

We are the leading OTDR manufacturer worldwide

Innovation at every step

EXFO OTDRs were engineered from the start to take the market by storm. And ever since, we have kept innovating, pushing the limits of OTDR technology further. The powerful evolutionary drive to remain on top is deeply ingrained in our OTDR genetics.



Our keys to success

Expertise

Our dedicated teams of experts have been driving innovation in optical testing for the past 30 years. We are a proud enabler of fiber network performance for our customers.

EXFO quality

We are committed all the way to uncompromising quality and adhere to the most rigorous standards. That's the EXFO quality seal.

Unmatched optical specifications

EXFO's optical specifications are renowned throughout the industry for unparalleled accuracy.

Complete test methods and procedures

We partner with our customers to deliver customized test methods and procedures.

Service and support that exceed expectations

We take pride in delivering world-class* customer service, technical support, training services and expert advice.

We listen to what our customers need and what keeps them up at night. Then, we deliver the solutions that fix the issues.

That's how we stay ahead of the game.

^{* 90%} Global Customer Satisfaction Index and a Best-in-Class Net Promoter Score according to Bain & Co. and Satmetrix scoring system in 2017.

OTDR evolution

Inventing the portable OTDR was only the first step

1992 New option for testing fiber right in the field (FCS-100 singlemode OTDR card)

1332	We introduced a lighter, more compact OTDR than anything else on the market. The age of portability begins.
1994	EXFO's first touchscreen OTDR (custom-built FTB-200 OTDR) Facilitating field jobs thanks to a bigger screen size, simplified navigation and increased trace visibility.
1996	First OTDR on a modular platform: A world first. (FTB-300 modular platform) A unique platform able to support different network applications, ushering in the era of modularity.
2006	First handheld OTDR invented (AXS-100) Bringing to market a more compact and lightweight instrument—the true handheld OTDR is born.
2009	First passive optical networks (PON) optimized OTDR (FTB-7300E) Fine-tuning OTDR configuration and performance to enable true passive optical splitters characterization.
2011	The still-unmatched iOLM—intelligent Optical Link Mapper Revolutionary application that transformed complex traditional OTDR test methods into a streamlined process delivering clear, automated, first-time-right results for technicians of any skill level. Still unmatched.
2013	The first tablet-inspired OTDR (MaxTester 700B Series) The handheld OTDR reinvented—compact with optimal screen size and unparalleled user experience.
2014	50%+ OTDR market shares worldwide* Driving OTDR leadership into the new era of fiber networks.
2016	Revamp of entire OTDR and iOLM product lines (C-Series OTDR) - Providing the highest requirements for characterizing fiber optic cables and ensuring first-time-right deployments.
2017	First to test DWDM and all 18 CWDM wavelengths in a single unit (740C-xWDM OTDR Series) - Saving multi- service operators (MSOs) and contractors valuable time and CAPEX and powering the deployment of passive xWDM fiber links.
2018	Compact, multitesting and flexible dual-carrier platform that combines EXFO's leading technology into one unit. Users can now swap out modules as needed for a complete and powerful solution for optical, Ethernet and

to now

multiservice applications

OTDR portfolio

Performance

From installation to network evolution Meet our three OTDR families

FTBx-700C and **MaxTester** FTBx-700C Series 700B/C Series FTB-7000 Series 8 models 6 models 3 models



Three models to handle your day-to-day fiber testing

We asked customers to describe the ideal handheld OTDR. Then, we made it.



















AND RUGGED

WIDESCREEN

TOUCHSCREEN

WINDOWS ENVIRONMENT FULL-D BATTE Y STORAGE

GE LIGHTW

IGHTWEIGHT

BLUETOOTH/WiFi

iOLM-READY



The MaxTester 715B Last-Mile OTDR

Optimized for point-to-point (P2P) testing and troubleshooting of FTTx architectures. **Ideal for testing short fibers** (e.g., inside CO environments or at fiber-to-the-antenna [FTTA]/ distributed antenna system [DAS] network installations).



The MaxTester 720C Access OTDR

Optimized for **singlemode and multimode** field testing for data centers, private/enterprise networks, FTTA and fronthaul deployments. Also ideal for FTTH characterization to test through optical splitters up to 1x32.



