FLYING

Most flying in the UK is controlled by the Civil Aviation Authority. In this section CAA standards apply to all entries except those marked *****.

The following are extracts from the standards issued by the Joint Aviation Authorities (JAA) and are applied by the CAA. They should not be taken as a definitive statement of the full regulations. For completely up-to-date information visit the CAA website or contact the CAA Aeromedical Centre:

Aviation House
Gatwick Airport South Area
Gatwick
West Sussex RH6 0YR
Tel: 01293 573700
E-mail: medicalweb@caa.co.uk

Or visit the CAA website: www.caa.co.uk/medical

Under the Joint Aviation Requirements (JAR), there are two classes of medical assessment as follows:

Class 1	Commercial pilot (aeroplane and helicopter) Airline transport pilot (aeroplane and helicopter)
Class 2	Private pilot (aeroplane and helicopter) See also Notes below on National Private Pilots License (NPPL)

The visual standards for Air Traffic Control Officers, Flight Engineers, Flight Navigators, Balloon Operators (passenger carrying) and microlight pilots are still covered by UK guidelines, which are unchanged from the previous UK standards.

JAR Class 1

All new applicants for a Class 1 license must have a comprehensive eye examination conducted by an optometrist or ophthalmologist and meet the following requirements:

(a) No abnormality of the function of the eyes or their adnexa, or any active pathological condition, congenital or acquired, acute or chronic, or any sequelae of eye surgery or trauma, which is likely to interfere with the safe exercise of the privileges of the license.
(b) A routine eye examination will form part of all re-validation and renewal examinations.
(c) Distance vision, with or without correction, must be 6/9 or better monocularly, and 6/6 or better binocularly.
(d) The refractive error must not exceed +5.00 to -6.00 dioptres along the most ametropic meridian, with no more than 2.00 dioptres of astigmatism and no more than 2.00 dioptres of anisometropia.
(e) Some professional pilots who wear spectacles (or contact lenses) are required to have regular eye examinations. They are; for refractive errors in the range +3.00 - +5.00 and -3.00 - -6.00, every 5 years, and for refractive errors greater than -6.00, astigmatism of 3.00 dioptres or more and anisometropia of 3.00 dioptres or more every 2 years.
(e) If the visual requirement is met only with the use of correction, the spectacles or contact lenses must provide optimal visual function and should be suitable for aviation purposes.
(i) Near vision of N5 at 30-50cms and N14 at 100cms with correction if prescribed.
(j) Normal binocular vision. Heterophorias exceeding 10^{Δ} esophoria, 8^{Δ} exophoria, 2^{Δ} hyperphoria at distance or 8^{Δ} esophoria, 12^{Δ} exophoria, 1^{Δ} hyperphoria at near must be assessed by a CAA specialist.
(k) Normal convergence.
(l) Normal visual fields.

(m) Normal colours perception (defined as no mistakes on Ishihara plates. Applicants who fail the Ishihara test will be assessed as colour safe if they pass a suitable lantern test (Holmes-Wright or Beyne Lantern).

Any spectacles necessary must be 'available for immediate use', and so there is no time to take them on or off. An applicant who needs a correction to meet the near visual acuity will require 'look-over', or multifocal lenses in order to read the instruments and a manual held in the hand, and also to make use of distance vision through the windscreen without removing the lenses. The CAA accepts all forms of spectacle correction except that of a single vision full lens for near.

An applicant is expected to advise the optometrist of relevant reading distances for the flight deck. The occupational needs may then be fulfilled by bifocal, trifocal or varifocal lenses. On occasions an intermediate correction in the upper field may be required, which may be accomplished by a segment of the relevant power in addition to the bifocal or varifocal design. Flip-up spectacles are also acceptable.
Sunglasses may often be required and their use is encouraged. Tints should be neutral grey, but polarised lenses and photochromic lenses are discouraged. An additional pair of untinted spectacles must be carried.

