



Audax Australia Safety Recommendations

Lighting: Be bright. Be seen. Be safe.

Audax Australia places the highest priority on rider safety. Using excellent lights and wearing a significant amount of reflective material optimises a rider's visibility to other road users at night and in low light.

Good lighting – it's the law

Australian road rules require cyclists riding at night or in reduced visibility to display:

- a) a flashing or steady white light clearly visible for at least 200 metres from the front,
- b) a flashing or steady red light clearly visible for at least 200 metres from the back, plus
- c) a rear red reflector visible from 50 metres.

Simply put – IT'S THE LAW! Riders are responsible for complying with Australian road rules.

Failure to comply with the law when riding at night or in reduced visibility may result in immediate disqualification.

Modern lighting systems are extremely good and inexpensive. There is no excuse for inadequate lighting. LED lights provide reliable, bright light and long battery life. They can be seen from hundreds of metres, even from kilometres away.

Lights must not be obscured by clothing, bags or other items. They must be angled correctly for visibility, vision and the comfort of other riders and road users. Don't dazzle others with powerful head torches.

Audax Australia strongly recommends back-ups

Nothing is infallible though. The cost of not having back-up could be much greater than their cost.

Audax Australia STRONGLY RECOMMENDS riders have TWO sets of both front and rear lights.

Riders are at most risk on the road from vehicles approaching from behind.

Audax Australia STRONGLY RECOMMENDS riders use TWO rear lights together – in both flashing and steady mode

Riders can choose to power lights with hub generators, use battery systems and power banks.

Batteries are cheap and plentiful. Gone are the days of needing to carry spare globes wrapped in cotton wool.

Always use fresh batteries. And carry spares. Your life is worth more than a few batteries.

Check how bright your lights are during the ride, not just at the start.

When to light up? What's reduced visibility?

The Australian road rules refer to night, fog and hazardous weather conditions causing reduced visibility. In New Zealand, low visibility is defined as when there isn't sufficient daylight for a person or vehicle to be clearly visible at 100 metres. Better safe than sorry.

Lights must be used at night, and certainly in the rain or fog, but Audax Australia strongly recommends lighting up well before dusk and staying lit up long after dawn, plus when it's cloudy and when riding through dark forests and even in dappled shade.

Experienced Audaxers know that bright flashing red tail lights or white headlights can alert motorists to your presence throughout the day as well as the night.



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Lighting: Be Retro-reflective. Be seen. Be safe.

For night time riding or in reduced visibility, Audax Australia **STRONGLY RECOMMENDS** riders wear a significant amount of retro-reflectivity material.

This is consistent with the requirements of international randonneuring clubs like Audax Club Parisien for Paris Brest Paris and Randonneurs USA, and with industry requirements for workers at risk on the roads.

We also strongly urge all riders to consider their safety and choose clothing that is highly visible for daytime use.

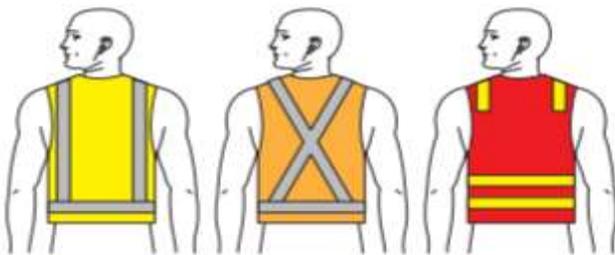
A little about high visibility

There are no specific safety standards in Australia for cycling vests. However, Standards in Australia, USA, Europe and elsewhere set out requirements for high visibility in both day and night to protect workers exposed to impact risks and visibility issues, such as road and rail workers¹.

Standards prescribe specific placement patterns and minimum coverage areas of highly conspicuous materials: hi-vis fluorescent (for day) and retro-reflective (for night).

Best safety practice – Australian and international Standards for workers at risk

The Australian Standard for high visibility at night requires retro-reflective strips at least 50 mm wide and either encircling the waist with additional strips over each shoulder to waist level or two 50 mm bands encircling the waist/chest and strips over each shoulder, not necessarily to the waist. Parallel strips are required to be 50 mm apart to provide contrast. The work gear vests pictured below meet official Standards and our night time reflective recommendations. See for example <http://www.guardiansafety.com.au/products/category/high-visibility-safety-apparel/>



Retro-reflective coverage – how much is enough?