The MaxTester 730C PON/METRO OTDR

Optimized to **test through optical splitters up to 1x128**, ensuring complete **end-to-end FTTH characterization**. 1625 or 1650 nm, out-of-band, live testing port for **efficient troubleshooting of active networks** without affecting other signals. High dynamic range for **metro P2P testing**.

The FTBx-700C and FTB-7000 Series

Slotted in the FTB Ecosystem's higher-end platforms (FTB1-v2, FTB-2, FTB-2 Pro and FTB-4 Pro), the FTBx-700C and FTB-7000 OTDR Series^a addresses unidirectional or bidirectional OTDR testing needs for advanced optical characterization in joint applications with additional modules (optical loss testing [OLT], chromatic dispersion [CD], polarization mode dispersion [PMD], spectral analysis and, transport and datacom [T&D] testing modules).



Raw power and performance for advanced characterization



FTBx-720C LAN/WAN Access OTDR FREADY





Combining singlemode and multimode functionalities with a 36 dB dynamic range, and featuring the shortest dead zone to characterize closely spaced events, the FTBx-720C is recommended for everyday field testing in any access network as well as in LAN/WAN and data centers.



FTBx-730C PON FTTx/MDU OTDR IOLM



Optimized for PON characterization and troubleshooting, the FTBx-730C enables high resolution splitter measurement up to 1x128 and has a unique in-line 1490/1550 nm power meter to troubleshoot live FTTx networks. With a 39 dB dynamic range, it can test short metro links.



FTBx-735C Metro/PON FTTx/MDU OTDR FLADY



High-resolution OTDR powered with 42 dB of dynamic range for metro network testing up to 150 km and up to 1x128 splitter characterization in PON FTTx applications.



FTBx-740C CWDM/DWDM OTDR



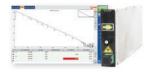
C-band DWDM and 18-wavelength CWDM tunable OTDR series for metro Ethernet, remote PHY and passive C-RAN link characterization



FTBx-750C Metro/Longhaul OTDR IOLM



The FTBx-750C has a dynamic range of 46 dB and is ideal for testing long links and performing bidirectional measurements on transmission cables for highly accurate fiber characterization.



FTB-7600E Ultra-Longhaul OTDR

High-end fiber characterization and submarine cable testing. Characterize fiber with maximum accuracy over distances of more than 200 km.

Three easy steps for a perfect match



Choose your network application



Choose your form factor



Choose your technology



Choose your network application

Data centers
Enterprise/private networks
LAN/WAN

FTTx last-mile CATV/HFC P2P access

Cell backhaul DAS / small cells FTTA Remote radio head (RRH)

Short dead zones to locate closely spaced events

Multimode and singlemode testing in a single unit

Encircled Flux (EF) multimode launch conditions for maximum loss measurement accuracy

Single-button certification with clear "go/no-go" status

On-board pass/fail thresholds compliant with the latest international standards (including TIA-568, ISO11801)for data center certification Dynamic range optimized for troubleshooting performance and characterization accuracy on short links

Last-mile installation and continuity at splitter confirmation

Dynamic range optimized for troubleshooting performance and characterization accuracy on short links

Short dead zones to locate closely spaced events

Automated bidirectional testing feature to certify Rx/Tx cable in one go



Passive optical LAN (POL) FTTH/PON/MDU Short metro

C-RAN Remote PHY / Fiber deep Passive C/DWDM networks C/DWDM metro Ethernet links

Metro/core Metro Ethernet Longhaul

Submarine cables Ultra-longhaul

Dynamic range and resolution optimized at intermediate pulse widths for accurate 1x128 splitter detection and measurement

In-service testing with filtered 1625 or 1650 nm wavelength

Unique in-line power meter to check optical power at 1490/1550 nm before troubleshooting.

Single port; no disconnection between the two measurements for a smooth workflow

39 dB dynamic range to characterize any point-to-point network from access to short metro links

Specific ITU-grid CWDM and DWDM channels for end-to-end testing through add/drop or MUX/DEMUX

In-service testing of active network using the customer's wavelengths port without impacting other customers wavelengths

Troubleshooting and characterization by a single operator from the head-end

Dynamic range above 40 dB to test metro/core or longhaul links

High resolution at shortest pulse widths to account for many closely spaced splice points Test reach of up to 250 km

Highest dynamic range possible (up to 50.5 dB) for deploying and maintaining long fiber spans typically seen in ultra-longhaul and very high-speed networks

Choose your form factor

From day-to-day tasks. . .



