

# MAX-5205/FTBx-5205

## SIMPLE DWDM CHANNEL CHECKER



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



### 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 scope  
FIP-400B (WiFi or USB)



100G multiservice test module  
FTBx-88260



Optical spectrum analyser  
FTBx-5235



xWDM OTDR  
FTBx-740C

## COMPLEX NETWORKS, SIMPLE SOLUTIONS

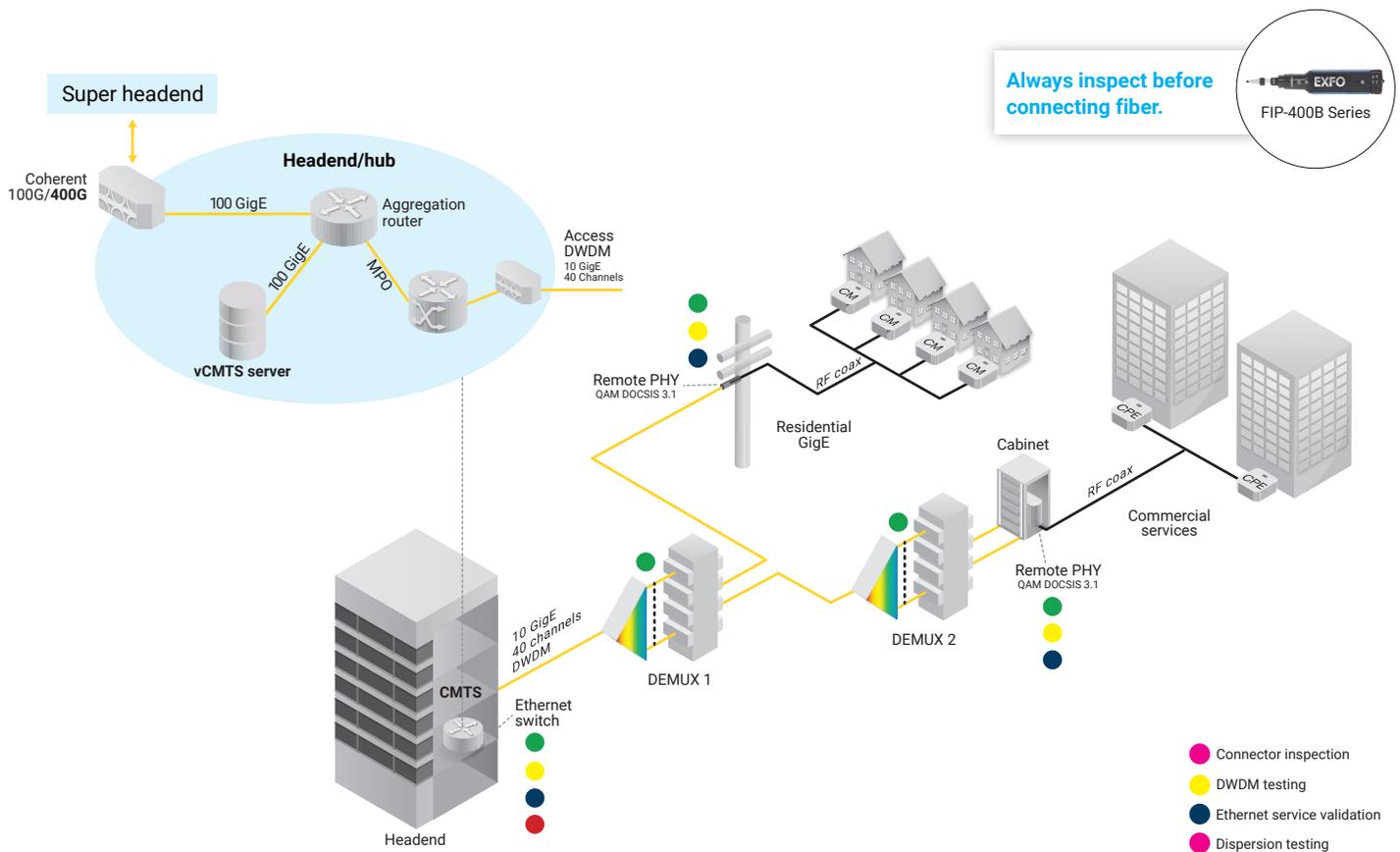
As fiber is pushed further into the Remote-PHY and distributed access architecture (DAA) networks, operators are leveraging the full spectral possibilities thanks to dense wavelength division multiplexing (DWDM).

