

INSTALLATION MANUAL
Nubion

DOC.NO:AVE-N09PANSN-IM

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Part 0 Manual Administration

0.1. Document approval

This document has been established in accordance with an alternative procedure to DOA approved under EASA AP429.

This installation manual is applicable for part numbers:

- Nubion Landing (12°) **AVE-N09PANSNL-1WA Mod(2)**
- Nubion Landing (24°) **AVE-N09PANSNL-2WA Mod(2)**
- Nubion Taxi (38°) **AVE-N09PANSNT-3WA Mod(2)**
- Nubion Taxi (55°) **AVE-N09PANSNT-5WA Mod(2)**
- Nubion Taxi (15° x 47°) **AVE-N09PANSNT-EWA Mod(2)**

Compiled by: _____ 09. – Sep. - 2022

Petr Jaroš
Engineer, Aveo Engineering Group, s.r.o.

Approved by: _____ 09. – Sep. - 2022
Georg Hartl
Head of DO, Aveo Engineering Group, s.r.o.

0.2. Amendment Record Procedure

The master copy of this document shall be kept electronically as a read only document under the control of Aveo Engineering Group, s.r.o. as Master Copy.

ALL amendments to this manual will initiate a raise of issue.

The original issue will be identified by "01", and subsequent issues will be numbered sequentially from 02 to 99 in Table 01 - **Issue No.** column.

ALL issues of this document will be approved by Head of DO.

Issue No.	Details	Date	Effected Pages
01	Initial Issue	15.Dec.2016	ALL
02	Part Numbers update Technical specification update Optic simulation update	21.Apr.2020	3, 5 6 7, 8, 9
03	Part Numbers update Distribution list removal Wiring specification update Weight update Electronic specification update Section 1.14 ROHS addition Section 1.15 EU REACH addition	09.Sep.2022	3, 5 4 5 6 6 12 12
Table 01: Document Amendment Record Table			

0.3. Affected Pages Procedure

ALL pages affected by ANY raise of issue of this document will be listed in Table 01 - **Affected Pages** Column.

The reason(s) for **EACH** raise of issue and the description of respective change will be provided in Table 01 - **Details** Column.

Changes from the previous issue are shown as follows:

- a) new text is highlighted with yellow shading: **new**
- b) deleted text is shown with yellow shading and a strike through: ~~deleted~~

Part 1 Installation data

1.1. Product Description

The Nubion™ landing or taxi light is a high powered LED light use in GA and transport category aircraft. It has been designed to be lightweight and with a low power draw to meet the highest requirements of all certified aircraft.

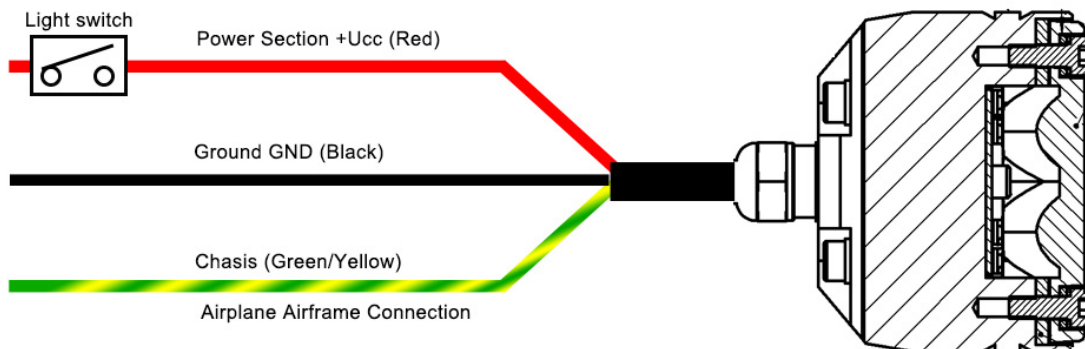
- **Nubion TAXI (38°)** PN : AVE-N09PANSNT-3WA Mod(2)
- **Nubion TAXI (55°)** PN : AVE-N09PANSNT-5WA Mod(2)
- **Nubion TAXI (15° x 47°)** PN : AVE-N09PANSNT-EWA Mod(2)