Dedicated handheld unit



TestFlow

MaxTester 700B/C Series

Rugged, lightweight and cost-effective for intensive field use

- 100% dedicated to fiber optics: connector inspection, power measurement and OTDR
- 7-inch outdoor enhanced touchscreen
- Only 1.29 kg (2.8 lb)
- Full-day autonomy (12 hours battery life)
- Plug and play options (power meter, visual fault locator)
- 2 GB built-in memory
- Bluetooth® and WiFi (optional)
- EXFO Connect-compatible

Field-modular handheld platform



FTB-1v2/ FTB-1 Pro Platform

Small, yet powerful platform empowering frontline technicians

- Perfect for field testing optical, 10M-to-100G Ethernet and multiplay services
- 8-inch outdoor enhanced touchscreen
- 64 or 128 GB built-in memory
- Supports third-party applications (e.g., TeamViewer, Skype)
- Bluetooth and WiFi (optional)
- EXFO Connect-compatible
- Available in 1- or 2-slot configurations

The Bluetooth® word mark and logos are registered trademarks owned by the Bluetooth SIG, Inc.

... to advanced multiservice testing.

Full-sized modular compact platform

Up to 2 modules

FTB-2/FTB-2 Pro Platform

The most powerful compact multitechnology platform for the supertech

- The most powerful compact solution on the market for 10M-to-100G multitechnology and multiservice testing
- 10.1-inch outdoor enhanced touchscreen
- 64 or 128 GB built-in memory
- USB 2.0 and USB 3.0
- Bluetooth and WiFi (optional)
- EXFO Connect-compatible

Full-sized modular platform

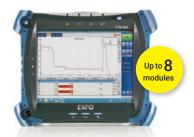


FTB-4 Pro Platform

Versatile multitechnology portable test platform

- The most versatile platform for fiber characterization, 10M-to-400G Ethernet configurations, ROADM commissioning, multiservice transport testing and up to 100G testing
- 10.1-inch outdoor enhanced touchscreen
- 128 GB built-in memory
- USB 2.0 and USB 3.0
- Bluetooth and WiFi (optional)
- EXFO Connect-compatible

Full-sized modular platform



FTB-500 Platform

Boundless capabilities. Testing unlimited. The next-gen network enabler.

- Fiber characterization, distributed PMD, 10M-to-100G, ROADM,
 C/DWDM and much more
- 12.1-inch outdoor enhanced touchscreen)
- 250 GB hard drive
- 3G, Bluetooth and WiFi (optional USB dongles)
- EXFO Connect-compatible

Choose your technology

There's the traditional OTDR method . . .

Precise software analysis and a set of features that accelerate test routines.



Market-leading performance and unmatched user-friendliness

- Select your preferred mode: Auto or Advanced
- Change test parameters on the fly
- Efficiently analyze traces with multizoom tool
- Automatically generate reports
- Read single-pulse OTDR trace easily with a linear icon view

90-day free trial

.. and then there's the iOLM.

OTDR testing comes with its share of challenges:









EXFO developped a better way to test fiber optics:

i OLM | intelligent Optical Link Mapper

iOLM is an OTDR-based application designed to simplify OTDR testing by eliminating the need to configure parameters and/or analyze and interpret multiple complex OTDR traces. Its advanced algorithms dynamically define the testing parameters as well as the number of acquisitions that best fit the network under test. By correlating multipulse widths on multiple wavelengths, iOLM dynamically locates and identifies all network components and faults with maximal resolution—all at the push of a single button.



Dynamic multipulse acquisition

Intelligent trace analysis

Combine all results in a single link view

Turning traditional DTDR testing into clear, automated, first-time-right results for technicians of any skill level.



