

Testing Guidelines

January 2017



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General Testing guidelines

- Only use test equipment that has valid annual calibration certification
- Make sure batteries are fully charged before going to site
- Install the minimum firmware version as specified in our field testing procedure
- Use the correct test heads
- Switch on the tester and allow it to warm up for at least 15 minutes before calibration and first test
- Field calibrate the tester ongoing as required during the testing phase
- Configure the tester with the correct limits
- Verify the correct testing method to be used
- Don't use worn or damaged test leads
- During the testing phase, monitor all test results for unexpected margin levels achieved – immediately investigate as appropriate
- Save test results using a unique cable ID

The listed documents are available
by visiting your country site from
www.nexans.com/LANsystems

General Installation Guide

Field Testing Procedures

Optical Fibre Cabling Sub-system
Field Testing Procedure

Testing procedure LANmark-8

Testing procedure LANmark-7A

Testing Procedure LANmark-7

Testing Procedure LANmark-6A

Testing Procedure LANmark-6 10G

Copper

Specific considerations for Copper links:

- Select the correct NVP value (NVP values are printed on the cables)
- Test the shield continuity in screened systems
- Only use LANmark patch cords for Channel testing
- Include graphical information if possible (i.e. save results with full plot information)

Fluke DTX-LT/1200/1800

using Fluke Linkware

***.flw**

Fluke DSX-5000

using Fluke Linkware

***.flw**

Ideal LanTEK 6/6A/7/7G

using Ideal DataCENTER

***.sdf**

Ideal LanTEK II/III 500/1000

using Ideal DataCENTER

***.sdf**

Softing/Psiber Data WireXpert 4500

using Softing eXport

***.prx**

VIAVI/JDSU NGC-4500 Certifier40G

using VIAVI Reporter

***.prx**

It is advisable to enable and save test results with plot data on your tester, as re-certification of graphical test result is only possible when plots are saved.

Certified
Tester
Overview

		LANmark-5	LANmark-6	LANmark-6 10G	LANmark-6A	LANmark-7A	LANmark-7A + 25G	LANmark-8
FLUKE NETWORKS								
DTX-LT/1200	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	✗	✗	✗
DTX-1800	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	✗	✗	✗
DSX-5000	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	●	✗	✗
IDEAL INDUSTRIES								
LANTEK 6	PL	●	●	✗	✗	✗	✗	✗
	CH	●	●	✗	✗	✗	✗	✗
LANTEK 6A/II 500	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	✗	✗	✗
LANTEK 7G/II-III 1000	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	●	✗	✗
VIAVI/JDSU								
Certifier10G	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	✗	✗	✗
NGC-4500 Certifier40G	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	●	●	●
SOFTING/PSIBER DATA								
WIREXPRT 500	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	✗	✗	✗
WIREXPRT 4500	PL	●	●	●	●	✗	✗	✗
	CH	●	●	●	●	●	●	●

Field Testing Procedures

Testing procedure LANmark-8

Testing procedure LANmark-7A

Testing Procedure LANmark-7

Testing Procedure LANmark-6A

Testing Procedure LANmark-6 10G

Testing Procedure essential-6

Please scan the QR-code to access our most up-to-date **LANmark** and **essential** copper field testing procedures



Approved Test Limits

LANmark-5

- **ISO/IEC 11801 CLASS D**
- CENELEC EN 50173 CLASS D

LANmark-6

- **ISO/IEC 11801 CLASS E**
- CENELEC EN 50173 CLASS E

LANmark-6 10G

- ISO/IEC 11801 or CENELEC EN 50173 CLASS EA
- TIA/EIA 568C CAT 6A
- ISO 11801 TR 24750 or TIA/EIA TSB-155

LANmark-6A

- **ISO/IEC 11801 CLASS EA**
- CENELEC EN 50173 CLASS EA
- TIA/EIA 568C CAT 6A

LANmark-7A + 25G

- **ISO/IEC 11801 CLASS FA**
- CENELEC EN 50173 CLASS FA
- Custom limits for 25GBASE-T according to ISO 11801-9905 Cat 7A are required

