

Farnborough LARS Guide

This guide provides information and advice for pilots when using Farnborough LARS and flying around or below the LTMA (London Terminal Manoeuvring Area)

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NATS Protected

A series of five parallel, wavy lines in a yellow-green color, flowing from the bottom left towards the bottom right, curving upwards at the end.

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Introduction

Farnborough LARS provides ATSOCA's (Air Traffic Services outside controlled airspace) to anyone flying under or around the LTMA (London Terminal Manoeuvring Area) and within its sectors (See page 4 & 5).

Farnborough LARS was established to provide protection for the LTMA by assisting in the prevention and reducing the impact of any infringement on safety, whilst also minimising disruption to commercial operators.

The LTMA and the airspace around it, is amongst the busiest and most complex in the world and flying in and around it is a challenge. For this reason we would encourage you to contact Farnborough radar on the appropriate frequency when operating in one of our sectors. In addition to infringement prevention, we aim to assist in improving safety for all airspace users.

This service is jointly funded, with NATS En-Route Ltd funding LARS North & East and TAG Farnborough Airport Ltd funding LARS West.

The service is available from 0800(L)-2000(L) every day except Christmas Day and Boxing Day.

Farnborough LARS Sectors

Farnborough LARS is split into three sectors, North, East & West. Each sector has its own complexity, challenges and congested areas.

The North sector has Transponder mandatory zones either side of the Stansted CTR, a busy training area at Aylesbury/Thame, the WCO beacon to the North West of the area of coverage and some busy general aviation airfields such as Denham, Duxford, Stapleford and Wycombe.

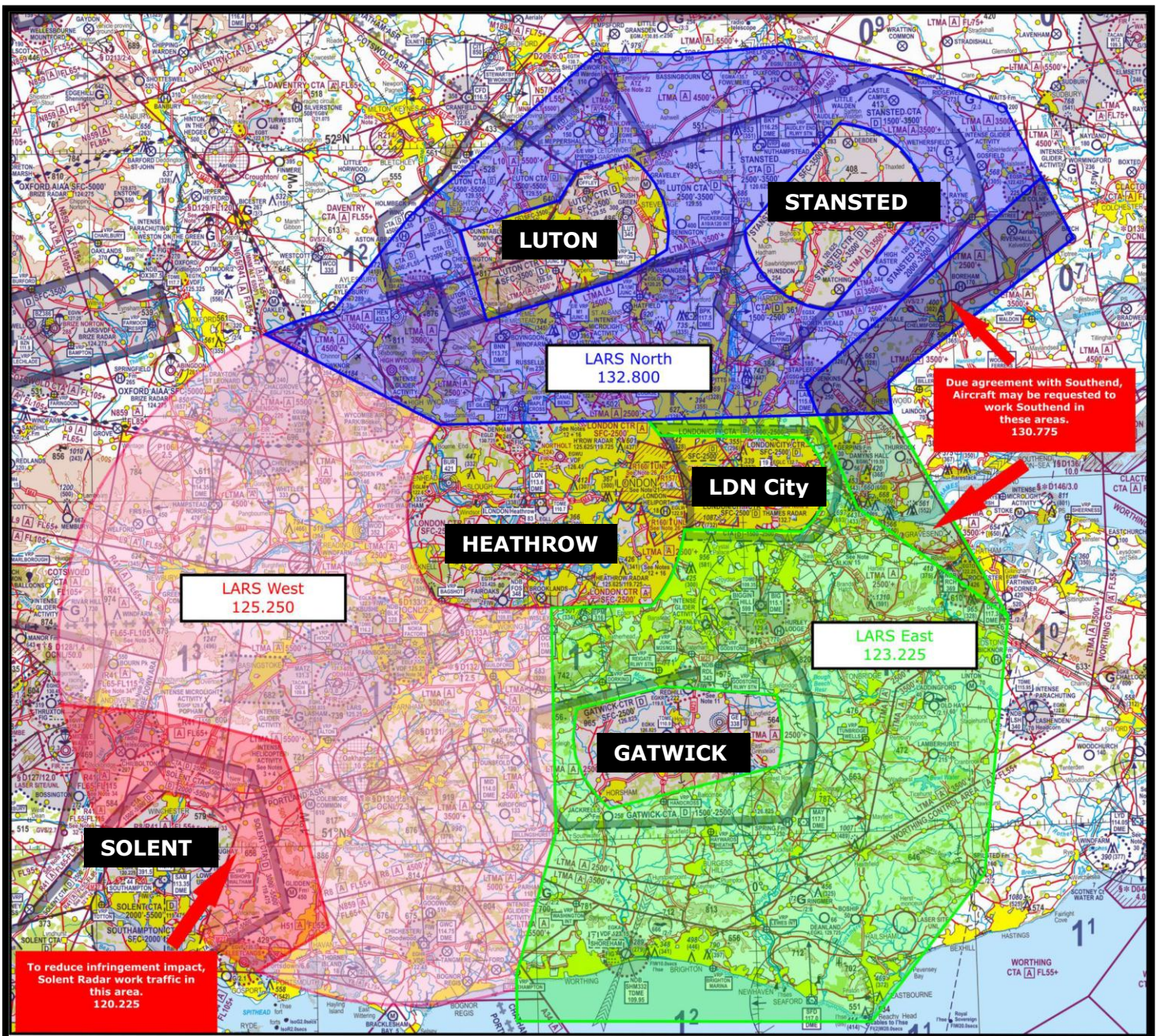
The East sector has traffic leaving controlled airspace for ILS approaches into Biggin Hill, a narrow corridor between Heathrow & Gatwick to navigate, parachuting activity at Lashenden/Headcorn and a busy airfield at Shoreham.

