AERONAUTICAL GROUND LIGHTING

AGL COMPETENCY FRAMEWORK - ALIGNMENT WITH AUSTRALIAN INDUSTRY STANDARDS
### AAA AGL Technical Working Group

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Company/Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admin</td>
<td>Sam Leighton</td>
<td>AAA</td>
</tr>
<tr>
<td></td>
<td>Jimmy Maitland - Chair</td>
<td>ADB Safegate</td>
</tr>
<tr>
<td>Airport Representatives</td>
<td>Michael Mahlstedt</td>
<td>MEL</td>
</tr>
<tr>
<td></td>
<td>Paul Butlin</td>
<td>BNE</td>
</tr>
<tr>
<td></td>
<td>Mark Hickey</td>
<td>CNS</td>
</tr>
<tr>
<td>Regulator/Government</td>
<td>Mark Vanzomeren</td>
<td>Defence</td>
</tr>
<tr>
<td></td>
<td>Jason Rainbird</td>
<td>CASA</td>
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<tr>
<td>Industry Representatives</td>
<td>Tom Griffiths</td>
<td>Airports Plus (Regional Airport Consultant)</td>
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<td></td>
<td>David Alm</td>
<td>GHD</td>
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<td></td>
<td>Jeffrey Rankin</td>
<td>Queensland Airport Lighting</td>
</tr>
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<td></td>
<td>Michael Chalker</td>
<td>Avionics</td>
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<tr>
<td></td>
<td>Damian Browne</td>
<td>ADB Safegate</td>
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<td></td>
<td>Stephen Henstock</td>
<td>Valupa</td>
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</tbody>
</table>

**Qualified Persons Subgroup**

**Training & Competency Subgroup**
PART 139 MOS

Advisory Circular 139-04(0) - COMMISSIONING OF AERODROME LIGHTING SYSTEMS

4. GENERAL

4.1 CASR 139.200 requires that, at a certified aerodrome, new lighting systems must not be put into service unless they have been appropriately checked, as follows:

(a) a ground check:

   (i) by an electrical engineer or a licensed electrician, to check for compliance with electrical specifications and technical standards set out in the Manual Of Standards (MOS)-Part 139 Aerodromes; ......

Electrical Engineer (Designer) – AS3000 1.9.4.5 Competency requirements for designers – Persons undertaking designs that depart from Part 2 of this standard shall be competent.

Licenced Electrician (ACT Example) – Certificate III in Electrotechnology Electrician qualifications as described on the national training register.
THE NEED FOR SPECIFIC AGL COMPETENCIES

WHS and duty of care

Division 1 - Information, training and instruction

Provision of information, training and instruction

(2) The person must ensure that information, training and instruction provided to a worker is suitable and adequate having regard to: (a) the nature of the work carried out by the worker; and (b) the nature of the risks associated with the work at the time the information, training or instruction is provided; and (c) the control measures implemented.

(3) The person must ensure, so far as is reasonably practicable, that the information, training and instruction provided under this regulation is provided in a way that is readily understandable by any person to whom it is provided.

What is going on internationally?
IEC 61820.1 – Electrical Installations for Aeronautical Ground Lighting at Aerodromes – Part1: Fundamental Principles
IEC 61821 – Maintenance of AGL Constant Current Series Circuits
IEC 61822 – Constant Current Regulators

International Training

Electrical Safety

Australian Government
Department of Defence
ADDITIONAL (TO SAFETY) BENEFITS OF FORMAL COMPETENCIES

Additional Benefits include:

- Greater AGL awareness
- Greater consistency in AGL design/compliance
- Improved work definition
- Greater availability of competent electricians AGL
- Simpler engagements
- Higher likelihood of:
  - Local engagement
  - Indigenous engagement

Civilian:
- Australian Capital Territory (7 airports)
- New South Wales (386 airports)
- Northern Territory (258 airports)
- Queensland (508 airports)
- South Australia (232 airports)
- Tasmania (47 airports)
- Victoria (177 airports)
- Western Australia (433 airports)

Defence:
- Albatross
- Amberley
- Curtin
- Darwin
- East Sale
- Edinburgh
- Gin Gin
- Holsworthy
- Learmonth
- Oakey
- Pearce
- Williams - Point Cook
- Richmond
- Robertson Barracks
- Scherger
- Stirling
- Tindal
- Townsville
- Williamtown
- Woomera

Map of airports in Australia @ OurAirports
https://ourairports.com/countries/AU/
# EXISTING AIS COMPETENCIES – THE GAP

<table>
<thead>
<tr>
<th>Australian Industry Standards</th>
<th>Proposed AGL Competencies</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aviation</strong></td>
<td>Part 139 MOS (and International)</td>
</tr>
<tr>
<td>• Aerodrome Operations</td>
<td>• Application and ARC</td>
</tr>
<tr>
<td>• Airport Safety</td>
<td>• AGL Physical Requirements</td>
</tr>
<tr>
<td>• Ground Operations</td>
<td>• Aerodrome Beacon</td>
</tr>
<tr>
<td>• Management and Supervision</td>
<td>• AGL Photometrics</td>
</tr>
<tr>
<td><strong>Electrotechnology</strong></td>
<td>• Apron Floodlighting</td>
</tr>
<tr>
<td>• Electronics</td>
<td>• MAG Signs + IWDI</td>
</tr>
<tr>
<td>• Electrical</td>
<td>• Inspections</td>
</tr>
<tr>
<td>• Communications</td>
<td>• AGL Management &amp; Engagement</td>
</tr>
<tr>
<td>• Instrumentation</td>
<td><strong>Electrical</strong></td>
</tr>
<tr>
<td>• Renewables/sustainable Energy</td>
<td>• AS3000 - Compliance by Specific Design for AGL Installations</td>
</tr>
<tr>
<td>• Appliances</td>
<td>• Constant Current Regulators</td>
</tr>
</tbody>
</table>