- **Nubion LANDING (12°)** PN : AVE-N09PANSNL-1WA Mod(2)
- **Nubion LANDING (24°)** PN : AVE-N09PANSNL-2WA Mod(2)

1.2. Operating Instructions

When installed on the aircraft, using the aircraft's power (28 volts), the light will be at its maximum intensity. *Operating Voltage range is 18-36VDC.*

1.3. Installation Schematic / Wiring Diagram



1.4. Control & Power Inputs

- BLACK** Negative common power supply line (ground), **AWG 22**
RED Positive power supply line, **AWG 22**
GREEN/YELLOW Chassis wire (Airplane airframe connection), **AWG 22**

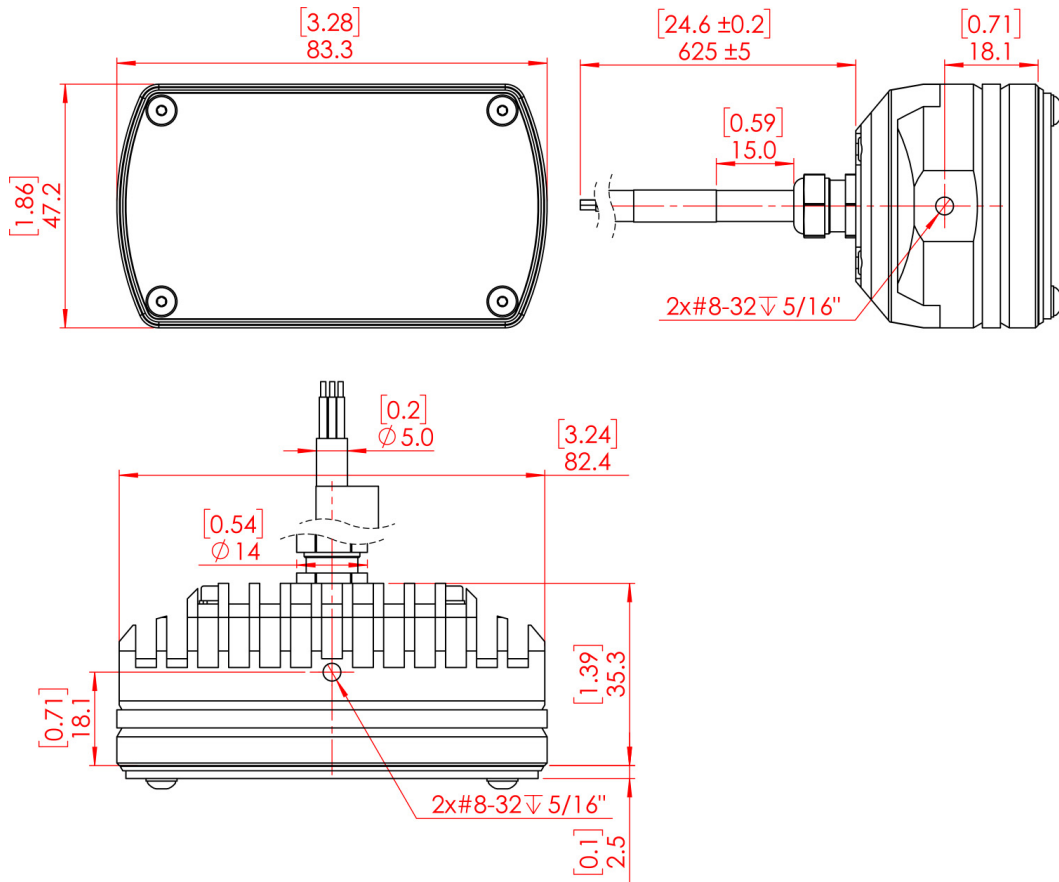
Length: 640mm (25.2")