LANmark-8

- **ISO/IEC 11801 CLASS II**
- CENELEC EN 50173 CLASS II

Options in **Bold** are recommended/preferred

NVP guideline

To support the correct set-up of hand held analysers for installation testing

*These values are typical. Always use the actual value which can be found in the cable's print legend

Solid Cable Type	NVP*
Essential-5 U/UTP	69
Essential-5 F/UTP	73
Essential-6 U/UTP	69
LANmark-5 U/UTP	69
LANmark-5 F1/UTP	73
LANmark-6 U/UTP	69
LANmark-6 F1/UTP	70
LANmark-6 F2/UTP	70
LANmark-6 SF/UTP	70
LANmark-6A F1/UTP	70
LANmark-6A F/FTP	82
LANmark-6 10G DC50 U/FTP	75
LANmark-7 S/FTP	82
LANmark-7A 1000MHz S/FTP	82
LANmark-7A 1200MHz S/FTP	82
LANmark-8 2000MHz S/FTP	82

Permanent Link adapters

- WX_AD_6ALKIT2 (CAT 6A Permanent Link test Adapters)
 - Essential-5/6
 - LANmark-5/6
 - LANmark-6 10G/6A



Channel adapters

- WX_AD_6ACH2 (CAT 6A Channel Adapters)
 - Essential-5/6
 - LANmark-5 /6
 - LANmark-6 10G /6A
- WX_AD_GGARJCH2 CLASS FA GG45 channel adapter
Using GG45 8C Measurement Cord Category 7A
Screened LSZH 2m Orange (N900.67A)
 - LANmark-7 /7A
 - LANmark-7A + 25G (custom Nexans limits for 25GBASE-T are available by request)
 - LANmark-8

Please Note: New high frequency GG45 Channel heads are in development at time of publishing. Please check our on-line LANmark-8 Field Testing Procedure for the most recent update.

Permanent Link adapters

- DTX-PLA002
 - Essential-5 /6
 - LANmark-5 /6 /6 10G /6A

Channel adapters

- DTX-CHA001
 - Essential-5/6
 - LANmark-5 /6
- DTX-CHA002
 - Essential-5/6
 - LANmark-5 /6
 - LANmark-5 /6 /6 10G /6A
- DTX-CHA012 GG45 8C Measurement Cord Category 7A Screened LSZH 2m Orange (N900.67A)
 - LANmark-7



Permanent Link adapters

- DSX-PLA004S
 - Essential-5/6
 - LANmark-5/6
 - LANmark-6 10G/6A



Channel adapters

- DSX-CHA004S
 - Essential-5/6
 - LANmark-5/6
 - LANmark-6 10G/6A
- DSX-CHA012S + GG45 8C Measurement Cord Category 7A Screened LSZH 2m Orange (N900.67A)
 - LANmark-7 /7A

Permanent Link adapters

- 6011-50-0001 CAT6A Reference Patch Cord
 - Essential-5/6
 - LANmark-5/6
 - LANmark-6 10G/6A
- R161051 LanTEK III Cat. 5e/6/6A RJ45 Permanent Link Adapter
 - Essential-5/6
 - LANmark-5/6
 - LANmark-6 10G/6A



Channel adapters

- R0161053 Category 5e/6 RJ45 Channel Adapter
 - Essential-5/6
 - LANmark-5/6
- R161054 Category 5/6/6A High Performance RJ45 Channel Adapter
 - Essential-5/6
 - LANmark-5 /6 /6 10G /6A
- R161056 LanTEK III Cat. 7A GG45 Universal Adapter + GG45 8C Measurement Cord Category 7A Screened LSZH 2m Orange (N900.67A)
 - LANmark-7/7A

Permanent Link adapters

- 0012-00-0629 Category 6/Class E Universal Channel/
Permanent Link Adapter
 - Essential-5/6
 - LANmark-5/6
- 0012-00-0656 Category 6A/Class EA Universal Channel/
Permanent Link Adapter
 - Essential-5/6
 - LANmark-5 /6 /6 10G /6A
 - LANmark-6 10G /6A



