



INSTALLATION MANUAL
Hercules NXT

AVE-HXT-IM

TABLE OF CONTENTS

PART 0	DOCUMENT ADMINISTRATION.....	3
0.1	DOCUMENT APPROVAL.....	3
0.2	AMENDMENT RECORD PROCEDURE	4
0.3	AFFECTED PAGES PROCEDURE	4
PART 1	INSTALLATION DATA.....	5
1.1	PRODUCT INFO	5
1.2	OPERATING INSTRUCTIONS.....	5
1.3	INSTALLATION SCHEMATIC / WIRING DIAGRAM	6
1.4	CONTROL & POWER INPUTS	7
1.5	TECHNICAL SPECIFICATION.....	7
1.6	TECHNICAL DRAWING	9
1.7	WIRING CHART.....	13
1.8	OPTIC SIMULATION	14
1.9	EQUIPMENT LIMITATION.....	20
1.10	CARE AND CLEANING OF LIGHTS.....	20
1.11	TESTING THE LIGHTS BEFORE INSTALLATION	20
1.12	CONTINUED AIRWORTHINESS INFORMATION.....	21
1.13	RoHS COMPLIANCE STATEMENT.....	21
1.14	EU REACH REGULATION (EC) No. 1907/2006	22

Part 0 Document 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 following part numbers:

- **Hercules NXT** - AVE-HXTTLFW-D01
- **Hercules NXT – O holder** - AVE-HXTTLFW-D02
- **Hercules NXT – Q holder** - AVE-HXTTLFW-D03
- **Hercules NXT – O holder (2)** - AVE-HXTTLFW-D04



Compiled by: _____ 13 March 2024

Petr Jaroš
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Approved by: _____ 13 March 2024

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 of issue	Affected Pages
01	Initial Issue	17 Oct 2022	ALL
02	Addition of new version of Hercules NXT Optic simulation update	13 March 2024	3, 5, 12 14-19

Table 01: Record of Document Amendments

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:

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

Part 1 Installation data

1.1 Product Info

Hercules NXT™ is a high powered Landing and Taxi LED light used 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.

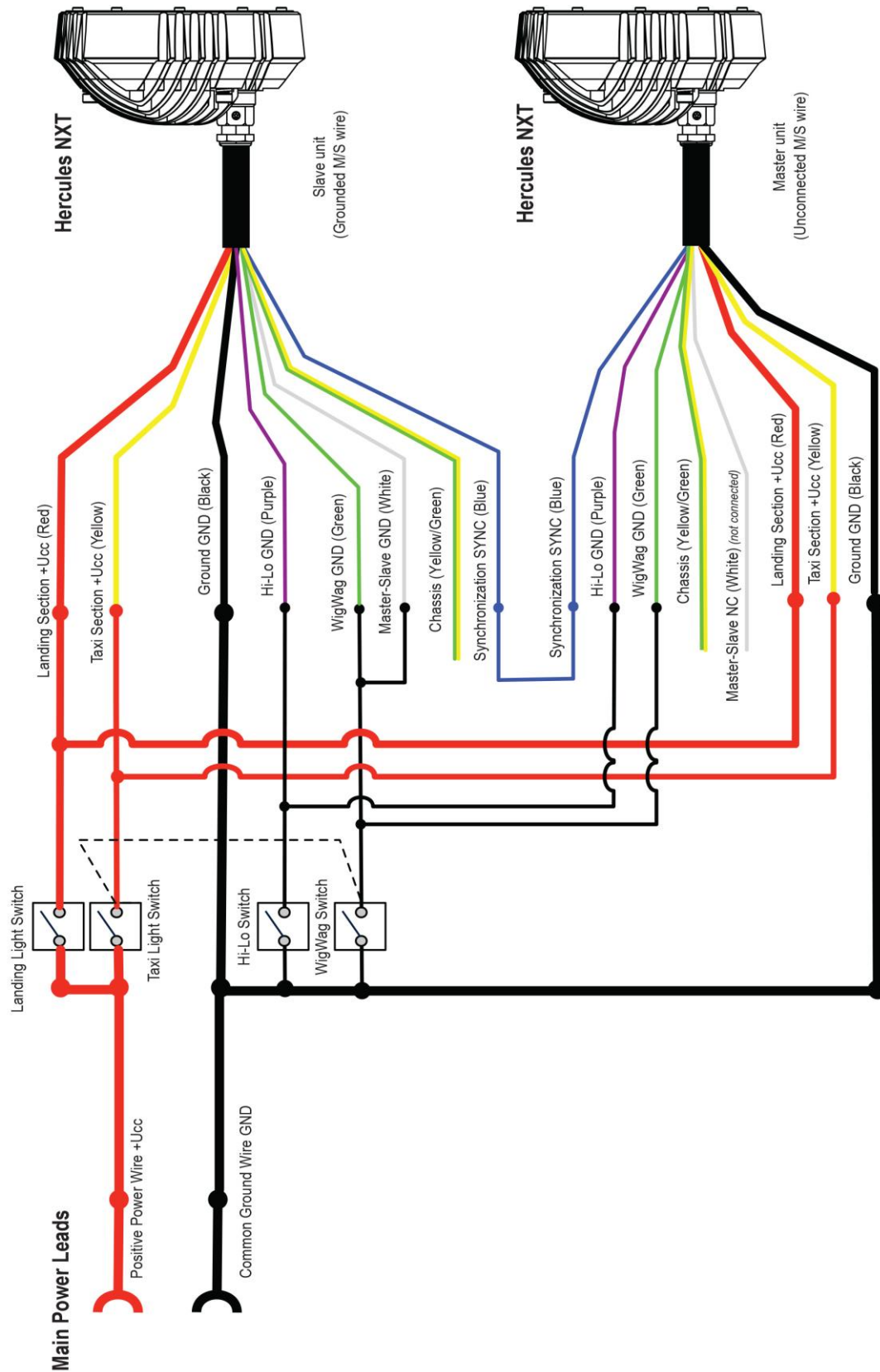
- | | |
|--------------------------------------|-------------------|
| • Hercules NXT | - AVE-HXTTLFW-D01 |
| • Hercules NXT – O holder | - AVE-HXTTLFW-D02 |
| • Hercules NXT – Q holder | - AVE-HXTTLFW-D03 |
| • Hercules NXT – O holder (2) | - AVE-HXTTLFW-D04 |

1.2 Operating Instructions

When installed on the aircraft, using the aircraft's power (14 volts or 28 volts), the light will be at its maximum intensity.

Operating Voltage range is +9...+36VDC.

