

# Aeronautical radar ground station licence application form – OfW593

## Guidance for completing this form

### Who should use this form?

You may use this form to apply, amend or surrender an aeronautical radar ground station licence in the United Kingdom Isle of Man, Jersey and Guernsey or a platform in the UK Continental Shelf.

### Conditions

To establish an aeronautical radar ground station, you must normally have:

- An equipment approval under the Air Navigation Order (ANO), issued by the CAA's Safety and Airspace Regulation Group (SARG);
- A frequency assignment (PSR) issued by SARG, or a NISC certificate (SSR) issued by CAA's SARG on behalf of the National IFF/SSR Committee; and
- An aeronautical radio licence under the Wireless Telegraphy Act 2006 ('the WT Act'), issued by Ofcom.

All three are required before you may establish or use any aeronautical radio equipment. When making a new application, you may wish to check with SARG that the equipment is suitable. The frequency assignment and ANO approval will be issued by SARG and arrive together but the radio licence, issued by Ofcom, will arrive separately. This documentation is not transferable between legal entities.

### Communication preference

Where possible, all correspondence will be sent to licensees electronically.

If you do not wish to receive documents electronically, you must opt out by ticking the box against each contact to receive correspondence by post. .

### Completing this form

When completing this application please refer to the notes and complete in dark ink in **BLOCK CAPITALS**.

All fields are mandatory unless stated otherwise.

### Important

Ofcom makes regulations, which set out the fees for licences to use equipment issued under the WT Act. Further information about how we calculate your licence fees is available on the Ofcom website:

<https://www.ofcom.org.uk/manage-your-licence/radiocommunication-licences/aeronautical-licensing/licence-fees-calculator>

### How we use your data

We require this information in order to carry out our spectrum licensing duties under the Wireless Telegraphy Act 2006.

Please see Ofcom's General Privacy Statement for further information about how Ofcom handles your personal information and your corresponding right: [www.ofcom.org.uk/about-ofcom/foi-dp/general-privacy-statement](http://www.ofcom.org.uk/about-ofcom/foi-dp/general-privacy-statement)

When we receive an application for an aeronautical radio ground station licence, we share this form OfW586a with the CAA, as they need the information contained therein in order to perform their functions and enable you to establish your aeronautical ground radio station and to assess whether the installation can be approved under the ANO. The CAA SARG may contact you to obtain further details in support of your application.

In the case of a new application or a change in your payment contact details, you will also need to complete [form OfW586b](#) (new application payment contact details) and submit it to Ofcom along with this form OfW593.

However, we will not share personal data that you provide in form OfW586b (therefore we collect this information separately).

## False representation statement

Articles 256 and 265 of the ANO provides that it is offence to make, with intent to deceive, any false representation for the purpose or procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render may face a fine, imprisonment or both.

## For licensing help contact:

Ofcom  
FAO Spectrum Licensing  
PO Box 1285  
Warrington  
WA1 9GL

Email: [spectrum.licensing@ofcom.org.uk](mailto:spectrum.licensing@ofcom.org.uk)

Website: [www.ofcom.org.uk/manage-your-licence](http://www.ofcom.org.uk/manage-your-licence)

Phone: 020 7981 3131

## For frequency assignment and ANO approval assistance help contact:

Safety and Airspace Regulation Group,  
Air Space, Air Traffic Management and Aerodromes  
E-mail: [frequency.approval@caa.co.uk](mailto:frequency.approval@caa.co.uk) (PSR) or  
[NISC@caa.co.uk](mailto:NISC@caa.co.uk) (SSR)

## Radio interference

Since the operation of a new system may cause interference to existing users, your supplier may consider it necessary to carry out compatibility tests before you apply for your licence. Once installed and operating, your system must not cause undue interference to any other wireless telegraphy equipment. If it does, you may need to stop operating until the cause of the interference has been rectified. Ofcom cannot offer any protection against interference radiated by other authorised services, or by industrial, scientific and medical equipment; however, if you do experience interference, please contact us.

## Changes to licensee

WT Act Licences may not be transferred. The Licensee must give prior or immediate notice to Ofcom in writing of any change in the details of the name and/or address of the licensee.

## Changes to aeronautical equipment

The licensee must give prior notice of any change to equipment by completing this application.

