AFL

Test & Inspection

WDM900

Lightwave Test Set

User's Guide

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Introduction

The WDM900 is a rugged, portable and easy-to-use optical test set that simplifies in-service testing of live DWDM and CWDM networks. Two different models of WDM900 are available.

- WDM900-40 – designed for commissioning, testing and troubleshooting of DWDM Access/Metro network links.
  In this User's Guide, **WDM900-40** model will be referred to as **(-40)**.
- WDM900-60 – designed for commissioning, testing and troubleshooting of CWDM and DWDM Access/Metro network links.
  In this User's Guide, **WDM900-60** model will be referred to as **(-60)**.

The WDM900 acquires the network signal, measures the characteristics of each CWDM/DWDM channel present and determines which signals satisfy user-defined limits for channel power, wavelength deviation, optical signal-to-noise ratio and other indications of network and signal integrity. Optical signal-to-noise ratio measurements are consistent with the IEC 61280-2-9 specification. The Health Meter graphically summarizes network performance via an easy to interpret color-coded indicator for each channel. Simply touching a non-conforming channel launches the Channel Detail display, which shows graphically and numerically how measured attributes compare to the acceptance criteria. Within just seconds of connecting to a network port, WDM900 users know the status of each channel, which channels require attention and exactly what action is required.

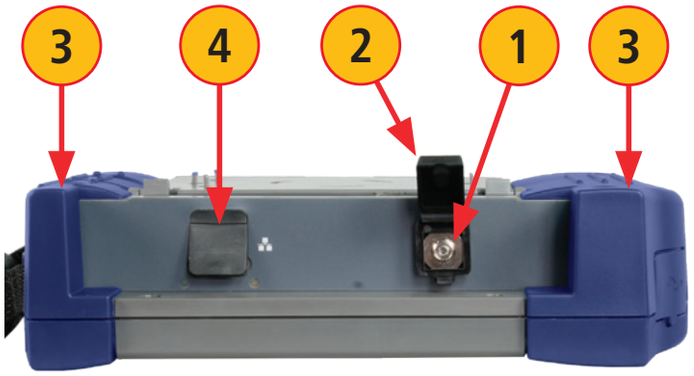
The WDM900's innovative Health Meter is protected by US Patent # 9,515,726.

A comprehensive reporting application provides one-touch capture and reporting capabilities. Reports are easily managed using time stamps, report titles, keywords/keyword search and tagging. Reports are easily exported in .pdf and .csv formats via off-the-shelf USB memory sticks.

The WDM900 is engineered to perform under the harsh conditions typically found in a central office, headend, network node and other outside plant locations. Its highly-integrated solid state design features a hermetically-sealed optical path and no moving parts. An internal wavelength reference and temperature-stabilized measurement circuits eliminate long warm-up periods and accuracy drifts induced by sudden temperature and humidity changes. The WDM900 is the only portable WDM measurement system that satisfies Telcordia GR-2952-CORE environmental specifications.