1.5. Technical Specification

Electronic specification - Ambient temperature (25°C):

Operating voltage:	18-36V DC
Primary input voltage:	28V DC
Voltage protection:	a. Over-voltage protection: 80V (1s) b. Over-voltage lockout: 38.5V DC c. Under-Voltage protection
Reverse polarity protection:	Yes
LED quantity:	6 pcs
Performance:	
Input current:	0.75A@28V (+/- 5%)
Input power:	21W@28V (typ)
Operating temperature:	-55°C to +85°C / -67°F to +185°F
Over-Temperature protection:	Yes
Weight:	6.77oz (192g)

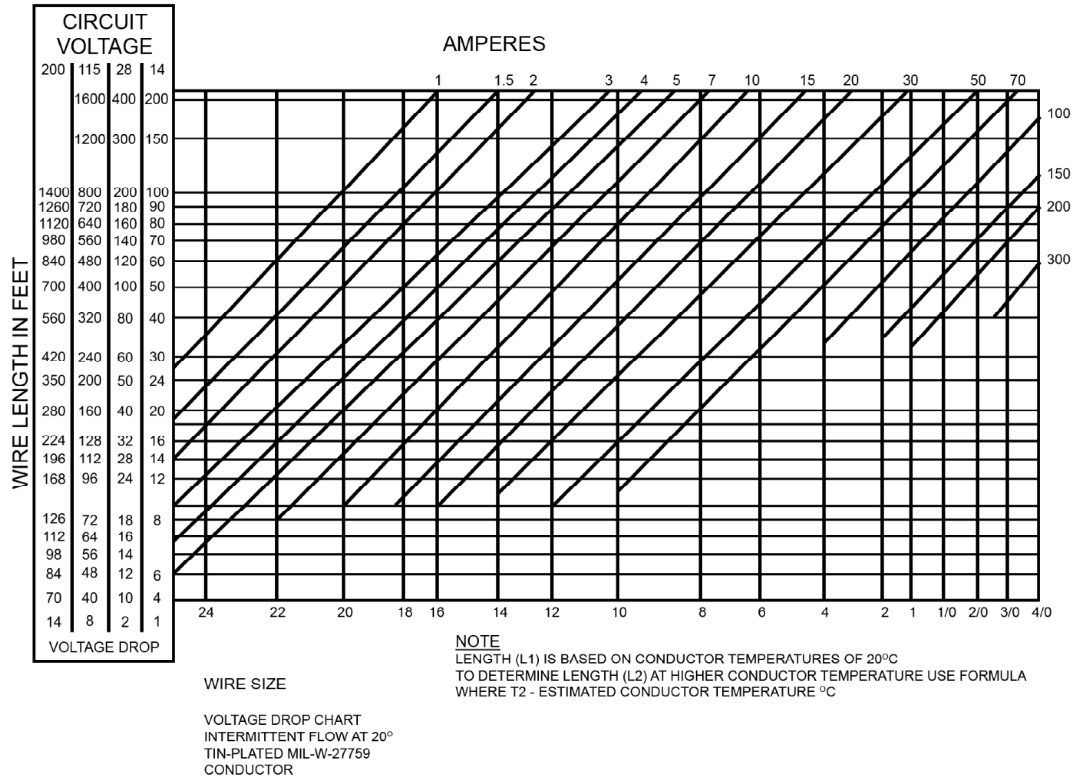
1.6. Technical Drawing



*dimensions in mm [inches]

