FX92

Optical Channel Checker

DWDM (C-Band)

The FX92 OCC simplifies verification and maintenance of DWDM systems by scanning and automatically reporting all available channels with individual wavelength or frequency and total power levels. It offers four simple views to check the performance of each channel and an OPM view mode is available for single channel details. Further elevate your compliance by using the customizable channel plans and 2-channel level comparison feature to verify your network.

Platform Highlights

- Robust and ergonomic handheld design for field environments
- Intuitive graphical user interface (GUI)
- Large and bright high-resolution color display for easy viewing
- Easy to use and responsive capacitive touchscreen with gesture support
- Customizable user profiles
- Fast boot-up time
- Large internal data storage for test results
- Generate and save test reports in HTML file format and export to PDF
- Compatible with NoApp® cloud service, with native NFC and QR support, for immediate test result transfer and sharing
- Built-in WiFi option
- Built-in web access server for remote control and management
- USB-C PD interface for charging, memory sticks and LAN adapters
- Rechargeable Li-ion battery offers up to six hours of continuous operation
- Low voltage alarm with auto-off feature

Key Features

- Fast scan speed, <1 second
- Continuous scanning of all channels (C-band)
- Viewing modes: Summary, Tile, Bar Graph, and Table
- Active channel detection
- Customizable channel plans to focus on expected wavelengths
- Programmable Pass/Fail level thresholds
- Max Hold feature helps identify channel level fluctuations and intermittent channel events
- 2-channel level comparison
- Test point attenuation compensation function
- Frequency spectrum: 191.00 – 196.25 THz
- Wavelength range: 1569.59 to 1527.60 nm
- Peak wavelength resolution: 0.01 nm
- DWDM channel grid: 100 GHz (50 GHz optional) ITU-T G.694.1
- Frequency accuracy*: ±6.25 GHz
- Channel input power*: -40 to 0 dBm at 50 GHz
- Power measurement resolution: 0.1 dB
- Relative power accuracy*: 0.9 dB
- Maximum channels composite power: 22 dBm

**Refer to the Optical Specifications section*

Test Applications

Dense wavelength-division multiplexing (DWDM) has fast become the technology of choice for telecom, mobile, cable, and data center operators expanding their optical transport networks. Traditionally, DWDM was mostly reserved for use in the metro aggregation and the core backbone network, however today it is quickly addressing new applications in the edge and access networks.

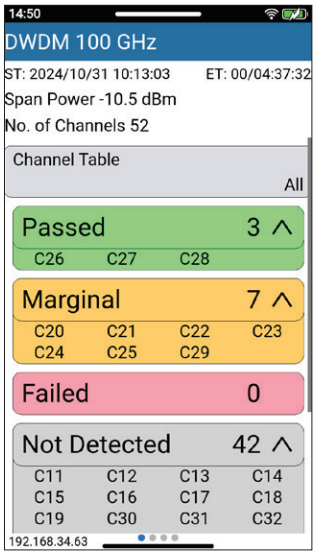
Cable operators are leveraging DWDM as they build Remote-PHY and distributed access architecture (DAA) networks. Data centers critical for delivering internet services, employ DWDM for high bandwidth data center interconnects (DCI). DWDM is also playing a significant role in 5G mobile front/mid/backhaul networks which rely on high-speed, high-capacity transmission to enable new services.

Field technicians may be unfamiliar with DWDM technology, so the FX92 OCC has been engineered to make optical spectrum testing quick and straightforward. The intuitive graphical user interface simplifies the most important tests that technicians are required to perform. Channel wavelength and power levels are measured automatically and results can be displayed in either Summary, Tiles, Graph, and Table views, for in depth analysis - intuitive color coding provides fast and easy pass/fail analysis of signal status.

Summary

Provides a high-level snapshot of the total number of channels in the test profile, including the channels that are not being detected, passed, marginal, and/or failed based on the pass/fail thresholds.

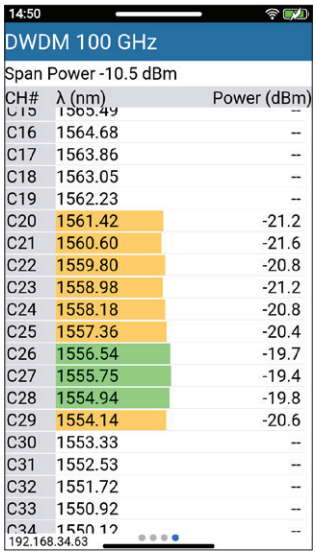
The Tile, Bar, and Table viewing modes can be easily accessed and displayed by swiping left or right with our responsive gesture support giving users a quick navigation system to those test results.



