With reference to: ea-act-2002-review-final-report.pdf

Comments by Ross [redacted] 13Aug23 – [redacted]

General comment based on personal experience: The present demarcation with respect to ELV assignment of AC & DC potentials seem to be designated with the presumption of dry skin resistance. However there are many situations where even very low voltages can result in injury and or death. Minor shock spasms may cause a person to flinch or jump into danger. Wet skin or skin penetration by a live conductor can amplify the effects of contact with ELV's.

Please consider the table below as extracted from the hyper link presented below.

Current (mA)	**Effect**
1	Threshold of sensation
5	Maximum harmless current
10-20	Onset of sustained muscular contraction; cannot let go for duration of shock; contraction of chest muscles may stop breathing during shock
50	Onset of pain
100-300+	Ventricular fibrillation possible; often fatal
300	Onset of burns depending on concentration of current
6000 (6A)	Onset of sustained ventricular contraction and respiratory paralysis; both cease when shock ends; heartbeat may return to normal; used to defibrillate the heart

20.6: Electric Hazards and the Human Body - Physics LibreTexts

relative to: **P44 Extra Low Voltage "electrical equipment" - Recommendation 4**

P43 Hydrogen and its use in vehicles Recommendation 3:

extract - "Office engage with other relevant Queensland and Australian regulators as needed to ensure appropriate scope and to avoid both regulatory gaps and duplication ".

> **Comment:** Hydrogen has long been used by the electrical industry, particularly in association with Australian power generating systems. Some guidelines may already be available.
>
> Hydrogen-cooled turbo generator - Wikipedia

Also associated:

P48 Electric Vehicles, Recommendation 8

> With respect to electric vehicles, respective trade personnel require easy to follow lines of demarcation. One option may be the consideration of a threshold relative to the potential ELV fault current. E.g.:
>
> Fuel Cell Power output,
>
> Electricity generators coupled to the power drive, (Internal combustion engine or other)
>
> High energy battery storage and cabling,
>
> Electric (multi phase) drive motors, cabling and control. Some of which may also have voltages above ELV.
>
> High current components **prior** to distribution via ELV fusing / circuit breakers. I.e. Low energy ELV wiring, adequately protected by fusing etc might be exempt.

P47Air conditioners Recommendation 6

Are there applicable standards in place? Cleaning products are offered online.

One concern I have is, the boom in personnel offering to 'clean' domestic split system air-conditioning systems of 'dangerous mould and algae'. These personnel remove the cover and spray wet cleaning agents into the system. Admittedly the section involved is designed to handle / drain the slow release of water condensation. However single insulated LV wiring and terminals may be exposed (depending on the model) after cover removal. Usually this equipment is ‘hard-wired’ and it is not certain that these people know how to electrically isolate and test prior to commencing the work or on completion.

P75 Chapter 9: Enhancing safety – competence and compliance
Recommendation 31:

P77 Continuing Professional Development (CPD)

> **Comment**, There may be parallels with civil aviation:
>
> While there are already a number of electrical trade classifications, civil aviation requirements for pilots and for aircraft mechanical engineers (AME) and Licensed Aircraft Mechanical Engineers (LAME) have many more degrees of classification, endorsements and requirements for 'recency', applicable to numerous aircraft types and integral systems.
>
> CASA is empowered by an ACT of Parliament and writes the Regulations for the applicable entities and personnel.

Ratings and endorsements | Civil Aviation Safety Authority (casa.gov.au)

About aircraft maintenance engineers | Civil Aviation Safety Authority (casa.gov.au)

P80 Recommendation 38: Consider providing all licensed electrical workers with an electronic copy of relevant t Australian Standards as part of licensing fees (related to Recommendation 62).

> **Comment:** I applaud the concept of making Australian Standards available to all licensed electrical workers. I consider this a critical safety issue.
>
> At the coal face are the tradies on the job. While AS/NZ 3000 is an oft consulted tool, there are many other electrical standards (28 at least) that may become relevant from time to time. Few tradies can afford to purchase every standard, for what may be a single, one time only use, as may be required from time to time. Online access to **all of the electrical Australian Standards** should be the default and should further ensure that the information available to the tradies is current.

Quick Reference Guide - Wiring Rules 2007 and Electrical Safety Standards (saiglobal.com)

At least 28 standards.