1.3 Installation Schematic / Wiring Diagram



1.4 Control & Power Inputs

RED	Landing (AWG20)
YELLOW	Taxi (AWG20)
BLACK	GND (AWG20)
GREEN/YELLOW	Chassis (AWG20)
WHITE	Master/Slave (AWG24)
BLUE	Synchro (AWG24)
VIOLET	Hi/Lo (AWG24)
GREEN	WigWag (AWG24)

Length: 300 mm / 11.8"

1.5 Technical Specification

Light characteristics:	Multimode Light (Landing, Taxi, WigWag, Hi/Lo)
Voltage range:	9-36VDC
Voltage protection:	a. Transient voltage: 2 seconds +80VDC b. Over-voltage lockout: +36VDC, not less

Performance:

<i>Landing:</i>	Input current:	2.5A @14VDC,	1.3A @28VDC
	Input power:	35W @14VDC,	36.4W @28VDC
<i>Taxi:</i>	Input current:	1A @14VDC,	0.55A @28VDC
	Input power:	14W @14VDC,	15.4W @28VDC

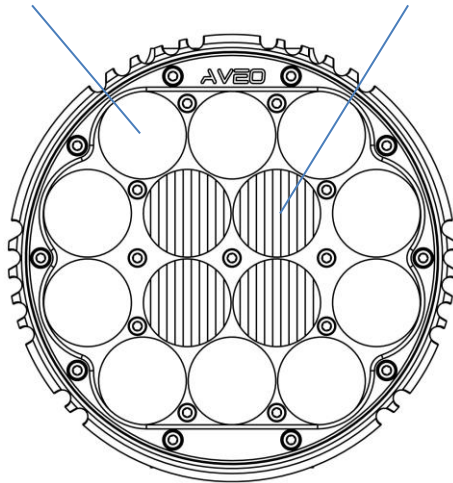
Chromaticity:	Cool White
Ambient temperature:	-55°C...+85°C / -67°F...+185°F
Overheat protection:	Yes
Wiring:	See section 1.3
Useful life:	not less than 15.000 aircraft flight hours

Weight:	
AVE-HXTTLFW-D01	465 g / 1.014 lb
AVE-HXTTLFW-D02	492 g / 1.084 lb
AVE-HXTTLFW-D03	483 g / 1.064 lb
AVE-HXTTLFW-D04	492 g / 1.084 lb

Viewing Angle:

Landing Lens: 10°

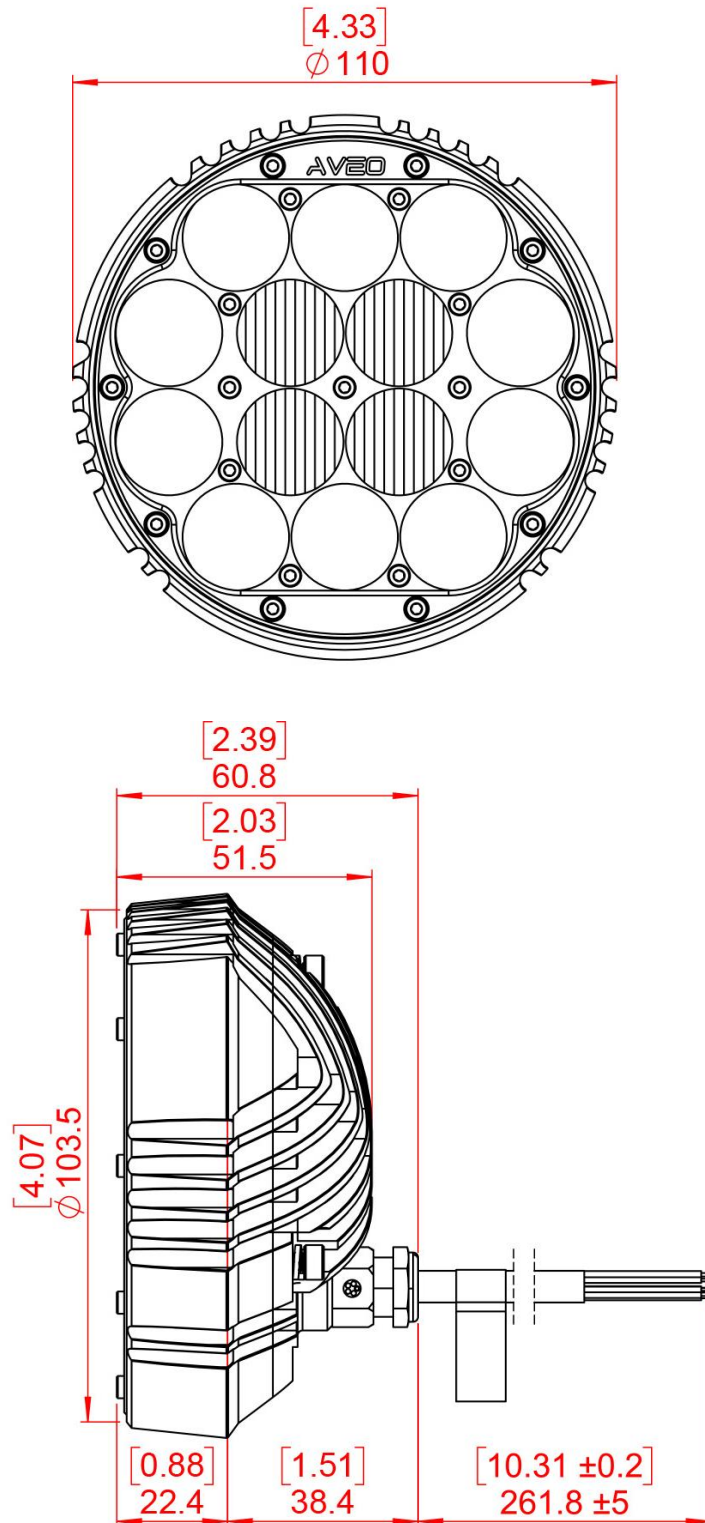
Taxi Lens: 10° x 45°



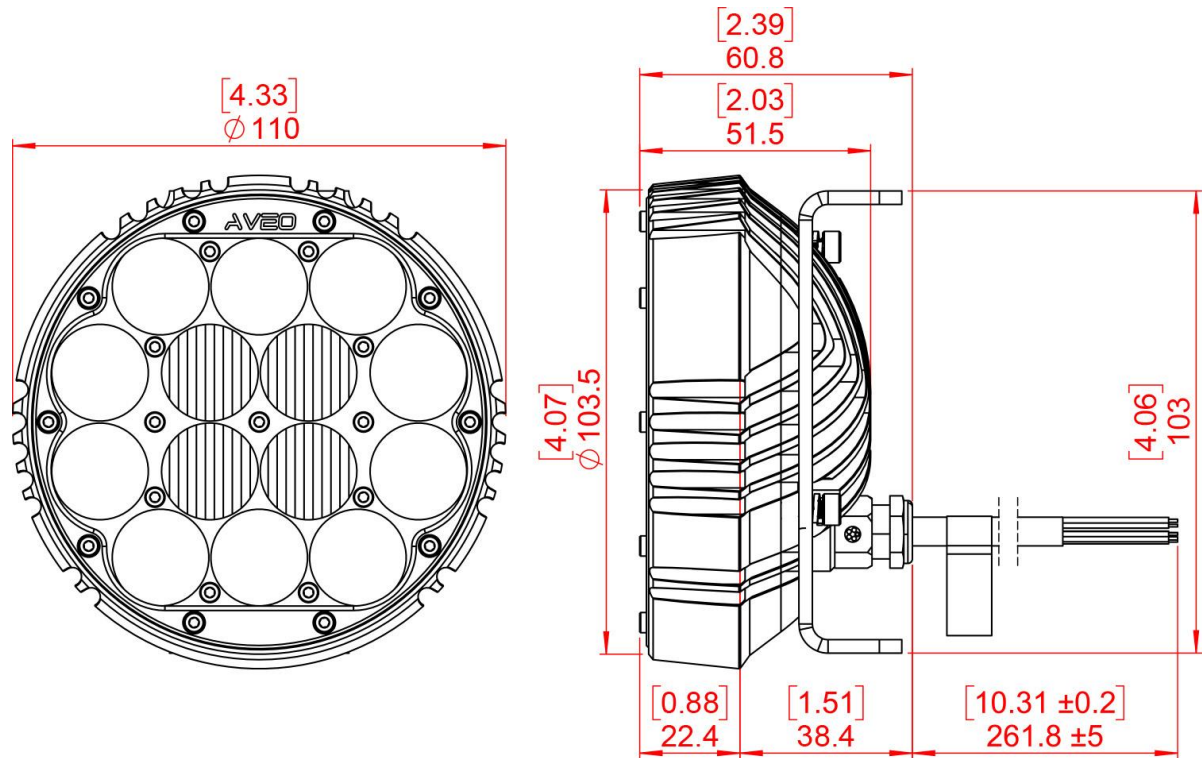
Environment	Section	Category
Temperature / Altitude	4	F2
Temperature Variation	5	A
Humidity	6	C
Operational Shock and Crash Safety	7	B
Vibration	8	U, curves G
Explosive Atmosphere	9	H
Waterproofness	10	R
Fluids Susceptibility	11	F
Sand and dust	12	D
Fungus	13	F
Salt Spray	14	T
Magnetics Effects	15	Z
Power Input	16	B
Voltage Spike	17	A
Audio Freq. Conducted Susceptibility	18	Z
Induced Signal Susceptibility	19	ZC
Radiated and Conducted Susceptibility	20	TT
Radiated and Conducted Emissions	21	B
Icing	24	A and C