Bar Graph

Displays the channels' power levels using a horizontal bar graph format. Each bar is color coded: Red indicates fail, orange indicates marginal power, and green indicates pass. Within a few seconds of connecting to the test port, users can check the status of every channel in the test profile, including those requiring attention.

Bars are also very useful to visualize and analyze power tilt for channel equalization purposes.

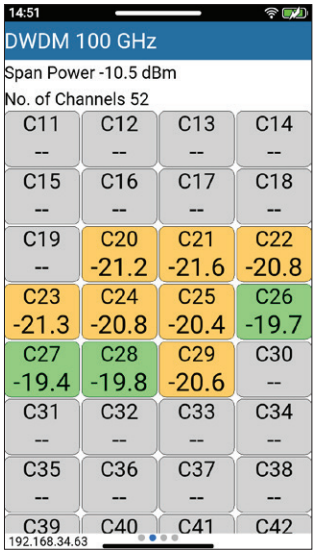


Tiles

Presents channel information in an easy to tap and access layout. The tiles are color coded to indicate which channels pass, fail, are considered marginal, or were not detected.

Each individual tile represents a channel with its corresponding signal level so users can easily check the performance of each channel.

Tapping on a tile displays the power level results, for that specific channel, in more detail.

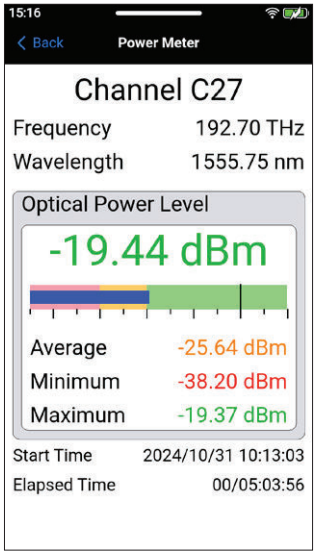


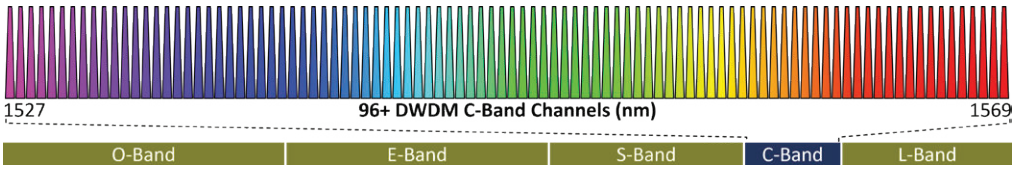
Table

Displays the power level including the peak frequency or wavelength for each channel. The channel numbering is based on the ITU-T G.694.1 grid scheme. Sort your table from highest to lowest frequency or wavelength or from weakest to strongest power level by pressing on the table headers.

Single Channel Mode

Tapping on a channel allows users to review the average, minimum and maximum power level, and duration of the test in greater detail.





Platform Features & Options

General Platform Functions

- File Manager
- Multiple user profiles
- Screen lock
- Screen capture
- Calculator

VeSion® R-Server™ Client

VeEX's R-Server enhances and streamlines job workflows to achieve the highest level of quality and repeatability required by telecom service providers, MSOs and their contractors.
The centralized Workflow and Asset Management architecture provides important tools to manage teams of technicians, test equipment, standardized test profiles, test results collection, reporting functions, including jobs/ticketing resulting in a more disciplined and improved test process.

Key Features

- Cloud-based: One system platform
- Seamless integration: Single system for job ticketing and work order management
- Visibility: Comprehensive overview of field test equipment assets and field technician activity
- Tamper-proof: Lock profiles, registration, date/time on tester for a consistent test environment

Web Remote & Web Access

The test set offers multiple ways for remote control and provides remote access to its information from a PC, tablet, or smartphone (e.g. test results, test profiles, screenshots, etc.). The test set can be easily reached via:

- Standard web browser
- VNC® Client app
- EZ Remote™ cloud service
- Connectivity: Optional WiFi 802.11 b/g/n (built-in), 10/100/1000BASE-T port (optional USB-C dongle)

EZ Remote™

The EZ Remote functionality allows users to quickly connect to VeEX test sets all over the world, without the need for VPN, port forwarding or public IP addresses. This VeEX-hosted cloud service takes care of all the complex tasks required and presents users with a simple application.
Connect online anytime, anywhere, with any computer, tablet, or smartphone, using standard web browsers for screen-sharing, remote control, and access to test results. Use it for remote control, collaboration, technical support or training purposes.

