

# MAX-5205

## SIMPLE DWDM CHANNEL CHECKER



Intuitive channel checker to monitor DWDM channels and measure their power.

SPEC SHEET

### KEY FEATURES

Easy to use: intuitive graphical user interface (GUI) and workflow

Bar graph and table view on wide touchscreen display

High storage capacity and reporting from the field

Intelligent channel power level measurements

Compact and portable form factor

Covers C-BAND ITU-T G.692 DWDM grid channels (12-62) and PON wavelengths

### APPLICATIONS

DWDM networks

HFC networks

### RELATED PRODUCTS



Fiber inspection probe  
FIP-400B (WiFi or USB)



xWDM OTDR  
FTBx-740C



Optical spectrum analyser  
FTBx-5235



DWDM OCC + OTDR  
Optical Wave Expert



## COMPLEX NETWORKS, SIMPLE SOLUTIONS

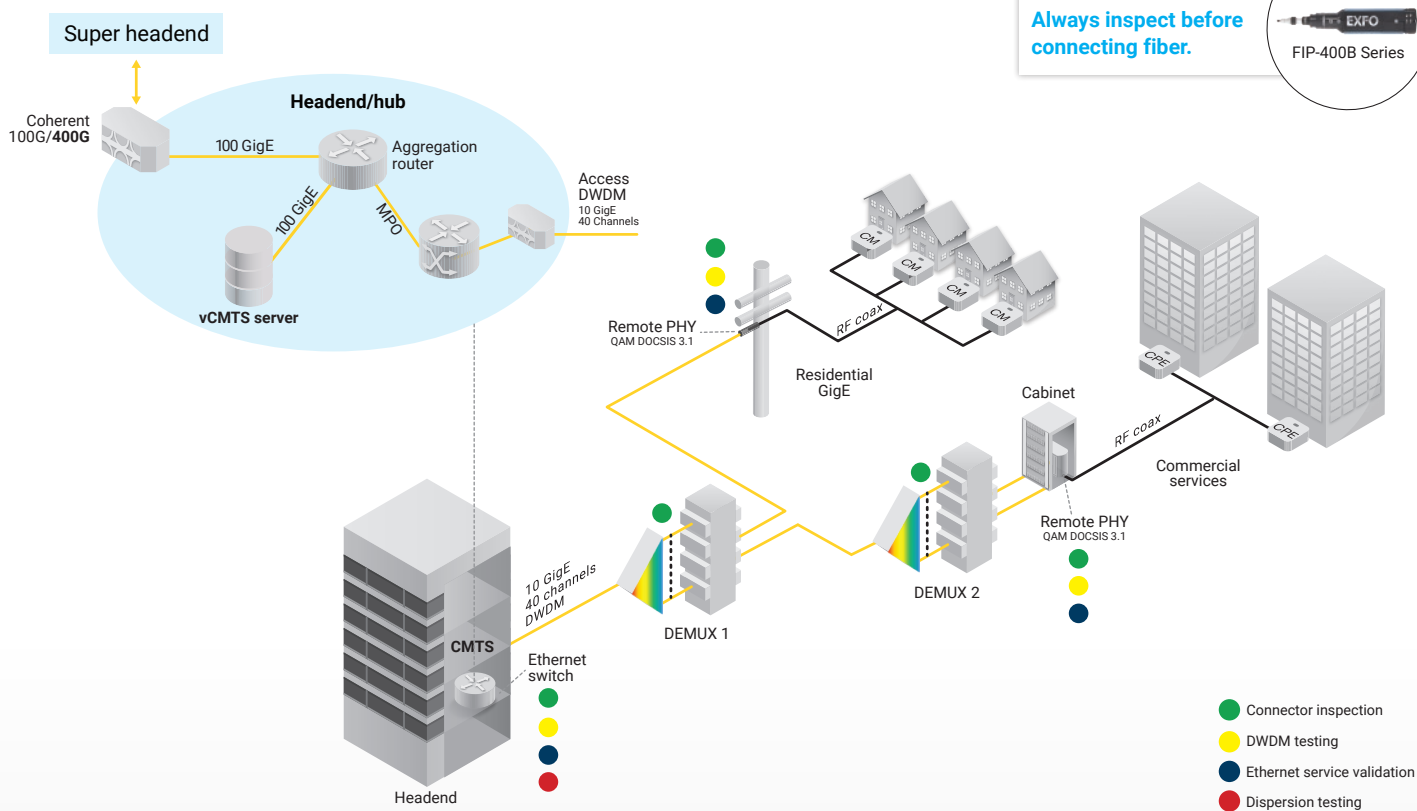
As fiber is pushed further into the Remote-PHY and distributed access architecture (DAA) networks, operators are leveraging the full spectral possibilities thanks to dense wavelength division multiplexing (DWDM).