1.6 Technical Drawing

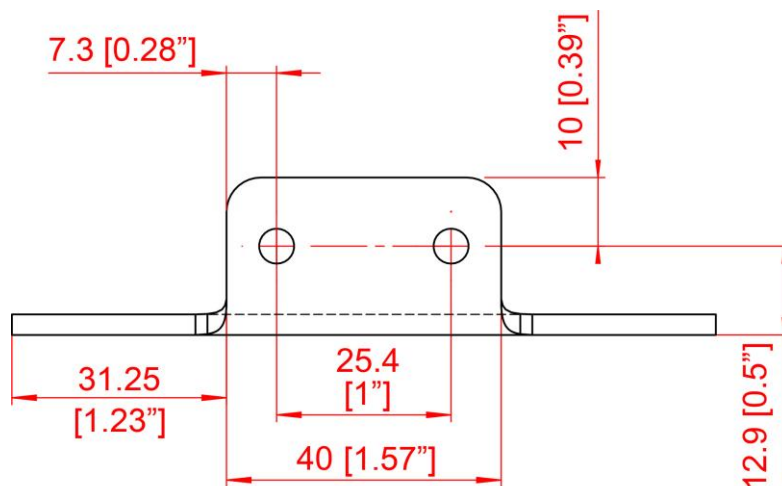
PN: AVE-HXTTLFW-D01



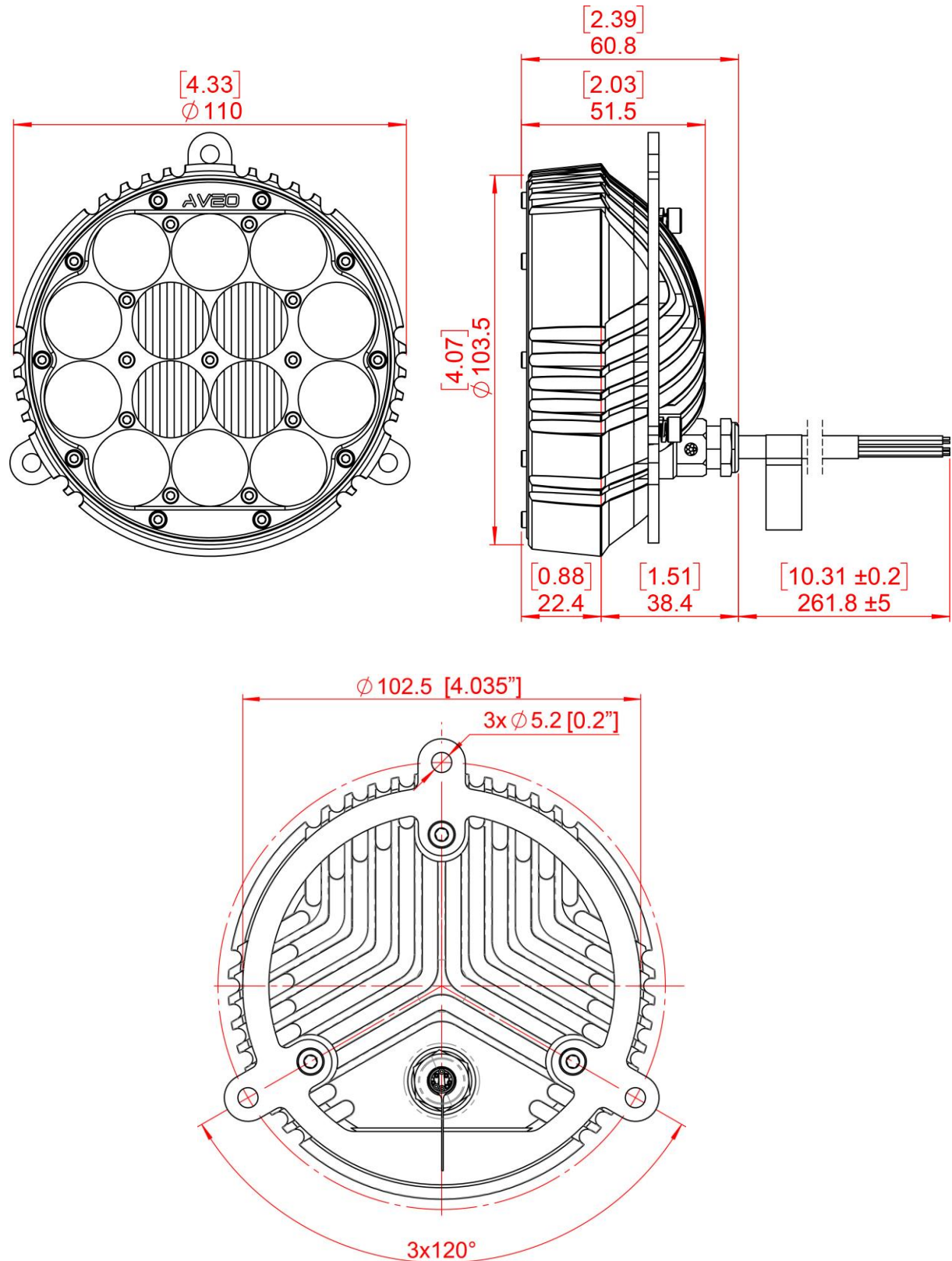
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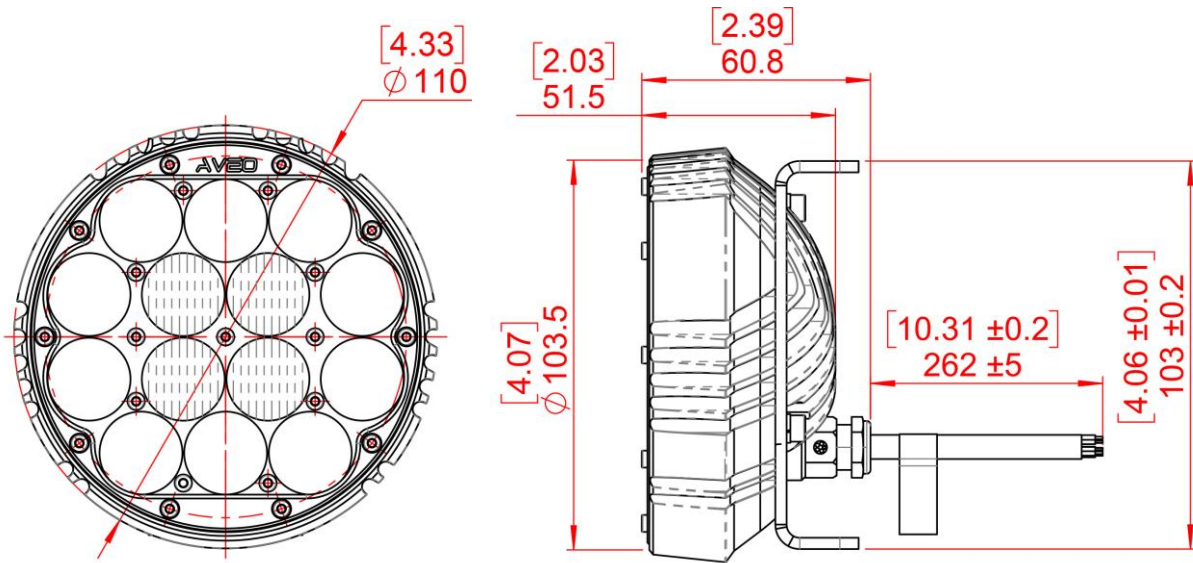
Holder detail



