

The logo for AFL HyperScale, featuring the word 'AFL' in white and 'HYPERSCALE' in a light green color. The letter 'E' in 'HYPERSCALE' has a small green square inside it. A registered trademark symbol (®) is located at the end of the word.

**AFL HYPERSCALE®**

The World, Connected.

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**NETWORK WARRANTY GUIDE**



## About

# AFL HYPERSCALE

AFL Hyperscale was established in 2015 as a joint venture by AFL bringing together the design and manufacturing expertise of NetIG and FibreFab, to create optimized next-generation, end-to-end connectivity solutions for data center, telecom and enterprise networks.

With over 60 years combined experience, the global support of AFL, a part of the Fujikura group - AFL Hyperscale brings responsiveness, innovation, and scalability to the forefront with the aim of revolutionizing network connectivity forever.

AFL Hyperscale: The World, Connected.

## AFL HYPERSCALE 25 YEAR NETWORK WARRANTY

### FEATURES AND BENEFITS



25 Year Network Warranty



Cost of replacement product is covered



Includes copper and fiber solutions, factory and field terminated assemblies



Assurance that our Installation Partners are trained to a high standard



Global technical support

The AFL Hyperscale Network Warranty provides a 25 year applications assurance that the network will operate, support, and remain compliant with the cabling standards it was designed for.

A 25 year Network Warranty is only available when the network is designed, supplied, installed and tested by an approved AFL Hyperscale Installation Partner. To qualify, the installation must be made up solely, of AFL Hyperscale manufactured products, new at the time of installation and tested in line with industry standards.

# AFL HYPERSCALE PARTNER PROGRAM

The AFL Hyperscale 25 Year Network Warranty is available through approved AFL Hyperscale Installation Partners only and covers a wide range of our products and solutions.

To become an Installation Partner, installers must show technical capability and a commitment to uphold the highest levels of practical knowledge and hands-on skill required to properly install, test, and maintain standards compliant systems.



# WARRANTY APPLICATION PROCESS

The AFL Hyperscale Installation Partner can apply for a warranty by sending us the required information by email within 30 days following the completion of the installation. When the results have been evaluated and approved by our technical support team (usually within 28 working days). A warranty certificate will be issued to the end user, and the installer will be notified.



## FIBER MAXIMUM CHANNEL LENGTH

All network applications should follow this

Data Rate	Network Application	Wavelength (nm)	Maximum Channel Length (m)					
			OM1	OM2	OM3	OM4	OS1	OS2
1 GBPS	IEEE 1000BASE-SX	850	275	550	550	550	-	-
	IEEE 1000BASE-LX	1310	550	550	550	550	2500	5000
	IEEE 1000BASE-LX10	1310	550	550	550	550		10000
10 GBPS	IEEE 10G BASE-SR	850	33	82	300	400	-	-
	IEEE 10G BASE-LRM	1300	220	220	220	220	-	-
	IEEE 10G BASE-LR	1310	-	-	-	-	2000	10000
	IEEE 10G BASE-ER	1550	-	-	-	-	2000	22000
	IEEE 10G BASE-LX4	1269 to 1355.9	300	300	300	300	2000	10000
25 GBPS	IEEE 25G BASE-SR	840 to 860	n/a	n/a	70	100	-	-
40 GBPS (4 Pairs)	IEEE 40GBASE-SR4	850	n/a	n/a	100	150	n/a	n/a
40 GBPS	IEEE 40G BASE-LR4	1271 to 1331	-	-	-	-	4700	10000
	IEEE 40G BASE-FR	1550	-	-	-	-		
100 GBPS	IEEE 100G BASE-LR4	1295 to 1310	-	-	-	-		10000
	IEEE 100G BASE-ER4	1295 to 1310	-	-	-	-		40000
100 GBPS (4 Pairs)	IEEE 100GBASE-SR4	840 to 860	-	-	70	100	-	-
100 GBPS (10 Pairs)	IEEE 100GBASE-SR10	850	-	-	100	150	-	-
1 GBPS	Fiber Channel	850	300	500	500	500	-	-
2 GBPS	Fiber Channel	850	150	300	300	300	-	-
4 GBPS	Fiber Channel	850			380	420	-	-
8 GBPS	Fiber Channel	850		50	150	190	-	-
16 GBPS	Fiber Channel	850		35	100	125	-	-
1 GBPS	Fiber Channel	1310	-	-	-	-	5800	10000
2 GBPS	Fiber Channel	1310	-	-	-	-	5800	10000
4 GBPS	Fiber Channel	1310	-	-	-	-	2400	10000
8 GBPS	Fiber Channel	1310	-	-	-	-	4400	10000
16 GBPS	Fiber Channel	1310	-	-	-	-	4400	10000