If a member, or an employee, of the CAA is required to travel overseas in respect of this application you are advised to read the CAA scheme of charges to which this application relates to the section entitled 'Additional charges where the functions are performed outside of the United Kingdom'. All expenses incurred in pursuance of this application by travelling overseas will be payable by the applicant on demand.

If this application is withdrawn, a cancellation charge may be levied to reflect the work carried out by the CAA up to the point of cancellation. The CAA refund policy can be found at [www.caa.co.uk/refunds](http://www.caa.co.uk/refunds).

## Radar licence fees

The licence fee should only be paid to Ofcom after you have been invoiced. The licensee must pay the relevant fee as provided for by section 12 of the WT Act and the Regulations that have been made under that section. If you fail to pay the licence fee, Ofcom may revoke the licence.

The fee for an aeronautical radar ground station licence is payable annually. A licence fee of £50 is applicable for each aeronautical radar ground station licence issued, irrespective of the region of use (i.e. within the United Kingdom or Crown Dependencies).

## Access and inspection

Civil Aviation Publication (CAP) 670 ([www.caa.co.uk/CAP670](http://www.caa.co.uk/CAP670)) describes the safety requirements for equipment providing Air Traffic Services (ATS) and Air Ground Communication Services (AGCS).

## Frequency assignment

Radars are provided with a National protected assignment from the Civil Aviation Authority. They are subject to international coordination according to the process defined by the International Civil Aviation Authority (ICAO) Frequency Management Group and adopted for use within Europe. This may result in a delay of several weeks before a WT Act Licence and ANO Approval can be issued.

## Radar equipment use

For frequency management purposes, the CAA reserves the right to restrict the operational range to limits lower than those requested, to change frequencies where necessary or revoke frequency allocations. Allocations of radar frequencies are for aeronautical use only. Frequencies can only be allocated for use within the UK Flight Information Region.

The Licensee must ensure that the Radar Equipment is constructed and used only in accordance with the provisions specified in the documentation issued by Ofcom and the CAA. Any proposed changes must be agreed with Ofcom and the CAA in advance and implemented only after the appropriate documentation has been varied and/or reissued accordingly.

The remainder of these guidance notes provide help on specific questions

## SECTION B – Customer details

### Question B1a – Existing customers

If you already hold an Ofcom radio licence, you should write your Ofcom customer reference number in the box provided. Your customer reference number will be quoted in licence documentation or correspondence that we have previously sent to you.

### Question B1b – Harmonising a licence

Ofcom can align invoices for similar licence products to one consolidated date. This makes invoicing and payments easier to manage. The conditions for harmonising a licence are:

- The licence must be under an existing customer reference number;
- Must be the same licence product;
- Must have identical payment terms (e.g. every 12 months);
- Must have an identical payment contact; and
- Must be no outstanding invoice against the licence.

### Question B2 – All applicants

A licence can only be issued to a legal entity. You should complete the appropriate option provided or if these are not appropriate then provide your details under other legal entities. For a partnership, please give the full name of one partner and supply a list of all other partners. The main partner is also required to sign the declaration in Section E.

### Question B3 –Registered charities

Registered charities may be eligible for a 50% reduction in licence costs if they have as the objective the safety of human life in an emergency.

### Question B4 – Licensee address

If you are applying on behalf of a Limited Company, a Public Limited Company or a Registered Charity, the registered address of the organisation must be used. The licensee will receive all licensing documentation and correspondence.

### Question B5 – Licence contact name and address

This can be an additional contact who should also receive licensing documentation and correspondence.

### Question B6 – Payment and billing contact

The payment (billing) contact can be different to either the licensee or licence contact.

### Question B7 – Third party contact

If the licence is being handled by a third-party contact such as a radio supplier, then this can be provided.

## SECTIONS C to F – Primary surveillance radar

### Question C1 – PSR site name and address

Provide the primary surveillance radar site or name with address for the PSR, Multiateration (MLAT) or Wide Area Multiateration (WAM) location.