Channel adapters

- 0012-00-0629 Category 6/Class E Universal Channel/
Permanent Link Adapter
 - Essential-5/6
 - LANmark-5/6
- 0012-00-0656 Category 6A/Class EA Universal Channel/
Permanent Link Adapter
 - Essential-5/6
 - LANmark-5 /6 /6 10G /6A
- 0012-00-00667 (GG45 CLASS FA Channel Adapter)
LANTEKGG45KIT + GG45 8C Measurement Cord
Category 7A Screened LSZH 2m Orange (N900.67A)
 - LANmark-7/7A

Permanent Link adapters

- WX_AD_6ALKIT2 (CAT 6A Permanent Link test Adapters)
 - Essential-5/6
 - LANmark-5 /6
 - LANmark-6 10G /6A



Channel adapters

- WX_AD_6ACH2 (CAT 6A Channel Adapters)
 - Essential-5/6
 - LANmark-5 /6
 - LANmark-6 10G /6A
- NGC4500GGARJCH2 (GG45 CLASS FA Channel Adapter)
Using GG45 8C Measurement Cord Category 7A
Screened LSZH 2m Orange (N900.67A)
 - LANmark-7 /7A
 - LANmark-7A + 25G (custom limits for 25GBASE-T according to ISO 11801-9905 are available on request at Nexans)
 - LANmark-8
(GG45 2000MHz Measurement cords are required)

Please Note: New high frequency GG45 Channel heads are in development at time of publishing. Please check our on-line LANmark-8 Field Testing Procedure for the most recent update.

Fibre

Specific considerations for Fibre Links:

- Set the correct refraction index for each wavelength and fibre type
- Use the same type of fibre for launch and tail cord as the fibre link under test
- **Make sure all connector interfaces are inspected and cleaned as necessary before mating.**
- Select the correct Reference setting method
- **Reference must be re-set when:**
 - the tester has been switched off
 - the connection with the source has been removed
 - the results show negative losses
- Either Reference cords supplied by the LSPM manufacturer or Nexans LANmark patch cords can be used for LSPM testing. However, the correct test limit must be selected depending on whether Reference or standard patch cords are being used
 - Test limits shall be ISO 14763-3:2006 when using Reference cords
 - Test limits shall be ISO 11801 when using LANmark-OF patch cords (N123.xxxxx)
- Testing patch cord lengths should be limited to 5 meters
- Correct Encircled Flux launched modal conditions shall be achieved for testing Multimode (MM) fibre links. Should the source not be Encircled Flux (EF) compatible, NCS mandates the use of mandrels when testing MM fibre links
- Do NOT use bend insensitive test reference cords (i.e. Nexans cords N122.xxxxx)

Field Testing Procedures

Optical Fibre Cabling Sub-system Field Testing Procedure

Please scan the QR-code to access our most up-to-date
LANmark-OF field testing procedures



Attenuation criteria

$$\begin{aligned} &\text{Link loss (dB)} \\ &= \\ &\text{Cable loss} + \text{Connections loss} + \text{Splices loss} \end{aligned}$$

Cable loss (dB) = cable length (km) **X** loss coefficient (dB/km)

Connections loss (dB) = number of con. pairs **X** con. loss (dB)

Splices loss (dB) = number of splices **X** splice loss (dB)

Attenuation criteria for the fibres

Optical Fibre type	Loss/km		
	850 nm	1310 nm	1550 nm
	(in dB)		
Multimode 62,5 µm (OM1)	3.5	1.5	NA
Multimode 50 µm (OM2, OM3, OM4)	3.5	1.5	NA
Singlemode (OS2)	NA	0.4	0.4

Attenuation criteria for the splices

Optical Fibre type	Splice Loss
	(in dB)
Multimode 62,5 µm (OM1)	0.3
Multimode 50 µm (OM2, OM3, OM4)	0.3
Singlemode (OS2)	0.3

Reference grade cords supplied by the LSPM manufacturer should be used by default.