## COPPER APPLICATIONS

Copper Balanced Cabling		Category		
Data rate	Network Application	Cat 5e	Cat 6	Cat 6A
100 MBPS	100 BASE-TX	X		
100 MBPS	100 BASE-T	X		
155 MBPS	ATM LAN 155.52 Mbps	X		
1 GBPS	Fiber Channel (INCITS 435)	X		
POE	IEEE 802.3 Type 1	X		
POE plus	IEEE 802.3 Type 2	X		
1.2 GBPS	ATM LAN 1.2 GBPS		X	
10 GBPS	10GBASE-T			X

# WHAT IS COVERED BY THE WARRANTY

AFL Hyperscale warranted networks support a wide range of network applications and protocols.

For a comprehensive list of all applications, please contact our technical team.

# FIBER CHANNEL LOSS

Channel Insertion Loss	Protocol	Units	ISO/IEC 11801	Legacy		OS1/OS2		OS1/OS2	
				ITU-T G.652 A	ITU-T G.652 B	ITU-T G.652 C	ITU-T G.652 D	ITU-T G.657A1	ITU-T G.657A2
1 GBPS	1000 BASE-LH, 1000 BASE-LH-LX	dB	1310nm	4.56		4.56		4.56	
	1000 BASE-ZX	dB	1550nm						
10 GBPS	10G BASE-LR	dB	1310nm	6.2		6.2		6.2	
	10G BASE-ER	dB	1550nm	10.9		10.9		10.9	
	10G BASE-ZR	dB	1550nm						
	10G BASE-LX4	km	1295 to 1310nm	6.2		6.2		6.2	
40 GBPS	40G BASE-LR4	dB	1271 to 1331nm	6.7		6.7		6.7	
	40G BASE-FR		1550nm	4.0		4.0		4.0	
100 GPBS	100G BASE-LR4	dB	1295 to 1310nm	6.3		6.3		6.3	
	100G BASE-ER4	dB	1295 to 1310nm	18.0		18.0		18.0	

Channel Insertion Loss	Protocol	Units	ISO/IEC 11801	OM1	OM2	OM3	OM4
10 MBPS	IEEE 10 BASE-FL	dB	850nm	12.5	12.5	12.5	12.5
100 MBPS	IEEE 100 BASE-SX	dB	850nm				
	IEEE 100 BASE-FX	dB	1300nm	11	6.3	6.3	6.3
1 GBPS	IEEE 1000 BASE-SX	dB	850nm	2.6	3.56	3.56	3.56
	IEEE 1000 BASE-LX	dB	1300nm	2.35	2.35	2.35	2.35
10 GBPS	IEEE 10G BASE-SR	dB	850nm	1.6	1.8	2.6	2.9
	IEEE 10G BASE-LRM	dB	1300nm	1.9	1.9	1.9	1.9
	IEEE 10G BASE-LX4		1269 to 1355.9nm	2.0	2.0	2.0	2.0
40 GPBS (4 pairs)	IEEE 40G BASE-SR4	dB	850nm	-	-	1.9	1.5
100 GPBS (10 pairs)	IEEE 100G BASE-SR10	dB	850nm	-	-	1.9	1.5

## It is the obligation of the Installation Partner to make clear to the End User:

- The warranty does not cover malicious or accidental damage
- The warranty does not cover damage caused by external circumstances beyond our control
- Any warranty will be invalid if test information has been falsified
- The warranty is invalid if late payment for the network is made by the Approved Installation Partner
- The warranty does not cover adds or changes unless registered, tested and approved by AFL Hyperscale