A perfect fit for your specific requirements



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	Applications	RUGGED & DEDICATED MaxTester 700B/C	FTB-1v2/FTB-1 Pro
	Data centers Enterprise/private networks LAN/WAN	MaxTester 720C Quad + iCERT Compact & handy Tier-2 certifier	FTBx-720C Quad + iCERT Compact & powerful Tier-2 certifier + FTBx-945 Quad Certifier for complete Tier-1/Tier-2 certification
	FTTx last-mile CATV/HFC P2P access	MaxTester 715B Rugged & cost-effective frontline testing MaxTester 720C Rugged & powerful frontline testing	FTBx-720C Highly efficient workflow & versatile
	Cell backhaul DAS / small cells FTTA Remote radio head (RRH)	MaxTester 720C + iLOOP Rugged & efficient testing	FTBx-720C + iLOOP Highly efficient workflow & testing + FTBx-88XX Power Blazer for complete optical & Ethernet up to 100G/CPRI/OBSAI turn-up kit
	Passive optical LAN (POL) FTTH/PON/MDU Short metro	MaxTester 730C Rugged & cost-effective	FTBx-730C Highly effficient workflow and versatile + FTBx-945 for OLTS/OTDR fiber characterization
	C-RAN Remote PHY / Fiber deep Passive C/DWDM networks C/DWDM metro Ethernet links		FTBx-740C All your xWDM channels in one compact box + FTBx-88XX Power Blazer for complete 8 compact C-RAN turn-up kit
	Metro/core Metro Ethernet Longhaul		FTBx-735C Highly effficient & versatile FTBx-750C Extra power for long-haul

Submarine cables Ultra-longhaul



MODULAR & MULTI-TEST FOCUSED FTB-2/FTB-2 Pro FTB-4 Pro

FTB-500 (8 slots)

FTBx-720C Quad + iCERT Powerful Tier-2 certifier

+ FTBx-945 Quad Certifier for complete Tier-1/Tier-2 certification + FTBx-88XX for complete optical & Ethernet kit up to 400G

FTBx-720C + iLOOP

Highly efficient workflow & testing

+ FTB-5700 for CD/PMD in cell backhaul + FTBx-5235 for spectral analysis in fronthaul & backhaul

FTBx-740C

All your xWDM channels in one compact box

+FTBx-5235 for spectral analysis + FTB-5700 for CD/PMD analysis + FTBx-88XX Power Blazer for complete turn-up solution up to 400G

FTBx-735C

Highly effficient & versatile

FTBx-750C

Extra power for long-haul

+ FTBx-5245/5255 for spectral analysis

FTB-7600E

Ultimate power for ultra-long distance

+ FTBx-5245/55 for spectral analysis

FTB-7400E

Total fiber characterization

+ FTB-5500B + FTB-5800

FTB-7600E

Ultimate power for ultra-long distance

+ FTB-5500B + FTB-5800 for total fiber characterization

FTB-7600E Ultimate power for ultra-long distance

Unmatched flexibility and efficiency in the field

FTB-1
Flexible,
dual-carrier
platform

Adapted for dedicated applications. Dedicated to helping you adapt.

Thanks to its small format, ultra-powerful processing and highly intuitive interface, the FTB-1v2 is optimized to allow field technicians to carry out dedicated optical, Ethernet and multiservice test applications simply and efficiently.



Dual-carrier—Create the combination best suited to your daily needs

Enjoy unparalleled flexibility with this lightweight, compact OTDR that lets you add a new module to your current unit or create your own combo:

OTDR + OLTS

OTDR + 10G module (Ethernet/CPRI)

OTDR + 100G module

Combo OTDR CWDM + DWDM



FTBx-940/945 Fiber Certifier OLTS 10LM



The FTBx-940/945 Fiber Certifier OLTS has been specifically designed to certify fiber cabling in data centers and enterprise networks. The unit's intuitive Windows-like user interface ensures a minimal learning curve. The FTBx-940/945 Fiber Certifier offers icon-based functions, onboard assistance and onboard professional reporting.



FTBx-8870/8880 10G Dual/Quad Port



Easily turn up, validate and troubleshoot OTN, SONET/SDH, DSn/PDH, ISDN/PRI, CPRI, eCPRI, Fibre Channel and Ethernet services up to 10 Gbit/s in converged optical networks.



FTBx-88200NGE/FTBx-88260 100G Multiservice Testing



The most comprehensive all-in-one tester, including testing for legacy networks at 64K all the way up to next-generation networks at speeds of 100G.

Accessories to fully equip your supertech



Launch cables

Cover dead zones and enable loss measurement on first and last fiber connectors. Available as modular (FTB-LTC), portable (SPSB) and stand-alone (PSB) in lengths of 150, 300, 500. 1000 and 2200 m.

Encircled Flux Frompliant



Remove uncertainty when testing high-speed multimode networks. An external EF-compliant device like the SPSB-EF-C30 ensures a fast and easy way to fix faulty networks (as per TIA -526-14-B and IEC 61280-4-1 Ed. 2.0).