### Question C2 – PSR Site antenna location

The preferred format for the site/antenna location is for numerical values in latitude and longitude expressed in degrees, minutes and seconds. To convert decimal degrees, use the formula:

degrees = decimal degrees

minutes =  $[60 \times (\text{decimal degrees} - \text{degrees})]$

seconds =  $3,600 \times (\text{decimal degrees} - \text{degrees}) - (60 \times \text{minutes})$

As an example:

|         |                                                  |              |
|---------|--------------------------------------------------|--------------|
| Decimal | 51.1537°N                                        |              |
| Degrees | = 51                                             | <b>51 N</b>  |
| Minutes | = $60 \times (51.1537 - 51.0)$                   | <b>09</b>    |
| Seconds | = $3600 \times (51.1537 - 51.0) - (60 \times 9)$ | <b>13.32</b> |

|         |                                                 |              |
|---------|-------------------------------------------------|--------------|
| Decimal | 0.1821°W                                        |              |
| Degrees | = 0                                             | <b>00 W</b>  |
| Minutes | = $60 \times (0.1821 - 0.0)$                    | <b>10</b>    |
| Seconds | = $3600 \times (0.1821 - 0.0) - (60 \times 10)$ | <b>55.56</b> |

### Question C2 – Site height

Provide the site height in metres at the centre of the antenna above mean sea level.

## SECTION D – Primary surveillance radar technical details

### Question D1 - Transmitter details

You should provide the manufacturer and model number for the transmitter.

### Question D2 - Transmitter type

You should tick one of the options between a) solid state, b) magnetron, c) travelling wave tube or d) other. If other, then also specify the type of transmitter.

### Question D3 - Transmitter power

You should specify the transmitter power in either dBW or Watts. Ensure you delete the appropriate power units. dBW is a unit for the measurement of the strength of the signal expressed in decibels relative to one watt.

## **SECTION E – Primary surveillance antenna details**

### **Question E1 – Antenna details**

You should provide the manufacturer and model number for the antenna.

### **Question E2 – Antenna height**

Provide the height in metres to the centre of the antenna above ground level.

### **Question E3 – Gain**

You should provide the antenna gain specified in dBi.

### **Question E4 – Feeder loss**

Any feeder losses between the transmitter and antenna should be provided in dB rounded to the nearest whole dB.

### **Question E5 – Scan rate**

This is the rotation of the PSR antenna in revolutions per minute.

### **Question E6 – Beamwidth**

This point at which radar's power decreases to half the maximum level is referred to as the beamwidth. This should be specified in degrees for the horizontal, vertical low (main) and vertical low (auxiliary) beams. Radar systems with auxiliary scanning provision provide more dwell time on a target and adaptively improve performance and estimate the direction of arrival.

### **Question E7 – Instrument coverage range**

You should specify the detection range for aircraft approach and en-route air traffic applications in nautical miles (NM).

### **Question E8 – Antenna pattern**

'Pencil beam' antennas are highly directive antennas and sharply focused. When the beam is much more widely focused in one dimension then this is typically a fan beam antenna. Cosecant squared antenna provide a more uniform signal strength into the receiver as the target moves with constant height within the beam. If the antenna is something different then please specify the type. You can provide further details at the back of your application in the space provided for 'Additional Information'.

### **Question E9 – Polarisation type**

A radar system can have different levels of polarisation complexity from single (linear) polarisation, dual polarisation (including circular) or four polarisations. If the antenna uses something different then please specify the type. You can provide further details at the back of your application in the space provided for 'Additional Information'.

## **SECTION F – Primary surveillance radar frequency details**

### **Question F1 – Number of frequencies required**

In order to overcome some target size fluctuations some radars operate more than one frequency with different pulse widths. This is sometimes called time/frequency diversity where a target is illuminated by several frequencies to increase the range. These radars normally operate 2, 4 or 6 frequencies. The default value is 1.

### **Question F2 – Minimum diversity**

This should be the minimum separation required between two frequencies operating on the same pulse width (i.e. f1 and f4 pulse width = 22 µs; required minimum diversity requires 73 MHz. The minimum diversity is normally the same for short, medium or long pulses.

### **Question F3 – Frequency range**

This frequency range allows you to provide the frequency in MHz for a system operating with multiple frequencies.

### **Question F4 – Spot frequencies and bandwidths**

You can provide as many spot frequencies with bandwidth requirements. There is space for up to 6 unique spot frequencies with the associated bandwidth. You should specify frequencies with bandwidths in MHz only.

