Get started with FiberTEK IV

Get started

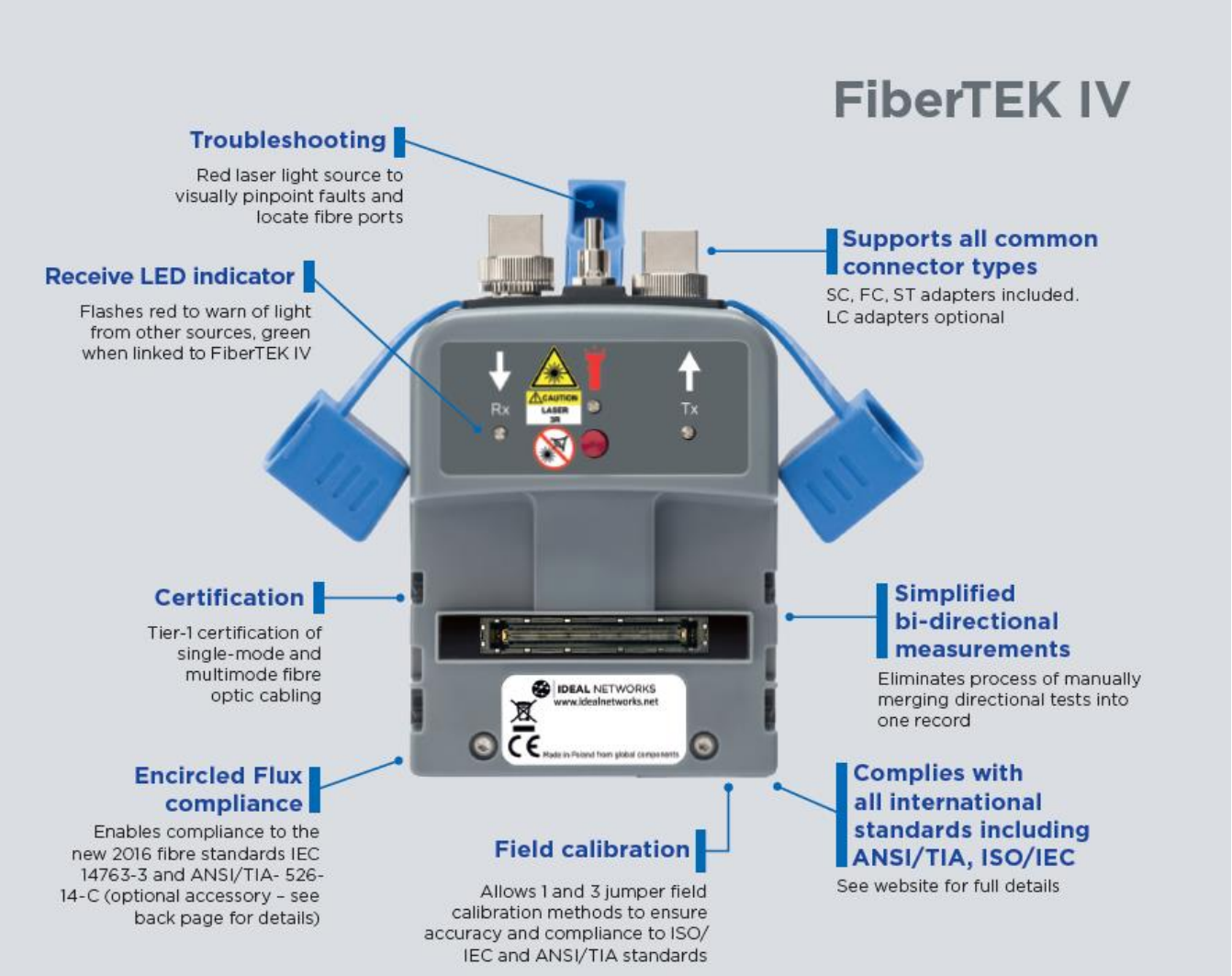
Tier-1 certification is a measurement of the total insertion loss of the cabling from one end of the link to the other.
The equipment used to perform Tier-1 certification is an optical power meter and optical light source. OLTS stands for Optical Loss Test Set.

Tier-1 certification can be performed against industry standard limits for cable and connectors.
It uses an optical light source and optical power meter to measure the total insertion loss across the cabling under test so that the tester will provide one number that is the sum loss of all of the “events” in the cabling connected to the tester.

Make sure that the software version installed on your FiberTEK IV is up to date.
This can be checked by tapping the Settings icon in the upper right corner of the screen, then touching about and software version. https://www.idealnetworks.net/fr/produit/fibertek-iv-series/

SC / ST / FC adapters are included with FiberTEK IV modules, an optional LC kit is available which includes LC adapters for the Rx ports of the modules and SC-LC test leads for use on the Tx ports.

For multimode tests (MM only), optional EF (Encircled Flux) launch cables are available for use when EF launch is required or desired.



Ordering information

Part No	Kit Contents
R164008	**FiberTEK IV-MM LED Kit.** Two multimode FiberTEK IV modules, lockable semi-rigid carrying case, SC, FC, ST adapters for modules (2 ea.), SC-SC patch cords, 6x 9µm MMF) compliant to ISO/IEC 14763-3 standard, quick reference guide. Compatible with LanTEK IV.
R164009	**FiberTEK IV-SM Laser Kit.** Two single-mode FiberTEK IV modules, lockable semi-rigid carrying case, SC, FC, ST adapters for modules (2 ea.), SC-SC patch cords, 6x 50µm MMF) compliant to ISO/IEC 14763-3 standard, quick reference guide. Compatible with LanTEK IV.
R164010	**FiberTEK IV-MM LED & SM Laser Kit.** Two multimode FiberTEK IV modules, two single-mode FiberTEK IV modules, lockable semi-rigid carrying case, SC, FC, ST adapters for modules (2 ea.), SC-SC patch cords, 6 x 9µm, 6 x 50µm compliant to ISO/IEC 14763-3 standard, quick reference guide. Compatible with LanTEK IV.

FiberTEK IV Optional Accessories

Part No	Descriptions
R164050	FT III/IV-Encircled Flux 50/125um Cable SC - SC
R164051	FT III/IV-Encircled Flux 50/125um Cable SC - LC
R164064	FTIII/IV - LC Receiver Adapter (Single)

Cleaning Detector Ports

To ensure the maximum accuracy of power measurements, power meter detectors must be kept clean at all times. When not in use, the detectors should be covered with a protective cap. In addition, the optical source port and fiber end should be occasionally cleaned to minimize insertion loss.