The West sector has the highest traffic levels out of the three sectors. It has a multiple bases of controlled airspace adding complexity, CPT beacon, Lasham the largest glider site in Europe, busy military circuit traffic at RAF Odiham and high levels of private business aircraft joining & leaving controlled airspace from Farnborough, Blackbushe, Fairoaks, Dunsfold and Lasham.

In all sectors there are many busy ATZ's or part of ATZ's that CAN NOT be over flown as it would mean entering controlled airspace, parachute activity in many locations, air displays, gliders and various other events throughout the year.

The map below shows the area of coverage of the Farnborough LARS sectors;

Farnborough LARS North	132.800	Blue
Farnborough LARS East	123.225	Green
Farnborough LARS West	125.250	Red



Transponder Mandatory Zone (TMZ's)

Within the Farnborough LARS North sector there are two Transponder mandatory zones (TMZ's), one either side of the Stansted Control Zone.

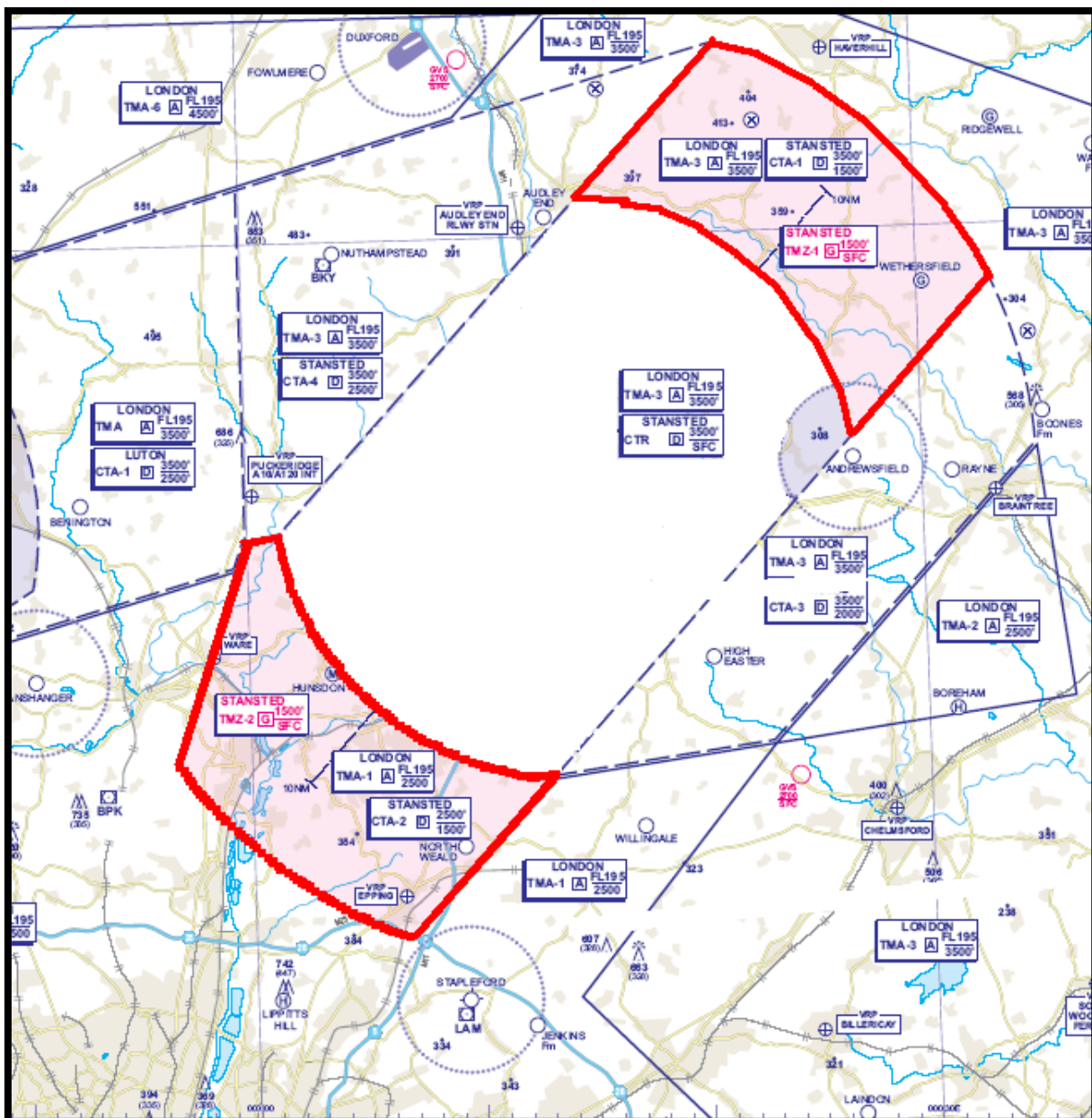
A TMZ is defined as a volume of airspace in which aircraft requiring to fly within the defined area, will be required to operate SSR (Secondary Surveillance Radar) equipment or be in contact with the controlling ATC authority i.e. Farnborough LARS North.

The requirements and methods in which to transit or enter a TMZ are listed below:

- 'Mode S' & SSR Equipped – Do not need to ask permission but we do advise you still make two way contact with Farnborough Radar 132.8
- Aircraft that are operating a serviceable transponder displaying Mode A+C or Mode A only **ARE REQUIRED** to ask permission to access the TMZ and may continue through remaining outside CAS.
- Aircraft that are not transponder equipped **ARE REQUIRED** to ask permission to access the TMZ and, once permission is granted, may continue through remaining outside CAS.

There should never be a reason to refuse access to the TMZ's but we need to maintain a known traffic environment with commercial airliners operating at low level approaching or departing Stansted airport overflying the TMZ's.

The map below shows the area around the Stansted airspace. The two pink areas are the TMZ's. They are from the Surface up to 1500ft. Above the TMZ's is controlled airspace in which the Stansted departures and inbounds operate at low levels. TMZ's exist to create a known environment in close proximity of the commercial airline traffic ensuring the safety of all involved whilst providing access for the general aviation community.