## IN THE EVENT OF A CLAIM

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1. In the event of a warranty claim the end user must contact the original Installation Partner within 3 working days of a potential cabling network fault being recognised.
2. The Installation Partner will carry out a site survey to establish the extent of the problem and the cause.
3. The Installation Partner will notify the AFL Hyperscale warranty team of the potential problem.
4. Installation Partners reserve the right to detail specific testing to be carried out by the installer, request samples, or have suspected faulty product returned to us for further testing and inspection. Failure to comply with these requirements may invalidate the claim.
5. Installation Partners can claim back product costs after AFL Hyperscale have been advised and agreed to the charges in writing, and in advance of the work being undertaken.
6. For full terms and conditions please see terms and conditions overleaf.



## TERMS AND CONDITIONS

### 1. THE WARRANTY

This Warranty applies to an AFL Hyperscale Network installed and tested by an approved AFL Hyperscale Installation Partner, in accordance with AFL Hyperscale instructions and is offered between AFL Hyperscale and the owner of the AFL Hyperscale Network.

Only an approved AFL Hyperscale Installation Partner who has undertaken recognized industry best practice training for the classes of cabling to be installed can offer the AFL Hyperscale Network Warranty. All reference training certification must be current (be less than two years old) and continually maintained at the expense of the Approved AFL Hyperscale Installation Partner. The AFL Hyperscale Network Warranty is a warranty which exists between AFL Hyperscale and the End User.

### 3. OUR TERMS AND CONDITIONS

3.1 This warranty document supersedes all AFL Hyperscale warranties formerly available from AFL Hyperscale, with effect from the date of issue.

3.2 Any warranty terms and conditions contained herein should be read in conjunction with the standard AFL Hyperscale terms and conditions of sale. A copy of the standard terms and conditions of sale are available upon request.

3.3 The AFL Hyperscale standard terms and conditions of sale will prevail unless specifically modified within this warranty document. AFL Hyperscale may, at its discretion, audit (or have audited) a percentage of any new installations (retesting a percentage of the installation) to ensure the quality of workmanship and compliance to the national and international standards.

### 4. THE WARRANTY

4.1 The AFL Hyperscale Network Warranty is available globally however each Approved AFL Hyperscale Installation Partner will have the right to offer the warranty only within specific territories that may be reviewed from time to time.

### 5. CABLING NETWORK WARRANTY EXPLAINED

5.1 The AFL Hyperscale Network Warranty is only available through Approved AFL Hyperscale Installation Partners.

5.2 The AFL Hyperscale Network Warranty covers passive optical and copper products supplied by AFL Hyperscale under the AFL Hyperscale brand.

5.3 The AFL Hyperscale Cabling Network 25 year product and lifetime applications warranty commences with completion of the installation, the submission of the test results for the installed cabling network and the issue of the warranty certificate to the installation owner by AFL Hyperscale:

5.3.1 Product Warranty: All AFL Hyperscale products are warranted for a period of 25 years as being free from manufacturing defects that could jeopardize the mechanical, electrical or transmission line performance and reliability of the product when used appropriately. In the event of a AFL Hyperscale product failure, AFL Hyperscale will, at its sole discretion, repair or replace the defective part(s) only.

5.3.2 Applications Warranty: All AFL Hyperscale products are warranted to support all and any application designed to operate over installed class of cabling network. In case of doubt regarding the class of cabling network required to support a specific application reference should be made to ISO11801, latest edition. In the event of a AFL Hyperscale Network proving incapable of supporting a specific application designed for the class of cabling installed then AFL Hyperscale will, at its sole

discretion, make good the installation through analysis of test results and the repair or replacement of any defective parts.

5.4 The AFL Hyperscale Network warranty can be transferred for the remaining life of the warranted products providing that AFL Hyperscale is notified by the new building owner in writing within 30 days of taking ownership of the building. AFL Hyperscale, at its sole discretion may require a networks audit to be undertaken including a retest of some or all of the installed cabling links to ensure that the installation remains compliant with the original warranty application in terms of design.

