



Optometry
NEW SOUTH WALES
AUSTRALIAN CAPITAL TERRITORY

OPTOMETRY NSW/ACT

DRIVING VISION

A QUICK GUIDE TO VISUAL FIELDS

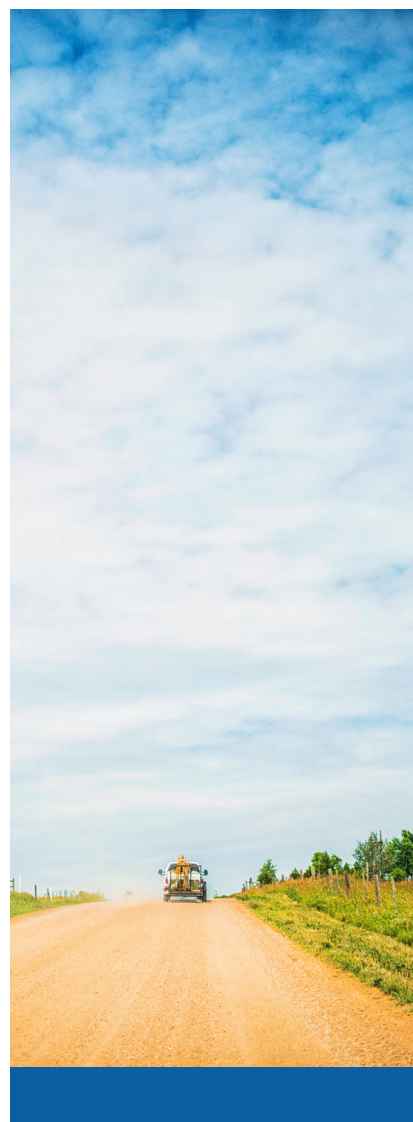
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Optometry NSW/ACT has compiled this guide to assist with understanding and applying the **Austroads Assessing Fitness to Drive** guidelines as they relate to visual field testing.

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This guide should not be used as a substitute for statutory responsibilities and optometrists must ensure that they comply with State and Federal Law. These guidelines do not constitute legal advice.

PERIPHERAL VISION AND DRIVING

Loss of visual fields can potentially diminish a person's ability to drive safely, including their ability to detect another vehicle or pedestrians.

What is the extent of the visual field of a healthy eye?

Monocularly, a healthy eye has a visual field of approximately 60 degrees nasally, 100 degrees temporally (i.e. 160 degrees horizontally), 75 degrees inferiorly and 60 degrees superiorly.

What is the horizontal extent of the binocular visual field?

The binocular field increases the horizontal extent to 200 degrees, with the central 120 degrees overlapping and providing the potential for stereopsis.



VISUAL FIELD STANDARD: PRIVATE LICENCE

The Austroads standards for private and commercial licences are outlined **HERE**.

What is the Austroads visual field standard to hold an unconditional private driving licence?

To meet the standard, a person must:

- have a binocular visual field with a horizontal extent of at least 110 degrees within 10 degrees above and below the horizontal midline; and
- **not have** any significant* visual field loss (scotoma) within a central radius of 20 degrees from fixation; and
- **not have any** other scotoma likely to impede driving performance

** i.e. not have a scotoma with four or more adjoining spots within a 20-degree radius from fixation. This includes hemianopia and quadrantanopia.*

What if the visual field criteria for an unconditional licence are not met?

If the horizontal visual field is between 90 and 110 degrees, an optometrist or ophthalmologist may support the granting of a conditional private driving licence by the driver licensing authority subject to annual review. The driver licensing authority will take into account the nature of the driving task and information provided by the treating optometrist or ophthalmologist. The driver licensing authority may contact the practitioner to request further information or testing.



VISUAL FIELD STANDARD: COMMERCIAL LICENCE

What is the Austroads visual field standard to hold an unconditional commercial driving licence?

To meet the standard, a person must **not** have any visual field defect.

What if the visual field criteria for an unconditional licence are not met?

A conditional commercial driving licence may be considered the driver licensing authority, subject to annual review, taking into account the nature of the driving task and information provided by the treating optometrist or ophthalmologist as to whether the following criteria are met:

- the binocular visual field has an extent of at least 140 degrees within 10 degrees above and below the horizontal midline; and
- the person has no significant visual field loss (scotoma, hemianopia, quadrantanopia) that is likely to impede driving performance; and
- the visual field loss is static and unlikely to progress rapidly

The Austroads standards for private and commercial licences are outlined **HERE**.