Contact Lenses
Contact lenses may be worn by a professional pilot (but not to correct near vision). If contact lenses are worn, applicants should bring a report from an optometrist to their initial Class 1 medical examination, which includes the following:

- The contact lens specification and corrected visual acuity;
- Confirmation that the contact lenses have been worn constantly and successfully for at least eight hours a day over a period of at least one month.

All gas permeable and hard contact lenses must be removed at least 48 hours before the initial Class 1 medical examination, but must be taken to the examination. Multifocal contact lenses or monovision correction are not acceptable for Class 1 certification.
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Refractive Surgery
The CAA does not recommend refractive surgery to gain a medical certificate to fly. The certification limits of refractive correction and the limits of refraction before surgery are the same, so it is not possible to gain a medical certificate by having refractive surgery that it would not have been possible to obtain before surgery. However, for an applicant who has had refractive surgery, Class 1 certification will be considered three months after LASIK provided an assessment, including refraction, has been carried out at two months post-operatively. Certification can be considered six months after LASEK/PRK for myopia, provided an assessment has been carried out three months post-operatively at the Aeromedical Centre. Certification is usually possible one year after other types of surgery. Please note that:

- The pre-operative refraction should not have been more than + 5.00 to -6 dioptres (applicants just outside this range should contact the CAA Medical Department f or advice.)
- an assessment by an eye specialist at the Aeromedical centre will be required
- Stability of refraction must be achieved. To show this, applicants will need to obtain a report showing their refraction about a month before visiting the Centre.
- There must have no problems with glare

JAR Class 2

All new applicants for a Class 1 license must have a comprehensive eye examination conducted by an optometrist or ophthalmologist and meet the following requirements:

(a) No abnormality of the function of the eyes or their adnexa, or any active pathological condition, congenital or acquired, acute or chronic, or any sequelae of eye surgery or trauma, which is likely to interfere with the safe exercise of the privileges of the applicable license.
(b) Distance vision, with or without correction, must be 6/12 or better monocularly, and 6/6 or better binocularly.
(c) If the visual requirement is met only with the use of correction, the spectacles or contact lenses must provide optimal visual function and should be suitable for aviation purposes.
(d) The refractive error must not exceed +5.00 and -8.00 dioptres along the most ametropic meridian, with no more than +/-3.00 dioptres astigmatic component and no more than 3.00 dioptres of anisometropia.
(i) Near vision of N5 at 30-50cms and N14 at 100cms with correction if prescribed.

(j) No diplopia. A binocular vision abnormality such as a squint may need specialist assessment.
(k) In an applicant with amblyopia, the visual acuity of the amblyopic eye must be 6/18 or better and the vision in the other eye is 6/6 or better with correction if necessary.
(l) Normal visual fields.
(m) Normal colour perception defined as no mistakes on Ishihara plates. Applicants who fail the Ishihara test can still gain a Class 2 certificate, but limited to daylight flying only. This limitation can be removed if an approved lantern test (Holmes-Wright or Beyne Lantern) is passed. An applicant wishing to take a lantern test should contact the Aeromedical Centre for details of their nearest lantern.
(n) An applicant who has not met the colour vision requirement may still fly using a National Private Pilots License (see below).

Any spectacles necessary must be 'available for immediate use', and so there is no time to take them on or off. An applicant who needs a correction to meet the near visual acuity will require 'look-over', or multifocal lenses in order to read the instruments and a manual held in the hand, and also to make use of distance vision through the windscreen without removing the lenses. The CAA does not proscribe any type of visual correction except a single vision full lens near correction. All types of contact lenses except bifocal are permissible.

An applicant is expected to advise the optometrist of relevant reading distances for the flight deck. The occupational needs may then be fulfilled by bifocal, trifocal or varifocal lenses. On occasions an intermediate correction in the upper field may be required, which may be accomplished by a segment of the relevant power in addition to the bifocal or varifocal design. Flip-up spectacles are also acceptable.