*Australian Government Department of Defence*
Design Work:
• Design for Part 139 MOS Compliance / Defence ADRM Compliance
• Design for AS3000 – Wiring Rules Compliance (Part 1 & Part 2 requirements)

Electrical Work:
• Install / Test / Commission / Maintain / Operate to Part 139 MOS and AS 3000 Compliance

Visual Inspections, Safety and Aerodrome Management:
• Undertake Part 139 MOS compliance visual inspections
• Managing Aerodrome AGL
• Engaging Competent
  • Designers
  • Electricians, and
  • Visual Inspectors
GAINING COMPETENCIES

AGL Micro-Competencies (under development)

Existing Qualifications

- Bachelor of Electrical Engineering
- Certificate III in Electrotechnology Electrician qualifications
- Aerodrome Operations
- Airport Safety
- Ground Operations
- Management and Supervision

Competent AGL Practitioners

- AGL Designer (AS 3000) - Electrical
- AGL Designer (MOS 139) – Photometric Characteristics
- AGL Electrician – Install / Test / Commission / Maintain / Operate
- AGL Inspection & Management
1. Develop Micro-competency requirements

2. Gain Acceptance from AIS Committees

3. Develop (or identify existing) courses

4a. Defence Training (RTO)
4b. Partner With Other RTOs
4c. Become an RTO

5. Awareness and Training
THANK YOU

QUESTIONS?
# Aeronautical Ground Lighting - Competence Framework

<table>
<thead>
<tr>
<th>Discipline vs Qualification</th>
<th>Electrical (5 Control System)</th>
<th>Lighting</th>
<th>AQF Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Electrical Engineer (pre-requisite, 1,5,8)</td>
<td># Pre-requisite BACHELOR HONORS DEGREE IN ELECTRICAL ENGINEERING (EIEE) for CLO1#</td>
<td># Pre-requisite 12.0.3#</td>
<td>Level 8 Bachelor, Honors, Degree</td>
</tr>
<tr>
<td>~ Member of Engineering Australia or Equivalent ~</td>
<td>AS:2000 - CD0 - Application to AGL</td>
<td>ICAO</td>
<td>Understanding of how MOS 189 requirements affect design, installation and commissioning; Understanding of Luminance and Illumination Engineering Theory; Understanding of international ICAO standards (e.g., ICAO/PI-1400.3)</td>
</tr>
<tr>
<td>ICAO</td>
<td>MOS 189 Electrical Supply Requirements</td>
<td>MOS 189 General Requirements</td>
<td></td>
</tr>
<tr>
<td>AERONAUTICAL GROUND LIGHTING SYSTEMS</td>
<td>N/A</td>
<td>N/A</td>
<td>Level 5 Dep.</td>
</tr>
<tr>
<td>Non-Power PERSONNEL (Battery &amp; Dock, 51159DC)</td>
<td># Pre-requisite 12.0.3#</td>
<td>MOS 189 Requirements &amp; Means of Compliance, Understanding of Luminance and Illumination Engineering Theory, MOS 189 for non-power electronic lighting</td>
<td></td>
</tr>
<tr>
<td>B. Electrical Engineer (pre-requisite, 1,5,8)</td>
<td># Pre-requisite TRADE ELECTRICAL LICENCE#</td>
<td>ICAO: CEN Competent Person</td>
<td>Level 4 Certificate IV</td>
</tr>
<tr>
<td>CHC41217 - General Application to AGL</td>
<td>AG:3000 - G:CC - General Application to AGL</td>
<td>ICAO</td>
<td>Understanding of how MOS 189 requirements affect design, installation and commissioning; Understanding of Luminance and Illumination Engineering Theory, Understanding of international ICAO standards (e.g., ICAO/PI-1400.3)</td>
</tr>
<tr>
<td>Safe Work Practices</td>
<td>Testing equipment</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Commissioning</td>
<td>MTO Testing</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Fault finding</td>
<td>Criteria for switching off</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>1. Airfield Manager</td>
<td># Pre-requisite 1.0.3#</td>
<td>Understanding of what AGL is, how it works, and where to engage - Basic Compliance Checklist on MOS 189 requirements and basic electrical safety</td>
<td>Level 3 Certificate III</td>
</tr>
<tr>
<td>3. General Awareness</td>
<td>General Awareness of AGL - Purpose, MOS 189 intro, Electrical intro, Reference (where to find), Industry help (where to find)</td>
<td>General Awareness of AGL - Purpose, MOS 189 intro, Electrical intro, Reference (where to find), Industry help (where to find)</td>
<td>Level 1/2 Certificate IV</td>
</tr>
</tbody>
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**DRAFT AGL COMPETENCIES FRAMEWORK**

[Australian Government logo]
[Department of Defence logo]