VISUAL FIELD STANDARD: MONOCULAR DRIVERS

Can a monocular person (i.e. one functioning eye) hold an unconditional licence?

A monocular person is ineligible to hold an unconditional private or commercial driving licence. A conditional licence may be considered by the driver licensing authority subject to 2-yearly review, taking into account the nature of the driving task and information provided by the assessing optometrist or ophthalmologist.

When will a conditional licence be considered for a monocular private vehicle driver?

For **private** vehicle drivers, a conditional licence may be considered:

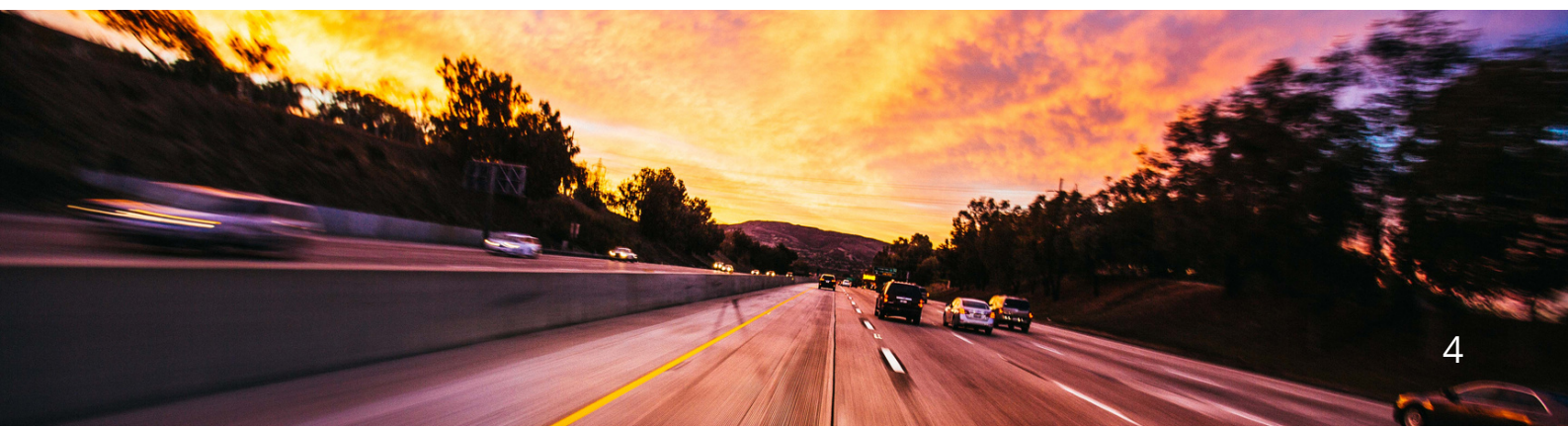
- if the horizontal visual field is at least 110 degrees within 10 degrees above and below the horizontal midline, and
- the visual acuity in the functioning eye meets the standard

When will a conditional licence be considered for a monocular commercial vehicle driver?

For **commercial** vehicle drivers, a conditional licence may be considered if all of the following are met:

- the horizontal visual field is at least 140 degrees within 10 degrees above and below the horizontal midline
- there is no other significant visual field loss likely to impede driving performance
- the visual acuity in the functioning eye meets the standard

The Austroads standards for private and commercial licences are outlined **HERE**.



ASSESSING VISUAL FIELDS FOR DRIVING LICENSING

Understanding which visual field test to perform, when your patient presents for a driving vision assessment, will streamline your examination. Confrontation is the minimum test for assessing peripheral vision.

When is it satisfactory to screen the visual fields with confrontation?

Confrontation field testing is an adequate screening technique where there is:

- **no** clinical indication of a visual field impairment
- **no** progressive eye condition

Does every progressive eye condition need to be reported to the driver licensing authority?

You should report any eye condition where visual function worsens over time and that adversely affects (or has the potential to adversely affect) driving.

When should I perform computerised perimetry?

Computerised perimetry should be conducted if any of the following apply:

- a visual field impairment is suspected based on ocular/medical history or clinical examination
- a visual field defect is detected on confrontation or other visual field screening
- the patient has a progressive eye condition that has potential to adversely affect driving



COMPUTERISED VISUAL FIELDS: WHICH TEST SHOULD I DO?