Power meters

Offered as stand-alone units or slotted in the test platform, power meters assess fiber link power levels and establish basic loss measurements. Up to 40 calibrated wavelengths and high-power options are available.

Visual fault locator (VFL)

Offered as a stand-alone unit or integrated into the platform, a VFL easily identifies breaks, bends, faulty connectors and splices, or other causes of signal loss. Basic yet essential, it should be part of every field technician's toolbox.

Flexible connectivity

Connect your platform anytime, anywhere. Push data to the cloud, to a device or acquire a platform's location via GPS.

Carry-on utility bag

All your tools within hand's reach and an extra layer of protection for your OTDR to face outside plant conditions. Available for the MaxTester 700B/C series and FTB-1 platform.

Additional features to boost your productivity



Real-time averaging

Activates OTDR laser in continuous shooting mode; the trace refreshes in real time and allows for monitoring of the fiber for sudden changes. Perfect for a quick overview of the fiber under test.



OTDR automode

Used as a discovery mode, this feature automatically adjusts the distance range and pulse width in function with the link under test. Recommendation: adjust the parameters to perform additional measurements in order to locate other events.



Set parameters on the fly

Dynamically change OTDR settings for the ongoing acquisition without stopping or returning to submenus.



Macrobend finder

Built-in feature enables the unit to automatically locate and identify macrobends—no need to spend additional time analyzing traces.



Bidirectional analysis

Combines results from both directions to provide an average loss for each event. Use it with the iOLM for maximum resolution in both directions (multiple pulse widths at multiple wavelengths), as well as a consolidated view. The process is fully automated using the iLoop function in iOLM or FastReporter data post-processing software.



Linear view (default on all EXFO OTDRs)

A straightforward display of all events, related loss and ORL values of a single OTDR acquisition.



Map view (featured on iOLM)

Detailed digital representation fiber links, derived from the combination of multiple OTDR pulse widths and multiple wavelengths for complete link characterization. Each element is clearly labeled with a real component icon, including split ratio for optical splitters. Map view provides comprehensive diagnosis and corrective actions for each failure in the link.



Loopback testing mode (iLOOP)

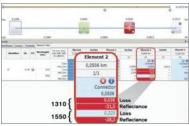
This iOLM-based application relies on the loopback single-ended measurement method to characterize two fibers at once. The application splits the results into two individual links, thus eliminating the need for post-processing. It simultaneously tests Rx/Tx fibers with a simple loop jumper between the two fibers, provides pass/fail assessments and generates individual iOLM and OTDR (.sor) reports for each single fiber.



#1 cause of network failures is contaminated connectors.



Contaminants in a connection will impact reflectance and loss.



ConnectorMax Inspection Probes—The first fully automated wireless fiber inspection probe

Are your OTDR test results flawless?

Connector inspection is all too often overlooked because it is considered a time-consuming hassle. With the ConnectorMax, it doesn't have to be that way anymore. This wireless **auto-focus** probe-compatible with single- and multifiber connectors-**revolutionized** fiber inspection by turning it into a quick and simple **one-step process** for **technicians of any skill level**, driving false positive results to extinction.

Optimal inspection results.

In minimum **57%** less time.*



See it in action: www.EXFO.com/KeepTheFocus

^{*} Data sourced from EXFO's case study, with calculations based on typical analysis time.

TestFlow

90-day
FREE TRIAL
EXFO.com/TestFlow



ANALYZE

Verify quality, compliance, efficiency and progress via insightful analytics dashboards.







TEST & UPLOAD

Automate test application configuration and auto-upload results



VALIDATE

Automate validation of results; find issues in seconds, not hours.



3

REPORT

Centralized access to results and custom report templates.



Get ready for the next job faster

Powerful end-to-end field test management solution to help you close jobs more efficiently.

