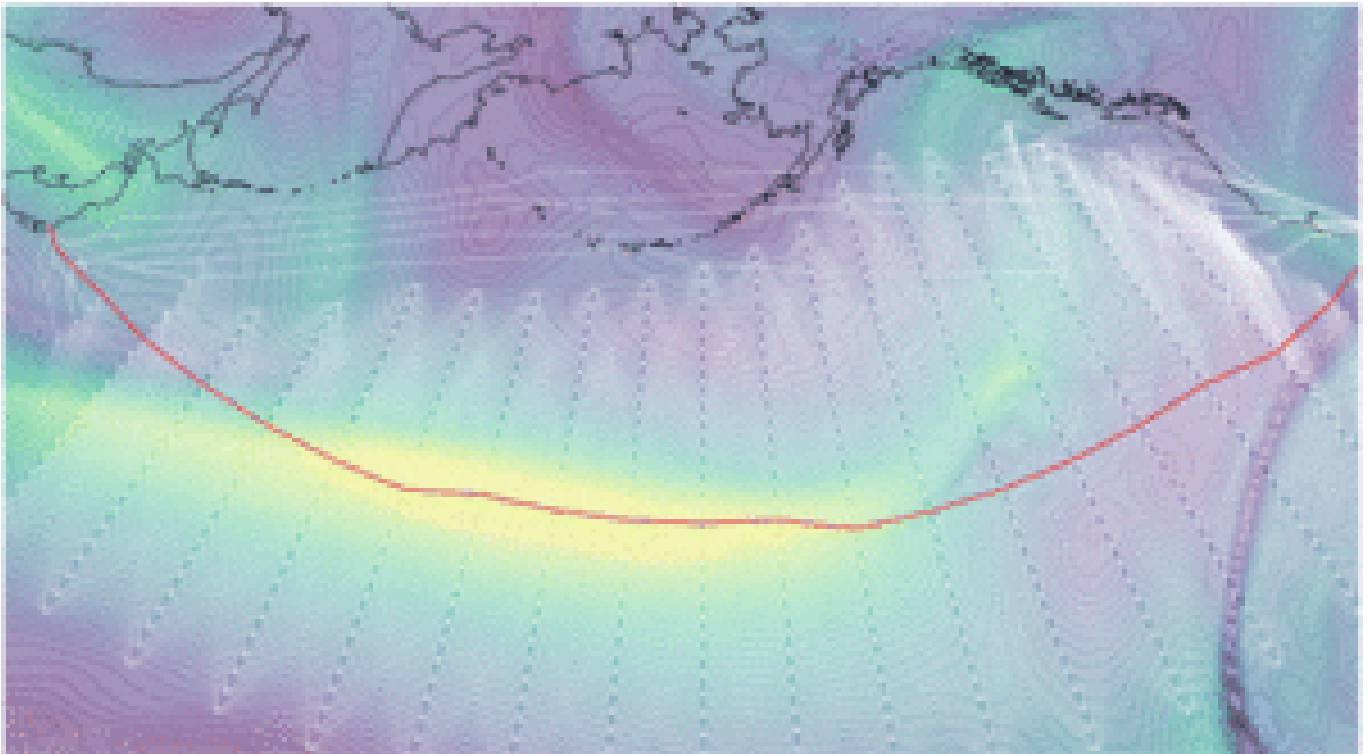
Here is a picture of it:

NOPAC FRA

A study was published on this earlier in 2022 and the results showed, unsurprisingly, that there is much better efficiency for flights able to utilise free routing – especially because winds can be utilised better. This isn't quite the same as Free Route Airspace, its more *“free to plan your route for minimum time or fuel burn”*.

They saw around 243kg saved on eastbound flights and 469kg on westbounders.

However, they also saw a potential increase in loss of separation events, so a balance in separation and efficiency comes up. To be honest, we aren't sure what the situation is with this. It seemed to be a trial to see if viable, but no news on whether it will go any further.



Minimum-time route from Tokyo to Los Angeles.

The North Atlantic

The next step for the NAT is more likely to be **Nil Tracks** than full free route airspace. And there is no sign of nil tracks becoming a permanent thing anytime soon.

Mongolia

They are implementing FRA but it is dependant on China (where entry points are dictated by city to city pairs) and Russia (which is currently not talking to many of their neighbours on aviation related topics).

Russia

Russia has some FRA, but is looking to add more entry and exit points. See above for progress on this though.

The US

The FAA are implementing some **High Altitude Redesign plans** which you can read all about this Circular.

They don't call it Free Route Airspace, but if you've flown in the US you might have noticed you do tend to get a lot of directs. If you want to plan for these a little more 'officially' then you need to look out for the (little-known by some) waypoints all around the US known as **'NRS (National Route System)' waypoints**.

NAVIGATION REFERENCE SYSTEM (NRS)

NRS is a system of waypoints used in point to point navigation based on latitude and longitude which are depicted on high altitude enroute charts. The format of the naming convention for use in the northern hemisphere is two letters, followed by two numbers, followed by a single letter.

These NRS waypoints are identical to "RNAV" waypoints and are arranged in a distinct grid pattern. The naming convention format is defined as follows:

1. First character identifies the International Civil Aviation Organization (ICAO) Flight Information Region designator. For the 48 contiguous United States that character is "K".
2. The second character represents the Air Route Traffic Control Center airspace in which the fix is located.

B	Boston	N	New York	W	Washington
J	Jacksonville	C	Cleveland	I	Indianapolis
T	Atlanta	R	Miami	H	Houston
F	Fort Worth	K	Kansas City	G	Chicago
P	Minneapolis	D	Denver	A	Albuquerque
U	Salt Lake City	L	Los Angeles	S	Seattle

3. The third and fourth characters represent the latitude increment. Waypoints are situated along lines of latitude that occur every 10'. Two digits, between 01 and 90, identify the latitude of each waypoint.
4. The fifth character identifies the longitude identifier. The NRS longitude identifiers circle the globe from west to east beginning with the letter A at the prime meridian (0°). The letters repeat every 26°.