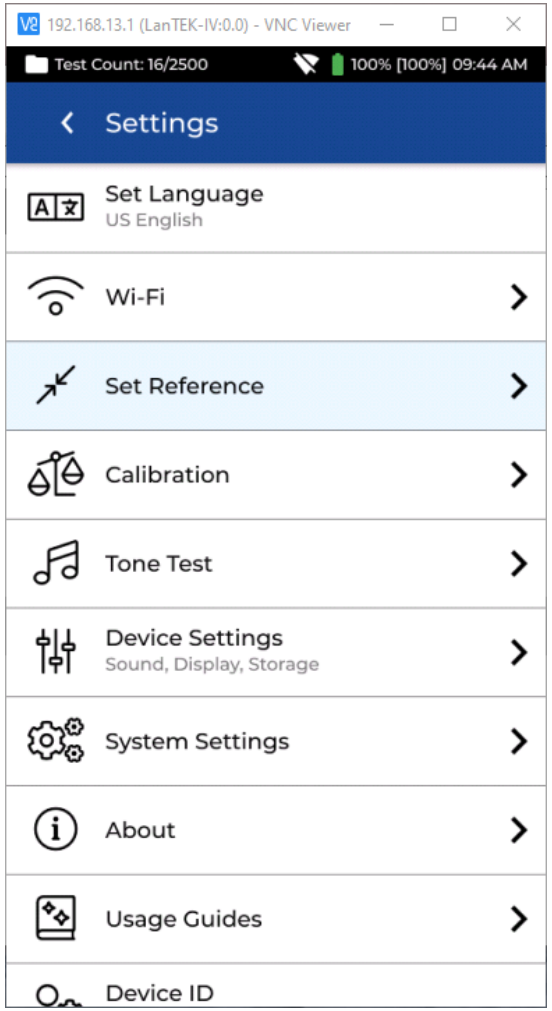
You should clean detector ports only when it is absolutely necessary, as it is very difficult to remove any residue that may be trapped in a glass-housing interface. Use extreme care when cleaning module ports to prevent damage.
Always use fibre optic specific cleaning products and 99% isopropanol/IPA, never use rubbing alcohol.

To clean the detector port(s), follow the steps below:

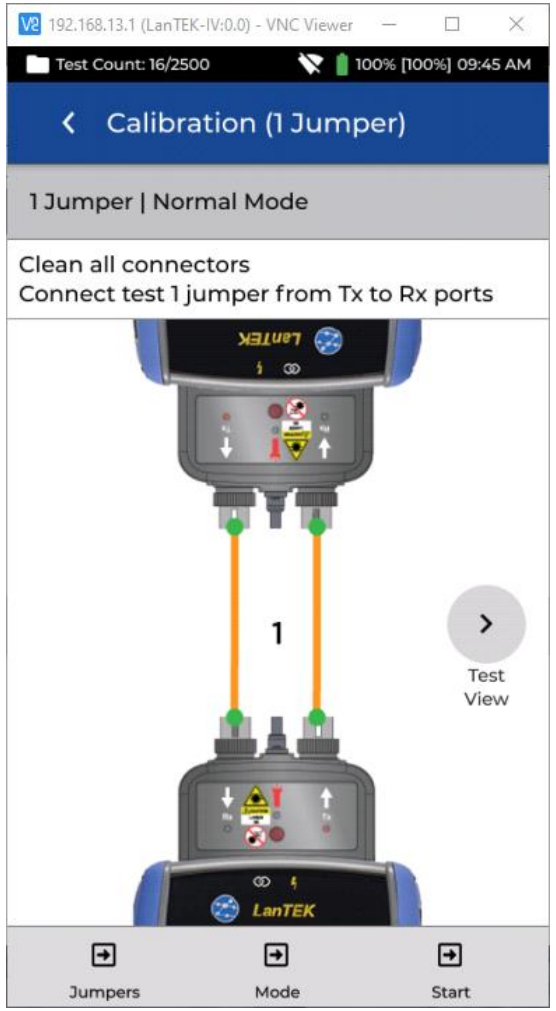
You may remove the dust using compressed air, applying low pressure and at a slight angle.

We also recommend you use cleaning pen:

33-963-10 One-Click Fibre Cleaner STC-FC2.5mm and/or
33-963-11 One-Click Fibre Cleaner STC-FC-1.25mm



Go to Settings and Tap Set Reference.



Choose the required jumper method.

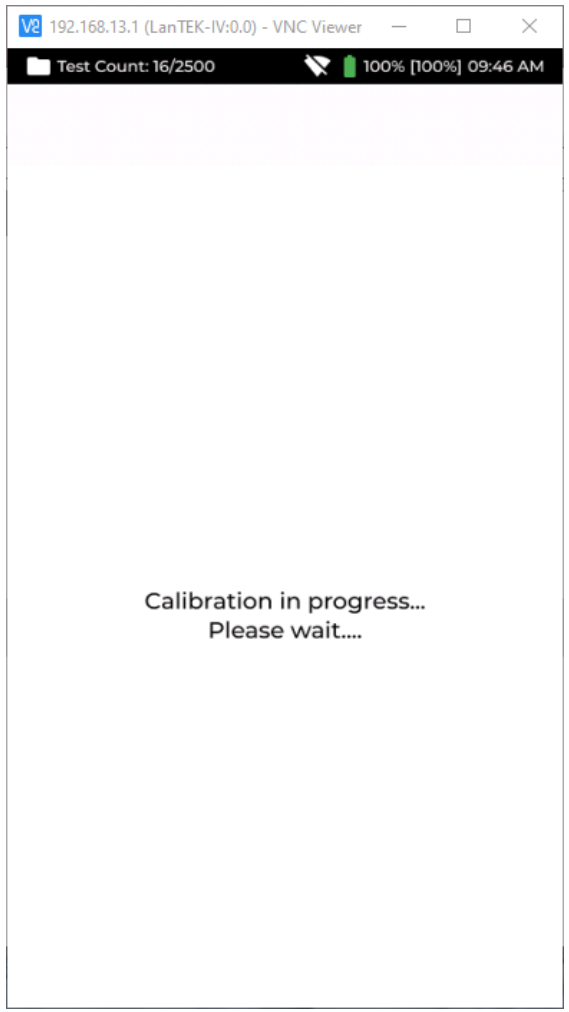
REFERENCE METHODS

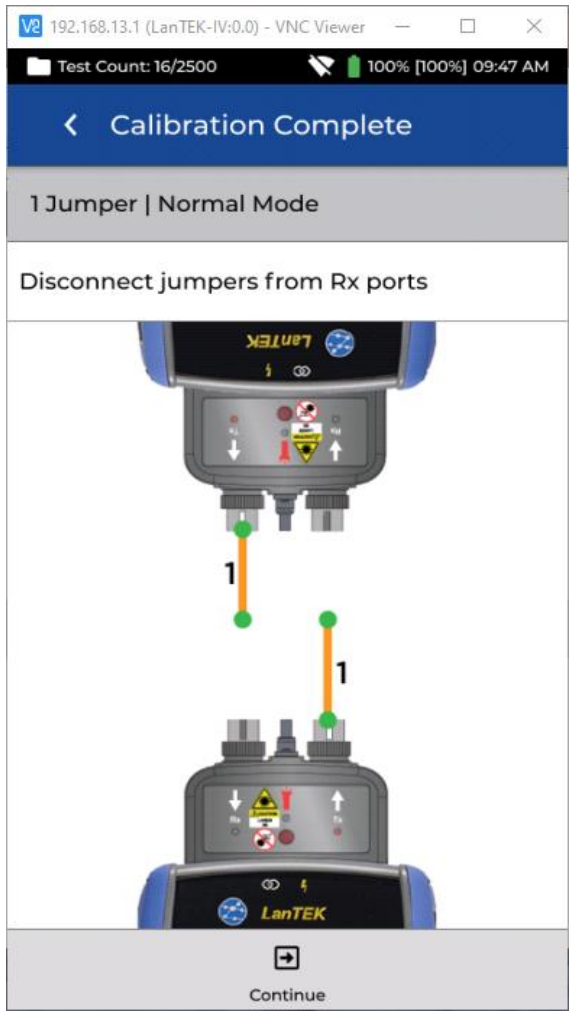
Three options are available when setting the reference prior to testing. Each method determines which components of the installed link are measured during the certification test.