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/FTBx-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 scope, 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

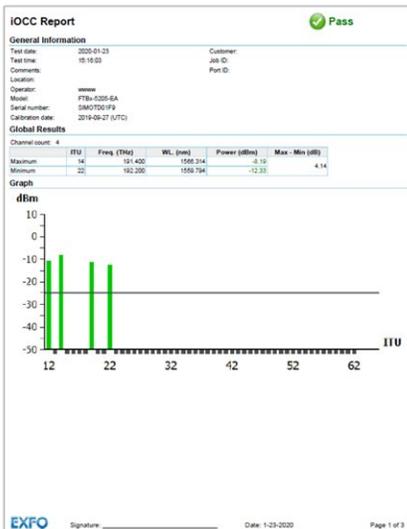
## INTUITIVE TEST RESULTS ANALYSIS (MAX-5205 ONLY)

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/FTBx-5205 is not only able to store more than 20 000 tests results 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.



**IOCC Report** ✔ Pass

**Channel Results**

ITU	Freq. (MHz)	WL (mhz)	Power (dBm)
12	191 200	1567 802	-10.72
13	191 300	1567 130	---
14	191 400	1566 314	-8.19
15	191 500	1566 698	---
16	191 600	1564 470	---
17	191 700	1563 853	---
18	191 800	1563 247	---
19	191 900	1562 233	-11.18
20	192 000	1561 416	---
21	192 100	1560 600	---
22	192 200	1559 794	-12.33
23	192 300	1559 683	---
24	192 400	1558 373	---
25	192 500	1557 369	---
26	192 600	1556 555	---
27	192 700	1555 747	---
28	192 800	1554 640	---
29	192 900	1554 134	---
30	193 000	1553 329	---
31	193 100	1552 524	---
32	193 200	1551 721	---
33	193 300	1550 918	---
34	193 400	1550 116	---
35	193 500	1549 316	---
36	193 600	1548 515	---
37	193 700	1547 715	---
38	193 800	1546 917	---
39	193 900	1546 119	---
40	194 000	1545 322	---
41	194 100	1544 526	---
42	194 200	1543 730	---
43	194 300	1542 936	---
44	194 400	1542 142	---
45	194 500	1541 348	---
46	194 600	1540 557	---
47	194 700	1539 766	---
48	194 800	1538 976	---
49	194 900	1538 186	---
50	195 000	1537 397	---
51	195 100	1536 609	---
52	195 200	1535 822	---
53	195 300	1535 036	---
54	195 400	1534 250	---
55	195 500	1533 465	---
56	195 600	1532 681	---
57	195 700	1531 898	---
58	195 800	1531 116	---

**IOCC Report** ✔ Pass

ITU	Freq. (MHz)	WL (mhz)	Power (dBm)
59	195 900	1530 334	---
60	196 000	1529 549	---
61	196 100	1528 773	---
62	196 200	1527 994	---

**Diagnosics**

One or more channels are not in the 100 GHz ITU grid 12-19

**Pass/Fail Threshold**

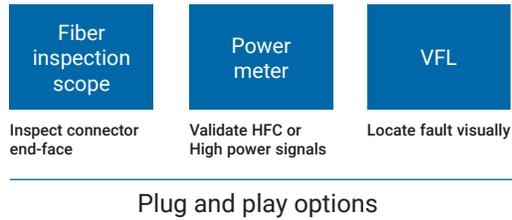
Minimum power	Minimum (dBm)
	-25.00

**Analysis parameters**

Detection level (dBm)	Power offset (dB)
-53.00	9.50

## DESIGNED FOR FLEXIBLE USE IN THE FIELD

You can keep your options open with both the MaxTester and FTB platforms. 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.