The journey from radio frequency (RF) signals to digital optics featuring DWDM technology requires simple-to-use and intuitive solutions to avoid extensive training with accompanying lengthy learning curves as well as error-prone technical configurations.

The MAX-5205 optical channel checker leverages an intuitive workflow and a handheld form factor with a large screen display. This makes it an essential tool in the field for technicians troubleshooting or commissioning DWDM networks. Data storage and reporting capacity from the field avoids delays in closing jobs, loss of results.

With the plug-and-play optical add-ons (inspection probe, power meter and visual fault locator), this test kit becomes a powerful, agile and versatile solution for various network architectures.

## DWDM ACCESS NETWORK



### DAA using DWDM technology:

- › From hybrid fiber-coaxial (HFC) to the optical cable
- › 10 Gbit/s SFP for RPHY and up to 100 Gbit/s Ethernet for business services
- › Up to 40 ITU-T wavelengths
- › Up to 80 km (amplifier possibly present)
- › N+0 DOCSIS 3.1 architecture

### Watch out for these:

- › Wavelength and power loss in SFP carrier at the DEMUX or customer premises
- › Dispersion at 10 Gbit/s leading to high BER
- › Fiber bends and breaks
- › Dirty or damaged connectors

### Recommended tests at installation:

- › Dispersion (CD and PMD)
- › Connector inspection
- › Fiber characterization using DWDM ITU-T OTDR/iOLM to validate continuity through the MUX/DEMUX, loss, ORL and length

### Recommended tests at activation and for troubleshooting:

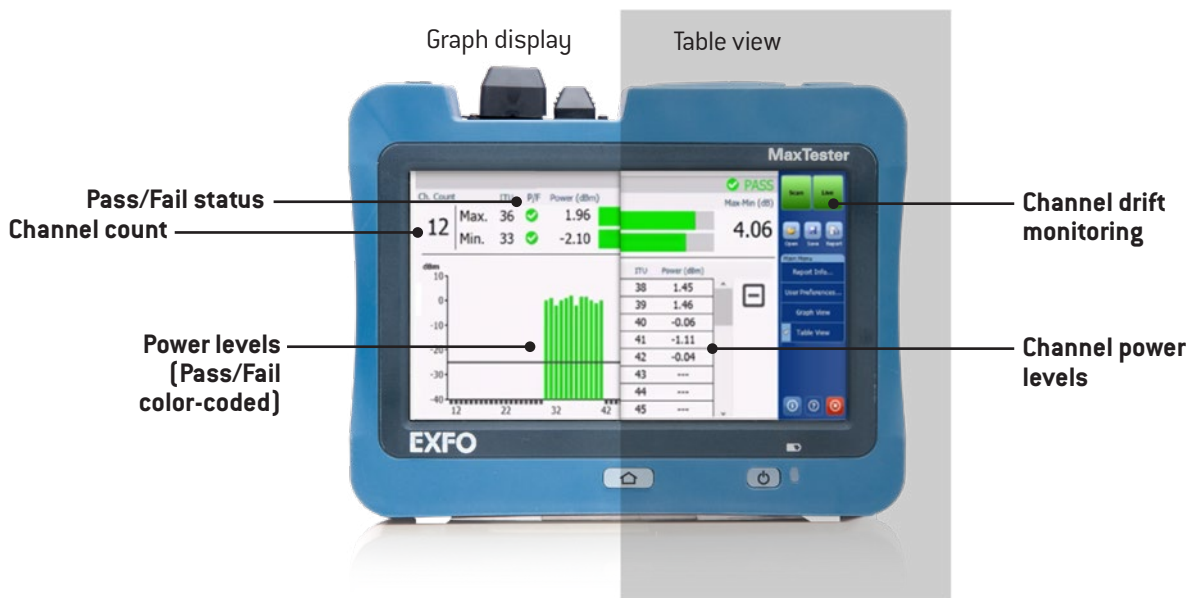
- › Spectral measurements (activation)
- › OSNR (if amplified)
- › ITU-T wavelength-specific OTDR
- › Connector inspection