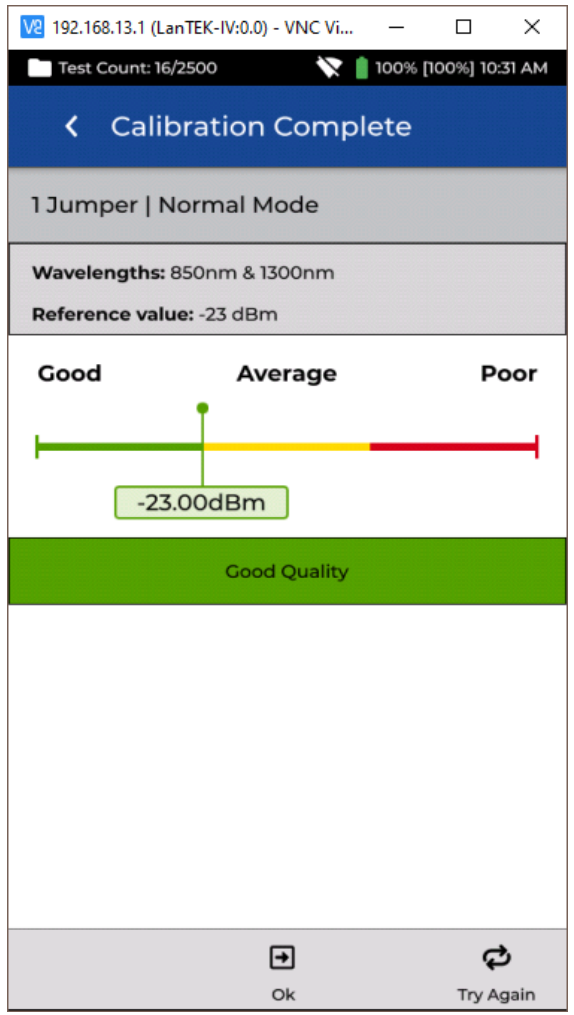
1-Jumper Reference
The 1-Jumper method includes the cable plus the connections on each side of the cable.

2-Jumper Reference
The 2-Jumper method includes the cable plus the connection closest to the light source side of the link. The connection on the side of the cable on the power meter side of the link is not included in the measurement.

3-Jumper Reference
The 3-Jumper method measures only the cable and does not include the connection on either side of the cable.







After pressing Start with the desired reference type selected - example, 1-Jumper, Normal Mode, the reference calibration process will begin.

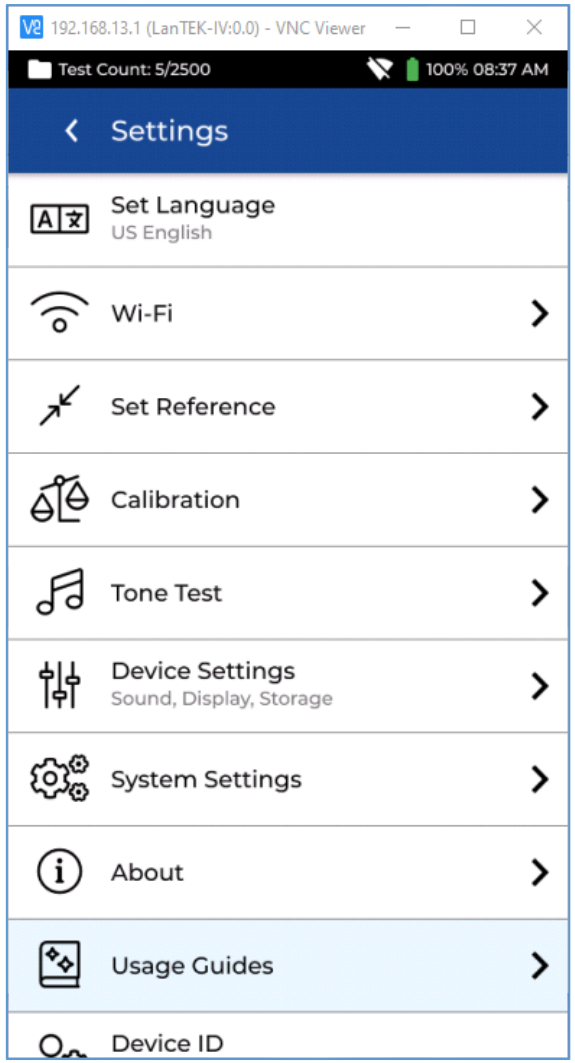
SET REFERENCE & RESULTS

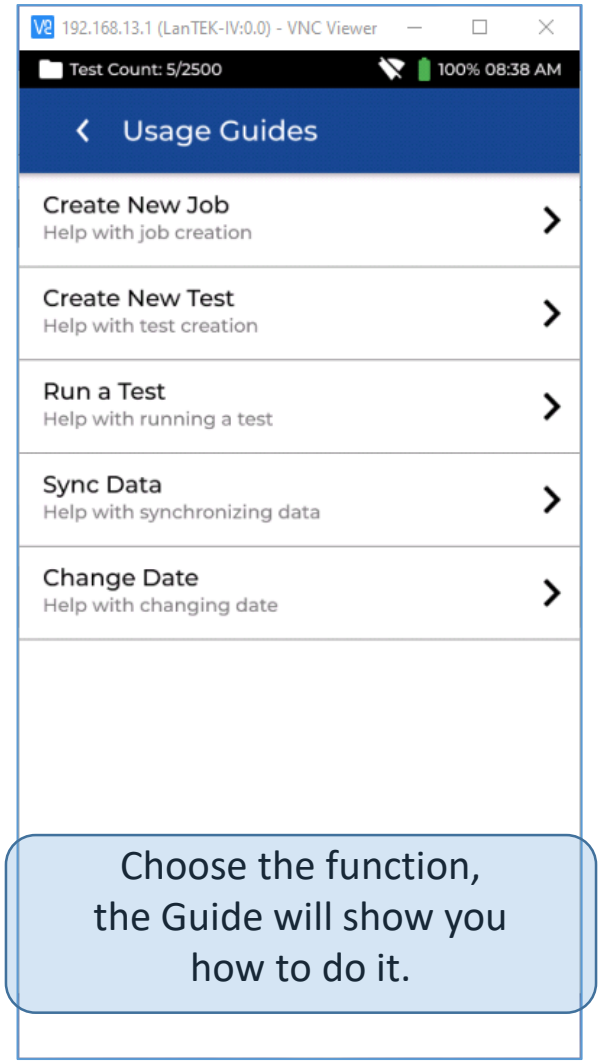
Once the reference is set the user interface will indicate which end of the jumper to disconnect from the module, and whether additional jumpers need to be attached before testing.

With Continue:

The Calibration Reference results will be displayed on a range from Good-to-Poor. Begin testing only when a **Good quality** reference is achieved.

If Average or Poor is shown, follow the on-screen recommendations to improve performance. Use extreme care when cleaning module ports to prevent damage.





