

PT/536/0524 (May 2024)

**Assessment Schedule for the
BLUeLiGHT® PAA-F Liner™ LED Cured-
In-Place Pipe lining system as
manufactured by Bluelight GmbH &
Bluelight Lining Ltd**



independent certification of your products & services

1. SCOPE

This schedule specifies the requirements for the BLUeLiGHT® PAA-F Liner™ LED Cured-In-Place Pipe lining system as manufactured by Bluelight GmbH & Bluelight Lining Ltd.

This approval is not applicable to:

- Leak tightness of end seals.
- Reconnection of laterals.

2. PRODUCT DESCRIPTION

2.1 Introduction

The BLUeLiGHT® PAA-F Liner™ LED Cured-In-Place Pipe lining system is for the rehabilitation of gravity drains and sewers in diameters between 100mm and 300mm. The system can accommodate a dimensional diameter change of up to 33% and a maximum bend of 90° without folding.

The PAA-F LINER™ LED liner consists of a polyester sleeve with internal membrane (installed) and a styrene free vinylester resin.

The PAA-F LINER™ LED liner can be installed with or without a PE Preliner or a fabric reinforced PVC Preliner in accordance with the BLUeLiGHT® installation manual⁽¹⁾.

The PAA-F LINER™ LED liner can be supplied either as a factory impregnated lining ready for site or as components where the sleeve and resin are combined on site in accordance with the BLUeLiGHT® installation manual.

The BLUeLiGHT® PAA-F LINER™ LED liner is installed by inversion and curing is only by BLUeLiGHT® LED equipment.

2.2 Applicable standards

The following relevant standard was identified for Cured-In-Place Pipe liners:

- BS EN ISO 11296-4:2018+A1:2021⁽²⁾

2.3 Approval History

The BLUeLiGHT® PAA-F LINER™ was originally awarded WRc Approved™ certification in May 2019 under approval number:

- PT/437/0519.

3. REQUIREMENTS AND TESTING

3.1 General

The BLUeLiGHT® PAA-F LINER™ LED liner system shall comply with the requirements of BS EN ISO 11296-4:2018+A1:2021.

3.2 Materials and components

The resin system must comply with BS EN ISO 11296-4:2018+A1:2021, Clause 5.3, Table 2.

Assessment Schedule for the BLUeLiGHT® PAA-F Liner™ LED Cured- In-Place Pipe lining system as manufactured by Bluelight GmbH & Bluelight Lining Ltd



independent certification of your products & services

3.3 Type Testing

Mechanical characteristics

The BLUeLiGHT® PAA-F LINER™ LED liner shall comply with the test requirements based upon BS EN ISO 11296-4:2018+A1:2021 listed in Tables 1 and 2.

Table 1 – Short-term mechanical characteristic

Characteristic	Declared value
Initial specific ring stiffness, S_0	Minimum: ≥ 0.25 kPa Declared: 1.23 kPa
Short-term flexural modulus, E_0	2400 MPa
Flexural stress at first break, σ_{fb}	26 MPa
Flexural strain at first break, ε_{fb}	Minimum: $\geq 0.75\%$ Declared: 0.89 %

Table 2 – Long-term mechanical characteristics

Parameter	Requirement
Long-term flexural modulus under dry or wet conditions, $E_{x,wet \text{ or } dry}$	714 MPa

Mechanical resistance

The mechanical resistance shall be demonstrated by calculation in accordance with DWA-A143.2⁽³⁾ or ASTM F1216-22⁽⁴⁾.

3.4 Manufacture

To ensure the quality and performance of the BLUeLiGHT® PAA-F LINER™ LED lining system, the manufacturing process shall include appropriate systems for the:

- Specification of component materials.
- Verification component materials received are to specification.
- Handling and storage of all component materials and finished linings.
- Detailed drawing / schedule for manufacture.
- Manufacture / assembly of BLUeLiGHT® PAA-F LINER™ LED lining system, and
- Fabrication and quality control of workmanship.

The production of the BLUeLiGHT® PAA-F LINER™ LED lining system and related quality control procedures shall comply with requirements to ensure the stated performance of the product is reliably achieved.

3.5 Installation

When installed in accordance with the installation documentation⁽¹⁾, the BLUeLiGHT® PAA-F Liner™ LED liner system shall be reasonably expected to perform as described.

PT/536/0524 (May 2024)

**Assessment Schedule for the
BLUeLiGHT® PAA-F Liner™ LED Cured-
In-Place Pipe lining system as
manufactured by Bluelight GmbH &
Bluelight Lining Ltd**



independent certification of your products & services

4. APPROVAL

The BLUeLiGHT® PAA-F Liner™ LED liner system has been audited and successfully met all the requirements stated within this assessment schedule.

Signed:

A handwritten signature in black ink, appearing to be 'G.L.' with a horizontal line extending to the right.

Valid until 2nd May 2029

5. REFERENCES

1. BLUeLiGHT® Procedure Manual, VH-PAA-F Procedure Manual PAA-F-Liner™ / LED (current version: Revision 1.8, valid from Mar 2023).
2. BS EN ISO 11296-4:2018+A1:2021 Plastics piping systems for renovation of underground non-pressure drainage and sewerage networks - Lining with cured-in-place pipes.
3. DWA-A 143-2- Rehabilitation of drainage systems outside buildings - Part 2: Static calculation for the rehabilitation of wastewater pipes and pipes with lining and assembly methods (July 2015).
4. ASTM F1216- 22 Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.