### Common network issues:

- › Macrobends
- › Faulty connectors (dirty or damaged)
- › Low signal power or high noise level
- › High CD or PMD
- › Poor throughput
- › High latency
- › Poor path protection switch time

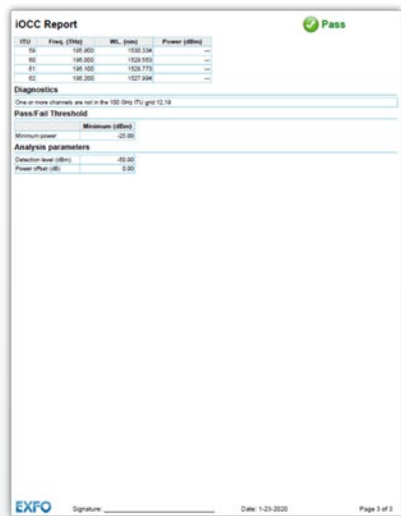
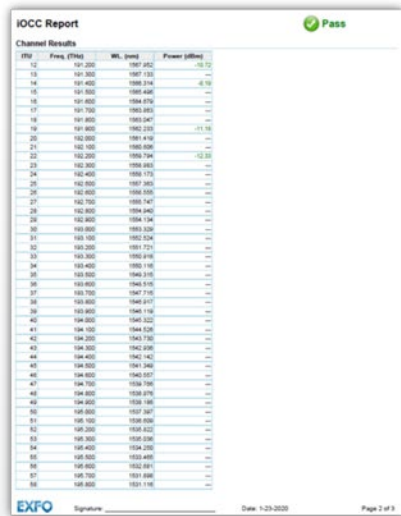
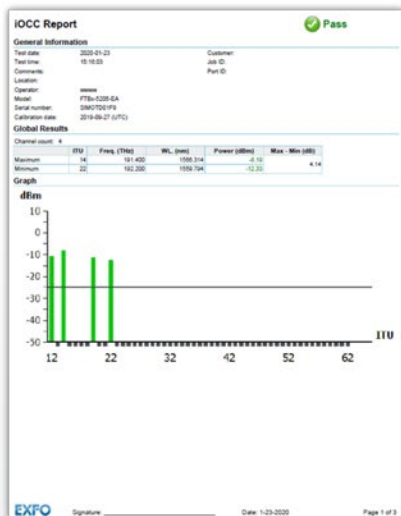
## INTUITIVE TEST RESULTS ANALYSIS

Thanks to its 7-inch outdoor-enhanced color touchscreen, the MAX-5205 offers an intuitive menu workflow and neatly displays test results analysis. Highly visual data representation allows for simpler and faster results assessment. Tests results can be displayed into graph display or table view to examine channel power levels. Color coding also provides contextual status over pass/fail analysis.



## SIMPLE STEP FROM TESTING TO REPORTING

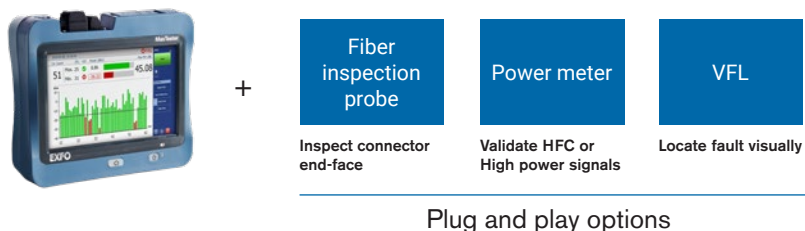
The MAX-5205 is not only able to store more than 20 000 tests results internally but can also generate reports in the field and share them instantaneously. This means jobs getting closed faster, no data consolidation required, no test results lost on the way and no more manual uploads. In essence: more time doing tests, less time reporting.