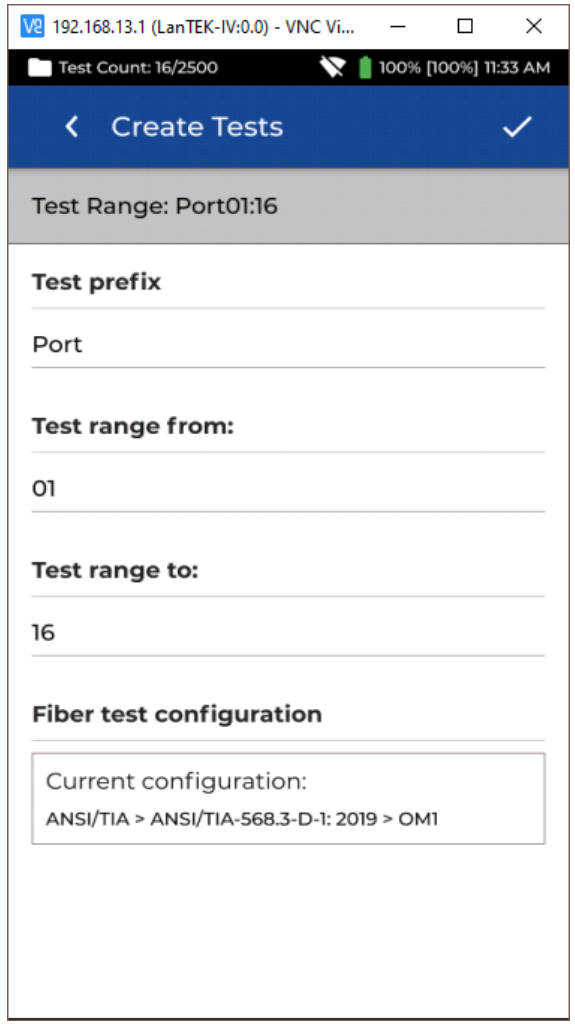
Choose the function, the Guide will show you how to do it.

Screen navigation.
Validate with the tick mark! ✓

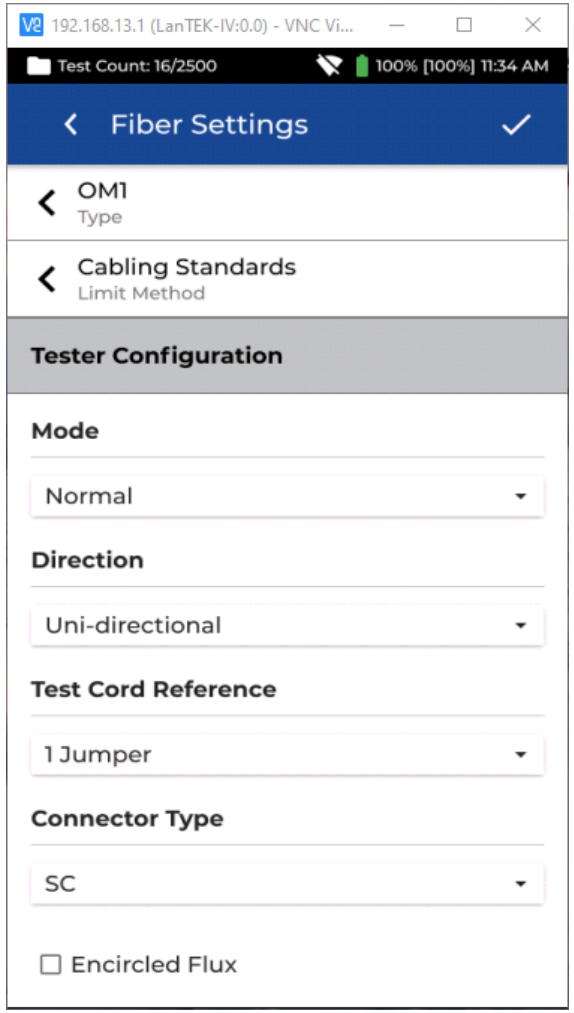
From your FiberTEK IV, in the Setting menu, choose User Guide, this guide with **Create New Job, Create New Test,** allows you to prepare from your tester, the same configuration that you may prepare on your Cloud.

- **Create a New Job**
- **Create a New Test**
- Run a Test
- Sync Data
- Change Date