Nexans LANmark patch cords can be used for LSPM testing as an alternative.

However, the correct test limit must be selected depending on whether Reference grade (preferred) or standard patch cords are being used.

Test limits shall be ISO 14763-3:2006 when using Reference patch cords.

Test limits shall be ISO 11801 when using LANmark-OF patch cords.

Attenuation criteria for the connections (using reference or standard cords)

Optical Fibre Type	ISO 14763-3	ISO 11801
	(in dB)	
Multimode 62.5 μ m (OM1)	0.3	0.75
Multimode 50 μ m (OM2, OM3, OM4)	0.3	0.75
Singlemode (OS2)	0.5	0.75

The use of Reference quality Measurement cords (Jumpers) will have consequences on the Connection loss budget!

Attenuation criteria for the connectors (ISO 14763-3:2006)

Mated Insertion Loss	Multimode fibres		Singlemode fibres	
	Reference plug	Random plug	Reference plug	Random plug
Reference plug	0.1 dB	0.3 dB	0.2 dB	0.5 dB
Random plug	0.3 dB	0.75 dB	0.5dB	0.75 dB

Test cords are terminated with 'reference quality' connectors (plugs) whereas connectors (plugs) in the link under test have less tight performance characteristics

→ The loss limit is set to 0.3 dB for MM connectors and 0.5 dB for SM connectors

Recommended Cleaning Tools



LANmark-OF cleaning tool
SC-FC-ST
P/N: N890.121



LANmark-OF cleaning tool
LC-MU
P/N: N890.122



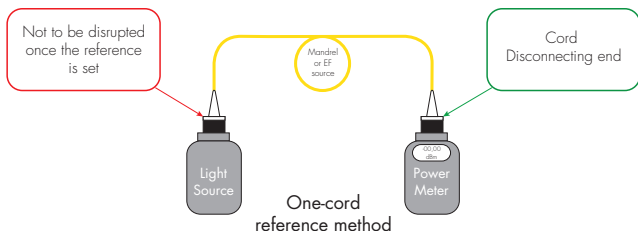
LANmark-OF cleaning tool
MPO
P/N: N890.120

Light Source Power Meter (LSPM)

Recommended Measurement Method

Using Reference Grade Connector
Test Cord

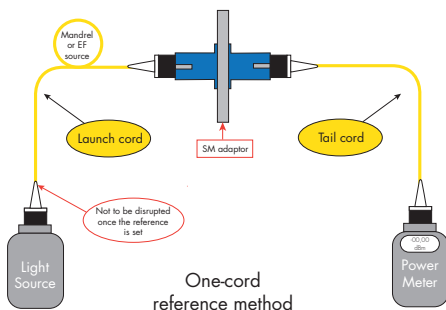
One Test Cord (Jumper) Reference Measurement Method STEP 1 - Setting the reference



Make sure all connector interfaces are inspected and cleaned as necessary before mating!

One Test Cord (Jumper) Reference Measurement Method

STEP 2 - Test Cord Measurement / Verification



Results shall be

<0.15 dB (**MM** reference grade cords)

<0.3 dB (**SM** reference grade cords)

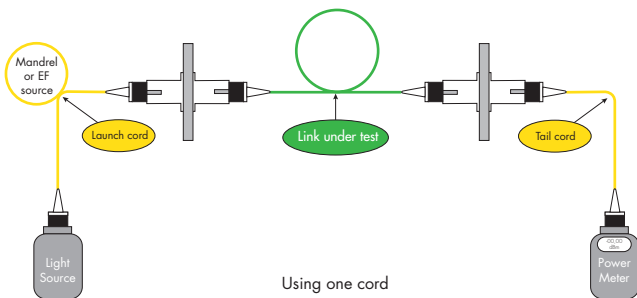
Make sure all connector interfaces are inspected and cleaned as necessary before mating!

The test shall be recorded.

To ensure ongoing accuracy of test results, Reference and test cord measurements (STEP 2) shall be repeated and recorded every time the test equipment is switched off, at the start of each work session during the day and during testing if results start to give "zero" or positive loss values.

