

## STRUCTURED CABLING SYSTEM WARRANTY – TERMS & CONDITIONS

*Lux provides Certified Programs to our business partners. We provide different types of comprehensive support to our partner's business nature and requirements. Our certified installers are eligible to apply for 25 years system warranty with full solution provided by LUX.*

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# LUX STRUCTURED CABLING SYSTEM WARRANTY – TERMS & CONDITIONS

This document covers:

- **FIBER OPTIC CABLING SOLUTION**
- **COPPER CABLING SOLUTION**

The purpose of this document is to outline the terms and conditions of Lux Structured Cabling System Warranty

## ABOUT US

LUX Communications is a professional and dynamic company specializing in fiber & copper cabling solution. We provide end-to-end structured cabling and connectivity solutions which designed to meet diverse and complex network infrastructure. Our dedicated team delivers high flexibility and scalability to support unique client specifications and goals.

LUX's experienced team understands the latest technology and focuses on continuous innovation to provide a full range of solutions for your demand. We aim to enhance the efficiency & effectiveness of your network system with our superior offerings.

Our Products and Solutions:

- Copper Network Cabling
- Fiber Optic Network Cabling
- Cabinet, Rack & Cold Aisle Containment
- Cable Containment & Fiber raceway

Our mission is to provide sophisticated services to customers using teamwork, creativity, resourcefulness and integrity. We are your reliable strategic partner to help you achieve greater success!

## LUX STRUCTURED CABLING SYSTEM WARRANTY

Lux Structured Cabling System Warranty provides a 25-year product and applications assurance of compliance with the industry performance standard appropriate to the class of cabling installed. Lux Structured Cabling System Warranty is only available when the said system is designed, supplied and installed by an accredited Lux Partner. If the accredited Lux Partner does not pay in full for the goods supplied under the warranty in accordance with terms, the warranty will become null and void. In the event that this occurs the end user will be notified immediately by Lux It is the accredited Lux Partner's responsibility to ensure that the end user is fully aware of the terms and conditions on which the warranty is supplied.

## HOW DOES IT WORK?

Once site testing has been completed, the LUX Partner contact LUX representative to apply for a warranty within 60 days of the final test result date. When this information has been evaluated and accepted by our LUX Warranty team, certification will be issued. Until the certificate is issued the installation is not covered by the warranty.

Upon receipt of the application, and the required information in the correct format, the LUX engineering team will complete the above process within a maximum of 30 days. Once a warranty has been approved a notification will be sent to you by email to advise you that the warranty has been approved. And you will receive the warranty certification for your end user submission.

To qualify for the warranty the installation **must** be made up entirely of LUX products and solutions. The installation must be completed by approved installers or strategic partner, which must be new at the time of installation.

## WHAT IS COVERED BY THE WARRANTY?

The LUX system warranty provides assurance of fiber and/or copper link performance, covering patch panel to outlet and/or patch panel to patch panel links. The warranty covers components and applications. This means that if a component in any link fails, or the structured cabling fails to support an application that it has been tested to carry (such as 10 Gigabit Ethernet), then a claim can be made on the warranty.

All links must be installed and tested to LUX and industry guidelines to qualify for the warranty. The following, if tested and included in the warranty registration form are covered:

### **Copper and Fiber versions of**

- Horizontal links (Patch Panel to Outlet)
- Cabinet links (Patch Panel to Patch Panel)
- Backbone links (Patch Panel to Patch Panel between communications room or area)
- MPO Optical Fiber installations (Test in accordance with the details of the Fiber Optic Links section below)
- Copper Harness or Switch links (comprising of patch panel and solid or stranded patch leads)
- Patch leads (must be LUX and detailed on the application)
- Consolidation Points and Cables when installed and tested in accordance with Installation Guidelines



## WHAT ISN'T COVERED BY THE WARRANTY?

All information supplied to LUX from the LUX Partner pertaining to the warranty must be an accurate and true representation of the installation work undertaken. Should it become known that deliberately falsified information has been tendered to LUX, the warranty shall be rendered null and void.