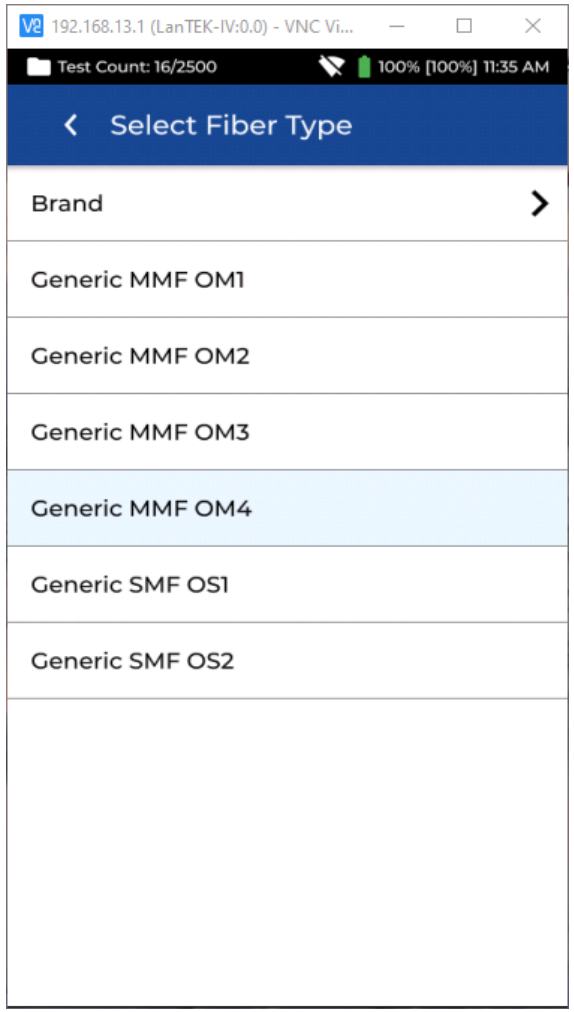
Create Tests: Settings 1/2



Set the number of tests

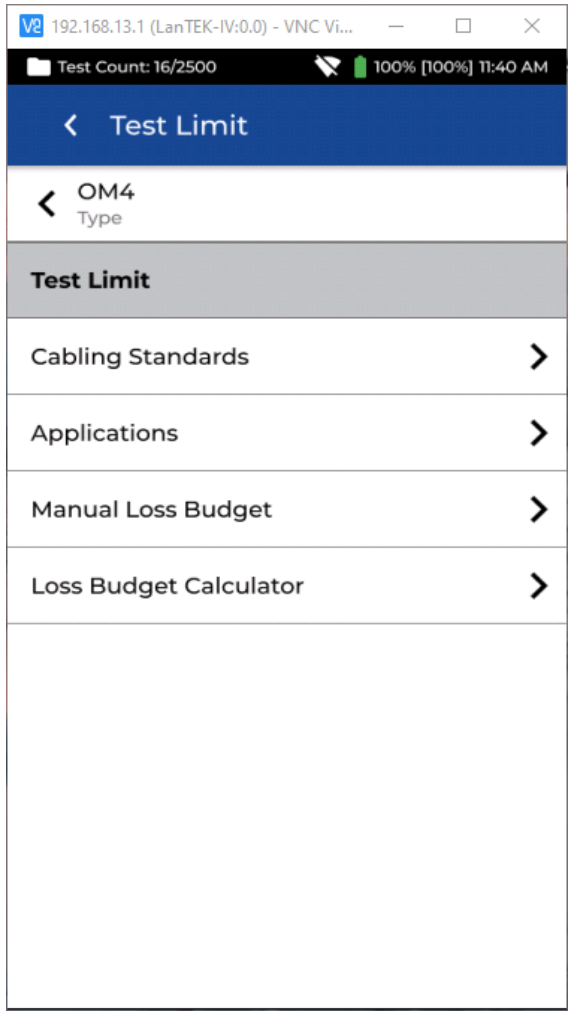


Set the Fibre type

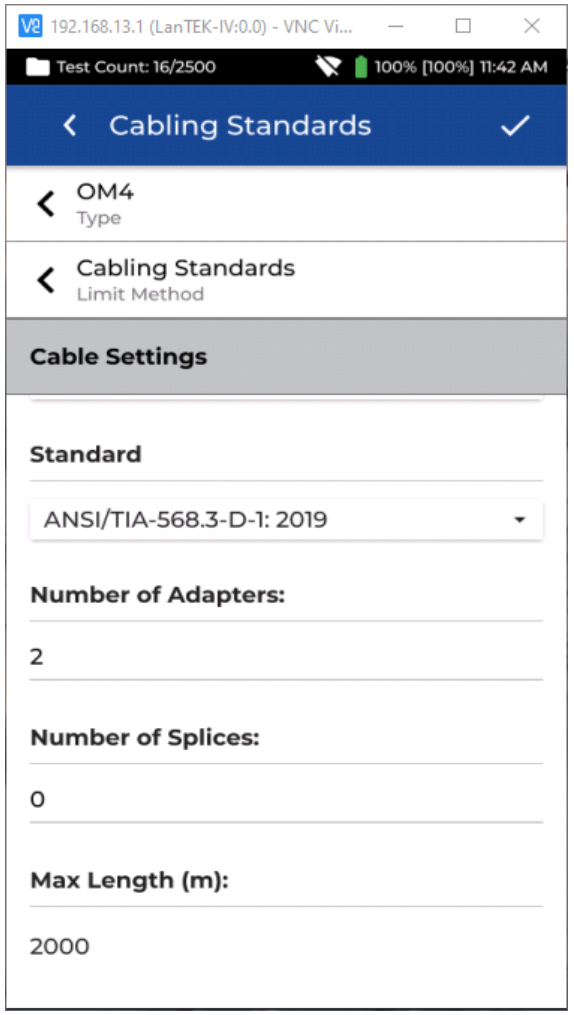


Showing here: (MM) “OM4”

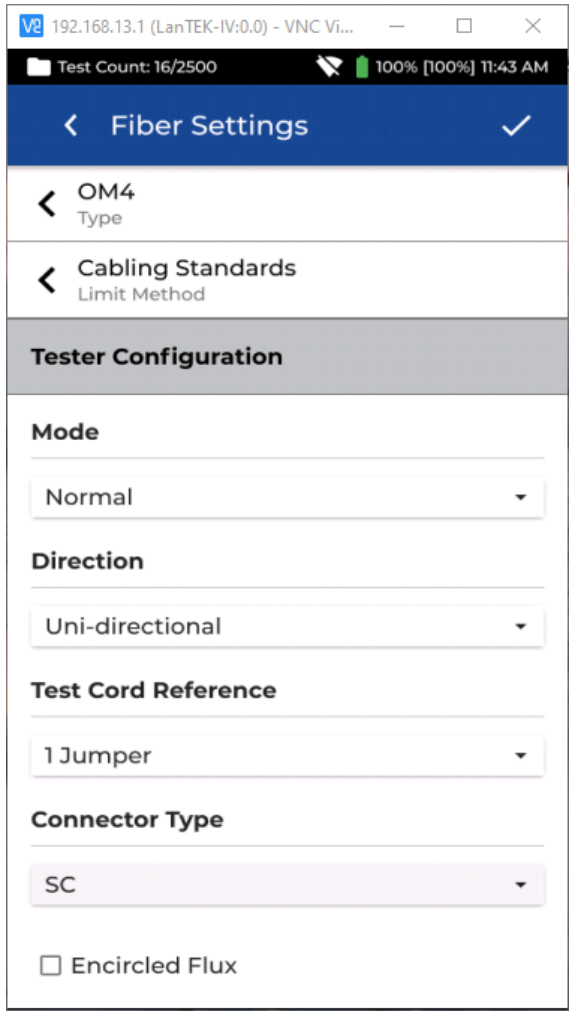
Create Tests: Settings 2/2



Set “Test Limit” (see test Limit page 12, 13)