- Remote Control - Provides full control of remote test sets (screen mirroring and touch/mouse control)
- Remote Access - Allows users to View, Download, Rename, Delete, Convert to PDF the test results
- No VPN setup required
- Works through firewalls, no ports to open
- Web browser based
- Multi-platform (OS) support
- No software to install
- Service included with test set

NoApp® Test Results Transfer

NoApp uses NFC and QR code technologies to quickly transfer test results from the test set to smartphones or tablets for cloud processing, streamlining workflows, and reporting. It's a web-based solution that works on any screen size, requires no application software installation or updates, and is always up to date, eliminating the need for constant IT approvals. It's compatible with any modern smartphone or tablet that supports NFC and QR Code reader.

- Geotagging test results
- Generate PDF reports
- Compile different test results into a single job report
- Upload test results to R-Server
- Add pictures and files
- Effective job closing, maintenance, and birth certificates
- Share test results via SMS and/or email
- Export to JSON format
- Access quick guides and resources
- Secure
- No registration required

No App Using QR Code

No App Using NFC

Optical Specifications[1]

Parameters	Units	Notes	DWDM C-Band
Frequency Range	THz	-	191.00 to 196.25
Wavelength Range	nm	-	1569.59 to 1527.60
Channel Spacing (ITU-T G.694.1)	GHz	-	100 (50 optional)
Channel Input Power Range	dBm	2	-40 to 0
Maximum Input Power	dBm	9	+22
Frequency Accuracy	GHz	4, 6, 8	± 6.25
Absolute Power Accuracy			
✓ 0 to -30 dBm (DR up to 10 dB)	dB	6, 8	± 1.1
✓ 0 to -30 dBm (DR up to 15 dB)	dB	6, 8	± 1.3
✓ -30 to -40 dBm (DR up to 10 dB)	dB	7, 8	± 1.2
✓ -30 to -40 dBm (DR up to 15 dB)	dB	7, 8	± 1.5
Dynamic Range (over spectrum)	dB	5	15
Relative Power Accuracy	dB	4, 7, 8	0.9 max
Power Repeatability	dB	6	0.4 max
Polarization Dependent Loss (PDL) Impairment	dB	-	0.9 max
Noise Floor (dark level)	dBm	2	-45
Optical Return Loss (ORL)	dB	-	30
Scan Time	sec	3	1
Optical Connector	-	-	fixed SC/APC

Notes
1. Specifications are guaranteed over operating temperature and frequency/wavelength range (unless stated)
2. Integrated optical power within any 50 GHz range
3. Includes scanning time, data acquisition, post processing, and display
4. Average polarization
5. Full dynamic range over spectrum
6. With input power in the range of 0 to – 30 dBm; Minimum provision-able bandwidth 12.5 GHz
7. With input power in the range of 0 to – 40 dBm; Minimum provision-able bandwidth 12.5 GHz
8. Adjacent channel power variation no more than 15 dB from signal under measurement
9. Damage threshold

General Specifications

Display (LCD)	5” TFT color screen, 720x1280px Capacitive multi-touch
Data Storage	
Internal Flash	1.7 GB (user’s data)
External	USB-C memory stick (not included)
Remote	Upload via VeSion® R-Server (optional)
Connectivity/Management	
WiFi	Built-in 802.11 b/g/n (optional) 2.4 GHz
Ethernet	USB-C to 100/1000BASE-T adapter (optional)
NFC	Built-in NFC transceiver
USB	USB Type-C
Battery	
Capacity	24 Wh, 3.3 VDC, 7200 mAh
Type	Rechargeable Lithium-Ion
Autonomy	≥ 6 hours of continuous operation
AC/DC Adapter	45W, 15 VDC, 3.0A max
AC Input	100-240 VAC 50/60 Hz, 1.3A max
DC Output	15 VDC, USB-C Power Delivery (PD)
Dimensions (W x H x D)	107 x 202 x 44 mm 4.21 x 7.95 x 1.73 inches
Weight	605g (1.33 lb) including battery
Environmental	
Operating Temperature	-5˚C to 50˚C (23˚F to 122˚F)
Storage Temperature	-40˚C to 60˚C (-40˚F to 140˚F)
Humidity	5% to 85%, non-condensing
Compliance	CE, WEEE, RoHS

The Verification Experts

RoHS

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