Hardware Overview

Controls, Ports, and Features



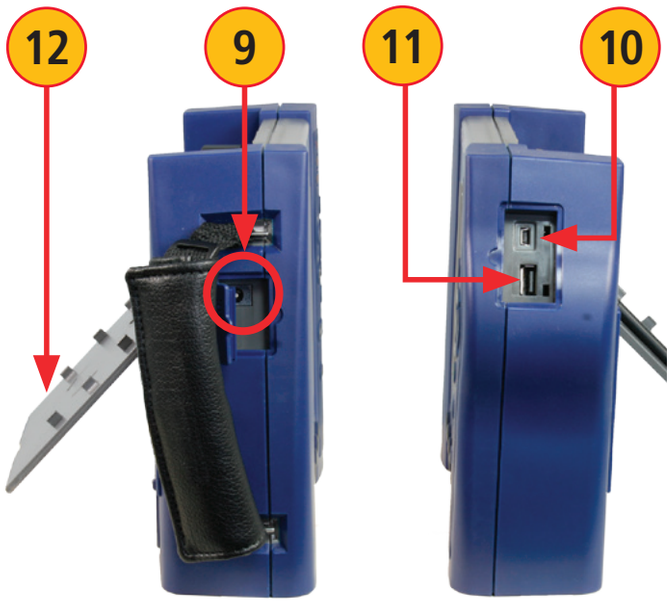
Top Panel View

Front Panel View

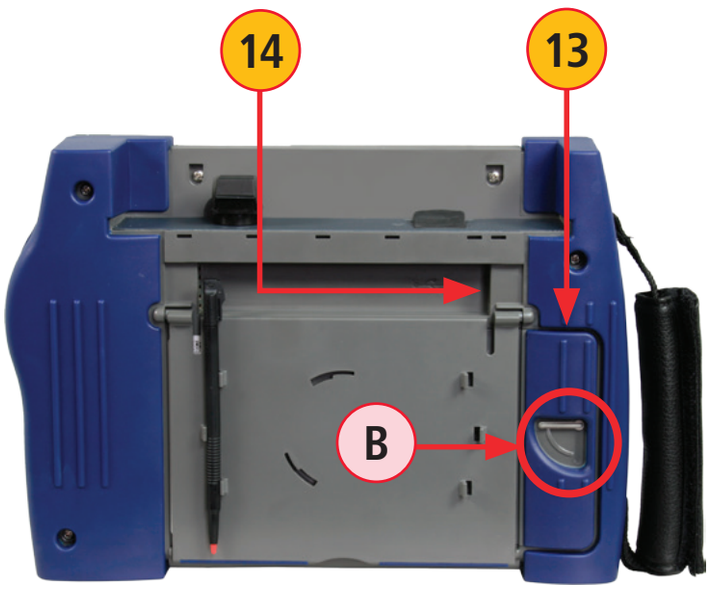
#	Feature	Description
1	Test Port	An optical port accepts AFL's thread-on adapters (SC, FC, LC; UPC ferrules only). This test port is used for connection to CWDM/DWDM-based access network.
2	Dust Cap	Used to protect an optical port from dust and damage.
3	Rugged Case	A shock-absorbing molded rugged case.
4	Ethernet Port	This is an Ethernet port that accept cables with RJ-45 connectors.
5	Display	Contains on-screen controls and menus. Used to show setup menus and test data information.
6	Hard Keys	See section "Front Panel Keys and Indicators" on page 6 for details.
7	Soft Function Keys	These keys have the same function as the buttons (A) displayed on the bottom of the User Interface screens. Press these keys (or touch buttons on touchscreen) to perform the indicated functions or expand a menu.
8	Wrist Strap	Wrist strap may be used for the convenience of carry and operation.

Hardware Overview

Controls, Ports, and Features



Left Side Right Side



Back Side View

#	Feature	Description
9	Power Port	AC power adapter/charger input.
10	Mini-USB Port	This Mini-USB port is for AFL test purposes only.
11	USB Host Port	This USB port may be used to transfer test reports to a USB Flash Drive.
12	Tilt Stand	Tilt stand may be used for the convenience of operation.
13	Battery Compartment	Holds removable/rechargeable Li-ion battery. To unlock the battery compartment door, turn the door latch (B) down and then lift the compartment door to access the battery compartment.
14	USB Host Port	This second USB port may be used to transfer test reports to a USB Flash Drive.

Hardware Overview

Front Panel Keys and Indicators

Hardware Overview

Front Panel Keys and Indicators

The use of each key is summarized in the table below.

Ref	Key/Indicator	Function
1	AC Adapter/ Charger Indicator	This indicator Illuminates when the AC adapter/charger is connected: • RED light ON indicates that battery is charging. • GREEN light ON indicates that battery is fully charged.
2	Power Key	Press and hold (~2 seconds) to turn the WDM900 on or off.
3	Power Indicator	This indicator Illuminates when the WDM900 is turned on.
4	Capture Key	Press to capture the displayed test results.
5	Back Key	Press to return to the previous screen.
6	Zoom In/Out Key	Pressing this key allows the user to alternate between two View Types: '3 Channel View' or 5 Channel View'.
7	Home Key	Press to display Health Meter main screen.
8	Five Way Navigation Button Cluster	• In the Channel Health Details screen, press the left and right ◀ ▶ arrow keys to pan across the C-band, one channel at a time. • In the Record Carousel Viewer, press the left and right ◀ ▶ arrow keys to scroll one record at a time.
9	Left and Right Tab Keys	In the Record Carousel Viewer, press the left and right tab keys ⇦ ⇨ to scroll 5 records at a time.
10	Function Keys	These keys have the same function as the buttons (A) displayed on the bottom of the User Interface screens. Press these keys (or touch buttons on touchscreen) to perform the indicated functions or expand menu.