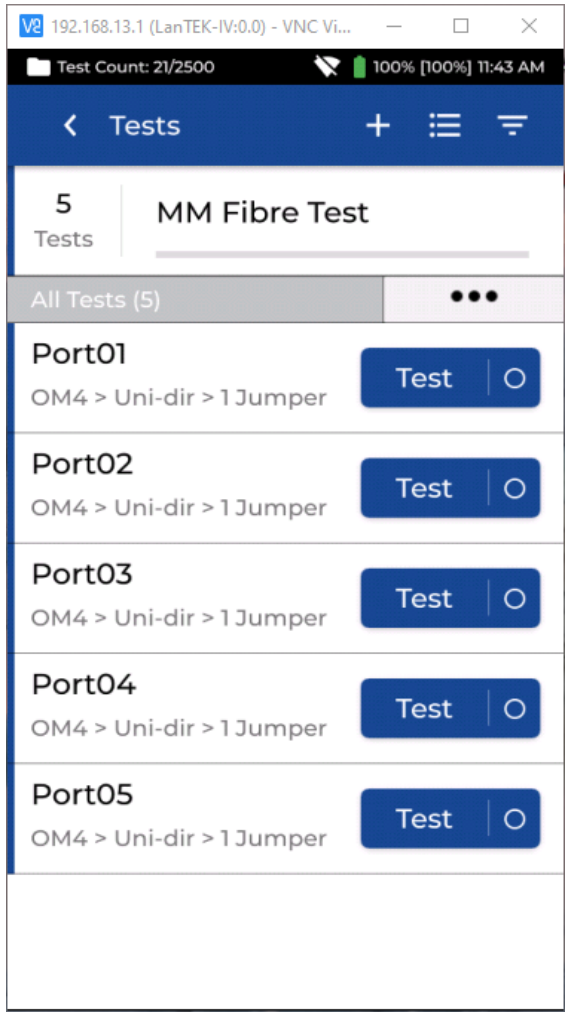


“Standard” type is for this example: ANSI/TIA-568.3-D-1:2019

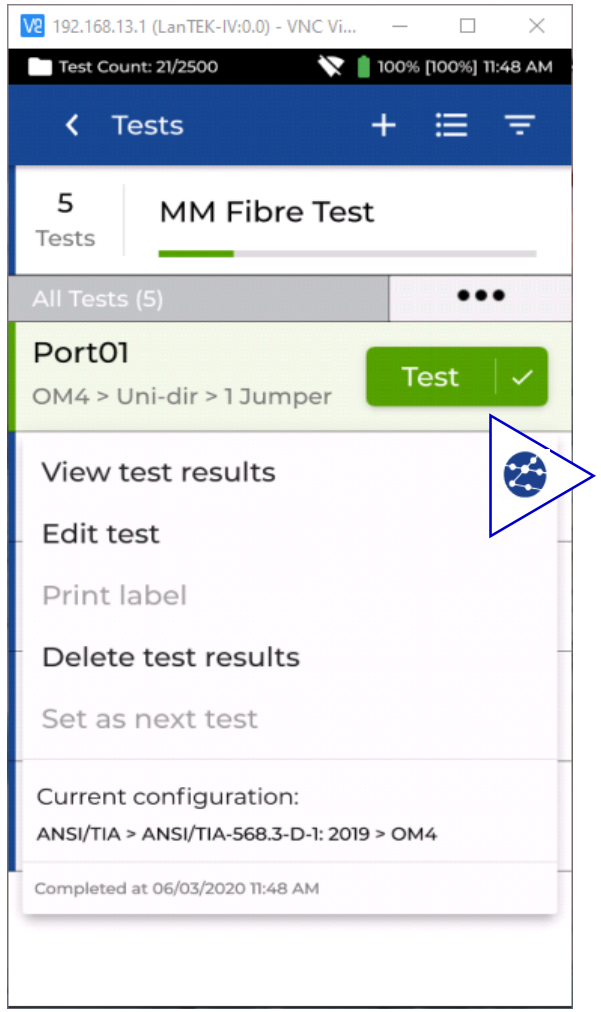


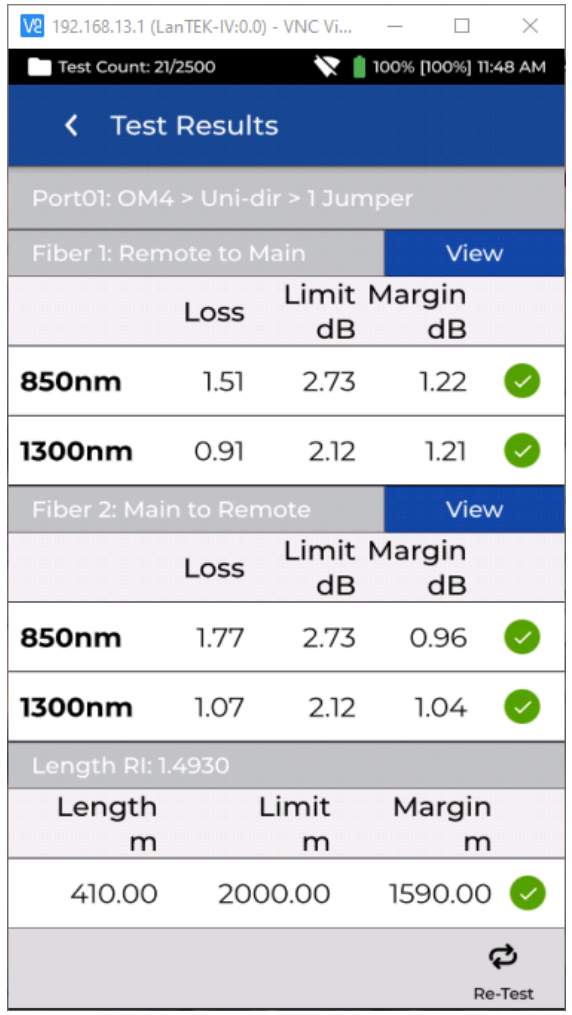
Set “Direction”. For this example: Uni-Directional

Testing and viewing a test



A job showing 5x tests OM4 > Uni-dir > 1 Jumper





Hold with your finger the touchscreen area, tap “View test results”, so you may read the measurements recorded.

192.168.13.1 (LanTEK-IV:0.0) - VNC Vi...

Test Count: 21/2500 100% [100%] 11:52 AM

Test Results

Port03: OM4 > Bi-dir > 1 Jumper

Fiber 1: Main to Remote View

	Loss	Limit dB	Margin dB	
850nm	1.78	2.73	0.95	✓
1300nm	1.10	2.12	1.01	✓

Fiber 2: Remote to Main View

	Loss	Limit dB	Margin dB	
850nm	1.50	2.73	1.23	✓
1300nm	0.89	2.12	1.23	✓

Length RI: 1.4930

Length m	Limit m	Margin m	
410.00	2000.00	1590.00	✓

Part1 Re-Test

192.168.13.1 (LanTEK-IV:0.0) - VNC Vi...

Test Count: 21/2500 100% [100%] 11:51 AM

Test Results

Port03: OM4 > Bi-dir > 1 Jumper

Fiber 1: Remote to Main View

	Loss	Limit dB	Margin dB	
850nm	1.51	2.73	1.22	✓
1300nm	0.94	2.12	1.17	✓

Fiber 2: Main to Remote View

	Loss	Limit dB	Margin dB	
850nm	1.95	2.73	0.78	✓
1300nm	1.23	2.12	0.88	✓

Length RI: 1.4930

Length m	Limit m	Margin m	
410.00	2000.00	1590.00	✓

Part2 Re-Test

Part 1 & Part 2 of a Bi-directional test.

FIBRE OPTIC TEST LIMITS

A test limit must be selected when adding fibre tests to a LanTEK IV Job. F
our types of test limits are available:

- **Cabling Standards:** Specific to a standard like TIA or ISO
- **Applications:** Equipment related
- **Manual budget:** Project environment related
- **Budget calculator:** Project environment related

CABLING STANDARDS

Cabling Standards are limits defined by the same standards organisations that create limits for copper cabling, namely ISO/IEC, ANSI/TIA, CENELEC/EN and others. These limits are typically for backbone and horizontal fibre cabling installed in commercial buildings. The limits are generic and are not designed to support a specific application or data rate, instead the limits are designed to support a wide range of high-performance applications. In nearly all cases there are limits for both wavelengths in multimode or single-mode systems.

APPLICATIONS

Applications limits are used to determine whether a specific application such as 40 Gb/s multimode Ethernet can be supported by the fibre under test. The pass/fail criterion are specific to the application and are always wavelength specific. For example the 10GBase-L application has a limit for 1310nm only, while the 10GBase-E application has a limit for 1550nm only. These applications are designed for specific types of hardware, each with its specified operational wavelength and maximum supported distance.

Understanding the network topology when setting up a link budget

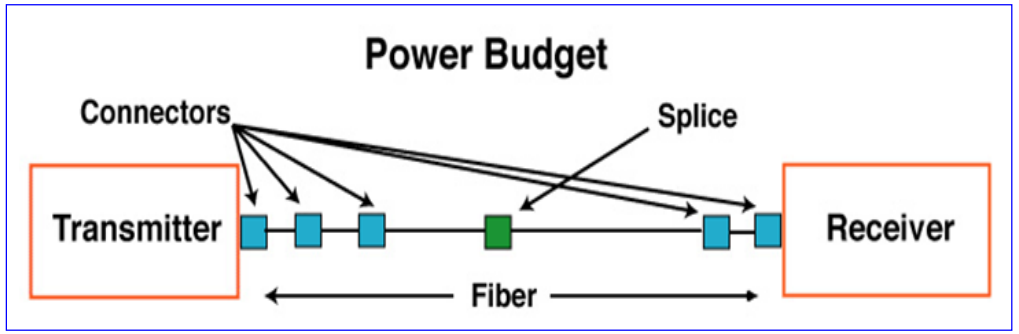
Manual budget

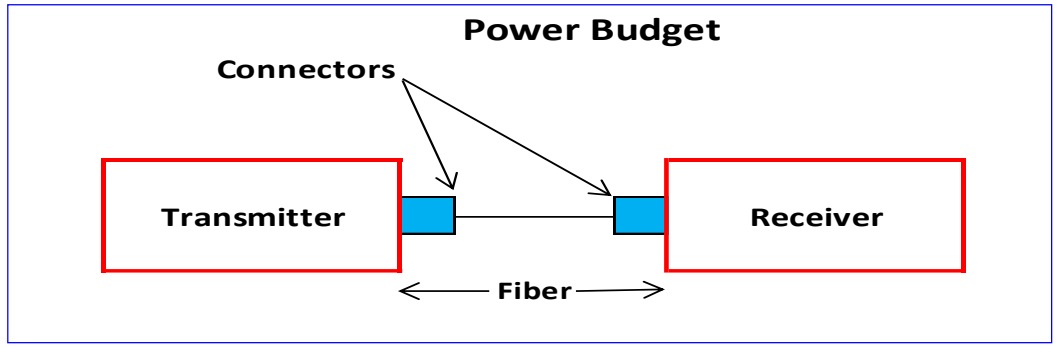
Budgets can be manually set when the allowable loss of the cabling is known. A common use for manual loss budgets is when a network designer supplies the maximum allowed loss to the installer or when the active equipment to be operated on the cabling has a known loss budget.