- Batch-processing of hundreds of files for documentation; ready-to-go
- Combine multiple optical measurement types into a single report (OTDR, CD, PMD, iOLM, inspection, etc.)
- Bidirectional measurements and reports for true splice characterization
- Live field reporting (available with FTB-1v2, FTB-1 Pro, FTB-2, FTB-2 Pro and FTB-4 Pro platforms)
- iOLM loopback reporting-save 50% test time
- Report generated in various formats: PDF, Excel and HTML
- EXFO Connect integration—manage your data through the cloud

OTDR summary chart¹

				APPLICATIONS														
																		Wave
Dlatformo	rms	OTDR	MODEL NAME					Centers		net	xWDM systems						Standard multimode	testing wavelength
	Platforms	MODEL	MODEL NAME	Last Mile	Access (P2P)	FTTH/PON	Fronthaul/Backhaul	LAN/WAN, Enterprise, Data Centers	Metro (P2P)	CWDM/DWDM Metro Ethernet	Passive Point-to-multipoint xWDM systems	Longhaul	Ultra-Longhaul	CATV/HFC	Passive Optical LAN (POL)	Live Fiber Troubleshooting	850	1300
	ers	MaxTester 715B	Last-Mile OTDR	•	•		•							•		•		
	MaxTesters	MaxTester 720C	LAN/WAN Access OTDR	•	•	•	•	•						•	•	•	27	29
	Ma	MaxTester 730C	PON/METRO OTDR	•	•	•	•		•					•	•	•		
		FTBx-720C	LAN/WAN Access OTDR	•	•	•	•	•						•	•	•	27	29
	C)	FTBx-730C	PON FTTx/MDU OTDR		•	•	•		•					•	•	•		
FTB-2/FTB-4	TB-1	FTBx-735C	Metro/PON FTTx/MDU OTDR	•	•	•	•		•					•	•	•		
	ш	FTBx-740C	C/DWDM Tunable OTDR		•	•	•		•	•	•			•	•	•		
		FTBx-750C	Metro/Longhaul OTDR		•		•		•			•		•				
	FTB-500	FTB-7400E	Metro OTDR	•	•		•		•									
	ETB.	FTB-7600E	Ultra-Longhaul OTDR	•	•		•		•			•	•					

¹ Get the most up-to-date information about OTDR specifications on www.EXFO.com. In case of any discrepancies between this chart and our online specifications sheets, use the latter as reference.

² Distances are estimates only; this estimates consider a 5 dB buffer and averaged attenuation of 0.25 dB/km. Many other variables can affect distances such as fiber type, wavelength, splices, connections, fiber anomalies, etc.

³ 45 dB on tri-wavelength configuration

⁴ Except for the 1383 nm wavelength

⁵ FTB-1 single carrier or dual carrier versions

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				0	PTIC <i>A</i>	L SPE	CIFIC	ATIONS	AA	71 X 1	ОРТ	IONAL	PER	PHER	ALS	ОТ	DR FE	ATUR	ES	X
ength	(nm)	/ Dyna	mic ra	ange a	t 20 µ	s (dB)						PI	atforn	ns			Mod	ules	2	-
Standard Singlemode testing wavelength				Water peak testing	CWDM channels	DWDM channels			nce							cled Flux (EF)			X 1/1	
1310	1490	1550	1625	1650	1383	Up to 18 channels	C-band 1528/1568 nm (ITU 12-62), 100/50 GHz	Event Dead Zone (m)	Attenuation Dead Zone (m)	Typical point-to-point distance at 1550 nm (km/miles) ²	EXFO Connect-Compatible	Optical Power Meter	Visual Fault Locator	WiFi and Bluetooth	Inspection Probe	Singlemode (SM)	Multimode (MM) and Encircled Flux (EF) compliant	iOLM-Ready	In-Line Power Meter	
30		28	28					1	4	92/57	•	•	•	•	•	•		•		
36		35	35					0.5 (MM)/0.7 (SM)	2.5 (MM)/3 (SM)	120/75	•	•	•	•	•	•	•	•		
39		38	39	39				0.5	2.5	132/82	•	•	•	•	•	•		•	•	
36		35	35					0.5 (MM)/0.7 (SM)	2.5 (MM)/3 (SM)	120/75	•	•	•	•	•	•	•	•		
39		38	39	39				0.5	2.5	132/82	•	•	•	•	•	•		•	•	
42	41	41	41					0.5	2.5	144/89	•	•	•	•	•	•		•	•	
> 37	> 37	> 37				> 37	> 40	1.1 (CWDM) 0.7 (DWDM)	5 (CWDM) 3.5 (DWDM)	128/80 (CWDM) 140/87 (DWDM)	•	•	•	•	•	•		•		
46³		46³	45					0.5	2.5	164/102	•	•	•	•	•	•		•		
42		41	41		40			0.8	4	144/89	•	•	•	•	•	•		• 4		
50.5		50.5	48					1	5	180/112	•	•	•	•	•	•				