Waypoint	Description
KA03W TX	30-30-00.0000N 104-00-00.0000W
KA06W TX	31-00-00.0000N 104-00-00.0000W
KA09Q AZ	31-30-00.0000N 110-00-00.0000W
KA09U TX	31-30-00.0000N 106-00-00.0000W
KA09W TX	31-30-00.0000N 104-00-00.0000W
KA12O AZ	32-00-00.0000N 112-00-00.0000W
KA12Q AZ	32-00-00.0000N 110-00-00.0000W
KA12S NM	32-00-00.0000N 108-00-00.0000W
KA12U TX	32-00-00.0000N 106-00-00.0000W
KA12W TX	32-00-00.0000N 104-00-00.0000W
KA15O AZ	32-30-00.0000N 112-00-00.0000W
KA15Q AZ	32-30-00.0000N 110-00-00.0000W
KA15S NM	32-30-00.0000N 108-00-00.0000W

Here is some info on the NRSes. NRS'? NRS's?

Coming to an airspace near you...

Free Route Airspace is predominantly a 'Europe Thing', and a very good one, but a work in progress. If you

work in the planning side of things, keep an eye out for changes to European airspace as more FRAs and cross-border routes become available.

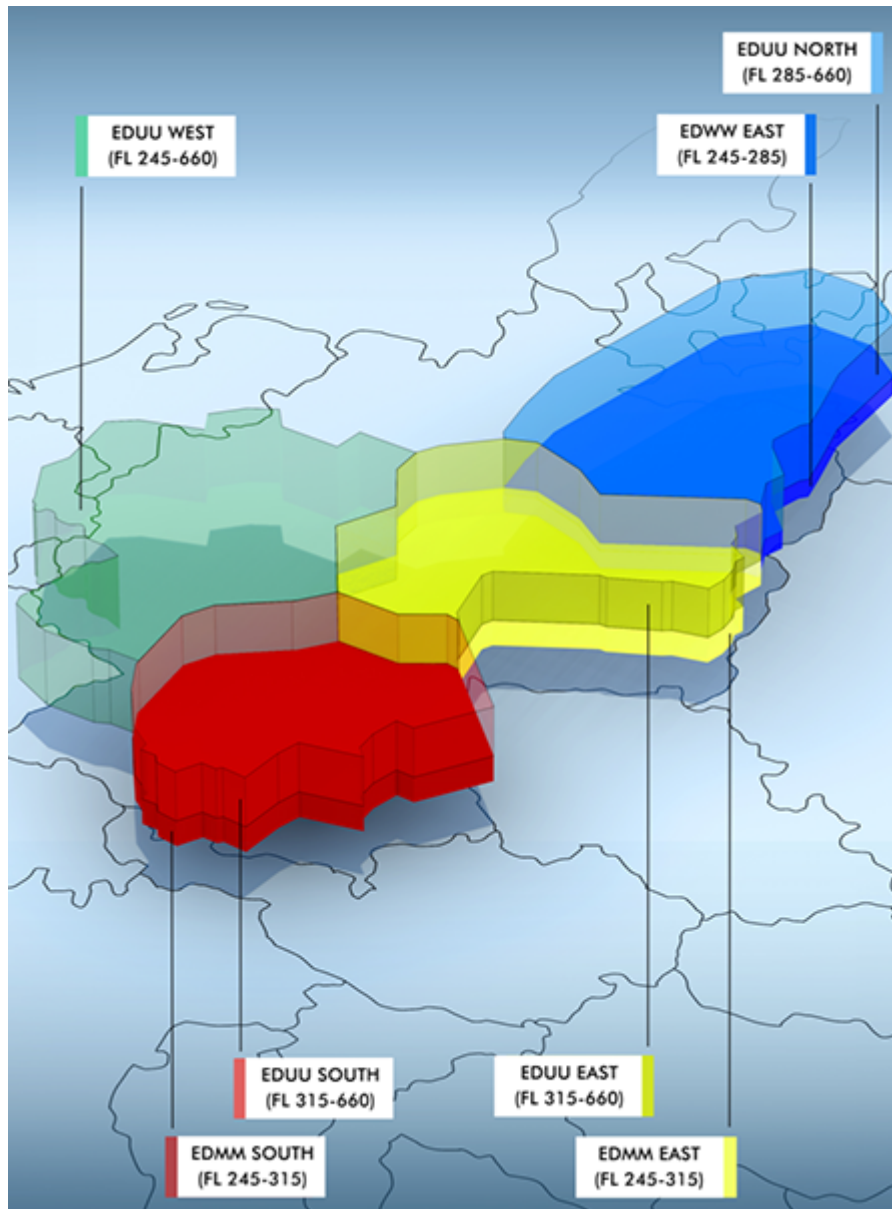
More direct routings across Europe

David Mumford

9 June, 2022



Sectors of airspace over southern Germany are ahead of schedule with plans to bring in Free Route Airspace (FRA). With effect from 1st March 2018, FRA will be implemented in the EDUU/Karlsruhe UAC, EDWW/Bremen ACC , and EDMM/Munchen ACC above FL245.



By the end of 2019, most European airspace is expected to have implemented Free Route Airspace, with all airspace having this type of operations by 2021/2022.

We like the idea of Free Route Airspace – direct routing is the way of the future. We also like cool maps. Thankfully, good old Eurocontrol have provided us with some great ones, showing where Free Route Airspace currently exists, and where it will be implemented in the future:

