Low level airways (RAC 2.7)

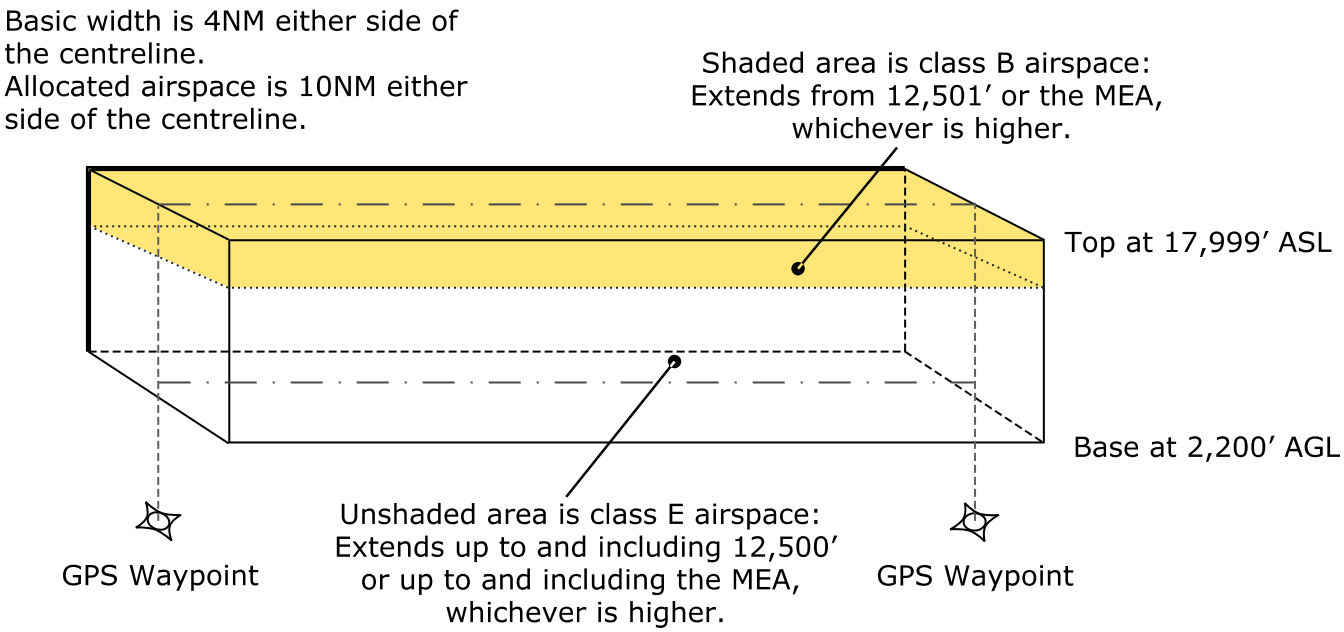
Low level airways are controlled airspaces designated to serve en-route traffic.

T-Routes [RNAV (GNSS) Airways]

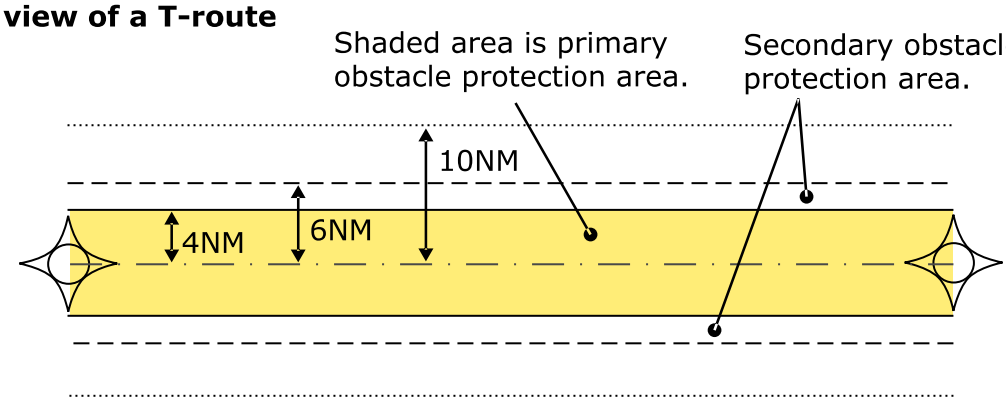
RNAV airways are defined paths between RNAV waypoints. Since GPS is the common way of navigating to these waypoints, these are often called GPS airways, but their official name is T-routes.

T-Routes have a constant basic width of 4nm. This is because the accuracy of the navigation source (your GPS receiver) doesn't change if you are closer or farther from a waypoint (as they do with a VOR or NDB) because the signals are from the satellites in space.

3D side view of a T-route



Top view of a T-route



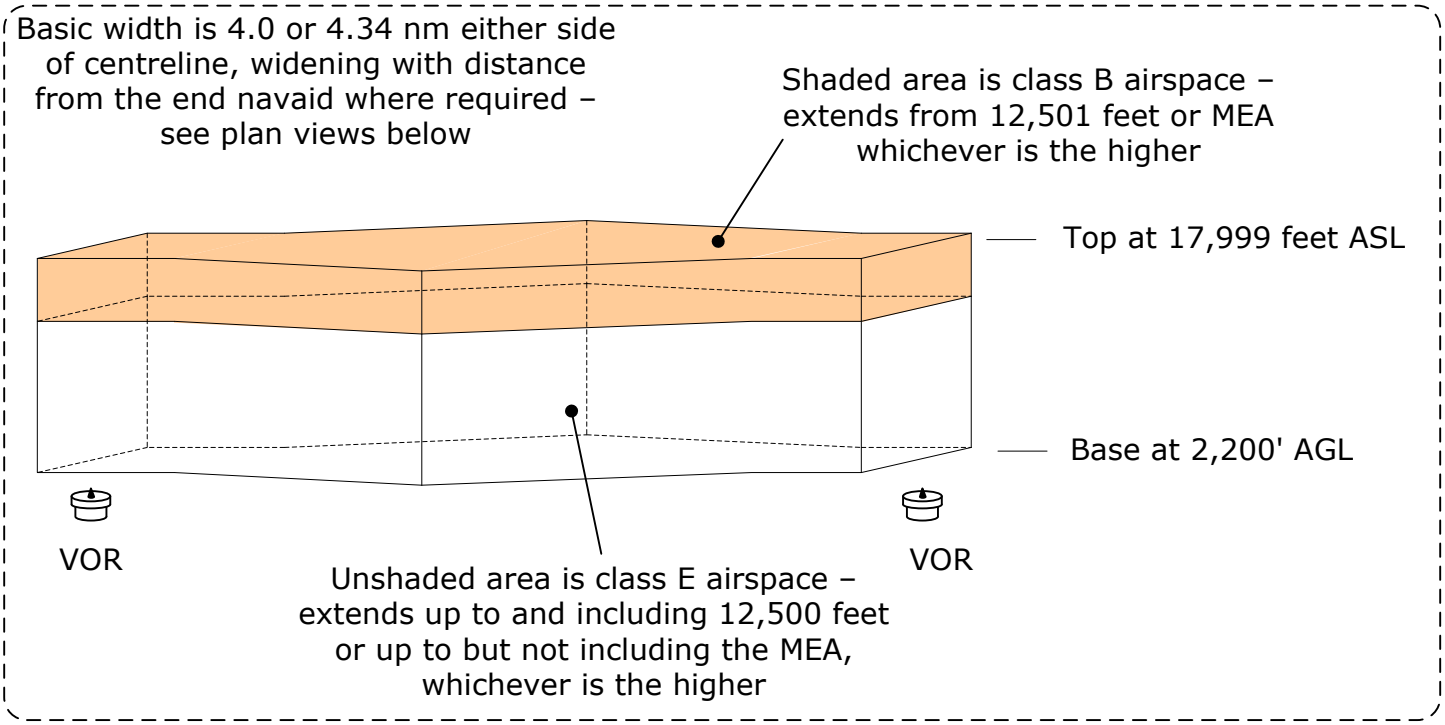
Know these dimensions!

The primary protected airspace (where the obstacle protection minima [MOCA] applies) is a constant 4nm either side of the centerline. The airspace associated with the T-Route extends for 10nm either side of centerline.

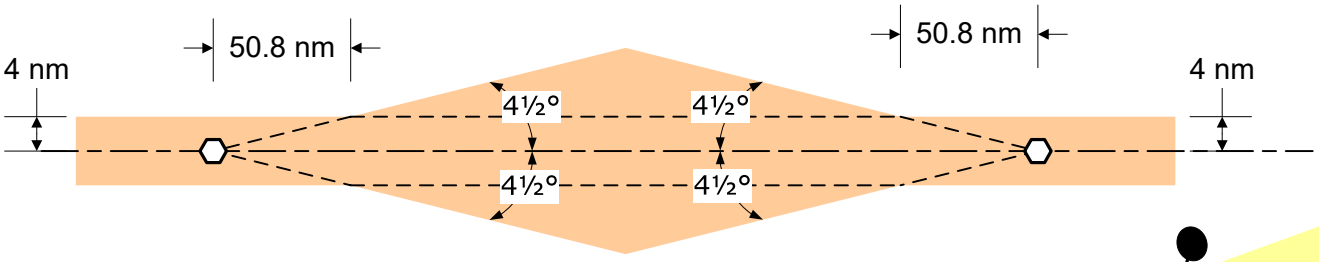
The Secondary Obstacle Protection area extends for an additional 2 nm beyond the Primary Obstacle Protection areas (from 4 nm until 6 nm) on either side of the centerline.

VHF airways (AIM RAC 2.7.1)

VHF airways either have a VOR at each end of a segment or a VOR at one end and an NDB at the other end of a segment. The approximate dimensions of VHF airways are as shown below.

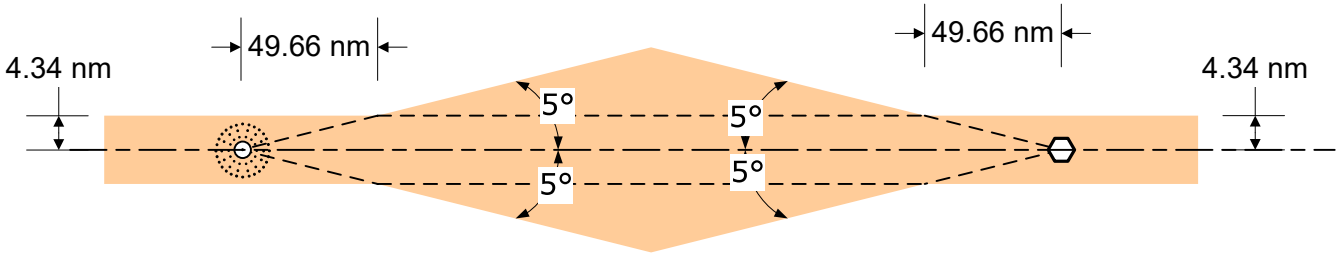


Plan view of a VHF airway segment with a VOR at each end



Know these dimensions & know the differences between the two!

Plan view of a VHF airway segment with a VOR at one end and an NDB at the other end