Air Traffic Services Outside Controlled Airspace (ATSOCA's)

Farnborough LARS provides Air Traffic Services Outside of Controlled Airspace (ATSOCA's) to aircraft operating outside controlled airspace around the London TMA. The ATSOCA services Farnborough provides are Basic Service, Traffic Service and De-confliction Service and the aim of this section is to briefly outline the services and explain how Farnborough provides them.

Basic Service

A Basic Service (BS) provides advice and information useful for the safe conduct of flights such as, weather information, airspace activity or conditions at airports, the pilot is solely responsible for the avoidance of other traffic.

When receiving a BS from Farnborough, you will be issued with a squawk and the controller will usually verify the accuracy of your mode C if it is available either from your initial level report or by requesting your level and checking against your mode C readout. This is for identification purposes only and to confirm you will be remaining outside of controlled airspace, this is not a radar service and your flight will not be closely monitored. You may be issued with traffic information, however this will only be when the controller feels there is a definite risk of collision. Responsibility for collision avoidance remains with the pilot.

Traffic Service

A Traffic Service (TS) is a radar based service, in addition to the provisions of a BS, the controller will provide radar derived traffic information to assist the pilot in avoiding other traffic, although responsibility for collision avoidance remains with the pilot. The controller will pass relevant traffic information which is deemed to be traffic that will pass within 3NM and 3000 feet and provide this information before the traffic is within 5NM.

When you request a TS and subsequently receive one, you have entered into a verbal contract with the controller that he will provide this service and agree that you will adhere to your responsibilities as a pilot of maintaining a listening watch and informing ATC of any intended change of level before doing so and understand that responsibility for collision avoidance and terrain separation remains with you.

When you request a TS from Farnborough radar, you will be issued with a squawk and your altitude checked against your 'Mode C', if serviceable. Once the controller has identified you, providing the situation permits, they will inform you that you are under a TS.

Please note that Farnborough cannot provide a TS below an altitude of 1,500 feet due to radar performance.

De-confliction Service

A De-confliction Service (DS) is a radar based service, in addition to the provisions of a BS, the controller will provide radar derived traffic information and issue headings and/or levels in order to achieve a de-confliction minima. The de-confliction minima is 5NM or 3000 feet on unknown traffic or 3NM or 1000 feet on known traffic and as the controller will have to issue headings for de-confliction this service will not be provided below unit minimum terrain safe levels.

When in receipt of a DS, as with a TS you have entered into a verbal contract with the controller and your responsibilities are to maintain a listening watch, be able to accept changes of level and heading which may require flight in IMC and unless safety will be compromised, obtain approval from ATC for any heading or level change. Whilst the controller will provide de-confliction advice the ultimate responsibility for collision avoidance remains with the pilot.

When requesting a DS from Farnborough, you will be issued with a squawk and identified as for a TS and informed that you have a DS.

Due to the confines of class G airspace around the London TMA there are several areas where Farnborough controllers are unable to provide a DS as it would be impossible to achieve the de-confliction minima, this combined with the requirement to be able to fly into IMC which is not suitable to most of the airspace users means that this service is rarely provided by Farnborough LARS.

****Reduction of Traffic Information****

When receiving a TS or DS from Farnborough you may be given the caveat of reduced traffic information along with the reason why. What this means is that the controller can provide the service however, for the reason stated, they may be unable to provide you with relevant traffic information on every aircraft.

A reason given may be controller workload, where the controllers' attention is divided by a number of aircraft on frequency and so they have less time to monitor individual flights. Another reason may be radar suppression or performance; ATC radar systems are processed to reduce clutter from weather and terrain, this creates 'black spots' in which traffic may not show on radar, also the radar signal degrades with distance from the source which can have the same effect as above.

There may be other reasons given but hopefully this gives you a better understanding of what it means.

Monitoring Squawks

In the summer months the Farnborough LARS frequencies often become very busy and at extreme levels people are unable to find a break to make a call.