Budget Calculator

Budget Calculator allows the loss budget to be calculated based on the components of the link under test.
Enter the attenuation coefficient of the fibre cable, the number of adapters and splices plus the attenuation of each and the system will calculate the loss limit based on the length of cable for each test.

The calculator settings allow single or dual wavelength measurements to meet testing requirements.





Configuration for calculated dB link loss budget for MM and SM fiber

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Attenuation dB per Km	Cable length in km	Attenuation dB per Km	dB
@850nm	1	3	3
@1300nm	1	1.5	1.5
With more accuracy	**1**	**2.5**	**2.5**

Connectors Loss	Connectors	dB Loss	
Standard	2	0.75	1.5
With more accuracy	**2**	**0.5**	**1**

Splice Loss		dB Loss	
Standard	1	0.3	0.3
With more accuracy	1	0.2	0.2
		Budget	**3.7**

For (MM) multimode fiber (OM4), the loss is about 3 dB per km for 850 nm sources, 1 dB per km for 1300 nm.

IDEAL NETWORKS

Attenuation dB per Km	Cable length in km	Attenuation dB per Km	dB
@1310nm	1	0.5	0.5
@1550nm	1	0.4	0.4
With more accuracy	**1**	**0.5**	**0.5**

Connectors Loss	Connectors	dB Loss	
Standard	2	0.75	1.5
With more accuracy	**2**	**0.5**	**1**

Splice Loss		dB Loss	
Standard	1	0.3	0.3
With more accuracy	1	0.2	0.2
		Budget	**1.7**

For (SM) singlemode fiber (OS2), the loss is about 0.5 dB per km for 1310 nm sources, 0.4 dB per km for 1550 nm.

MM Fibre Test

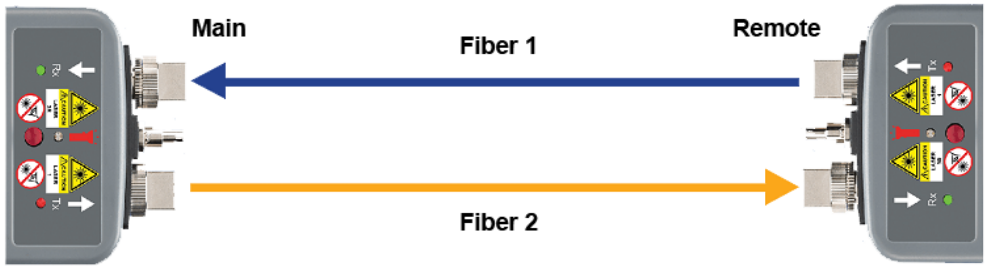
IDEAL Network

06/03/2020

TOTAL	PASSED	FAILED
3	3	0

Port01	PASS	Test 1 of 3

Single-direction Normal

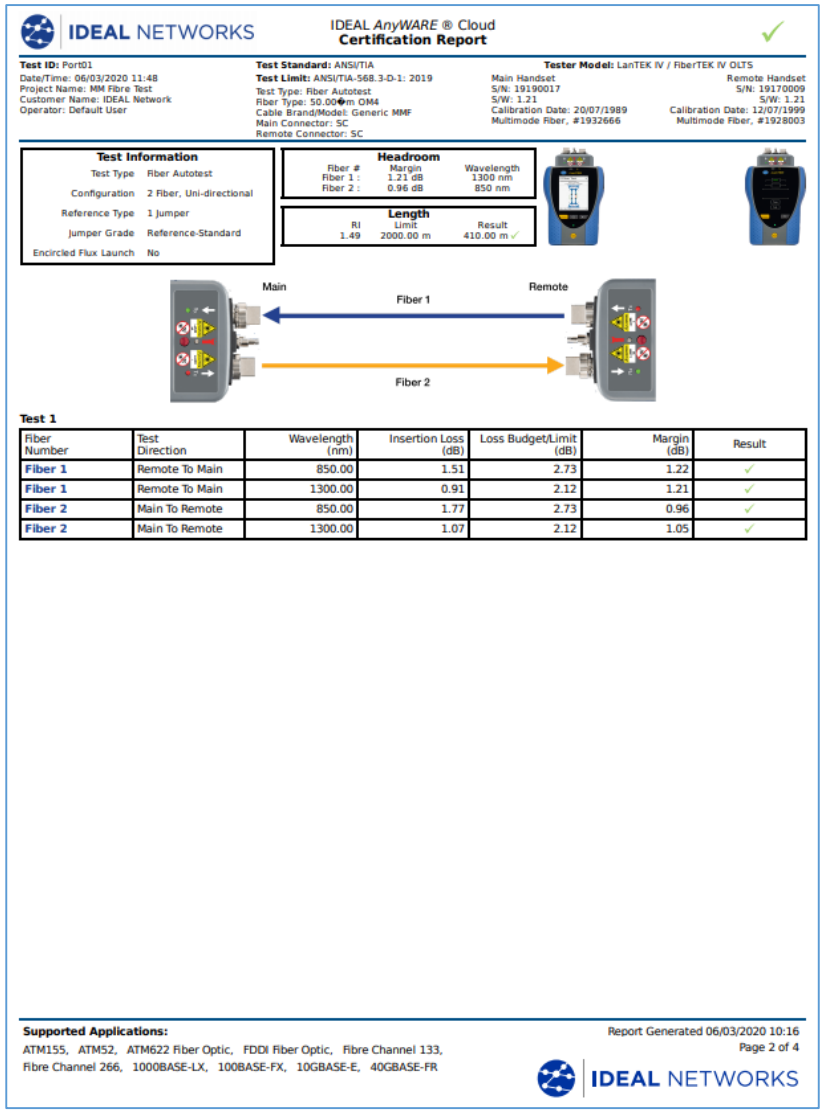


Insertion Loss

Test Standard : ANSI/TIA

Test Configuration : Fiber AutoTest 1 Jumper Uni-Directional Normal

Fiber No/Dir	Test Direction	Wavelength (nm)	Core Diameter (µm)	Insertion Loss (dB)	Loss Budget/Limit (dB)	Margin (dB)	Result
Fiber 1	Remote to Main	850.00	50.00	1.51	2.73	1.22	✓
Fiber 1	Remote to Main	1300.00	50.00	0.91	2.12	1.21	✓
Fiber 2	Main to Remote	850.00	50.00	1.77	2.73	0.96	✓
Fiber 2	Main to Remote	1300.00	50.00	1.07	2.12	1.05	✓



IDEAL NETWORKS

IDEAL *AnyWARE* ® Cloud
Certification Report

Test ID: Port01
Date/Time: 06/03/2020 11:48
Project Name: MM Fibre Test
Customer Name: IDEAL Network
Operator: Default User

Test Standard: ANSI/TIA
Test Limit: ANSI/TIA-568.3-D-1: 2019
Test Type: Fiber Autotest
Fiber Type: 50.00µm OM4
Cable Brand/Model: Generic MMF
Main Connector: SC
Remote Connector: SC

Tester Model: LanTEK IV / FiberTEK IV OLTS
Main Handset
S/N: 19190017
S/W: 1.21
Calibration Date: 20/07/1989
Multimode Fiber, #1932666

Remote Handset
S/N: 19170009
S/W: 1.21
Calibration Date: 12/07/1999
Multimode Fiber, #1928003