## DESIGNED FOR FLEXIBLE USE IN THE FIELD

The tried-and-tested MaxTester design—compact and portable—is a rugged field companion, built to withstand the harshest conditions. Its battery will provide sufficient power for up to 8 hours.

You can keep your options open with the MaxTester. The following plug-and-play optical options can be purchased whenever you need them: when you order or later on. In either case, installation is a snap, and can be done by the user without the need for any software update.



## OPTICAL POWER METER

This high-level power meter (GeX) can measure up to 27 dBm, the leading performance in the industry. It is essential for testing hybrid fiber-coaxial (HFC) networks or high-power signals. If used with an auto-lambda/auto-switching compatible light source, the power meter automatically synchronizes on the same wavelength, thus avoiding any risk of mismatched measurement.

- › Extensive range of connectors
- › Auto-lambda and auto-switching
- › Offers measurement storage and reporting
- › Seven standard calibrated wavelengths

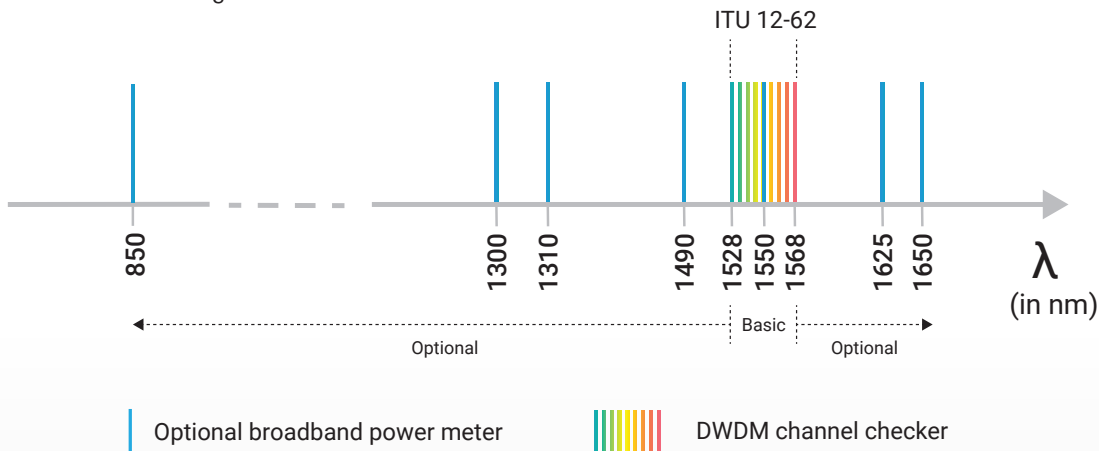


Figure 1. Channel checker and power meter wavelength range

## VISUAL FAULT LOCATOR (VFL)

The plug-and-play VFL easily identifies breaks, bends, faulty connectors and splices, as well as other causes of signal loss. Basic yet essential, this troubleshooting tool is a must-have in every field technician's toolbox. The VFL visually locates and detects faults over distances of up to 5 km by creating a bright-red glow at the exact location of the fault on singlemode or multimode fibers. (Note: Available with the optical power meter only)



## FIBER INSPECTION PROBE (FIP)

Properly inspecting a fiber-optic connector using our fiber inspection probe can prevent a host of issues from arising further down the line, thus saving you time, money and trouble.

From single fiber to MPO, our 6 models are tailored for different needs. Our fully automated probes come with autofocus capabilities that turn the critical inspection phase into a fast and hassle-free one-step process.