### **Question F5 – Pulse width**

You should enter the details as appropriate for short, medium and long pulse types. If radar uses two or more then list these separately against the corresponding pulse width type from Small, Medium or Large. For each pulse type you should enter the pulse repetition rate in Hz and the associated frequencies you have entered in question F4. For example:

- f1 to f3 should be entered 1 and 3; or
- f2 to f4 should be entered 2 and 4 etc.

Each pulse type should be entered with its pulse repetition rate (PRF). PRF has units of time and is expressed as pulses per second. (It can also be expressed in Hertz where 1 Hz = 1/s) The PRF is the time interval between the start of one pulse and the start of the next successive pulse

## SECTION G – Secondary surveillance radar details

To minimise risk and secure optimum efficiency for secondary surveillance in air defence, air traffic radar services and airspace management roles, it is necessary to exercise control over all interrogator installations regardless of whether they are static or mobile and operated on land, sea or in the air for whatever function. The CAA will issue all emission codes and assigned power.

### Question G1 – National IFF/SSR Committee (NISC) approval

All equipment capable of transmitting in the 1,030 MHz band is required to hold an approval issued by the NISC secretariat. You are required to provide the certificate number that you hold. If you are applying for a NISC approval, then you should tick the box to indicate this is in process. If you are applying to make changes to an existing SSR, please seek approval from CAA first, once issued with updated NISC certificate please provide a copy to Ofcom.

### Question G2 - Main SSR site name and address

Provide the secondary surveillance main radar site name and address for the PSR, Multiateration (MLAT) or Wide Area Multiateration (WAM) location. Ofcom does not require the locations of all transmitting sites for MLAT/WAM, but you will need to provide this information to the CAA for your NISC application

### Question G3 - Main SSR location

This location should correspond to the site name and address given in question G1. The preferred format for the site/antenna location is for numerical values in latitude and longitude expressed in degrees, minutes and seconds. Refer to question C2 for advice.

### Question G4 – Provide number of 1,030 MHz Interrogator transmitters

You should provide the number of transmitting 1030 MHz interrogators. An interrogator shall be applied to all equipment capable of transmitting in the 1030MHz frequency band. This includes Airborne Collision Avoidance Systems (ACAS), some Collision Warning Systems (CWS) and Non-Passive Multilateration Systems. No application is required for ICAO SARPS compliant ACAS II equipment, which has a generic clearance.

### Question G5 – Please tick all that apply

Mode Select (S) is selective capability for secondary surveillance radar to overcome the limitations of the current SSR systems, allowing capacity to increase in a safe and efficient manner throughout the ECAC area. Mode S is implemented in two stages: I) Elementary surveillance and II) Enhanced surveillance.

Mode S IC Allocation web-based application is used to manage and coordinate the allocation of IC to eligible Mode S interrogators in the ICAO EUR region and ICAO Mid region. Access for competent authorities to the web application is managed through the Eurocontrol OneSky online portal.

A 24-bit address is required for each remote site monitor acting as a Mode S level 3 transponder.

Operators wishing to exchange/transmit unambiguous data in ASTERIX format from any primary or secondary surveillance source must be allocated a unique identifier composed of two values known as the System Area Code (SAC) and System Identifier Code (SIC). These codes are managed and issued by the NISC.

### Abbreviations

|       |                                                             |
|-------|-------------------------------------------------------------|
| ACAS  | Airborne Collision Avoidance Systems                        |
| CWS   | Collision Warning System                                    |
| dBW   | Signal strength expressed in decibels relative to one watt. |
| ECAC  | European Civil Aviation Conference                          |
| IC    | Interrogator Code                                           |
| ICAO  | International Civil Aviation Organisation                   |
| IFF   | Identification Friend or Foe                                |
| MICA  | Mode S Interrogator Code Allocation                         |
| NISC  | National IFF/SSR Committee                                  |
| NM    | Nautical miles                                              |
| PRF   | Pulse repetition frequency                                  |
| PSR   | Primary Surveillance Radar                                  |
| µs    | Microseconds                                                |
| SAC   | System Area Code                                            |
| SARPS | ICAO Standards and recommended Practices                    |
| SIC   | System Identifier Code                                      |
| SSR   | Secondary Surveillance Radar                                |

## A. Application purpose

### A.1a Tick the purpose of this application :

New application. Please provide a completed [OfW586b application](#)

Amendment to an existing licence. Please answer question A1b

Surrender of an existing licence. Please answer question A1b

### A.1b Provide your existing licence number

### A.2 If you require a licence for less than 12 months (including Special Events), then indicate both the:

Start date (DDMMYYYY)

End date (DDMMYYYY)

## B. Applicant details

### B.1a Customer Reference Number (for existing licensees only):

You can harmonise the renewal date of your licence with the renewal date of an existing licence providing the conditions are met in the guidance.