- The warranty does not cover accidental or malicious damage to the installed links by individuals.
- The warranty does not cover damage caused by external circumstances beyond our control.
- The warranty does not cover links for which compliant test results were not supplied at the time of application. If subsequent work is carried out on the network or surrounding services (electrical, water, etc) that may have an effect on the performance of the cabling, the cabling must be retested. If the cabling is not retested, this may invalidate the warranty. For further detail please refer to our full terms and conditions of sale.

## WHAT IF THERE IS A PROBLEM?

In the event of a problem with the installation, the end user should contact the LUX Partner who installed the system. They will undertake a site survey to establish the extent of the problem and the actual cause. The LUX Partner shall contact the LUX engineering team or representative to notify them of a potential problem. LUX reserve the right to detail specific testing that shall be carried out by the installer, conduct a site visit, request samples, have suspected faulty product returned to LUX. Failure to comply with these requirements may, at the sole discretion of LUX, invalidate the claim. If it is found that installed LUX product covered by a valid warranty is at fault, then the LUX Partner will supply replacement product to resolve the problem at no cost to the customer.

- LUX Partners are eligible to claim the value of LUX product back from LUX.

If the LUX Partner is no longer in business, the end user should contact LUX's representative, providing full details, in writing, of the installation and problem. LUX or an alternative LUX Partner will provide support, and where necessary replace/repair the products, to ensure the certified levels of performance are achieved.

If an engineer is despatched to the site and it is found that the cabling system or workmanship is not at fault, then the end user will be charged at the standard rate for the engineer's time and travelling expenses.

## WARRANTY APPLICATION PROCESS

Applying for an LUX 25 Year Product and Application Warranty couldn't be easier.

Please contact LUX representative to ensure that your warranty application is processed quickly and efficiently. LUX representative shall send you the **EMAIL** together with the application package for applying system warranty. Then you can email to LUX representative with all required information for application.

### Requirements for applying System Warranty

- Installation must be deployed and completed by LUX certified partners
- The cabling system must be new at the time of installation
- Present your purchase order for proven that all LUX products are purchased from approved channel
- Application shall be applied within 60 days of the final test result date
- The tester used to verify the results must have been calibrated within the last 12 months – you will be asked to provide a copy of the certificate if the tester was calibrated by a third party other than the manufacturer
- Account Details: your company details
- Project Information : full details (date, as-built drawings...etc) of the end user site that is being warranted
- The exact details of the products that you want to include in the warranty and to what standard class
- Other Information, any other information that we need to know about this warranty application

## IMPORTANT

### Submitting Test Results

- Please make sure that your test results are submitted from an up-to-date calibrated tester – failure to do so will mean that your results will not be accepted and the 25 year warranty will not be provided.
- The tester shall be calibrated annually, preferably by the test equipment manufacturer. If a third party is used a PDF copy of the calibration certificate shall be submitted with every warranty application.
- LUX reserves the right not to accept third party calibration should the details not meet the required standards.
- The test equipment must support the standard for which the warranty is being sought.
- The test results must be submitted in the tester manufacturer format (eg. '.flw' FlukeLinkWare).
- PDF test results are NOT accepted.
- The test results must be sorted within the results file by Building, Floor, Communications Room, Cabinet, Panel for easy analysis
- Only submit results that apply for this warranty application

### Submitting Results via Post

You have a choice to submit the results by post. But before you submit via post. Please contact LUX representative and you will be given the application reference number. The reference number will also be confirmed in an email and this must be included with the results that are posted to ensure that the details are matched to the right project. Write this reference number on the CD/DVD/Memory Stick that you are submitting the results on. Failure to include the reference number will mean that the results will not be accepted and we will be unable to process your warranty application.

Please ensure that the results are submitted straight away, if we don't receive them within 30 days your warranty application will automatically be and you will need to re-apply.

**Note:** The results (CD/DVD/Memory Stick) will NOT be returned.

### Verification

Once the results have been submitted, applications will be processed within 48 hours from the receipt of the test data being supplied in the correct format.