One Test Cord (Jumper) Reference Measurement Method

STEP 3 - Testing the link



Step 1 Step 2 **Step 3**

Make sure all connector interfaces are inspected and cleaned as necessary before mating!

Test limits shall be ISO 14763-3:2006

Attenuation criteria for the connectors (ISO 14763-3:2006)

Mated Insertion Loss	Multimode fibres		Singlemode fibres	
	Reference plug	Random plug	Reference plug	Random plug
Reference plug	0.1 dB	0.3 dB	0.2 dB	0.5 dB
Random plug	0.3 dB	0.75 dB	0.5dB	0.75 dB

Test cords are terminated with 'reference quality' connectors (plugs) whereas connectors (plugs) in the link under test have less tight performance characteristics

➔ The loss limit is set to 0.3 dB for MM connectors and 0.5 dB for SM connectors

Softing/Psiber WireXpert Optical Loss Test Kit

LANmark-OF MM

EF Multimode Adapter

WX_AD_EF_MM2

Encircled flux compliant multimode fiber adapter set (850nm and 1300nm)

WX_AC_LC_EF_MM_CORDKIT

LC test cord kit for EF-compliant multimode adapter, includes a pair of modally transparent FC-LC test cords, a pair of LC-LC simplex tail cords, a pair of interchangeable LC adapters and a pair of LC-LC duplex adapters



WX_AC_EF_MM_REFCORD_SC2

A pair of modally transparent FC-SC test reference cords and a pair of SC-SC tail cords

LANmark-OF SM

Single Mode Adapter

WX_AD_SM2

Set of two singlemode adapters
Two pairs of singlemode reference cords
SC-SC duplex adapter singlemode
Cleaning kit

WX_AC_LC_SM_KIT

SC-LC Simplex Test Cable (1 pair)
SC-LC Test Adapter (1 pair)
LC-LC Simplex Reference Cable (1 pair)



FLUKE Networks CertiFiber PRO Optical Loss Test Set

LANmark-OF MM

EF Multimode Adapter

CertiFiber Pro Multimode OLTS Modules

MRC-50EFC-SCLCKIT

Multimode Encircled Flux compliant test reference cord kit (2m) for testing 50µm SC terminated fibres (2SC/LC, 2 LC/LC)

MRC-50EFC-SCSCKIT

Multimode Encircled Flux compliant test reference cord kit (2m) for testing 50µm SC terminated fibres (4SC/SC)

NFA-SC – Set of 2 SC Interchangeable Adapters for CFP power meter port



LANmark-OF SM

Single Mode Adapter

CertiFiber Pro Singlemode OLTS Modules

SRC-9-SCSC-KIT

Singlemode test reference cord kit (2m) for testing SC terminated fibres (4SC/SC)

NFA-SC – Set of 2 SC Interchangeable Adapters for CFP power meter port

SRC-9-SCLC-KIT

Singlemode test reference cord kit (2m) for testing SC terminated fibres (2SC/LC, 2 LC/LC)



LANmark-OF MM

EF Multimode Adapter

R164005

FiberTEK III-MM LED Kit

R164050

FiberTEK III - Encircled Flux
50/125µm cable SC - SC

R164051

FiberTEK III - Encircled Flux
50/125µm cable SC - LC The
correct LC adapter must be
used on the Tx Port - MM
(Orange boot- part number
025202)



LANmark-OF SM

Single Mode Adapter

R164006 FiberTEK III-SM Laser Kit

SC-SC patch cords 9µm SMF compliant
to ISO/IEC 14763-3 standard

LC-LC patch cords 9µm SMF compliant to
ISO/IEC 14763-3 standard

The correct LC adapter must be used
on the Tx Port - SM (Yellow boot- part
number 025201)



LANmark-OF MM

EF Multimode Adapter

To test LC/UPC terminated fiber:

MFC-T1-MM-EI-EUI-98

MFC-MM-LCUPC-AK1

2 LC adapters for power-meter ports

2 LC source adapters

4 reference-grade test cords LC/UPC

LC/UPC, OM3 MM fiber (9/125 μ m)



To test SC/UPC terminated fiber:

MFC-T1-MM-EI-EUI-91

MFC-MM-SCUPC-AK1

2 SC adapters for power-meter ports

2 SC source adapters

4 reference-grade test cords SC/UPC

SC/UPC, OM3 MM fiber (9/125 μ m)

LANmark-OF SM

Single Mode Adapter

To test LC/UPC terminated fiber:

MFC-T1-SM-EI-EUI-98

MFC-SM-SCUPC-AK1

2 SC adapters for power-meter ports

2 SC source adapters

4 reference-grade test cords SC/UPC SC/

UPC, OS2 singlemode fiber (9/125 μ m)



To test SC/UPC terminated fiber:

MFC-T1-SM-EI-EUI-91

MFC-SM-LCUPC-AK1

2 LC adapters for power-meter ports

2 LC source adapters

4 reference-grade test cords LC/UPC LC/

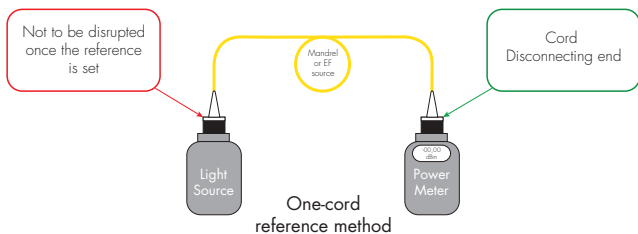
UPC, OS2 singlemode fiber (9/125 μ m)

Light Source Power Meter (LSPM)

Alternative Measurement Method

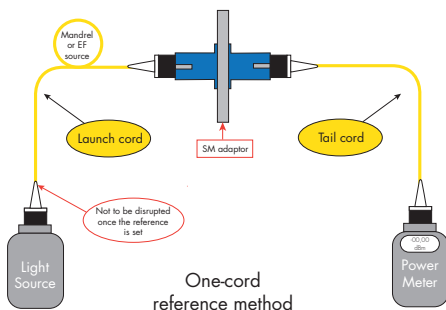
One Test Cord (Jumper) Reference Measurement Method STEP 1 - Setting the reference

Reference power measurement



Make sure all connector interfaces are inspected and cleaned as necessary before mating!

One Test Cord (Jumper) Reference Measurement Method STEP 2 - Test Cord Measurement / Verification



Results shall be

<0.5 dB (Nexans cords)

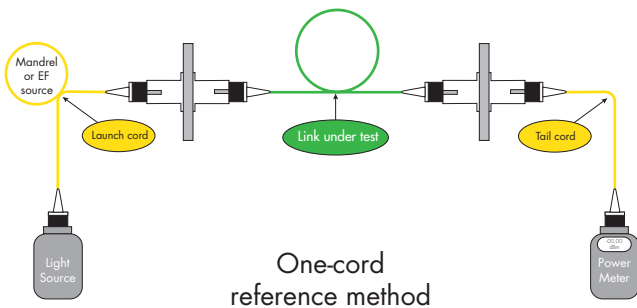
Make sure all connector interfaces are inspected and cleaned as necessary before mating!
The test shall be recorded.

To ensure ongoing accuracy of test results, Reference and test cord measurements (STEP 2) shall be repeated and recorded every time the test equipment is switched off, at the start of each work session during the day and during testing if results start to give "zero" or positive loss values.

One Test Cord (Jumper) Reference Measurement Method

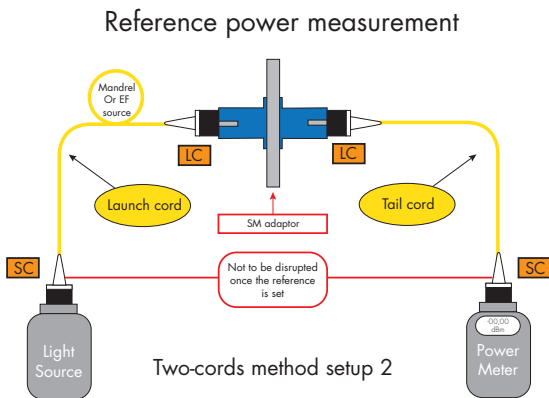
STEP 3 - Testing the link

Test power measurement



Make sure all connector interfaces are inspected and cleaned as necessary before mating!
Test limits shall be ISO 11801 when using LANmark-OF patch cords.