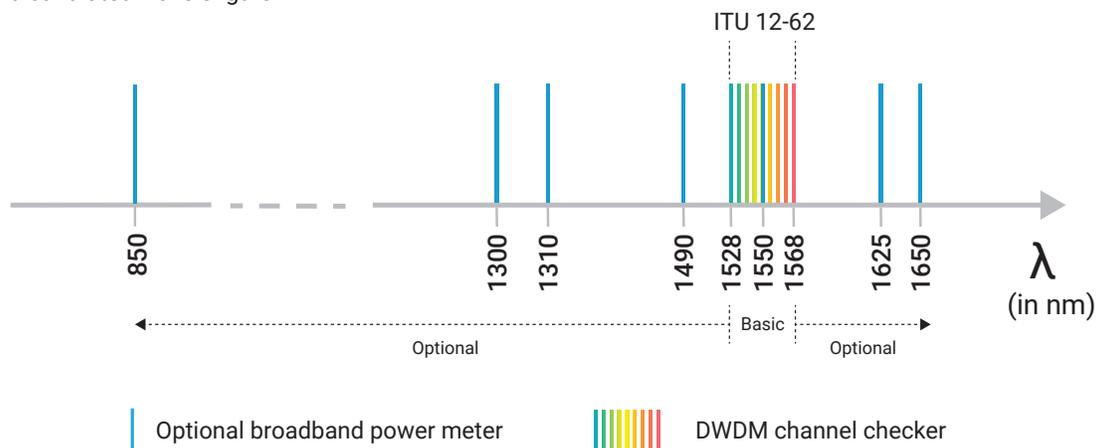
The FTBx-5205 module is compatible with:



## 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



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 SCOPE (FIP)

Properly inspecting a fiber-optic connector using our fiber inspection scope 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 scopes 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 SCOPES



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		•	•	•	•	•
Automatic focus adjustment			•	•		•
On-board pass/fail analysis		•	•	*	•	•
Pass/fail LED indicator		•	•		•	•
WiFi connectivity				•	•	•
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.



The optical wave expert OTDR with channel checker



**SOFTWARE UTILITIES (FOR MAX-5205 VERSION ONLY)**

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

**OPTICAL CHANNEL CHECKER SPECIFICATIONS (FOR MAX-5205 AND FTBx-5205)****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 (FOR MAX-5205 VERSION ONLY)

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 0 °C to 40 °C (32 °F to 104 °F) Storage -40 °C to 70 °C (-40 °F to 158 °F)
Relative humidity	0 % to 95 % noncondensing

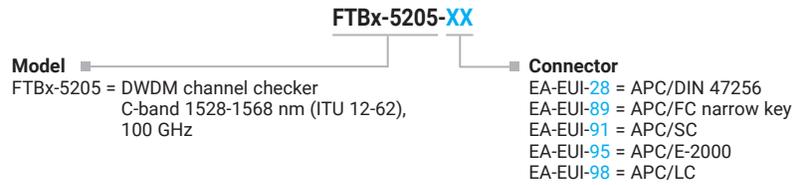
### BUILT-IN POWER METER SPECIFICATIONS (GeX) (OPTIONAL)

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)