Once a warranty has been approved a notification will be sent to you by email to advise you that the warranty is ready for your submission to your end user.

## GENERAL TESTING REQUIREMENTS

### Copper (Horizontal 4 pair)

100% testing shall be carried out on:

- Horizontal links (patch panel to outlet) – test as permanent link.
- Horizontal Links with Consolidation Points (CP) – test from Patch Panel to CP as 3 connector Permanent link (PL3).
- Patch Panel to Patch Panel links are to be tested as Permanent Links.
- Switch Links (Patch Panel to RJ45 plug) – test as a modified permanent link (PL at main and CH adaptor at remote). Document switch links on the application if tested separately to permanent link. Switch links shall be made from LUX patch leads (solid or stranded) and patch panel ports. The warranty does not cover installer terminated RJ45 plugs
- Full results must be submitted for each link.
- Results to be submitted in the original tester format

### Copper (Vertical Cat3/CW Multipair)

Links that are submitted for warranty must include:

- Length
- Continuity report
- Cable construction type and pair data.

### Fiber Optic Link

- Tier 1 certification must be completed and submitted for each Fiber link. Each Fiber core shall be tested in each direction at both wavelengths and the results combined if stored electronically.
- Test equipment that stores the results electronically shall be presented in the manufacturers format.
- Where test equipment tests against a specific standard, care shall be taken to ensure that the correct one is selected.
- Details of the construction and core count of the Fiber cable are needed.
- Results can be submitted on a manual link loss sheet or files from the tester used.
- Manual report shall include – test equipment make and model, calibration date, date of test, standard being tested against, calculated loss budget, loss A to B, Loss B – A, Pass or Fail.

Tier 1 certification refers to the use of a light source and power meter to perform continuity and loss testing of the installed links. The length of the Fiber is also measured.

## CLASS EA/CATEGORY 6A WARRANTY

An installation must be tested to Category 6A performance and 100% link tests must be performed using Level IIIe test equipment as a minimum. Either a permanent link adapter or approved manufacturer's test head must also be used

### Requirements for Class EA/Category 6A warranty

- A copy of your LUX training certificate.
- LUX or approved equivalent patch cords must be installed.
- Test to ANSI/TIA, ISO11801 Class EA EN50173 Class EA
- Successful warranty applications will receive a 25-year certification confirming:
- Compliance with ISO11801 2000 2nd edition.
- Support of current and future Class EA protocols.
- Guaranteed backward compatibility.

For a full list of protocols supported by the LUX Category 6A warranty, please refer to appendix A.

## CLASS E/CATEGORY 6 WARRANTY

An installation must be tested to Category 6 performance and 100% link tests must be performed using Level III test equipment as a minimum. Either a permanent link adapter or approved manufacturer's test head must also be used.

### Requirements for Class E/Category 6 warranty

- A copy of your LUX training certificate.
- LUX or approved equivalent patch cords must be installed.
- Test to ANSI/TIA , ISO11801 Class E or EN50173 Class E
- Successful warranty applications will receive a 25-year certification confirming:
- Compliance with ISO11801 2002 2nd edition.
- Support of current and future Class E protocols.
- Guaranteed backward compatibility.

For a full list of protocols supported by the LUX Category 6 warranty, please refer to appendix B.

## Category 5e WARRANTY

An installation must be tested to Class D/Category 5e performance and 100% link tests must be performed using Level III test equipment as a minimum. Either a permanent link adapter or approved manufacturer's test head must also be used.

- A copy of your LUX training certificate.
- LUX or approved equivalent patch cords must be installed.
- Test to ANSI/TIA, ISO11801 Class D or EN50173 Class D
- Successful warranty applications will receive a 25-year certification confirming:
- Compliance with ISO11801 2002 2nd edition.
- Support of current and future Class D protocols.
- Guaranteed backward compatibility.

For a full list of protocols supported by the LUX Category 5e warranty, please refer to appendix C.

## FIBER OPTIC WARRANTY

Tier 1 testing must be completed for each link (in both directions) that requires a warranty. Test results can be submitted either on a Fiber link loss sheet or directly from the tester used. The maximum loss allowed can be worked out using the table below.