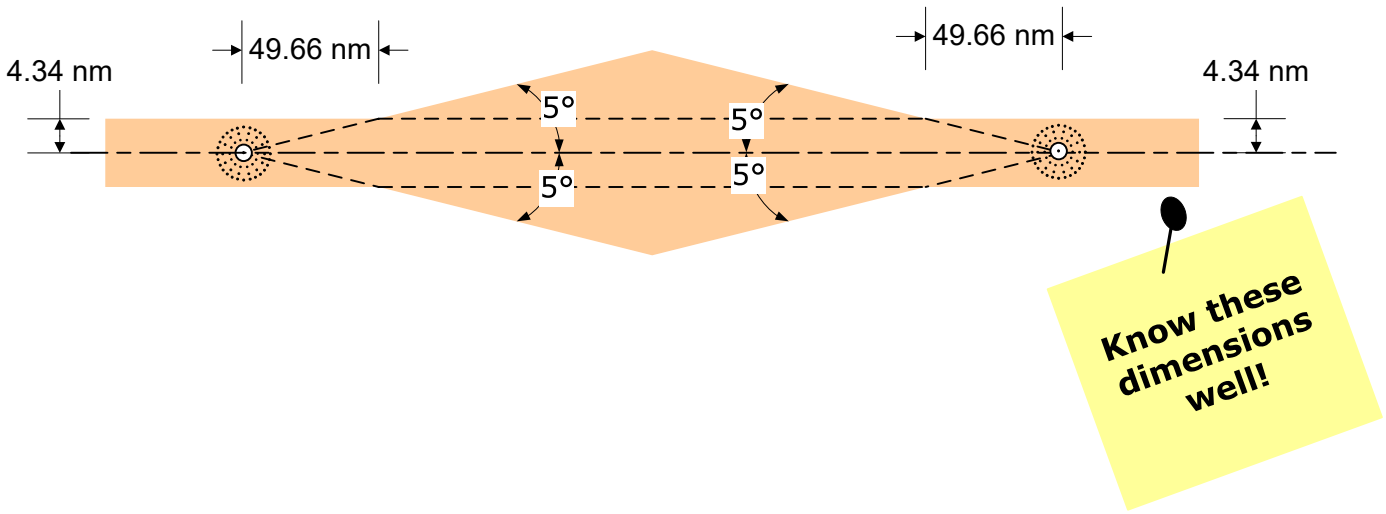


Low frequency airways or LF/MF airways (AIM RAC 2.7.1)

Low frequency airways are similar in structure to VHF airways with the following exceptions:

- Each segment has an NDB at each end whereas a VHF airway has a VOR at at least one end of a segment
- The width of all low frequency airways is 4.34 nm either side of the centreline with the width expanding with distance away from the ends of the segment where required.

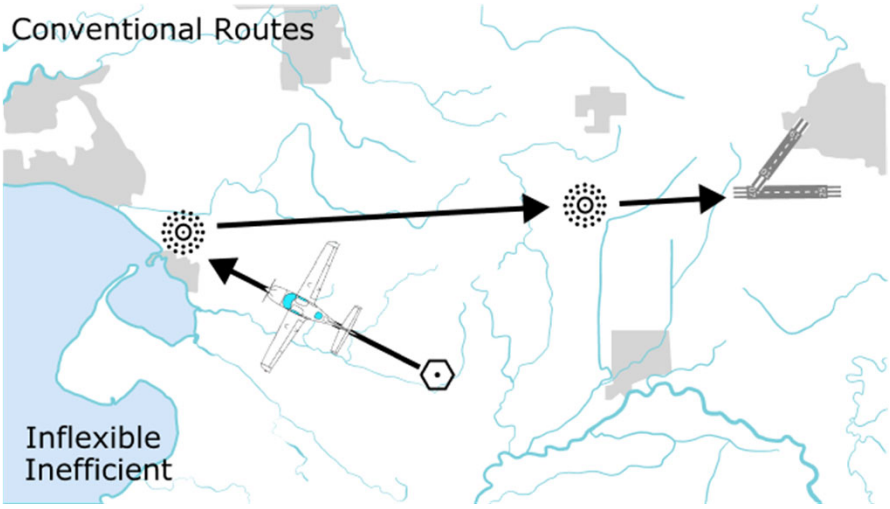
Plan view of an LF/MF airway segment with an NDB at either end