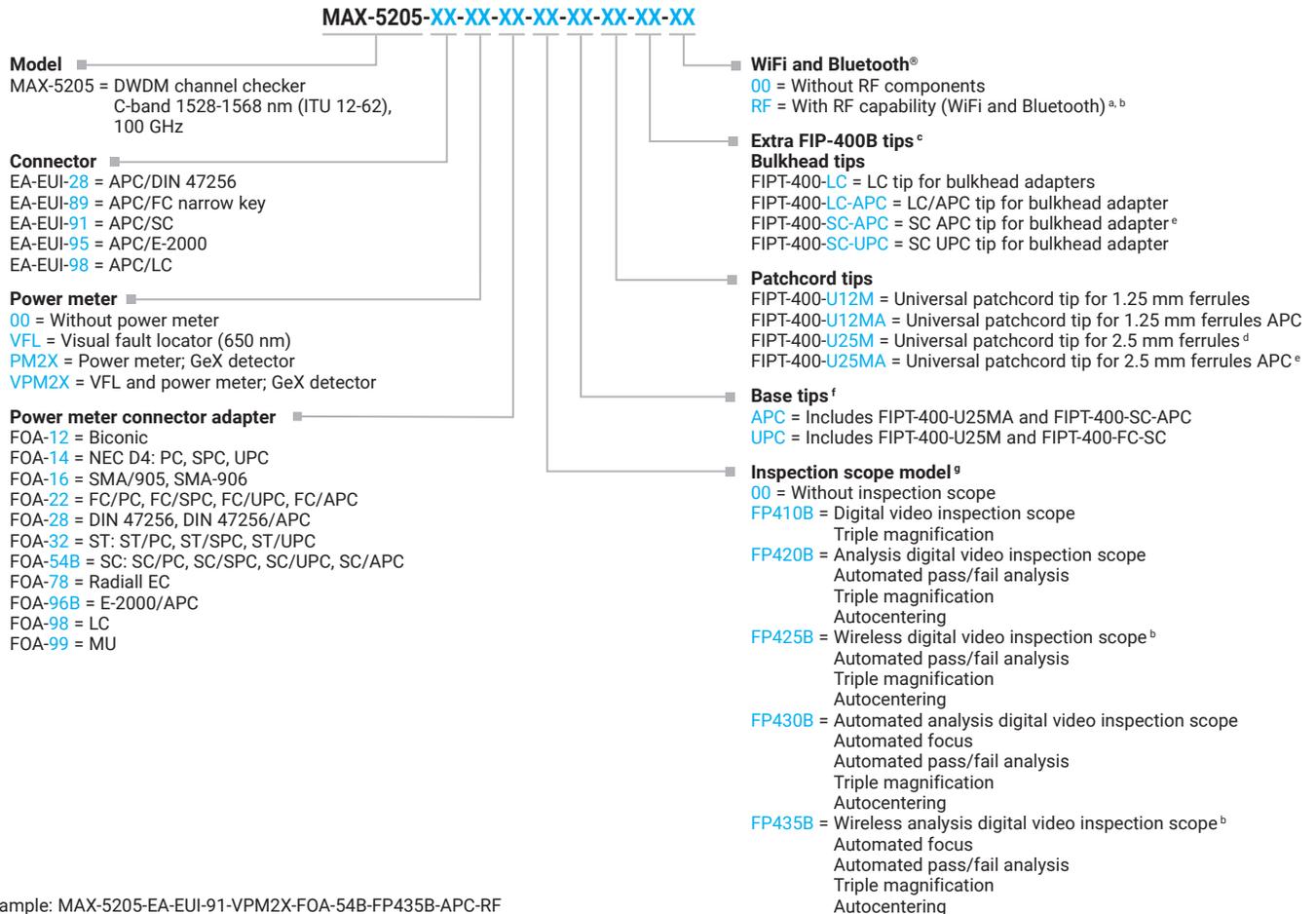
Laser, 650 nm ± 10 nm
CW/Modulate 1 Hz
Typical P <sub>out</sub> in 62.5/125 μm: > -1.5 dBm (0.7 mW)
Laser safety: Class 2

## ORDERING INFORMATION



Example: FTBx-5205-EA-EUI-91

## ORDERING INFORMATION



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 scope 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 scope is selected.

g. Includes ConnectorMax2 software.

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