1.7. Wiring Chart

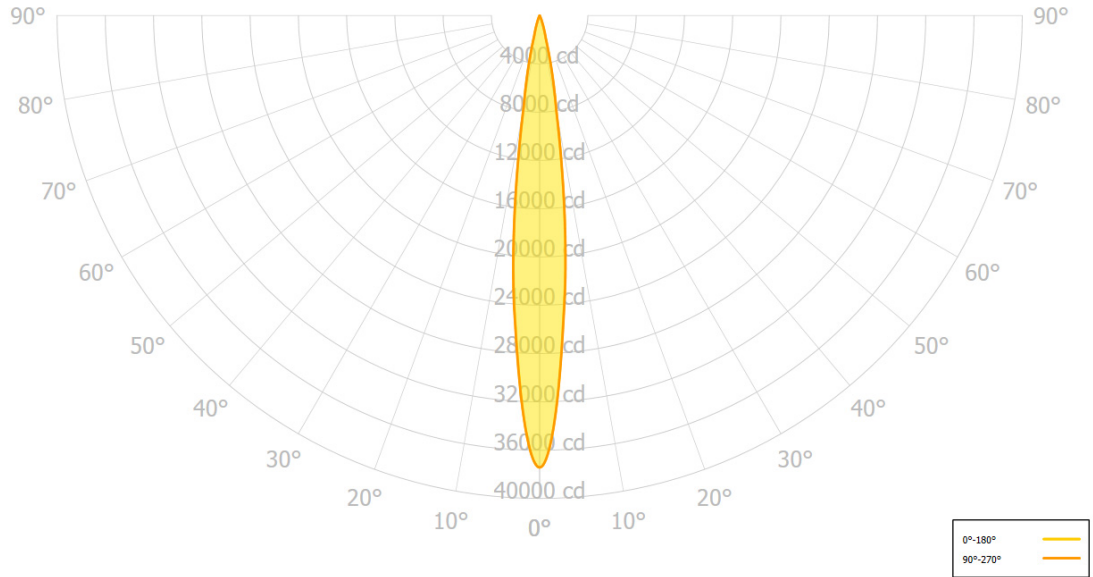
Use diagram below defining the wiring size depending on the current and the wire length. Make sure you add up the current for all connected lights. If current is not given, then divide the power by the voltage.



1.8. Optic Simulation

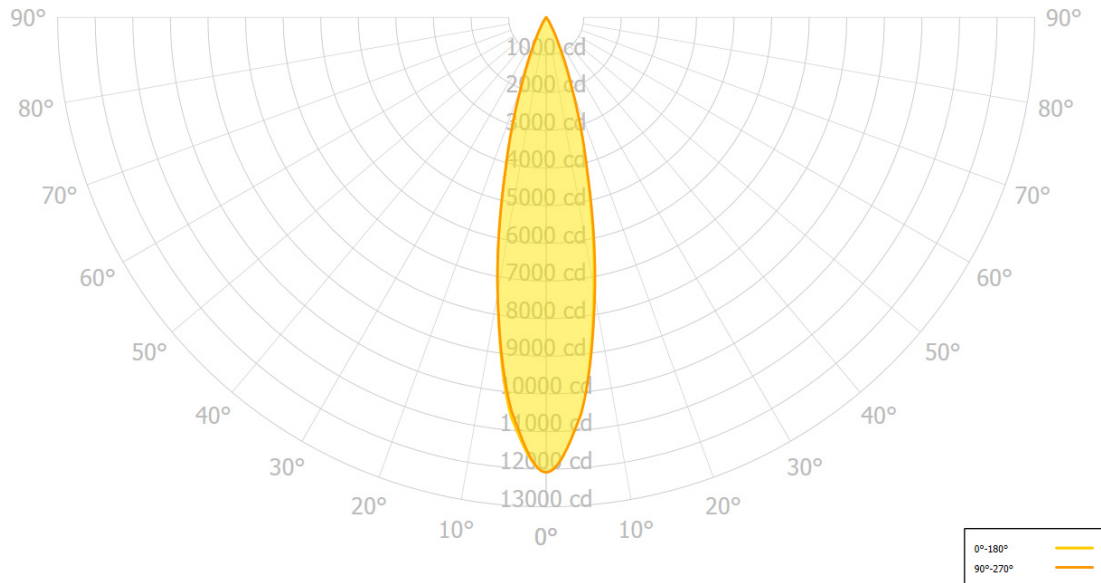
Nubion LANDING (12°) PN: AVE-N09PANSNL-1WA Mod(2)