Farnborough LARS West

If you intend to fly within 8/10miles of Farnborough or through the OCK to Biggin Hill corridor then we strongly advise you make yourself known to Farnborough Radar.

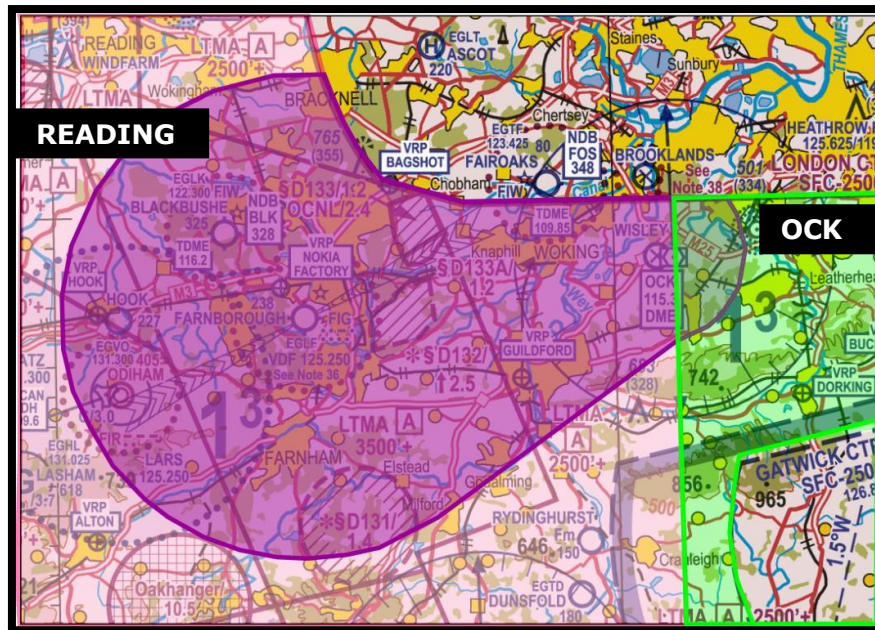
If you are not operating in these areas (see map below) and either cannot get in on a busy frequency or would just rather listen out on frequency then you can squawk 4572 whilst listening on 125.250.

The controller may need to contact you to find out your intentions, possibly identify you and verify your level to ensure separation against other traffic in the FIR.

The controller will make this request on frequency using phraseology such as "Aircraft squawking 4572 3nm North of Basingstoke report your callsign." Once two way communication has been made you may be issued with a squawk and your level verified. This may be all that is required of you as the controller can now treat you as 'known traffic', but sometimes co-ordination will have to be negotiated.

If you are, or will be operating in the areas designated purple and green on the map on the next page, we strongly advise you to contact LARS on 125.250. These are areas of high traffic density with a large variety of aircraft types ranging from vintage gliders to large passenger jets such as a B737.

In contacting LARS West when operating in these areas it helps to improve safety for both you and the other airspace users. It will increase both pilots and controllers situational awareness allowing for a safer flying environment.



There are other monitoring Squawks in use around the Farnborough LARS sectors. If you intend to remain outside controlled airspace and not transit a zone then we recommend you make contact with Farnborough LARS.

● LARS West	Solent Radar	0011	120.225
● LARS East	Gatwick Radar	0012	126.825
● LARS North	Luton Radar	0013	129.550
● LARS North	Essex Radar	0013	120.625

GPS Information and Advice

The use of GPS systems for VFR navigation is becoming increasingly popular and whilst these systems for the most part provide an excellent aid to navigation they are not completely fool proof.