CLASS	OPTICAL FIBER TYPE	MAXIMUM CHANNEL ATTENUATION dB			
		MULTIMODE		SINGLEMODE	
		850nm	1300nm	1310nm	1550nm
OF -300	OM1, OM2, OM3, OM4, OS1, OS2	2.55	1.95	1.8	1.8
OF -500	OM1, OM2, OM3, OM4, OS1, OS2	3.25	2.25	2	2
OF -2000	OM1, OM2, OM3, OM4, OS1, OS2	8.5	4.5	3.5	3.5
OF -5000	OS1, OS2			4	4
OF -10000	OS1, OS2			6	6

## MULTIPAIR WARRANTY

Links that are submitted for warranty must include:

- Length
- Continuity report
- Cable construction type and pair data

## CONDITIONS OF WARRANTY

The products, and where appropriate the labour, are covered by the warranty from the point of acceptance by LUX and not before. The warranty covers the products and installation as detailed above. The warranty excludes any form of consequential loss of any kind. The warranty is subject to the LUX Conditions of Sale. The warranty is in addition to statutory rights. This warranty is governed by and interpreted in accordance with local law and the parties agree to submit to the non-exclusive jurisdiction of the local courts.



## APPENDIX A

### LUX Protocols List – Category 6<sub>A</sub>/Class E<sub>A</sub> – defined 500 MHz

Data systems supported include, but are not limited to:

NAME	APPLICATION	SPECIFICATION
10 Gigabit Ethernet	10GBASE-T	IEEE 802.3an
Gigabit Ethernet, IEEE 802.3ab	CSMA/CD 1000BASE-T b	IEEE 802.3 clause 40
Fast Ethernet IEEE 802.3u	CSMA/CD 100BASE-TX b	IEEE 802.3 clause 25
Ethernet: IEEE 802.3i	CSMA/CD 10BASE-T a	IEEE 802.3
Power over Ethernet Plus	PoE-plus	IEEE 802.3at
Power over Ethernet	PoE	IEEE 802.3af
Twisted pair Fiber Channel 1G	Fiber Channel 1Gb/s	INCITS 435
ATM-1200/Category 6	ATM LAN 1,2 Gbit/s	IP/MPLS Forum af-phy-0162.000
ATM-155/Category 5	ATM LAN 155,52 Mbit/s	IP/MPLS Forum af-phy-0015.000
ATM-52/Category 3	ATM LAN 51,84 Mbit/s	IP/MPLS Forum af-phy-0018.000
ATM-25/Category 3	ATM LAN 25,60 Mbit/s	IP/MPLS Forum af-phy-0040.000
Firewire/Category 5	Firewire 100 Mbit/s	IEEE 1394b
High Speed Token Ring	Token Ring 100 Mbit/s	IEEE 802.5t
Token Ring	Token Ring 16 Mbit/s	IEEE 802.5
Token Ring	Token Ring 4 Mbit/s	IEEE 802.5
ISDN Primary Access (Physical Layer)	S <sub>1</sub> /S <sub>2</sub>	ITU-T I.431
ISDN	S <sub>0</sub> Star	EN 50098-1:1998/A1 (ITU-T I.430)
ISDN Basic Access (Physical Layer)	S <sub>0</sub> Point-to-Point	ITU-T I.430
ISDN Basic Access (Physical Layer)	S <sub>0</sub> -Bus (extended)	ITU-T I.430
Voice	X.21	ITU-T X.21
Voice	V.11	ITU-T V.11
Voice	PBX	National Requirements

## APPENDIX B

### LUX Protocols List – Category 6/Class E – defined 250 MHz

Data systems supported include, but are not limited to:

NAME	APPLICATION	SPECIFICATION
Gigabit Ethernet, IEEE 802.3ab	CSMA/CD 1000BASE-T b	IEEE 802.3 clause 40
Fast Ethernet IEEE 802.3u	CSMA/CD 100BASE-TX b	IEEE 802.3 clause 25
Ethernet: IEEE 802.3i	CSMA/CD 10BASE-T a	IEEE 802.3
Power over Ethernet Plus	PoE-plus	IEEE 802.3at
Power over Ethernet	PoE	IEEE 802.3af
Twisted pair Fiber Channel 1G	Fiber Channel 1Gb/s	INCITS 435
ATM-1200/Category 6	ATM LAN 1,2 Gbit/s	IP/MPLS Forum af-phy-0162.000
ATM-155/Category 5	ATM LAN 155,52 Mbit/s	IP/MPLS Forum af-phy-0015.000
ATM-52/Category 3	ATM LAN 51,84 Mbit/s	IP/MPLS Forum af-phy-0018.000
ATM-25/Category 3	ATM LAN 25,60 Mbit/s	IP/MPLS Forum af-phy-0040.000
Firewire/Category 5	Firewire 100 Mbit/s	IEEE 1394b
High Speed Token Ring	Token Ring 100 Mbit/s	IEEE 802.5t
Token Ring	Token Ring 16 Mbit/s	IEEE 802.5
Token Ring	Token Ring 4 Mbit/s	IEEE 802.5
ISDN Primary Access (Physical Layer)	S <sub>1</sub> /S <sub>2</sub>	ITU-T I.431
ISDN	S <sub>0</sub> Star	EN 50098-1:1998/A1 (ITU-T I.430)
ISDN Basic Access (Physical Layer)	S <sub>0</sub> Point-to-Point	ITU-T I.430
ISDN Basic Access (Physical Layer)	S <sub>0</sub> -Bus (extended)	ITU-T I.430
Voice	X.21	ITU-T X.21
Voice	V.11	ITU-T V.11
Voice	PBX	National Requirements
Voice	PBX	National Requirements

## APPENDIX C

### LUX Protocols List – Category 5e/Class D – defined 100 MHz

Data systems supported include, but are not limited to:

NAME	APPLICATION	SPECIFICATION
Gigabit Ethernet, IEEE 802.3ab	CSMA/CD 1000BASE-T b	IEEE 802.3 clause 40
Fast Ethernet IEEE 802.3u	CSMA/CD 100BASE-TX b	IEEE 802.3 clause 25
Ethernet: IEEE 802.3i	CSMA/CD 10BASE-T a	IEEE 802.3
Power over Ethernet Plus	PoE-plus	IEEE 802.3at
Power over Ethernet	PoE	IEEE 802.3af
Twisted pair Fiber Channel 1G	Fiber Channel 1Gb/s	INCITS 435
ATM-1200/Category 6	ATM LAN 1,2 Gbit/s	IP/MPLS Forum af-phy-0162.000
ATM-155/Category 5	ATM LAN 155,52 Mbit/s	IP/MPLS Forum af-phy-0015.000
ATM-52/Category 3	ATM LAN 51,84 Mbit/s	IP/MPLS Forum af-phy-0018.000
ATM-25/Category 3	ATM LAN 25,60 Mbit/s	IP/MPLS Forum af-phy-0040.000
Firewire/Category 5	Firewire 100 Mbit/s	IEEE 1394b
High Speed Token Ring	Token Ring 100 Mbit/s	IEEE 802.5t
Token Ring	Token Ring 16 Mbit/s	IEEE 802.5
Token Ring	Token Ring 4 Mbit/s	IEEE 802.5
ISDN Primary Access (Physical Layer)	S <sub>1</sub> /S <sub>2</sub>	ITU-T I.431
ISDN	S <sub>0</sub> Star	EN 50098-1:1998/A1 (ITU-T I.430)
ISDN Basic Access (Physical Layer)	S <sub>0</sub> Point-to-Point	ITU-T I.430
ISDN Basic Access (Physical Layer)	S <sub>0</sub> -Bus (extended)	ITU-T I.430
Voice	X.21	ITU-T X.21
Voice	V.11	ITU-T V.11
Voice	PBX	National Requirements
Voice	PBX	National Requirements
Voice	PBX	National Requirements