

Colour Vision

Who is this information for?

This Medical Information Sheet is for aviation medical examiners, medical certificate-holders and applicants, regarding the colour vision requirements for New Zealand pilots.

The quick and correct assessment of colour is very important for safety in aviation. Pilots rely on the interpretation of colour-coded information on instruments, charts and other documents, airborne and ground-based lights, runway lights and approach guidance systems.

Can 'colour blind' pilots fly in New Zealand?

Very few people are truly 'colour blind' as in, they cannot recognise any colour at all. Pilots with mild colour vision deficiencies are eligible to get an unrestricted medical certificate. Those with severe colour vision disorders may still fly, but with restrictions preventing night flying and/or carrying passengers commercially.

New approach towards Colour Vision Deficiency

From 31 May 2019, the CAA adopted a new approach which aligns closely with that adopted by the United States Federal Aviation Administration.

This allows pilots to demonstrate competency through medical tests and flight assessments. It is carried out in three stages.

Stage 1: Standard colour vision test – Ishihara

Applicants for Class 1 and Class 2 medical certificates usually do one of the various routine Ishihara Pseudo-Isochromatic Plate tests. They are asked to look at the plates and identify a number or other pattern. Colour vision is usually only tested once for a New Zealand medical certificate.

Passing Ishihara means you meet the colour vision standard. Unless there are other medical problems, you will be issued with a Class 1 or 2 medical certificate, with no restrictions.

What happens if I fail the Ishihara test?

Failing the Ishihara means you could be issued with a restricted medical certificate. The Ishihara test doesn't provide detailed information about the nature and severity of your colour vision deficiency, further testing is needed to do that.

Stage 2: What further tests are used?

If not successful in Stage 1, the applicants can undertake other non-routine colour vision tests. If they pass one of these tests they will be issued with an unrestricted medical certificate. The tests are:

- Holmes-Wright lantern; or
- Farnsworth lantern plus the Anomaloscope; or
- Colour Assessment and Diagnosis (CAD); or
- Farnsworth D15.

If you pass the Holmes-Wright lantern test (either Type A or B) your colour vision deficiency is mild and a medical certificate will be issued without any restrictions or conditions.

If you pass the Farnsworth lantern test (with no errors); AND the Anomaloscope test shows that your colour vision disorder is not of the protan/protanomalous type, then you will be eligible for the issue of an unrestricted medical certificate.

If you pass the CAD test or the Farnsworth D15 test you will also be eligible for the issue of an unrestricted certificate.

Stage 3: Operational Colour Vision Assessment (OCVA)

If not successful at Stage 2, applicants can enter Stage 3, which is the new Operational Colour Vision Assessment (OCVA). This is conducted by a trained flight examiner approved by the CAA.

This allows applicants the opportunity to be assessed to fly in day time, or day and night time.

If the applicants pass only the day time OCVA assessment they will have the following restriction placed on their certificate: (Class 1 and 2): *Not valid for night flying.* (Class 1 and 2): *Not valid for flight in the vicinity of a controlled aerodrome unless the aircraft is in radio contact with aerodrome control.*

If the applicants pass the day and night time OCVA assessment they will have the following restrictions placed on their certificate: (Class 1 and 2): *Not valid for flight in the vicinity of a controlled aerodrome unless the aircraft is in radio contact with aerodrome control.*

Foreign pilots seeking a NZ medical certificate

Foreign applicants seeking medical certification in New Zealand must have their colour vision assessed according to New Zealand CAA medical standards and procedures. It is possible this assessment may have a different outcome to your overseas assessment.

Looking at the law and international standards

ICAO 6.2.4 Colour perception requirements

From Annex 1 to the Convention on International Civil Aviation: Personnel Licensing. International Civil Aviation Organization, tenth edition, July 2006. Chapter 6, Medical provisions for licensing, includes international standards and recommendations 6.2.4 Colour perception requirements:

6.2.4.1 Contracting States shall use such methods of examination as will guarantee reliable testing of colour perception.

6.2.4.2 The applicant shall be required to demonstrate the ability to perceive readily those colours the perception of which is necessary for the safe performance of duties.

6.2.4.3 The applicant shall be tested for the ability to correctly identify a series of pseudo isochromatic plates in daylight or in artificial light of the same colour temperature such as that provided by CIE standard illuminants C or D65 as specified by the International Commission on Illumination (CIE).

6.2.4.4 An applicant obtaining a satisfactory result as prescribed by the Licensing Authority shall be assessed as fit. An applicant failing to obtain a satisfactory result in such a test shall be assessed as unfit unless able to readily distinguish the colours used in air navigation and correctly identify aviation coloured lights. Applicants who fail to meet these criteria shall be assessed as unfit except for Class 2 assessment with the following restriction: valid daytime only.

6.2.4.4.1 Recommendation: Sunglasses worn during the exercise of the privileges of the licence or rating held should be non-polarizing and of a neutral grey tint.

Note: Guidance on suitable methods of assessing colour vision is contained in the Manual of Civil Aviation Medicine (Doc 8984).

Civil Aviation Rules, Part 67 Medical Standards and Certification

Rules 67.103; 67.105; and 67.107 include provisions that require an applicant to have no deficit of colour vision that is of aeromedical significance.

For more information, visit www.caa.govt.nz/colour-vision, or call the medical helpdesk +64 4 560 9466.