37431 Cd



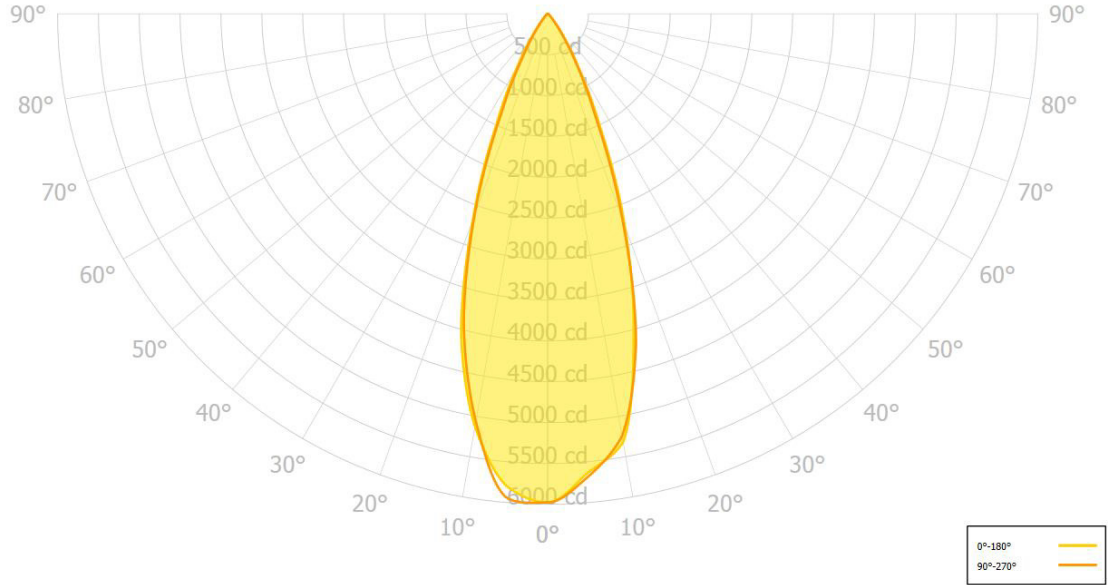
Nubion LANDING (24°) PN: AVE-N09PANSNL-2WA Mod(2)

12081 Cd



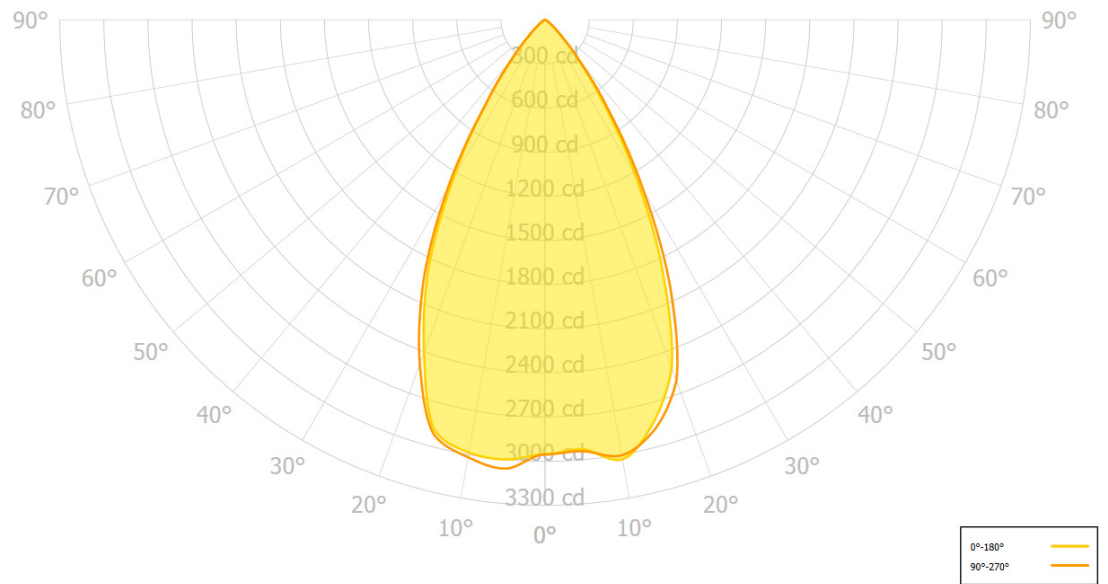
Nubion TAXI (38°) PN: AVE-N09PANSNT-3WA Mod(2)