## FIP-400B SERIES OF FIBER INSPECTION PROBES

FEATURES	USB WIRED			WIRELESS		
	Basic FIP-410B	Semi-automated FIP-420B	Fully automated FIP-430B	Fully automated FIP-415B	Semi-automated FIP-425B	Fully automated FIP-435B
Three magnification levels	✓	✓	✓	✓	✓	✓
Image capture	✓	✓	✓	✓	✓	✓
Five-megapixel CMOS capturing device	✓	✓	✓	✓	✓	✓
Automatic fiber image-centering function	X	✓	✓	✓	✓	✓
Automatic focus adjustment	X	X	✓	✓	X	✓
On-board pass/fail analysis	X	✓	✓	X	✓	✓
Pass/fail LED indicator	X	✓	✓	X	✓	✓
WiFi connectivity	X	X	X	✓	✓	✓
Manual scanning for multifiber/MPO connectors	✓	✓	✓	✓	✓	✓
Automated multifiber/MPO inspection	✓	✓	✓	✓	✓	✓

\* Pass/fail analysis is field upgradable via software option

## LOOKING FOR MORE ADVANCED FAULT-FINDING CAPABILITIES?

Looking to validate channels and find faulty elements on the spot? The Optical Wave Expert was engineered for a seamless troubleshooting experience, from channel power validation to fault-finding capabilities on a single port. It provides real-time channel power readings and if an issue is detected, the tunable OTDR capabilities automatically kick in to find faults. Results and diagnostics are clearly displayed on a wide touchscreen.

The integration of channel checker and OTDR capabilities on a single port means less unnecessary manipulation of the optical fiber and improved field efficiency. This translates into faster mean-time-to-repair (MTTR) and makes the trial and error approach—which can disable nodes—obsolete.



Figure 2. The optical wave expert OTDR with channel checker

## SOFTWARE UTILITIES

<b>Software update</b>	Ensure that your MaxTester is up-to-date with the latest software.
<b>VNC configuration</b>	The Virtual Network Computing utility allows technicians to easily remote control the unit via a computer or laptop.
<b>Microsoft Internet Explorer</b>	Access the Web directly from your device interface.
<b>Data mover</b>	Transfer all your daily test results quickly and easily.
<b>Centralized documentation</b>	Instant access to user guides and other relevant documents.
<b>Wallpapers</b>	Enhance your work environment with colorful and scenic backgrounds.
<b>PDF Reader</b>	View your reports in PDF format.
<b>Bluetooth file sharing</b>	Share files between your MaxTester and any Bluetooth-enabled device.
<b>WiFi connection</b>	WiFi FIP inspection probe interface. Upload test results and browse the Internet.
<b>Inspection probe</b>	USB or WiFi probe to inspect and analyze connectors.

## OPTICAL CHANNEL CHECKER SPECIFICATIONS

### TECHNICAL SPECIFICATIONS

Wavelength range (C-band)	1527.99-1567.95 nm (191.2-196.2 THz)
ITU channels	ITU-T G694.1 channels 12-62
Channel spacing	DWDM 100 GHz
Dynamic range per channel (dBm)	10 to -40
Maximum total safe power (dBm)	20
Absolute power uncertainty (dB) (typical)	1
ORL (dB)	> 35
Measurement time (s)	< 3

## GENERAL SPECIFICATIONS

### TECHNICAL SPECIFICATIONS

Display	7-in (178-mm) outdoor-enhanced touchscreen, 800 x 480 TFT
Interfaces	Two USB 2.0 ports RJ45 LAN 10/100 Mbit/s
Storage	2 GB internal memory (20 000 OTDR traces, typical)
Batteries	Rechargeable lithium-polymer battery 8 hours of operation as per Telcordia (Bellcore) TR-NWT-001138
Power supply	Power supply AC/DC adapter, input 100-240 VAC, 50-60 Hz
Size (H x W x D)	166 mm x 200 mm x 68 mm (6 <sup>9</sup> / <sub>16</sub> in x 7 <sup>7</sup> / <sub>8</sub> in x 2 <sup>3</sup> / <sub>4</sub> in)
Weight (with battery)	1.5 kg (3.3 lb)
Temperature	Operating      -10 °C to 50 °C (14 °F to 122 °F) Storage        -40 °C to 70 °C (-40 °F to 158 °F)
Relative humidity	0 % to 95 % noncondensing

### BUILT-IN POWER METER SPECIFICATIONS (GeX) (optional)

Calibrated wavelengths (nm)	850, 1300, 1310, 1490, 1550, 1625, 1650
Power range (dBm)	27 to -50
Uncertainty (%)	±5 % ± 10 nW
Display resolution (dB)	0.01 = max to -40 dBm 0.1 = -40 dBm to -50 dBm
Automatic offset nulling range	Max power to -30 dBm
Tone detection (Hz)	270/330/1000/2000