### 6. BECOMING AN AUTHORISED INSTALLER

6.1 Certification as an Approved Installation Partner must happen prior to project award. AFL Hyperscale have the right to reject any applications made post project award at their sole discretion. Any proposal that cannot be supported with the necessary training records will be rejected.

6.2 It is crucial to the success of an Installation Partner application that the potential Installer provides details of their current training accreditation for review and acceptance by AFL Hyperscale. A minimum of 2 suitably trained individuals who are permanent employees of the proposed installer must supply evidence of their training records.

6.3 Upon satisfactory review of the potential installers details acceptance will be acknowledged by AFL Hyperscale through the issue of an approved AFL Hyperscale Installation Partner certificate.

6.4 All Approved Installation Partner certification will be time-bound for a period of two years hereupon a review will be undertaken and re-certification issued at the sole discretion of AFL Hyperscale.

### 7. PROCEDURE FOR OBTAINING A WARRANTY

7.1 Within 30 days following the completion of the installation of the AFL Hyperscale Network by the AFL Hyperscale Installation Partner, the installed cabling network must be 100% tested in accordance with the requirements and guidance of EN 50174 for the appropriate class of cabling. The test results associated with the installation should be forwarded to AFL Hyperscale, with the original test file for the test equipment used.

7.2 Test results will be reviewed by the technical support team who will aim to issue the warranty certificate within 28 days of the results being received. Any failure to submit results for 100% of the installation will result in the warranty application being declined. Any issues or concerns regarding the submitted results will be highlighted in writing to the approved Installation Partner within a 28 day period.

7.3 All tests must be performed using appropriate test instrumentation that is suitably calibrated and maintained according to the manufacturer's instructions and operated with the most up-to-date release of test software. For optical testing reference test leads in accordance with ISO/IEC 14673-3 must be used.

7.4 As may be requested from time to time by the ultimate AFL Hyperscale Network owner or the building owner within which AFL Hyperscale Network is installed, AFL Hyperscale will undertake or have completed by a suitable third party, an audit during installation to ensure compliance with standards for installation and cabling class performance.

7.5 Independent audits as described in 7.4 may be chargeable at the standard AFL Hyperscale consultancy daily rate which may change from time to time. Charges for independent site audits will be subject to reasonable costs associated with travel, accommodation and subsistence expenses which will be agreed, in writing, in advance.

7.6 Upon successful submission of the test results and 100% scrutiny by AFL Hyperscale, an AFL Hyperscale Network

Warranty certificate will be issued by AFL Hyperscale for the specific installation.

7.7 For Class D, E and EA networks, the copper cabling network must be 100% tested as a Permanent Link (as defined in ISO 11801) according to the test requirements of TIA 568C, EN50174 or IEC 61935 with a Level IV, cable analyser.

7.8 All optical links shall be 100% tested using light source and power metre in accordance with ISO 11801.

### 8. LIMITATIONS WITHIN THE WARRANTY

The AFL Hyperscale Network must be installed and tested by an Approved Installer. All test results must be submitted to AFL Hyperscale for review and acceptance before an installation will be registered within the warranty program.

8.2 The products used within the installation must be new, never having been used before and purchased from an Authorized Partner or AFL Hyperscale reseller.

8.3 The design, planning and installation of the Network must be undertaken by a competent person(s) and follow the rules and guidance within EN 50174.

8.4 Any additions, moves or changes undertaken to the original installation must be 100% tested and the results submitted to AFL Hyperscale for review and acceptance before the new/ revised links can be included within the warranty.

8.5 All products must be used within the electrical, optical and environmental limits for which they were designed, throughout the whole of their working life.

8.6 Any form of damage - accidental or malicious to the AFL Hyperscale Network is out with the scope of the warranty and may render the warranty for the installation invalid.

8.7 Un-authorized modifications to the installation or AFL Hyperscale Network by non-qualified or non-authorized Installers will invalidate the warranty.