At Farnborough we regularly provide assistance to pilots who have, or are about to infringe controlled airspace even with the aid of GPS. There are various reasons for the poor performance of GPS units such as technical faults, signal degradation, out of date chart or database and human error amongst others. We won't cover these in this short section, but what we ask is that when carrying out your pre-flight planning you consider the following points: -

1. If you intend to use a GPS then it should be used in conjunction with a pre-planned route plotted on an up to date chart. A GPS is a good aid to navigation for confirmation of your position when dead reckoning, however it should not be used as the sole navigational reference, nor should you rely on it to provide an accurate position, you should regularly cross check your GPS with what you can see out of the window to ensure its accuracy.
2. If your flight planned route takes you close to the edge of controlled airspace and you are not familiar with the route, do not rely on your GPS to keep you outside CAS. You should have a prominent VRP or other method of ensuring this, or you could consider an alternative waypoint which will provide a sufficient buffer for potential deviation from planned track.
3. Ensure you have the most recent charts loaded on your GPS and that you are familiar with the functions and operation of your GPS system. Pre load your route onto your GPS, It is not recommended to try and reprogram your GPS whilst in the air as this provides an unnecessary distraction to your responsibility to fly the aircraft and maintain a lookout.

4. If you are receiving a service from Farnborough or any other ATC unit and you are informed that you have, or are about to infringe controlled airspace then please act on the instructions given to leave or avoid CAS. If you feel this was unnecessary then you can discuss this with the controller afterward, however please bear in mind that whilst you may have the most up to date system with many useful functions and gizmos, the controller has a state of the art multi million pound radar system which has been certified for the task by the CAA and is regularly maintained and calibrated by experts.

We recommend that you take a look at this excellent safety sense leaflet produced by the CAA, which provides a more detailed review of GPS use.

http://www.caa.co.uk/docs/33/ga_srg_09webSSL25October.pdf

There are 3 GPS systems which NATS have recognised, approved and would recommend to UK general aviation pilots, these being;

Sky Demon -

<http://www.skydemon.aero/>

AirspaceAVOID -

<http://www.pocketfms.com/AirspaceAVOID/indexUKAA.asp>

NATS AWARE

<http://www.airspaceaware.com/>

Co-ordination

The volume of traffic operating outside controlled airspace continues to increase, with Farnborough LARS providing services for nearly 106,000 movements per year.

Co-ordination is used by controllers outside controlled airspace to achieve minimum separation requirements. If a controller deems it necessary, they may try and negotiate a form of co-ordination with you. The separation requirements for an aircraft on a deconfliction service are:

Vs Identified Aircraft - 1000ft and/or 3NM

Vs Unknown Aircraft - 5000ft and/or 3NM

There are various types of co-ordination that can be negotiated and the controller will usually try to minimise disruption to your planned route, however it may be necessary for safety reasons to deviate for a short period. If any requested co-ordination requires you to fly outside of the limits of your license you **must** inform the controller that you cannot comply. The controller can then decide on another plan. You are responsible for ensuring you fly within the limits of your license, the controller does not know what qualifications you have and will expect you to inform them if you cannot comply with their request.

The forms of co-ordination we use with aircraft operating in the Farnborough LARS West sector are:

Overhead Transits of Farnborough

A lot of pilots request to transit the Farnborough ATZ. We try to accommodate as many as possible and 99% of requests are approved. The only co-ordination we ask maybe to route either east or west of the airfield. This is to allow us to continue with our operations at the same time whether it be landing or departing traffic and you will usually be given the reason.

Not above / Not below an Altitude –

This allows an aircraft under a deconfliction service to descend or climb to a 1000ft above or below the agreed altitude.

No further North/East/South/West of Position –

This allows an aircraft under a deconfliction service to descend to or through your level with lateral separation or to depart or establish on final approach.

Routing

Two examples of this are when we are trying to clear the final approach to runway 24 for Farnborough.

- Traffic routing through Farnborough's Overhead east bound may be asked to route via Guildford or remain north of the M3 motorway.
- Inbound traffic to Fairoaks maybe asked to route OCK then Fairoaks which frees up airspace to the north of that route to turn aircraft downwind, base leg then onto final approach safely.

Mode C Tolerance

When receiving a service from Farnborough Radar you will be allocated a squawk code and if Mode 'C' equipped, the controller will verify the accuracy of this by requesting your level and checking what you report against the 'Mode C' readout on the radar screen.