### VISUAL FAULT LOCATOR (VFL) (optional)

Laser, 650 nm ± 10 nm
CW/Modulate 1 Hz
Typical P <sub>out</sub> in 62.5/125 μm: > -1.5 dBm (0.7 mW)
Laser safety: Class 2

## ORDERING INFORMATION

## MAX-5205-XX-XX-XX-XX-XX-XX-XX-XX

**Model**

MAX-5205 = DWDM channel checker  
C-band 1528-1568 nm (ITU 12-62),  
100 GHz

**Connector**

EA-EUI-28 = APC/DIN 47256  
EA-EUI-89 = APC/FC narrow key  
EA-EUI-91 = APC/SC  
EA-EUI-95 = APC/E-2000  
EA-EUI-98 = APC/LC

**Power meter**

00 = Without power meter  
VFL = Visual fault locator (650 nm)  
PM2X = Power meter; GeX detector  
VPM2X = VFL and power meter; GeX detector

**Power meter connector adapter**

FOA-22 = FC/PC, FC/SPC, FC/UPC, FC/APC  
FOA-32 = ST: ST/PC, ST/SPC, ST/UPC  
FOA-54B = SC: SC/PC, SC/SPC, SC/UPC, SC/APC  
FOA-96B = E-2000/APC  
FOA-98 = LC  
FOA-99 = MU

**WiFi and Bluetooth®**

00 = Without RF components  
RF = With RF capability (WiFi and Bluetooth) <sup>a, b</sup>

**Extra FIPT-400B tips<sup>c</sup>****Bulkhead tips**

FIPT-400-LC = LC tip for bulkhead adapters  
FIPT-400-LC-APC = LC/APC tip for bulkhead adapter  
FIPT-400-SC-APC = SC APC tip for bulkhead adapter<sup>g</sup>  
FIPT-400-SC-UPC = SC UPC tip for bulkhead adapter

**Patchcord tips**

FIPT-400-U12M = Universal patchcord tip for 1.25 mm ferrules  
FIPT-400-U12MA = Universal patchcord tip for 1.25 mm ferrules APC  
FIPT-400-U25M = Universal patchcord tip for 2.5 mm ferrules<sup>d</sup>  
FIPT-400-U25MA = Universal patchcord tip for 2.5 mm ferrules APC<sup>e</sup>

**Base tips<sup>f</sup>**

APC = Includes FIPT-400-U25MA and FIPT-400-SC-APC  
UPC = Includes FIPT-400-U25M and FIPT-400-FC-SC

**Inspection probe model<sup>g</sup>**

00 = Without inspection probe  
FP410B = Digital video inspection probe  
Triple magnification  
FP420B = Analysis digital video inspection probe  
Automated pass/fail analysis  
Triple magnification  
Autocentering  
FP425B = Wireless digital video inspection probe<sup>b</sup>  
Automated pass/fail analysis  
Triple magnification  
Autocentering  
FP430B = Automated analysis digital video inspection probe  
Automated focus  
Automated pass/fail analysis  
Triple magnification  
Autocentering  
FP435B = Wireless analysis digital video inspection probe<sup>b</sup>  
Automated focus  
Automated pass/fail analysis  
Triple magnification  
Autocentering

Example: MAX-5205-EA-EUI-91-VPM2X-FOA-54B-FP435B-APC-RF

a. Not available in China.

b. RF option is mandatory and automatically included if FP425B or FP435B fiber inspection probe model is selected.

c. This list represents a selection of fiber inspection tips that covers the most common connectors and applications but does not reflect all the tips available. EXFO offers a wide range of inspection tips, bulkhead adaptors and kits to cover many more connector types and different applications. Please contact your local EXFO sales representative or visit [www.EXFO.com/FIPTips](http://www.EXFO.com/FIPTips) for more information.

d. Included when UPC base tips are selected.

e. Included when APC base tips are selected.

f. Available if inspection probe is selected.

g. Includes ConnectorMax2 software.

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