Test Information

Test Type	Fiber Autotest
Configuration	2 Fiber, Uni-directional
Reference Type	1 Jumper
Jumper Grade	Reference-Standard
Encircled Flux Launch	No

Headroom

Fiber #	Margin	Wavelength
Fiber 1 :	1.21 dB	1300 nm
Fiber 2 :	0.96 dB	850 nm

Length

RI	Limit	Result
1.49	2000.00 m	410.00 m ✓

Main
Fiber 1
Remote
Fiber 2

Test 1

Fiber Number	Test Direction	Wavelength (nm)	Insertion Loss (dB)	Loss Budget/Limit (dB)	Margin (dB)	Result
Fiber 1	Remote To Main	850.00	1.51	2.73	1.22	✓
Fiber 1	Remote To Main	1300.00	0.91	2.12	1.21	✓
Fiber 2	Main To Remote	850.00	1.77	2.73	0.96	✓
Fiber 2	Main To Remote	1300.00	1.07	2.12	1.05	✓

Supported Applications:
ATM155, ATM52, ATM622 Fiber Optic, FDDI Fiber Optic, Fibre Channel 133, Fibre Channel 266, 1000BASE-LX, 100BASE-FX, 10GBASE-E, 40GBASE-FR

Report Generated 06/03/2020 10:16
Page 2 of 4

IDEAL NETWORKS

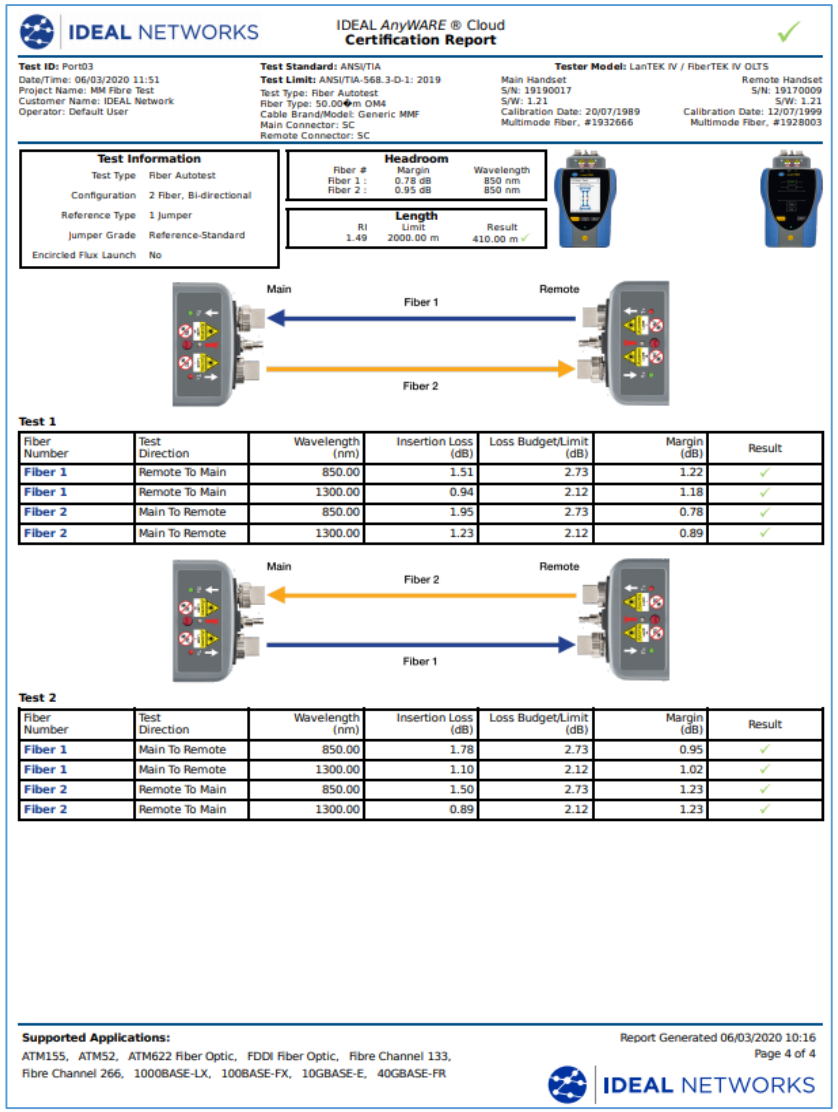
PDF test report

The tests and files can then be read and partially modified on computers with IDEAL AnyWARE Cloud
or desktop PC (IDEAL AnyWARE Desktop).

Directories synchronized via Wi-Fi will be automatically exported to the Cloud and then added to IDEAL AnyWARE Cloud in the “Jobs” menu.

Key:

- Upload jobs from USB using the Cloud and Desktop Swipe down from the top of the screen
- View, download and email PDF reports
- Download report
- Generate a PDF test report
- Share the report via an email link where the recipient can view and save the report



IDEAL NETWORKS

IDEAL *AnyWARE* ® Cloud
Certification Report

Test ID: Port03
Date/Time: 06/03/2020 11:51
Project Name: MM Fibre Test
Customer Name: IDEAL Network
Operator: Default User

Test Standard: ANSI/TIA
Test Limit: ANSI/TIA-568.3-D-1: 2019
Test Type: Fiber Autotest
Fiber Type: 50.00µm OM4
Cable Brand/Model: Generic MMF
Main Connector: SC
Remote Connector: SC

Tester Model: LanTEK IV / FiberTEK IV OLTS
Main Handset
S/N: 19190017
S/W: 1.21
Calibration Date: 20/07/1989
Multimode Fiber, #1932666

Remote Handset
S/N: 19170009
S/W: 1.21
Calibration Date: 12/07/1999
Multimode Fiber, #1928003

Test Information

Test Type	Fiber Autotest
Configuration	2 Fiber, Bi-directional
Reference Type	1 Jumper
Jumper Grade	Reference-Standard
Encircled Flux Launch	No

Headroom

Fiber #	Margin	Wavelength
Fiber 1 :	0.78 dB	850 nm
Fiber 2 :	0.95 dB	850 nm

Length

RI	Limit	Result
1.49	2000.00 m	410.00 m ✓

Main
Fiber 1
Remote
Fiber 2

Test 1

Fiber Number	Test Direction	Wavelength (nm)	Insertion Loss (dB)	Loss Budget/Limit (dB)	Margin (dB)	Result
Fiber 1	Remote To Main	850.00	1.51	2.73	1.22	✓
Fiber 1	Remote To Main	1300.00	0.94	2.12	1.18	✓
Fiber 2	Main To Remote	850.00	1.95	2.73	0.78	✓
Fiber 2	Main To Remote	1300.00	1.23	2.12	0.89	✓

Main
Fiber 2
Remote
Fiber 1

Test 2

Fiber Number	Test Direction	Wavelength (nm)	Insertion Loss (dB)	Loss Budget/Limit (dB)	Margin (dB)	Result
Fiber 1	Main To Remote	850.00	1.78	2.73	0.95	✓
Fiber 1	Main To Remote	1300.00	1.10	2.12	1.02	✓
Fiber 2	Remote To Main	850.00	1.50	2.73	1.23	✓
Fiber 2	Remote To Main	1300.00	0.89	2.12	1.23	✓

Supported Applications:
ATM155, ATM52, ATM622 Fiber Optic, FDDI Fiber Optic, Fibre Channel 133, Fibre Channel 266, 1000BASE-LX, 100BASE-FX, 10GBASE-E, 40GBASE-FR

Report Generated 06/03/2020 10:16
Page 4 of 4

IDEAL NETWORKS

Thank you

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