Product Validation & Test Report

VPL Range

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Revision: A

Approved by: Martin Andersen

Signature
Director of R&D

Static Cold Temperature

Standard:	IEC 60068-2-1
Conditions:	Freeze to target temperature; powered on during the final hour to verify start-up.
Duration:	8-16 hours (typ.)
Laboratory:	SGM HQ - Aarhus V, Denmark

Target: -40 °C

PASS

Technical Summary:

Samples are stabilized at target temperature and powered on to verify start-up and enclosure integrity. No cracking, deformation, or optical shift is permitted; sealing performance must remain intact.

Maximum Temperature

Standard:	IEC 60068-2-2
Conditions:	Continuous operation at target temperature in a controlled chamber; unit powered on.
Duration:	8 h (typ.) or per project requirement
Laboratory:	SGM HQ - Aarhus V, Denmark

Target: +50 °C

PASS

Technical Summary:

Verifies thermal stability and material endurance at high ambient temperature.
Components are monitored for compliance with design limits.

Cyclic Temperature

Standard:	IEC 60068-2-14
Conditions:	Repeated cycles between -20 °C and +50 °C; powered as specified in the standard.
Duration:	Each Cycle = 7 hours
Laboratory:	SGM HQ - Aarhus V, Denmark

Target: 16 Cycles

PASS

Technical Summary:

Thermal cycling evaluates expansion/contraction effects and material fatigue.
Seals, connectors, and optics must maintain alignment and IP integrity across all cycles.
Consistent output and mechanical stability indicate long-term outdoor reliability.

Humidity Endurance

Standard:	IEC 60068-2-78
Conditions:	95 % relative humidity at 40 °C; unit energized.
Duration:	Per specification (e.g., 96 h)
Laboratory:	SGM HQ - Aarhus V, Denmark

PASS

Technical Summary:

High-humidity exposure validates vapor sealing and corrosion resistance.
Internal surfaces must remain free of condensation and oxidation.
The test confirms dependable performance in tropical and coastal conditions.

Ingress Protection / IP Rating

Standard:	EN/IEC 60529
Conditions:	High-pressure water jets from multiple angles; 100 L/min for 3 minutes.
Duration:	3 min
Laboratory:	SGM HQ - Aarhus V, Denmark

Target: IPX6

PASS

Technical Summary:

Assesses gasket integrity and enclosure sealing against pressurized water.
No water ingress or dielectric failure permitted; post-test inspection verifies all interfaces.

Extended Rain Endurance (SGM Internal, Torture Test)

Standard:	Internal Test Procedure (Based on UL 1598)
Conditions:	Continuous rain simulation using SGM endurance protocol; periodic inspections.
Duration:	+1000 hours
Laboratory:	SGM HQ - Aarhus V, Denmark

PASS

Technical Summary:

This endurance test extends beyond industry standards to assess long-term sealing performance.
The purpose of this evaluation is to verify the luminaires long-term resilience in continuously wet outdoor environments (e.g., persistent rainfall), the standard 4-hour test cycle is repeated continuously to achieve a total duration of approximately 1,000 hours.
The prolonged nature of this testing schedule more accurately reflects real-world exposure over the course of the luminaires operational life, thereby providing a more reliable assessment of its resistance to sustained precipitation.

Corrosion Resistance

Standard:	ISO 9227 / ASTM B117
Conditions:	Neutral salt spray test per ISO 12944-6:2018 at 35 °C using 50 g/L NaCl (pH 6.5–7.2)
Duration:	1440 hours equivalent to C5 [H]
Laboratory:	SGM HQ - Aarhus V, Denmark

Target: C5 Performance

PASS

Technical Summary:

Coatings and metallic interfaces must remain intact, with no blistering, peeling, or discoloration. Rather than relying on sample panels as allowed by the standard, SGM tests fully assembled luminaires. This ensures that all exposed components, including coated surfaces, fasteners, seals, and interface materials, are evaluated under realistic conditions.

IK Impact Resistance

Standard:	IEC/TR 62696
Conditions:	Calibrated free-fall strike elements as specified in IEC 60068-2-75 on exposed surfaces.
Duration:	3 impacts applied to the likely weakest point
Laboratory:	SGM HQ - Aarhus V, Denmark

Target: IK09

PASS

Technical Summary:

IK testing confirms resistance to external mechanical impacts typical of professional use.
This test ensures that our fixtures are engineered to withstand physical impacts that may occur during prolonged exposure in public environments. Robust construction helps protect housings and lenses, ensuring compliance with safety standards even under mechanical stress and in exposed environments.
Enclosures must absorb the specified energy without fracture or functional impairment.
Passing performance demonstrates durable construction suitable for public and industrial venues.

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