Alternative Two Test Cord (Jumper)
Reference Measurement Method
Also known as Three Cord Measurement Method
STEP 1 - Setting the reference

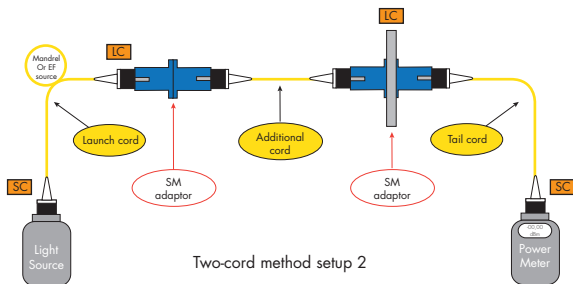


Make sure all connector interfaces are inspected and cleaned as necessary before mating!

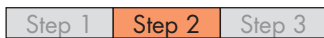
Alternative Two Test Cord (Jumper) Reference Measurement Method

STEP 2 - Test Cord Measurement / Verification

Test cord measurement



Two-cord method setup 2



Results shall be

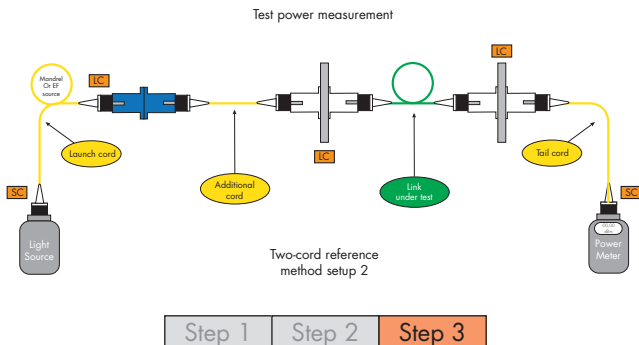
- <0.5 dB (**MM** or **SM** Nexans cords)
- <0.15 dB (**MM** Reference grade cords)
- <0.3 dB (**SM** Reference grade cords)

Make sure all connector interfaces are inspected and cleaned as necessary before mating!

The test shall be recorded.

To ensure ongoing accuracy of test results, Reference and test cord measurements (STEP 2) shall be repeated and recorded every time the test equipment is switched off, at the start of each work session during the day and during testing if results start to give "zero" or positive loss values.

Alternative Two Test Cord (Jumper)
Reference Measurement Method
Also known as Three Cord Measurement Method
STEP 3 - Testing the link



Make sure all connector interfaces are inspected and cleaned as necessary before mating!

LSPM testing of MTP links terminated with MTP/LC cassettes



To test MTP links terminated with MTP/LC cassettes, just use the same methods as for legacy LC to LC links (1 or 2 test cord reference methods).

Loss limit

The total loss of one cassette has to be lower than

- 0.75 dB for Multimode (MM) fibres
- 0.75 dB for Singlemode (SM) fibres

These limits are valid

- for the whole cassette (MTP connector + LC or SC connector)
- for testing performed with both Nexans and reference test cords

LSPM testing of MTP trunks

There are various ways of testing OF links terminated on MTP connectors.

At least a couple of devices (from Psiber and Fluke Networks) equipped with MPO connectors are available to perform loss measurement of MPO/MTP trunks.

However, it is also possible to test these trunks using standard LSPM testers.

Testing of MPO trunks requires careful preparation in order to ensure that the different connections needed during the procedure are always correctly configured.

The various procedures are described in the Nexans OF field testing procedure.