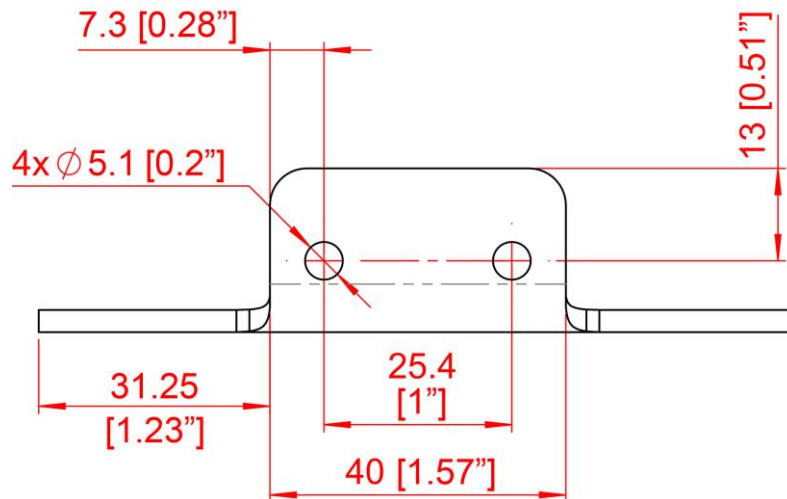
AVE-HXTTLFW-D03



AVE-HXTTLFW-D04



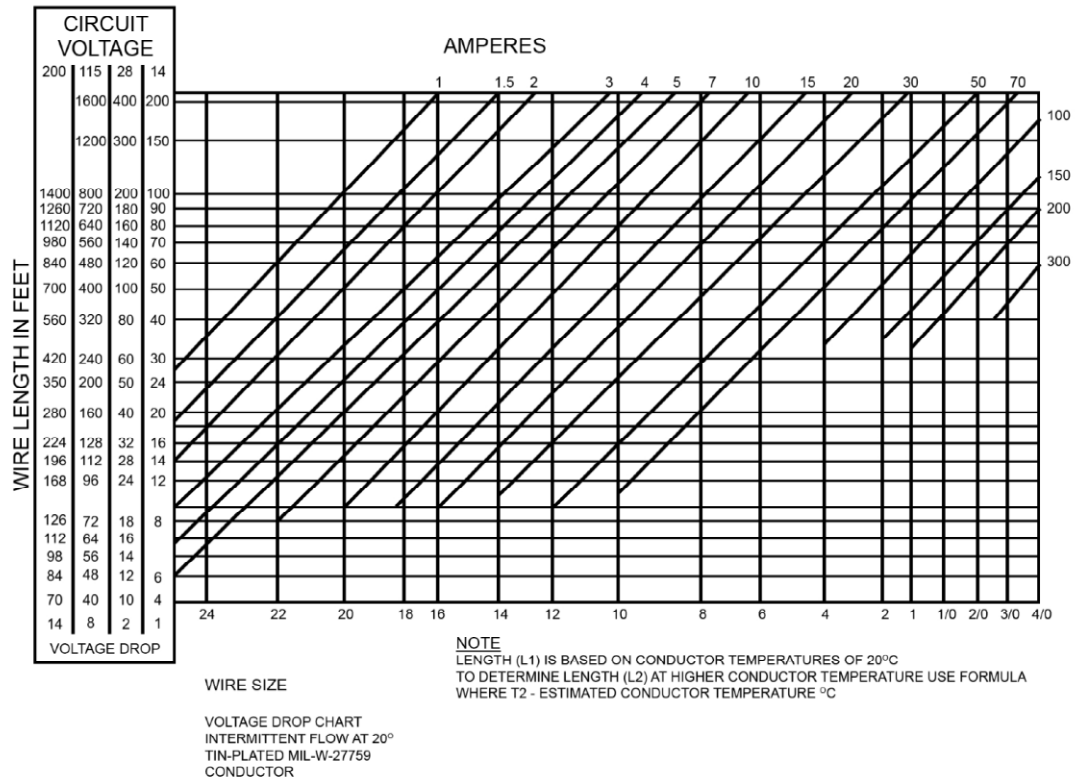
Holder detail



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.