### B.1b To harmonise a licence please provide:

Licence number of an existing licence

Required renewal date (DDMMYYYY)

### B.2 Who is the licence to be issued to?

A licence can only be issued to a legal entity (with the named person with contact details entered in question B.4).

Ofcom recognises the following types of entities and you should provide your name and answer any other details as appropriate to the legal entity:

**Individual or sole trader** (Please provide full name and go to Question B.3):

**Business partnership other than a limited company** (Please provide the full name and go to Question B.3):

**Registered Company (UK or non-UK)** (Please answer all parts and go to Question B.3):

Named person responsible for the licence

Full name of company

Company registration number

## B.2 (continued)

### **Limited Liability Partnership** (Please answer all parts, then go to question B.3)

Named partner who should be named on the licence

Full name of the limited liability partnership

Company registration number

### **Unincorporated Association** (Please answer all parts, then go to question B.3)

Named member who should be responsible for the licence

Full name of the unincorporated association

### **Please specify other legal entity if not listed above** (Please provide details, then go to question B.3)

Named person responsible for the licence

The full name of the legal entity (if different to above)

Company registration number (if appropriate)

## B.3 If a registered charity then please answer this question

Does the charity have as its object, the safety of human life in an emergency?

No

Yes. Now answer the following:

The full name of the registered charity

Charity registration number (if appropriate)

## B.4 Licensee address details

- Companies should use the registered address from [Companies House](#)
- Registered charities should use the address from the [Charity Commission](#)

For all other Licensees, please use your main business address

Trading name

Address

Telephone

Mobile

Email

Postcode

Country

Please tick here only to receive documents by post instead of electronically

**B.5 Licence contact details (where different from above)**

Licensing documentation and correspondence will be sent to this address.

NB: This is the person who is responsible for the licence and will receive all important documents including:

- Validation notice (licence amendment reminder)
- Notice of Proposed Revocation (where applicable)
- Revocation notice (where applicable)
- Surrender letters

Name

Address

Telephone

Mobile

Email

Postcode

Country

Please tick here only to receive documents by post instead of electronically

**B.6 If you are applying via a third party (e.g. radio supplier, consultant etc.) please complete the following:**

Name

Address

Telephone

Mobile

Email

Postcode

Country

Please tick here only to receive documents by post instead of electronically

## C. Primary surveillance radar site and location details

### C.1 PSR Site name and address (as appropriate)

Name

Address

Town

Postcode

Country

### C.2 Site antenna location (inaccurate information will lead to the application being declined):

**WGS84 Latitude/Longitude of station**

(e.g. 51:30:28.540N 0:5:43.005W)

N

E

W

(select E or W as appropriate)

### C.3 Site height (in metres above mean sea level)

metres

## D. Primary surveillance radar transmitter details

### D.1 Transmitter details

Manufacturer

Model

### D.2 Transmitter type (tick one option only or specify)

Solid state

Magnetron

Travelling Wave Tube

Other : please specify:

### D.3 Transmitter power (select dBW/Watts as appropriate)

## E. Primary surveillance radar antenna details

### E.1 Antenna details

Manufacturer

Model

### E.2 Antenna height (above ground level)

Meters

### E.3 Gain

dBi

### E.4 Feeder loss

dB

### E.5 Scan rate

Revolutions per minute

### E.6 Beamwidth

Horizontal

Degrees

Vertical low (main)

Degrees

Vertical low (auxiliary)

Degrees

### E.7 Instrument coverage range

Nautical miles

### E.8 Antenna pattern (tick one option only or specify)

Cosecant squared

Pencil

Fan beam

Other : please specify:

### E.9 Polarisation type (tick one option only or specify)

Linear

Circular

Other: please specify:

## F. Primary surveillance radar frequency details

### F.1 Number of frequencies required

Radars normally operate using 2, 4 or 6

### E.2 Minimum diversity

This should be the minimum separation between two frequencies operating on the same pulse width

MHz

### F.3 Frequency range

Minimum

MHz

to maximum

MHz

### F.4 Spot frequencies and bandwidths

| Spot frequency number | Frequency | Bandwidth |
|-----------------------|-----------|-----------|
| 1                     | MHz       | MHz       |
| 2                     | MHz       | MHz       |
| 3                     | MHz       | MHz       |
| 4                     | MHz       | MHz       |
| 5                     | MHz       | MHz       |
| 6                     | MHz       | MHz       |

### F.5 Pulse widths (complete as required referring to the frequencies for question F.4)

| Pulse type | Pulse width | Pulse Repetition Frequency (PRF) | From spot Frequency number (i.e.1 to 6) | To spot Frequency number (i.e.1 to 6) |
|------------|-------------|----------------------------------|-----------------------------------------|---------------------------------------|
| Short      | μs          | Hz                               |                                         |                                       |
| Medium     | μs          | Hz                               |                                         |                                       |
| Long       | μs          | Hz                               |                                         |                                       |

## G. Secondary surveillance radar technical details

### G.1 National IFF/SSR Committee (NISC) approval

If you hold a NISC approval you should provide the certificate number

Tick this box for a new application where you have also applied for a NISC approval

### G.2 Main SSR site name and address

Name

Address

Town

Postcode

Country

### G.3 Main SSR site location (inaccurate information will lead to the application being declined):

**WGS84 Latitude/Longitude of station**

(e.g. 51:30:28.540N 0:5:43.005W)

N

E

W

(select E or W as appropriate)

### G.4 For MLAT/WAM systems only provide number of 1,030 MHz interrogator transmitters

### G.5 Please tick all that apply:

Requires Mode S Interrogator Code (IC) allocation by MICA cell Eurocontrol

Requires MICA registration for access to MICA web-based tools

Requires 24-bit address for remote access

Requires a SIC/SAC code

## J. Declaration

**By signing this form, I confirm that I have read and understood all the notes. Any information provided is correct and complete to the best of my knowledge and I have the authority to make this declaration and sign this application.**

I understand and accept that:

- The body (if any) I represent will be responsible for compliance with the licence and has the control and supervision of the station;
- It may be an offence to knowingly make a false statement in support of this application and may lead to the licence being refused or revoked under the Wireless Telegraphy Act;
- Ofcom will not give anyone my information except in accordance with the law;
- Ofcom may share my information to publish a register of licences under the Wireless Telegraphy Act;
- Ofcom may transfer my information to other countries in accordance with commitments entered into by Her Majesty's Government;
- Where I have provided an email address, I consent to receiving notifications, documents and correspondence in electronic form to that email address.

Full name

Position in organisation

Signature of applicant

Date of application (DDMMYYYY)

For self and partners (tick if applicable)

- Partnerships must be applied for by one partner signing 'for self and partners'. A director or authorised person must sign for public limited companies, limited companies and other legal entities;
- If the number of partners exceeds the space, then for each additional partner please provide the name and signature.

Partner 1 name

Partner 3 name

Partner 1 signature

Partner 3 signature

Partner 2 name

Partner 4 name

Partner 2 signature

Partner 4 signature

## Where to send this form

**Please do not include payment with this form, as you will be invoiced at a later date.**

If needed a member of the team will contact you to clarify any requirements of this application.

When you have completed this form you can submit this application in a number of ways:

- by pressing the 'Submit form' button below
- by emailing it as an attachment to our email address shown below, or;
- by posting it to the address shown below.

**Please use one method only**

**Ofcom**

FAO Spectrum Licensing  
PO Box 1285  
Warrington  
WA1 9GL

**Allow 60 days from posting your application for receipt of your licence.**

If you need assistance, then please email

[spectrum.licensing@ofcom.org.uk](mailto:spectrum.licensing@ofcom.org.uk).

There is also information available on our website at

[www.ofcom.org.uk](http://www.ofcom.org.uk).