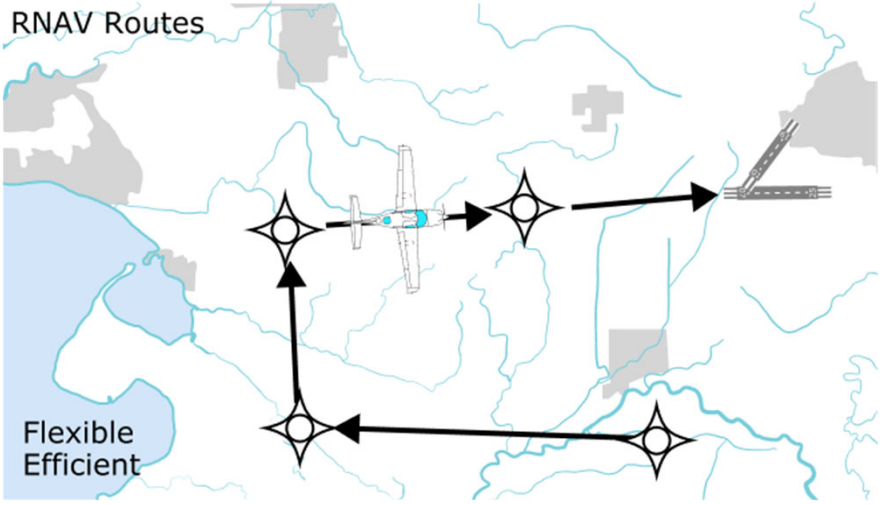
Low level air routes (AIM RAC 2.8.7)

Low level air routes have lateral dimensions which are identical to that of low level airways – again depending on the navigation aids at each end. However the vertical structure is somewhat different. Instead of beginning at 2,200 feet AGL, they begin at the surface and extend up to but not including 18,000 feet. It is important to note that low level air routes are uncontrolled, that is they fall within class G airspace. Even though ATC does not have control nor responsibility for controlling traffic within class G airspace, you will still be provided with flight information and alerting services by ATS units within class G airspace.

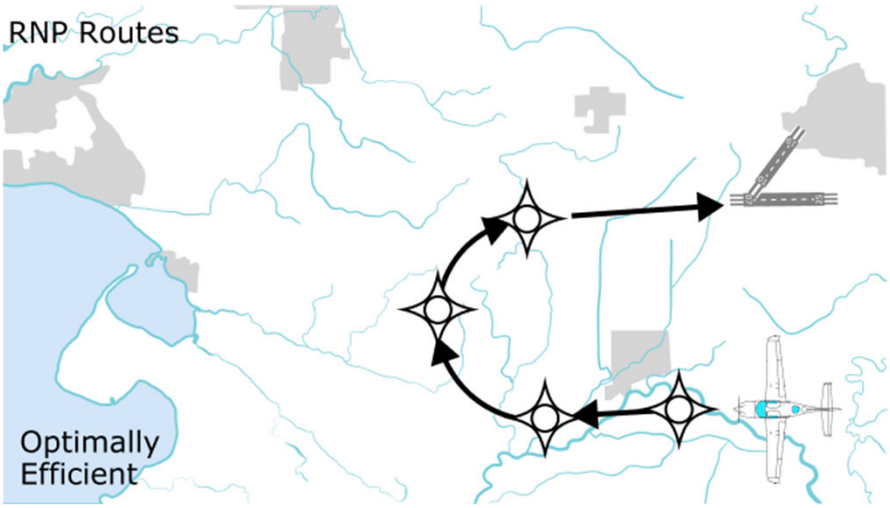
The advantages of GNSS routing over routing via conventional ground based navaids is that more flexible paths are available. There are three types of routes that can be flown: conventional, RNAV and RNP.



Conventional Routes are based on ground-based navaids, like VORs and NDBs. You can fly from navaid to navaid, or to a particular intersection between two navaids, but it is very rigid and inflexible in the routings that you can choose



Area Navigation, known as RNAV, allows you to define a waypoint anywhere, not limited to ground-based navaid location. These routes are much more efficient and flexible than flying between ground-based navaids. Routes are generally flown using GNSS (GPS) but sometimes other systems are used (like DME-DME or others).



Reduced Navigational Performance (RNP) routes, are flown using GNSS (GPS) signals. This system uses specifically approved aircraft, avionics, autopilots and flight crew to follow arcing flight paths that allow much more flexible and efficient routing. For example, you could follow a curving flight path through a valley, allowing much lower approach minimums than would otherwise be possible.