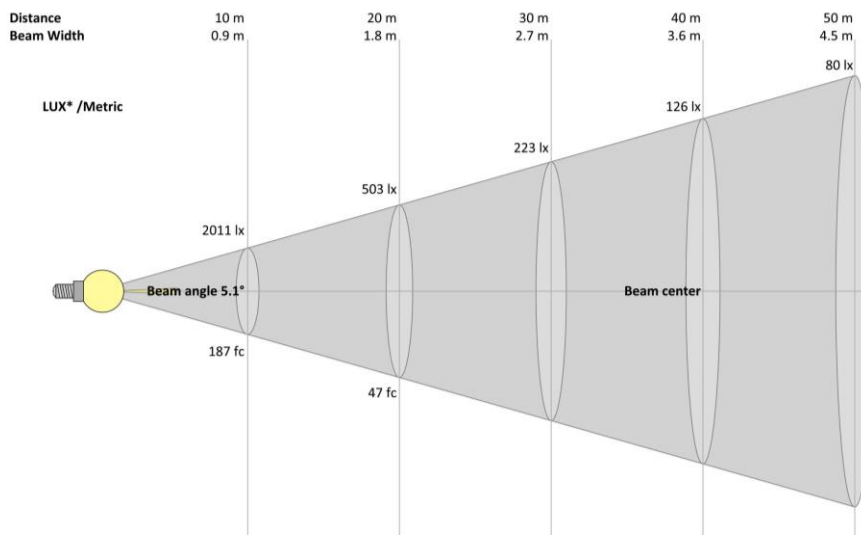
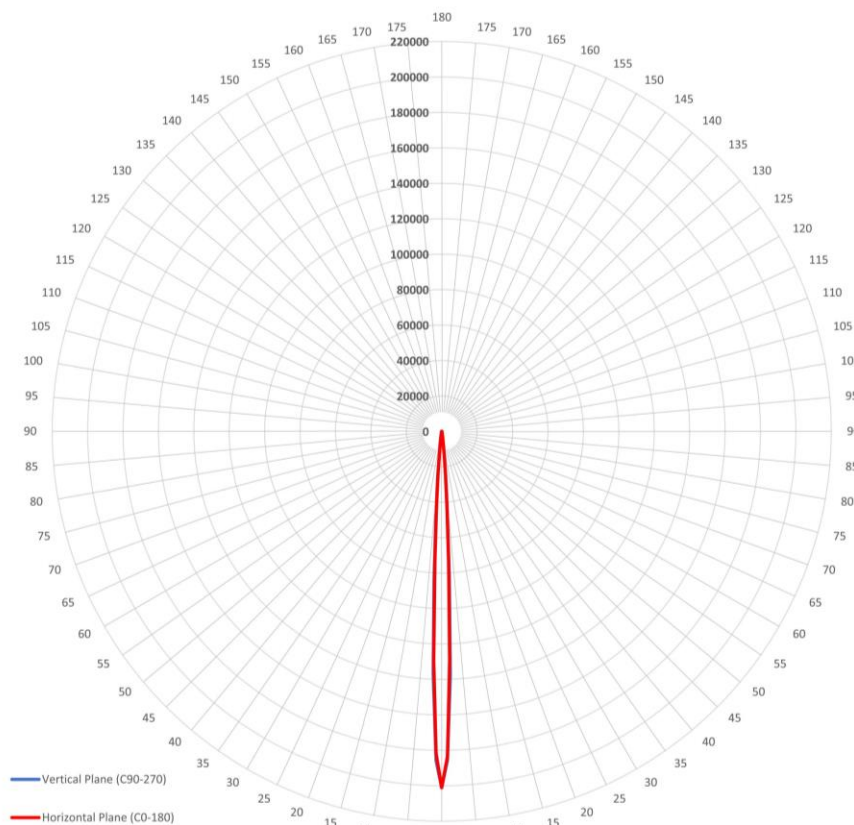
1.8 Optic Simulation

Landing Mode High

201 272 cd

4.9° x 5.3° (at 50% of max light intensity)

10.6° x 10.8° (at 10% of max light intensity)

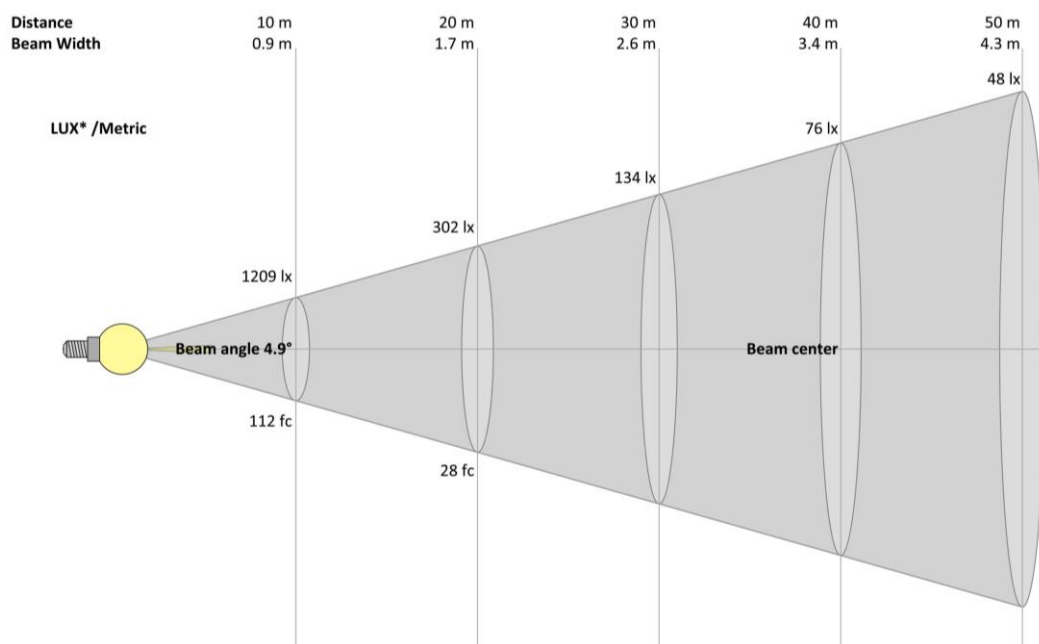
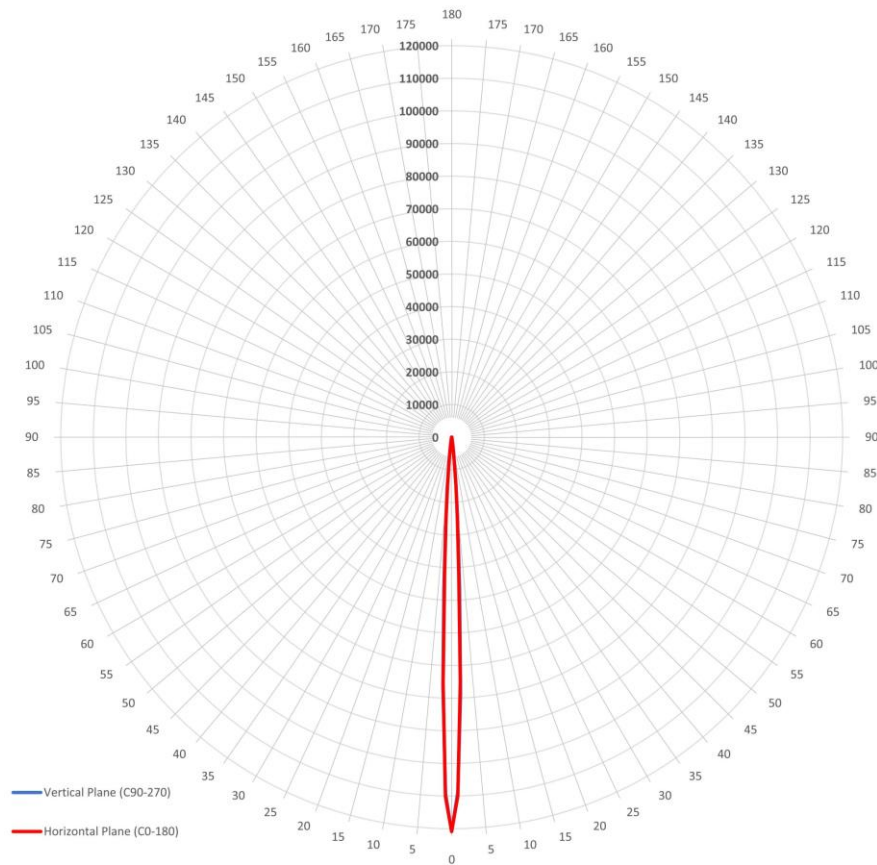