Please scan the QR-code provided at the beginning of the Fibre section of this booklet to access our LANmark-OF Field Testing Procedure.

Note

MTP is a registered trademark of US Conec and therefore identifies a specific brand of the MPO-style connector.

The MTP connector is a high performance MPO connector engineered for better mechanical and optical performance.

The whole range of MPO Nexans products is equipped with MTP connectors to provide enhanced performance.

Optical Time Domain Reflectometer (OTDR)

OTDR configuration and test setup

Index of refraction of LANmark-OF fibres				
Optical Fibre type	850 nm	1300 nm	1310 nm	1550 nm
Multimode 62.5 µm (OM1)	1.496	1.491	NA	NA
Multimode 50 µm (OM2, OM3, OM4)	1.482	1.477	NA	NA
Singlemode (OS2)	NA	NA	1.466	1.467

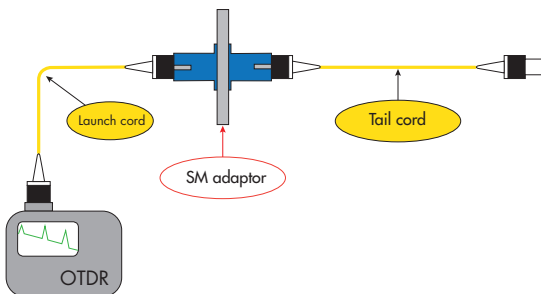
	MM Fibre link length < 300m	MM Fibre link length > 300m	SM Fibre link length < 500m	SM Fibre link length > 500m
Launch and Tail cord length	50 – 100 m	50 – 300 m	200 - 500 m	500 – 1000 m
recommended Pulse width	5 or 10 ns	10 ns	10 ns	20 ns
Range	1000 m	2000 – 3000 m	2000 m	3000 – 5000 m

OTDR Loss measurements have to be performed and interpreted by a qualified technician competent in the operation and analysis of OTDR result data.

OTDR testing configuration

STEP 1 - Test Cord Measurement / Verification

Measurements cords test to be recorded



Results shall be

- <0.5 dB (Standard grade **MM** or **SM** - Nexans cords)
- <0.15 dB (**MM** Reference grade cords)
- <0.3 dB (**SM** Reference grade cords)

The test shall be recorded.

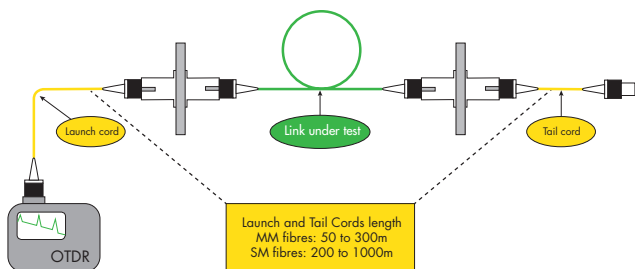
Make sure all connector interfaces are inspected and cleaned as necessary before mating!

STEP 2 – Link test

A launch cord shall be connected between the OTDR and the cabling link under test

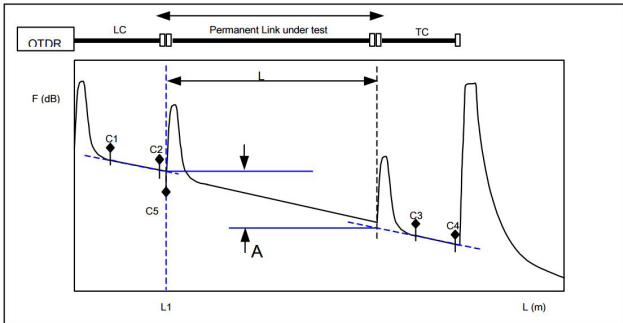
A tail cord shall be connected to the remote end of the cabling link under test

OTDR characterisation using a launch cord and a tail cord



Interpreting OTDR trace

The following OTDR trace represents the most common field test case



The attenuation or loss of the installed cabling includes two connections and the fibre loss.

The drawing shows correct placing of cursors on OTDR traces for link insertion loss measurement.



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