Our recommendation is to wear garments meeting Australian or equivalent international Standards for high visibility safety garments. But other garments incorporating those elements can also be very fit for purpose. At the minimum:

Audax Australia STRONGLY RECOMMENDS riders carry and wear at night:

1. a vest or device with a minimum of at least:
 - a. 300 square centimetres of rear-facing reflectivity, and
 - b. 200 square centimetres of front-facing, shoulder and/or side reflectivity, AND
2. Ankle band reflectors

NOTE: Reflective material is best in strips 50 mm wide as required by official Standards. The strips are most effective for cyclists across the lower and middle back, the front and shoulders, and the sides.

¹ See for example Australian Standard AS/NZS 4602 Class N (night time) or Class D/N (day and night time), or ANSI/ISEA 107 (US standard), or EN 1150 (European standard)



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It's easy to check

300 square centimetres of rear-facing reflectivity is just

- * 60 cm of 50 mm wide tape or
- * about ½ an A4 sheet and

200 square centimetres of front-facing, shoulder and/or side reflectivity is just

- * 40 cm of 50 mm wide tape or
- * about 1/3 an A4 sheet.

Buy it: choose our Audax Australia windvests, or buy other cycling gear at retail or online.

Make it: apply sufficient sew-on or iron-on reflective strips to any favourite outer garment.

The Standard specifies that retro-reflective materials must meet stringent performance requirements. Consistent with that, Audax recommends riders use 3M™ Scotchlite™ tape which exceeds the brightness and longevity requirements.

Examples of recommended styles

Audax Australia cycling-specific windvests feature adequate and well-positioned reflective material.

Our current team kit windvest, our Anniversary (green and yellow) wind vest, vests issued by PBP and this commercially available product all use generous and well-positioned 50 mm strips back and front.



Best practice – Ankle reflectors

Human eyes are drawn to movement.

Reflections showing the up and down movement of ankle reflectors helps drivers better recognise cyclists. Other reflective patches or logos on clothing, shoes, helmets, cycles and even tyres are great for increased safety – in addition to the recommended reflective vest or similar device.





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Non windvest alternatives

Some bandoliers or sashes meet minimal coverage recommendations – look for preferred 50 mm strips including low on the back. And think about extra ties at the base if they flap up.



Recumbent riders

When reclined, a recumbent rider's reflectivity can be obscured.

Recumbent riders need to add retro-reflective material at various angles on the sides and back of their cycles. They should still wear torso reflectivity for maximum visibility when standing to repair a tube, attend to a mechanical or take a nature break.



What about fashion reflective garments?

Take care. Reflective material comes in different qualities. The official Australian Standards have stringent brightness and longevity performance requirements. Safety garment manufacturers note that 3M™ Scotchlite™ tape exceeds the requirements.

Recent amendments to the Standards require periodic checking of reflective material, noting some retro-reflective materials suffer from reduced or even obliterated effectiveness after washing or when folded or creased repeatedly or in rain.

Riders are cautioned to regularly check the efficacy of fashion garments if using them.

In action: Be bright. Be seen. Be safe.





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And what about during the day?

Finally, Audax Australia has focussed on reflective garment recommendations for night or low visibility use. However, we strongly encourage riders to wear safe and visible clothing at all times.

Roadside workers are required by law to wear clothing that is compliant with Australian Standards for safety reasons, not pedantry. As cyclists on the road, we face similar risks.

Standards applicable to daytime safety (or day and night safety) use large blocks of either non-fluorescent hi-vis colours of red/orange or yellow, or fluorescent material.

Fluorescent clothing has a pigment causing it to “glow” when hit by the sun’s ultraviolet rays. Converting invisible UV light into visible light increases the total amount of visible light that’s reflected off the clothing, giving fluoro clothing a brighter appearance. This is particularly the case in low-light conditions, around dawn and dusk.

Studies² have shown that fluorescent colours are more visible to drivers, and that fluorescent red, yellow and orange are most effective as colours contrasting significantly with the riding environment.

A garment suitable for both day and night use comprises retro-reflective elements on a fluorescent or other non-retroreflective high visibility background material.

Many of the photographs above combine night and day elements for optimal visibility.

² <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003438.pub2/pdf>