Landing Mode Low

121 058 cd

4.7° x 5° (at 50% of max light intensity)

10.7° x 10.9° (at 10% of max light intensity)

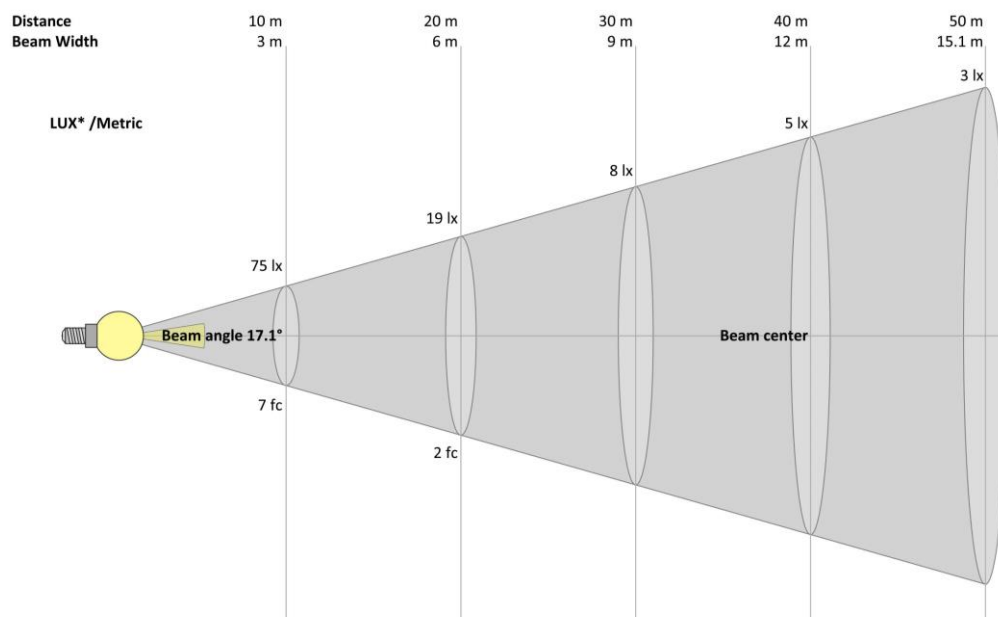
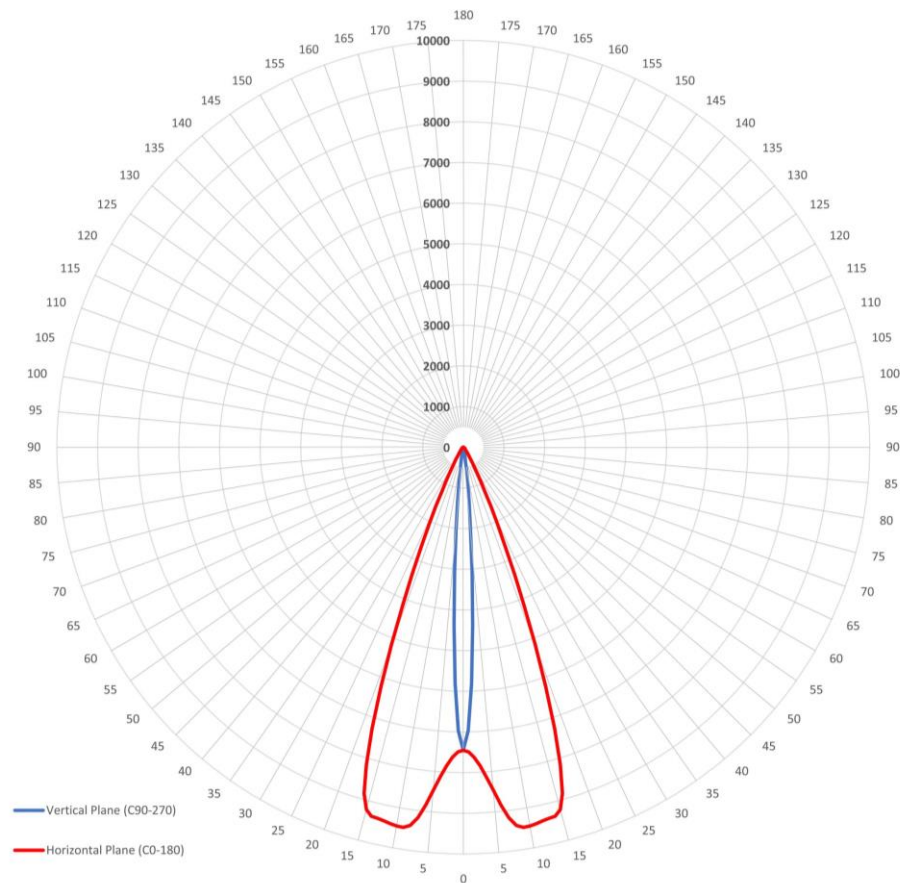


Taxi Mode High

9 468 cd

40.9° x 7° (at 50% of max light intensity)

54.1° x 14.7° (at 10% of max light intensity)