5977 Cd



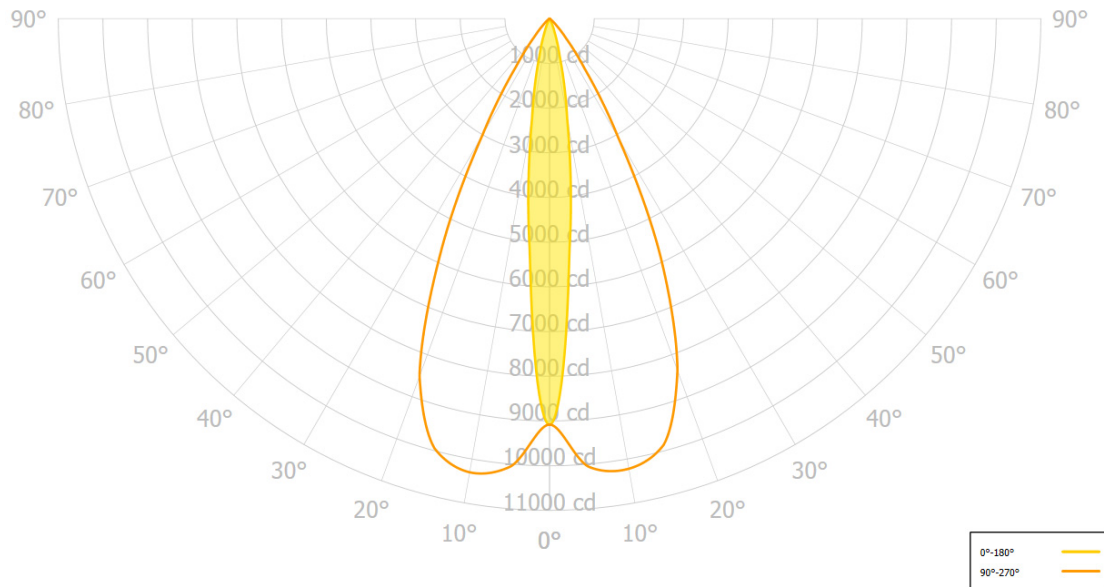
Nubion TAXI (55°) PN: AVE-N09PANSNT-5WA Mod(2)

3132 Cd



Nubion TAXI (15° x 47°) PN: AVE-N09PANSNT-EWA Mod(2)

10300 Cd



1.9. Equipment Limitation

Nubion™ should only be powered by 18-36VDC.

1.10. Care and Cleaning of Lights

When you receive your Aveo Engineering Aviation Lights, they will have been factory polished and ready to install on the aircraft.

If the lights require a deeper cleaning, they should be polished with a quality lamb’s wool sheet and can also be used for deeper polishing. Under no circumstances should any petroleum based product be used to clean the lights.

1.11. Testing of the Light before Installation

All Aveo Aviation lights undergo rigorous testing prior to being released from our engineering manufacturing department. This testing involves a burn-in time as well as other function testing. No light is released for sale without undergoing this extensive operational testing.