Sunglasses may often be required and their use is encouraged. Tints should be neutral grey, but polarised lenses and photochromic lenses are discouraged. An additional pair of untinted spectacles must be carried.

Contact Lenses
Contact lenses may be worn as a student or private pilot (but not to correct near vision). If contact lenses are worn applicants should bring a report from an optometrist to their initial Class 2 medical examination, which must include the following:

- the contact lens specification and corrected visual acuity;
- Confirmation that the contact lenses have been worn constantly and successfully for over eight hours a day over a period of at least one month.

All gas permeable and hard contact lenses must be removed at least 48 hours before the initial Class 2 medical examination. Any contact lenses should be brought to the examination. Multifocal contact lenses or monovision correction are not acceptable for Class 2 certification.
Refractive Surgery
The CAA does not recommend refractive surgery to gain a medical certificate to fly. The certification limits of refractive correction and the limits of refraction before surgery are the same, so it is not possible to gain a medical certificate by having refractive surgery that it would not have been possible to obtain before surgery. However, for an applicant who has had refractive surgery, Class 2 certification will be considered three months after LASIK provided an assessment, including refraction, has been carried out at two months post-operatively. Certification can be considered six months after LASEK/PRK for myopia, provided an assessment has been carried out three months post-operatively. Certification is usually possible one year after other types of surgery. Please note that:

- The pre-operative refraction must not have exceeded +5 and -8
- An assessment by an eye specialist will be required.
- Stability of refraction must be achieved. To show this, applicants will need to obtain a report showing their refraction about a month before the medical exam.
- There must have no problems with glare.

Air Traffic Control Officers

Air Traffic Controller Officers initial examination is the same as JAR Class 1 (but Air Traffic Control applicants should contact the CAA Aeromedical Centre or NATS for exact requirements). The NATS publish the following requirements:

- Candidates must have normal colour vision.
- Visual acuity must be 6/9 or better in each eye.

- Refractive correction must not exceed +3.00 or – 3.00 dioptres spherical error in each eye. Cylindrical correction shall not exceed 2 dioptres in each eye; anisometropia shall not exceed 2 dioptres.

- For applicants aged 26 and over, the correction allowed will be considered on an individual basis. It must not exceed standards set by the Civil Aviation Authority (CAA).

- If you have had any form of eye surgery, to include, squint correction, laser visual correction , even if the pre-operative correction is within the NATS acceptable range, applicants will be referred to a specialist appointed by NATS for further examination.

- Pre-operative refractive corrections outside of the stated NATS eyesight limit, but within the CAA limits (+5.00 and -6.00), will be considered on a one to one basis.

Non-Pilot Flight Crew (Flight Engineers, Flight Navigators)

The visual requirements are generally the same as for JAR Class 1 certification:

Balloon/Airship Pilots

Balloon and airship pilots have previously required a UK national medical certificate to fly; these are no longer issued. When a medical certificate expires or when a student pilot starts flying, the medical requirements for these pilots will either be to the JAR Class 2 or to the National PPL DVLA driving medical standards according to the following table:.

Commercial Balloon/Airship license (including balloon passenger transportation)	JAR Class 2
Commercial Balloon license (restricted aerial work)	NPPL (DVLA Class 2)
Private Balloon/Airship license	NPPL (DVLA Class 1 or 2)

National Private Pilots License (NPPL)

This license is easier to obtain and easier to maintain than the standard JAR private pilots license and is intended to cover recreational flying. The regulation of the license is devolved to a number of 'Air Sports' governing bodies and includes single engine piston aircraft, self-launching motor gliders and microlight aircraft. All flying under this license is restricted to daylight hours and Visual Flying Rules (VFR) only.

The vision standard is based on the DVLA vision standards for drivers of motor vehicles and certification is done by GPs. These DVLA vision standards are laid out detail in the section on motor vehicle drivers, and on the DVLA website. All the visual disorders listed by the DVLA in "At a Glance" are included within these requirements. There is no colour vision requirement.