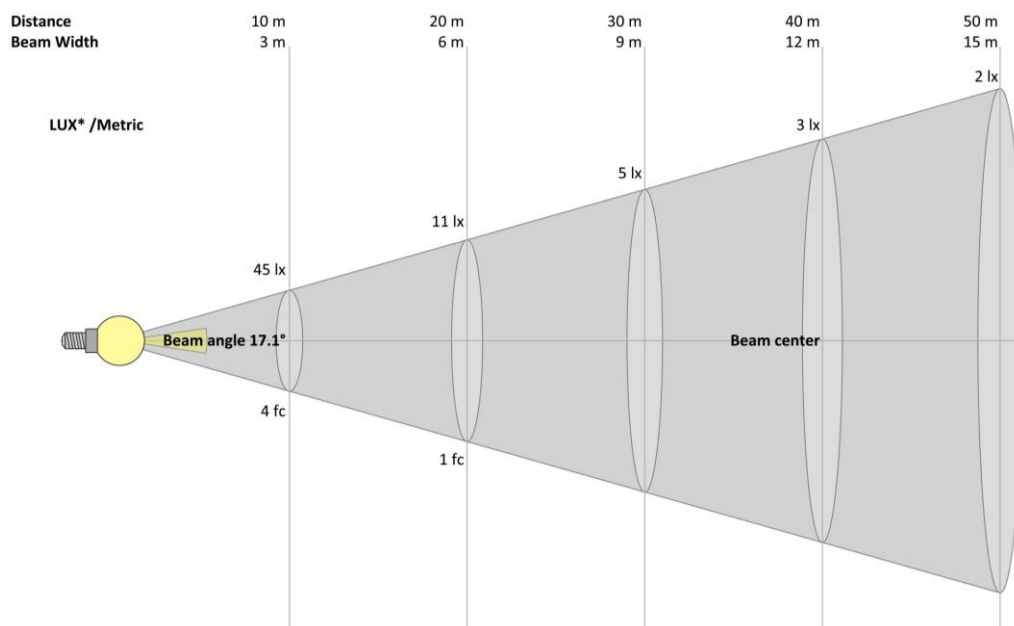
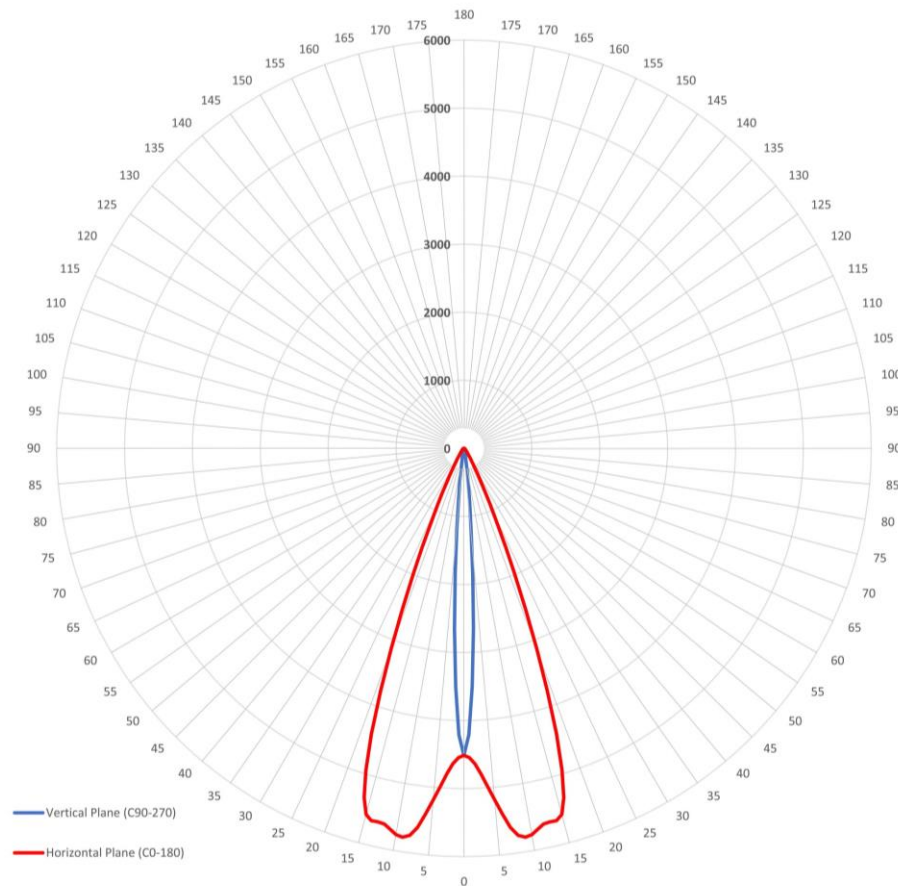


Taxi Mode Low

5 788 cd

40.8° x 7° (at 50% of max light intensity)

53.4° x 14.6° (at 10% of max light intensity)

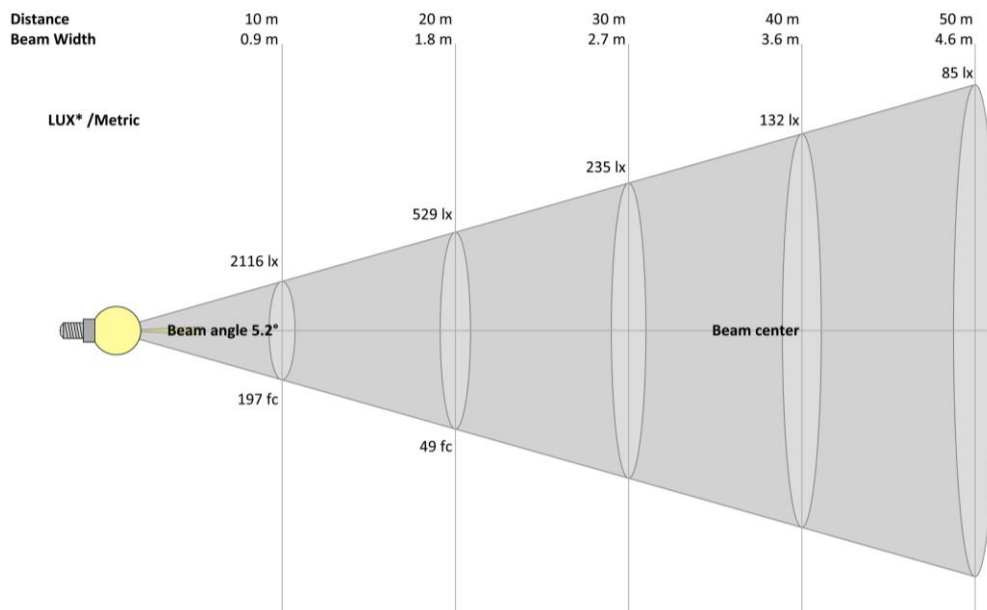
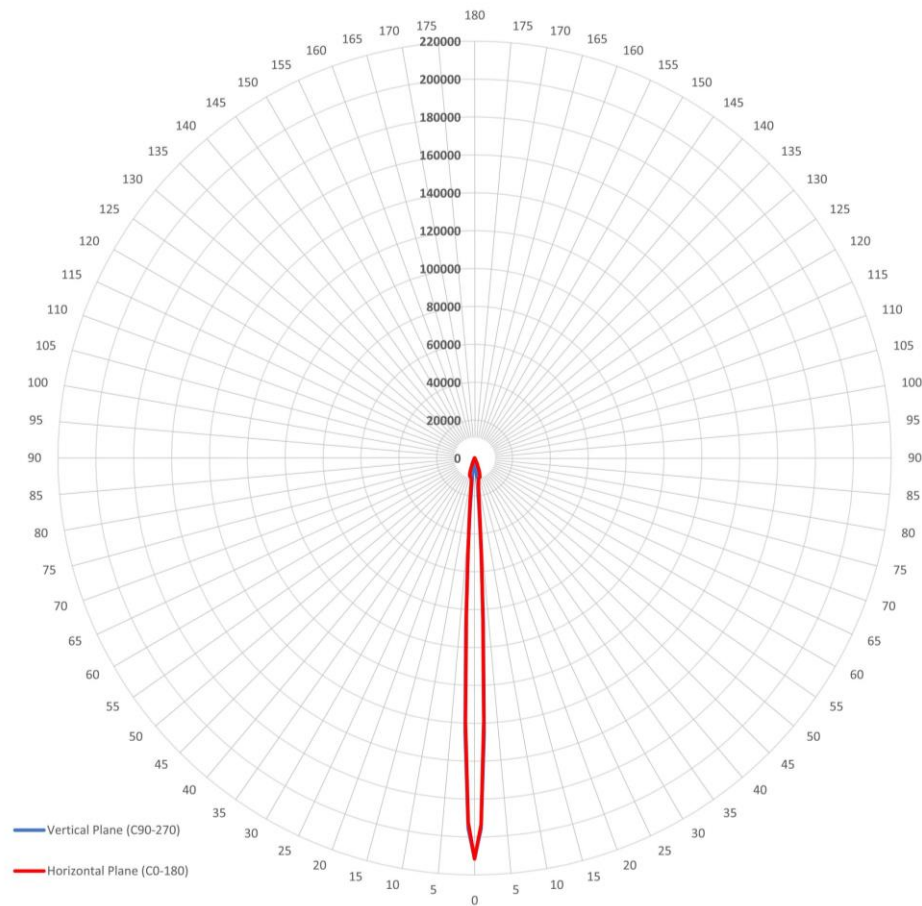