It is important to know which computerised static perimetry tests are satisfactory for assessing driving vision. While monocular static perimetry typically assesses the central and paracentral visual field, Esterman binocular perimetry also assesses the peripheral visual field.

When is monocular automated static perimetry appropriate?

Monocular automated static perimetry can be performed if:

- a visual field impairment is suspected

If monocular automated static perimetry shows no visual field defect, you are confident that confrontation fields are full, and there is no progressive eye condition that could potentially affect driving, then this information is sufficient to confirm that the standard is met.

When is an Esterman binocular visual field test appropriate?

An Esterman binocular field test is required if:

- monocular automated static perimetry shows a significant defect, or
- the patient has a progressive eye condition that could potentially affect driving
- confrontation perimetry shows a peripheral field defect

Is the Humphrey Esterman binocular field the only acceptable test?

Any binocular field test that can be shown to be equivalent to an Esterman is acceptable, e.g. a Medmont binocular visual field printed in "Level Map Mode".

For further information, refer to section [10.2.2](#) of the Austroads guidelines.



VISUAL FIELDS IN MONOCULAR DRIVERS

Is monocular static perimetry acceptable for a monocular patient to meet the driving standard for a conditional private licence?

Austrroads suggests that monocular static perimetry may be sufficient to issue a conditional licence in monocular patients *without symptoms, family history or risk factors for visual field loss, and who show no indication of any visual field concerns* in the functioning eye. However, Transport for NSW requires the visual field to be reported **in degrees**; this is best measured using the Esterman binocular field test or equivalent (which measures more than 160 degrees of the visual field) *even in a monocular patient*.

An Esterman binocular visual field test (or equivalent) should always be performed if any of the following apply:

- the patient has any symptoms or signs of a visual field defect in the functioning eye
- testing of the functioning eye suggests a visual field defect
- the patient has a progressive eye condition with the potential to affect driving

For further information, refer to section [10.2.2](#) of the Austrroads guidelines.



ASSESSMENT METHOD FOR ESTERMAN VISUAL FIELDS

Subjects with a field defect or a progressive eye condition require a binocular Esterman visual field for assessment.

Austrroads Fitness to Drive guidelines outline the assessment method for Esterman binocular visual field testing:

- Corrective lenses should be worn if the patient conventionally wears spectacles for driving and/or if the licence is conditional on wearing spectacles. No near addition is required for the binocular Esterman as this is a screening not threshold test.
- fixation monitoring* must be performed and recorded on the test
- the false positive score must be **no more than 20%**
- If you are concerned about reliability, the Esterman should be repeated

**Fixation is monitored by manually observing the patients eyes while doing the test.*

What is a 'roving' Esterman?

Occasionally the driver licensing authority may follow up with a request for a 'roving' Esterman. This is a binocular Esterman visual field conducted *without* patient fixation required.

In this case, two consecutive tests must be performed with **no more than one false positive** allowed and the test results should be provided in the "numeric field" format.

For further information, refer to section [10.2.2](#) of the Austrroads guidelines.



INTERPRETING ESTERMAN FIELDS FOR DRIVING LICENCES

The visual field criteria differ for private and commercial licences.

When interpreting an Esterman visual field for an unconditional private driving licence, which defects can be disregarded (i.e. not "significant")?

The following defects can be disregarded :

- scattered single missed points
- a single cluster of 2-3 adjoining missed points, unattached to any other area of defect, lying on or across the horizontal meridian
- vertical defects of a single point width (but of any length) unattached to any other area of defect that touches or cuts through the horizontal meridian (e.g., the scotoma that might be caused by a spectacle frame)

Which defects in an Esterman are "significant"?

The following are generally considered unacceptable for holding an unconditional private driving licence:

- a cluster of 4 or more adjoining points, either wholly or partly within 20-degrees from fixation
- any central loss (within 20-degrees of fixation) that is an extension of a homonymous (whether hemianopic or quadrantanopic) or bitemporal defect of size greater than 3 missed points
- loss consisting of BOTH a single cluster of 3 adjoining missed points, within and including 20-degrees from fixation, PLUS any additional separate missed point(s) within 20-degrees of fixation

How do I determine the horizontal extent of visual field on an Esterman?

The extent of field is measured from seen-point to seen-point, not missed-point to missed-point.

For further information, refer to section [10.2.2](#) and section [10.3](#) of the Austroads guidelines.



FURTHER ASSISTANCE

Contact Us

If you need any further advice or assistance, contact Optometry NSW/ACT and we'll do whatever we can to assist.



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