To fly solo or with qualified safety pilot the applicant must meet the DVLA Group 1 requirements (normal car license).

To carry passengers, the applicant must meet the DVLA Group 2 requirements (LGV and PCV etc). There are 2 of the Group 2 requirements which are slightly amended for NPPL:-

1) There is no unaided vision standard of 3/60 required for NPPL

2) Monocularity is not a bar to flying but initially monocular pilots should be assessed as fit for solo/safety pilot flying only (Group 1). However if they pass an operational assessment (by their flying instructor) at the end of training, they may be upgraded to an unrestricted NPPL to carry passengers.

Gliders*

In the UK, the CAA has delegated control of all aspects of gliding to the British Gliding Association. The following therefore are their regulations, not CAA. However, this standard is the same as the NPPL standard above.

- To fly gliders solo the pilot must meet the standards laid down for driving a car.
- For other instructional flying and carrying passengers, the DVLA Group 2 visual standards must be met with the exceptions that monocularity is acceptable and there is unaided vision requirement.
- For professional instructional flying, JAR Class 2 standards of medical fitness should be met.
- Modern contact lenses are compatible with gliding;
- Colour vision defects are not a bar as coloured lights are not used to control gliding operations;
- Monocularity, when adapted, is not disbarring;
- Deteriorating visual acuity with age may require termination of flying, but this will be based on flying performance rather than set acuity levels.
- Pilots who wear spectacles should equip themselves with a spare pair, and should have both clear and tinted pairs of good quality, which give a wide field of view.

Hang-gliding & Para-gliding*

The British Hang Gliding & Paragliding Association recommends that Polycarbonate lenses are used, but no eyesight standards apply.

Other Occupations

Fire crew

The following minimum standards apply:

a Distance visual acuity should not be less than 6/12 in one eye and 6/36 in the other, with glasses if necessary, and not less than 6/18 with both eyes unaided.
b Where spectacles are required to achieve the above standard, for operational duties they should be of a safety type approved by the Authority.
c The use of contact lenses is not permitted.
d Colour perception should be normal on initial testing by Ishihara plates. If a defect is found during the examination, a further test is to be carried out using a suitable lantern to demonstrate the ability to distinguish the signal colour red, green and white.
e Where the fire-fighter's duties require the holding of a Heavy Goods Vehicle Licence (HGV) the appropriate DVLC standards and examination recommendations will apply.

Airside Drivers

a Eyesight standards required are DVLA Group 2 standard plus-
b Colour perception should be normal on initial testing by Ishihara plates. If a defect is found during the examination, a further test is to be carried out using a suitable lantern to demonstrate the ability to distinguish the signal colour red, green and white (Giles-Archer lantern on large aperture).

RVR Observers (lighting panel operators)

a Personnel selected for RVR observer should have examination performed:
  1 Prior to acceptance for RVR duties
  2 5-yearly up to 40, then 2-yearly to 50, then annually thereafter
  3 before return to duty following any sickness involving eyesight

b Visual Acuity in each eye separately must be not less than 6/9 at distance using Snellen Test Types. If correcting spectacles or contact lenses are worn, the refractive error should not exceed +/-5.00 dioptres of equivalent spherical error.

c The near vision should be N5 or equivalent at a distance between 30 and 50cm in each eye separately. Spectacles may be worn to achieve this standard.

d The visual fields shall be normal as tested by the confrontation method.

e The ocular muscle balance should be normal.

f Colour perception should be tested by Ishihara or other pseudoisochromatic colour plates. Candidates who are shown to be defective by this means should be subjected to an approved lantern test, e.g. Giles-Archer or Holmes-Wright, to demonstrate that the colours signal red, signal green and white can be readily identified. Colour perception testing should not be repeated at the periodic vision testing.