8.8 Certain products such as connectors have a limited number of mating cycles. Exceeding the number of mating cycles may compromise the performance of these products. Refer to the individual product data sheets for any specific product limitations which will include environmental limits.

8.9 Only one warranty and one warranty period will exist per network.

8.10 AFL Hyperscale accepts no liability for consequential costs, including liquidated damages, relating to any installation failure, product failure, or failure to support a specific application.

### 9. IN THE EVENT OF A WARRANTY CLAIM

9.1 In the event of a warranty claim the end user must contact the original AFL Hyperscale Installation Partner within 3 working days of a potential cabling networks fault being recognized.

9.2 The AFL Hyperscale Installation Partner will immediately inform AFL Hyperscale of the potential issue and arrange a site visit to investigate the problem. AFL Hyperscale, at its discretion may choose to attend site during the audit by the Installation Partner.

9.3 In the event that the original Installation Partner is no longer trading, the end user will, within 3 working days of the network fault being recognized, contact AFL Hyperscale, who will arrange for an audit to be completed by an active AFL Hyperscale approved Installation Partner. At its sole discretion, AFL Hyperscale may choose to attend the site audit.

9.4 Product related claims: The Installation Partner shall check the purchased product for visible defects within 10 working days of delivery. Defects discovered during this inspection or at later time during the installation phase, shall be reported without delay in writing to AFL Hyperscale.

9.5 A sample of the defective product discovered during the installation phase together with proof of purchase and explanatory statement shall be sent by the Installation Partner to AFL Hyperscale. The replacement of damaged product,

deemed solely AFL Hyperscale, to be a fault in design or manufacture shall be at the cost of AFL Hyperscale. The limit of AFL Hyperscale liability remains solely the replacement cost of the defective product(s).

9.6 Product defects identified during post installation testing and pre-customer acceptance shall be reported in writing to AFL Hyperscale within 3 days after discovery.

9.7 In the event of any actual or potential warranty claim, AFL Hyperscale, at their sole discretion will consider a claim for any direct labor, day rates costs associated with the repair or replacement of products. Direct labor costs include only the labor costs without any project overhead. Overhead includes travel costs, project management costs, handling charges, additional testing costs, etc.

9.8 AFL Hyperscale will not accept any consequential costs, including liquidated damages associated with the repair or rectification of any warranty related fault.

9.9 AFL Hyperscale will not tolerate any claim for remedial work that is undertaken without being advised and agreeing to the charges in writing and in advance of the work being undertaken.

9.10 All expenses arising from clarifying the legitimacy of a warranty claim (e.g. search and analysis of failures in the network) will be at the warranty holder's expense if there is no legitimate claim.

9.11 AFL Hyperscale will not accept charges nor will they assume any expenses related to investigations carried out by the warranty holder.

9.12 It is in the best interest of all parties, in the event of a potential claim that AFL Hyperscale are given expeditious access to the installation.

### 10. USE OF NON AFL HYPERSCALE PRODUCT

10.1 AFL Hyperscale recognise that in some instances either through customer preference of inability to supply the approval for use and incorporation within the Warranty of alternative Non-AFL Hyperscale product may be considered. In the event that a non-AFL Hyperscale product is authorized for use within a specific installation this authority to use is exclusively the right of AFL Hyperscale who will exercise that right exclusively at their discretion in writing on a case by case basis.

10.2 Additional bespoke or specially tailored for application AFL Hyperscale products may be included within the AFL Hyperscale network warranty at the sole discretion of AFL Hyperscale.

10.3 Exceeding the number of mating cycles may compromise the performance of these products. Refer to the individual product data sheets for any specific product limitations which will include environmental limits.

### 11. ADDITIONAL OBLIGATIONS

11.1 Nothing within this warranty shall entitle the AFL Hyperscale Installation Partner to use any logos, trademarks or livery that is in the rightful ownership of AFL Hyperscale

11.2 This document represents the full extent of the warranty and remedies and no party beyond AFL Hyperscale is authorized to offer any extension beyond the terms and conditions outlined herein.

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