There is an allowable tolerance of +/- 200ft of the readout on the radar screen. If you are flying at 2400ft you may be indicating 2600ft on radar which is within the tolerance in which 'Mode C' is deemed serviceable.

The issue with the previous scenario is that when indicating 200ft above on radar, it may appear that you are infringing controlled airspace and possibly setting off an alarm system attached to the LTMA radars. The LTMA controllers are required to take avoiding action on infringing aircraft and need to achieve 5nm or 5000ft on contacts unknown to them.

Although you may be operating outside controlled airspace, if your 'Mode C' is over reading and you set off this alarm system, unnecessary avoiding action may be taken on your aircraft, increasing workload and possibly causing disruption to commercial airliners inside controlled airspace.

In order to prevent this Farnborough radar may ask you to descend an extra 100/200ft in order to keep your indicated level from causing the problem mentioned above.

Infringement Advice

Farnborough LARS primary role is to prevent infringements to the main London airport zones and the LTMA.

We do our utmost to prevent any infringements but for various reasons they occur on a daily basis. There is an endless list of reasons why they occur but through building knowledge and awareness of the airspace we operate in and by pilots briefing fully before taking off, we hope to prevent even more infringements.

As discussed previously GPS's are a great tool but should NEVER be relied upon. Always ask yourself If the GPS failed now,

- 1) Do you know where you are?
- 2) Can you navigate onwards without it?

If the answer is NO to any of these questions then you ARE relying on your GPS too much!!

Below are a few points to remember which will help you in the event of being told you are infringing controlled airspace by a controller:

- DON'T PANIC!
- The controller will give you instructions to route via the most direct, quickest and safest way out of controlled airspace. If you are not in contact with anyone then leave by the quickest and most direct route possible.
- Don't worry, keep flying the aircraft and keep your and the passengers safe.
- If you're not, then try and make two way communication with an ATC unit. If you are lost contact D&D on 121.5
- The infringement may be investigated to learn and help prevent similar events in the future.
- Controllers are here to help you not police the skies!

If you are talking to Farnborough LARS you are less likely to infringe LTMA controlled airspace or if you do, the result can be

less severe. If you are known traffic and in two way communication with Farnborough LARS, you can be given instructions and help to re-establish you back on track and continue on a safe flight.

Although you are not continually watched on a basic service, we constantly scan the controlled airspace boundaries to ensure we keep infringements to a minimum.

At Farnborough LARS we try to log the amount of infringements prevented by the controllers. If an aircraft is given advice or told to turn away/descend from controlled airspace it is logged as a statistic. During busy work load situations not all infringement preventions are logged and we believe we are only registering 60% of the figures.

Below is a table showing this years (2013) monthly totals so far.

2013	Total LARS Movements	Infringement Preventions Recorded	<u>Estimated</u> Real Figure Prevented
Jan	3071	22	37
Feb	4867	38	63
Mar	5331	43	72
Apr	8630	54	90
May	10105	138	230
Jun	11786	110	183
Jul	13814	169	281
Total	57604	574	956

We are set to record our highest number of LARS movements and the highest number of prevented infringements since the Farnborough LARS opened this year.

Farnborough Message

We hope that the production of this guide helps you with your flight through the Farnborough sectors. Our aim is to build **knowledge** and **awareness** to improve the safety when operating outside controlled airspace.

AWARENESS - Constantly improve and widen the availability of information through multiple forms of communication about the activity and procedures in the airspace in which we operate.

KNOWLEDGE - Through sharing knowledge we aim to improve the understanding of each other's roles and increase the awareness of airspace users through direct and indirect communication.

SAFETY – By increasing knowledge and awareness together with the aviation community, we intend to make the airspace in which we all use a safer environment.

There is no one method or means of creating a completely safe environment outside controlled airspace. NATS Farnborough ATC will strive to ensure we provide the best ATC service to our community within the limitations of our capability. In return we ask that our community prepare themselves for each flight with the same endeavour.