When you receive the **Nubion™** light, and wish to test the function of the light prior to installation on your aircraft, please note the following:

1. Please review the written information that is enclosed in the packaging.

Warranty information as well as a cautionary note about power supply removal is enclosed with each package.

2. Remove the light from the package. Note that there are three (3) wires:
Black – Negative lead
Red – Positive lead
Green/Yellow – Chassis
3. Testing of the function of the light can be done with a regular 28V/5A dc power supply (not a battery charger). Connect the black wire to the ground (negative) leads of a power supply, and then connect the red wire to the positive (+) leads on the power supply. The Nubion light should start lighting. When installed on the aircraft, using the aircraft's power (28 volts), the light will be at its maximum intensity.
After testing, the light can be installed on the aircraft.

IMPORTANT NOTES:

Under no circumstances should any power supply other than a 18-36 VDC, or a 28 Volt battery be used to test the light. Do not use: Battery chargers, battery back-up power devices, or other bench avionics testing methods to test the aviation light. The light is functional between 18 and 36 volts. Use of a battery charger or other power unit to test the light will void the warranty and may damage the light.

Make sure you cover your eyes while installing and testing our lights.

If you have any questions about the installation of the lights, please refer to our web site: www.aveoengineering.com

1.12. Notes on Installation

Spread the tightening forces evenly around the mounting hole. Stainless steel screw is recommended. Length depends upon placement location on aircraft.

1.13. Continued Airworthiness Information

Circuit/Wiring Protection

Each Nubion series light features a **Negative Temperature Coefficient** (NTC) circuit that limits internal temperatures by attenuating operating current (with a corresponding reduction of brightness) when internal temperatures reach a certain threshold. This proprietary circuitry serves to protect the light itself, and associated aircraft wiring, against a thermal runaway condition.

Periodic Inspection Procedure for Nubion Series

The **Nubion™** lights should always be checked for proper operation during preflight. This procedural information is already provided in all general aviation aircraft flight manuals.

The lights should be visually inspected for general condition, proper operation, and correct installation at each annual and/or 100 hours inspection. In addition refer to section 1.10 of installation manual for detailed cleaning instructions.

1.14. RoHS Compliance Statement

Scope

This statement clarifies Aveo Engineering's compliance with European Union Directive 2015/863/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment ("RoHS") that took effect on June 4, 2015. The RoHS Directive restricts the sale of electronic equipment containing certain hazardous substances in the European Union including:

Cadmium(Cd): 0.01%

Mercury: 0.1%

Lead(Pb) : 0.1%

Hexavalent chromium (Cr6+) : 0.1%

Polybrominated biphenyls (PBB): 0.1 %;

Polybrominated diphenyl ethers (PBDE): 0.1 %

Bis(2-Ethylhexyl) phthalate (DEHP): 0.1% (added in 2015);

Benzyl butyl phthalate (BBP): 0.1% (added in 2015);

Dibutyl phthalate (DBP): 0.1% (added in 2015);

Diisobutyl phthalate (DIBP): 0.1% (added in 2015)

Compliance

Aveo Engineering certifies that all products sourced from manufacturing facilities comply with the environmental standards set forth by the Directive 2015/863/EU, recast amendment of RoHS Directive 2011/65/EU Article (4), and do not contain any of the above-mentioned, 10 hazardous substances above the specified limits. All products manufactured by Aveo Engineering are RoHS-compliant. With regards to RoHS-2 CE marking, product packaging is labeled attesting conformity if required.

References

Directive 2015/863/EU of the European Parliament and of the Council on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

1.15. EU REACH Regulation (EC) No. 1907/2006

Aveo Engineering declares that no chemicals are produced and that none of the chemicals used during the production process or needed for the product maintenance or service, is listed on the current European Chemicals Agency's Candidate list of Substances of Very High Concern for Authorization.