Both sections (Landing + Taxi Mode) High

211 792 cd

5.1° x 5.4° (at 50% of max light intensity)

12.3° x 11° (at 10% of max light intensity)

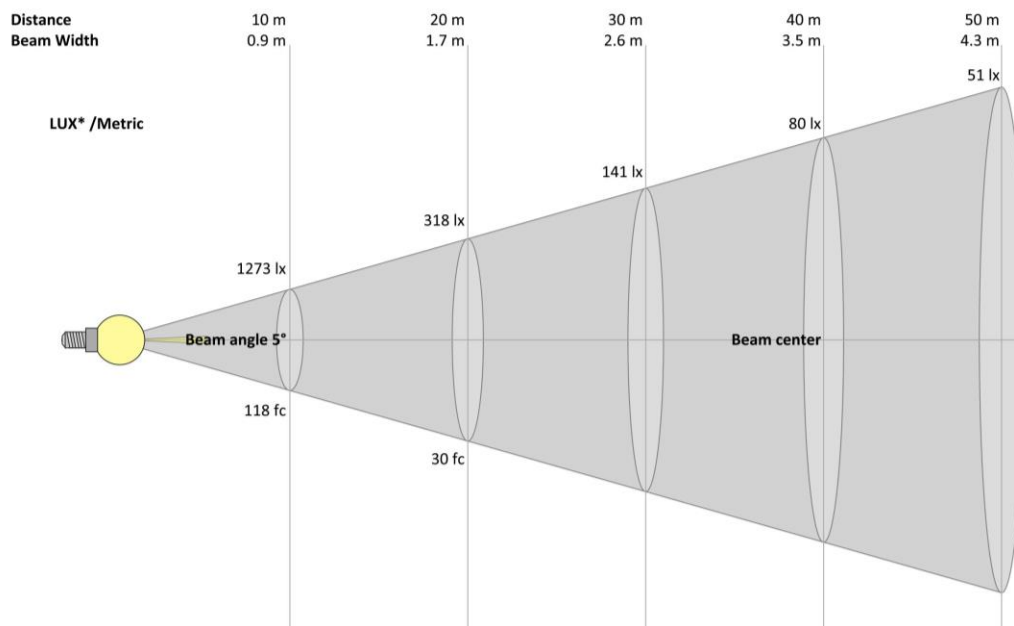
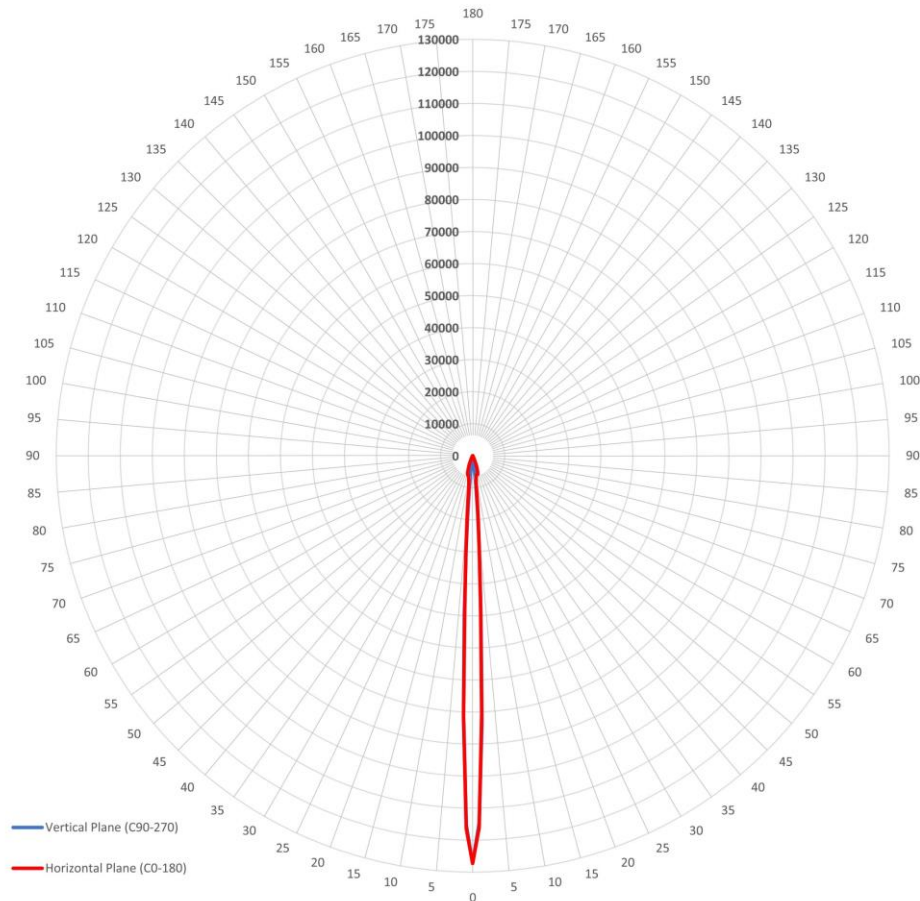


Both sections (Landing + Taxi Mode) Low

127 470 cd

4.9° x 5.1° (at 50% of max light intensity)

12.3° x 11.1° (at 10% of max light intensity)



1.9 Equipment Limitation

Hercules NXT should only be powered by 9-36VDC

1.10 Care and Cleaning of Lights

Aveo Engineering Aviation Lights are factory polished and delivered as ready to install on the aircraft.

If the lights need a deeper cleaning, they should be polished with a quality lamb's wool sheet that is suitable also for deeper polishing. Under no circumstances should any petroleum based product be used to clean the lights.

1.11 Testing the Lights 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 **Hercules NXT** 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 8 wires:

RED	Landing (AWG20)
YELLOW	Taxi (AWG20)
BLACK	GND (AWG20)
GREEN/YELLOW	Chassis (AWG20)
WHITE	Master/Slave (AWG24)
BLUE	Synchro (AWG24)
VIOLET	Hi/Lo (AWG24)
GREEN	WigWag (AWG24)

3. Testing of the function of the light can be done with a regular 12 or 24VDC power supply (not a battery charger). Connect the ground wire to black wire and then connect the power wire to the red wire. The landing light section should start lighting. Disconnect the power wire. Connect the power wire to the yellow wire. The taxi light section should start lighting. When installed on the aircraft, using the aircraft's power (14VDC or 28VDC), 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 9-36VDC, or a 12 or 24 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 9-36 volts. Use of a battery charger or other power unit to test the light will void the warranty and may damage the light.

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

1.12 Continued Airworthiness Information

Circuit/Wiring Protection

Each Titan 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 Hercules NXT

The **Hercules NXT** light 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.

1.13 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.

1.14 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.