Product Overview

Health Meter Mode

The Health Meter mode screen is the main screen that the user will see when the WDM900 powers up. When the powered up WDM900 is connected to a live CWDM/DWDM **(-60)** or DWDM **(-40)** network, the user will see the Health Meter mode screen similar to the image below. The Health Meter screen provides a real-time view of per-channel Health across the entire network and displays a summary of the characteristics of each channel present on the optical link under test.

Detected channels are presented graphically by user-defined color-coded indicators that identify channels as Healthy **A**, Marginal (CWDM only) **B** or Unhealthy **C** by both color and level.

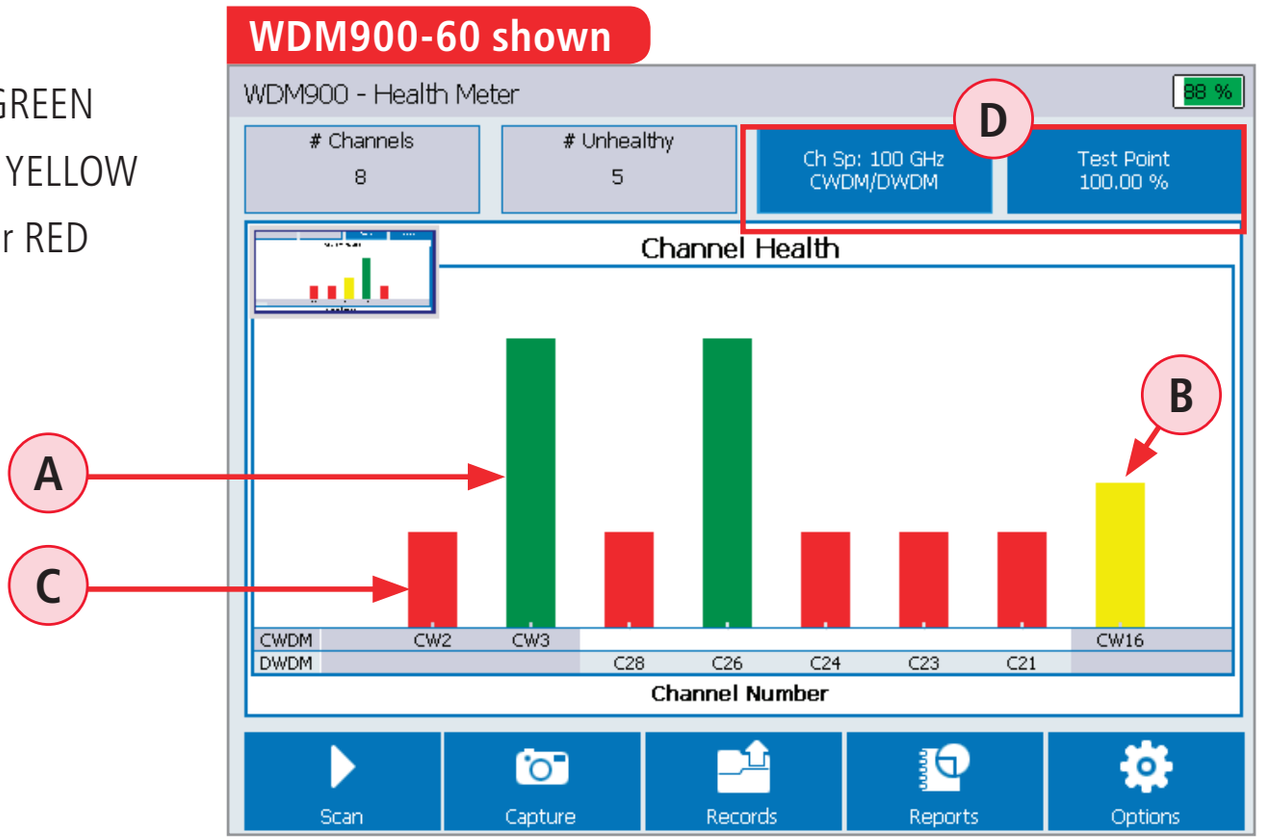
Also, the Health Meter screen displays key WDM network configuration parameters **D**, which are easily set by the user on the same screen

Healthy - default color GREEN

Marginal - default color YELLOW

Unhealthy - default color RED

WDM900-60 shown



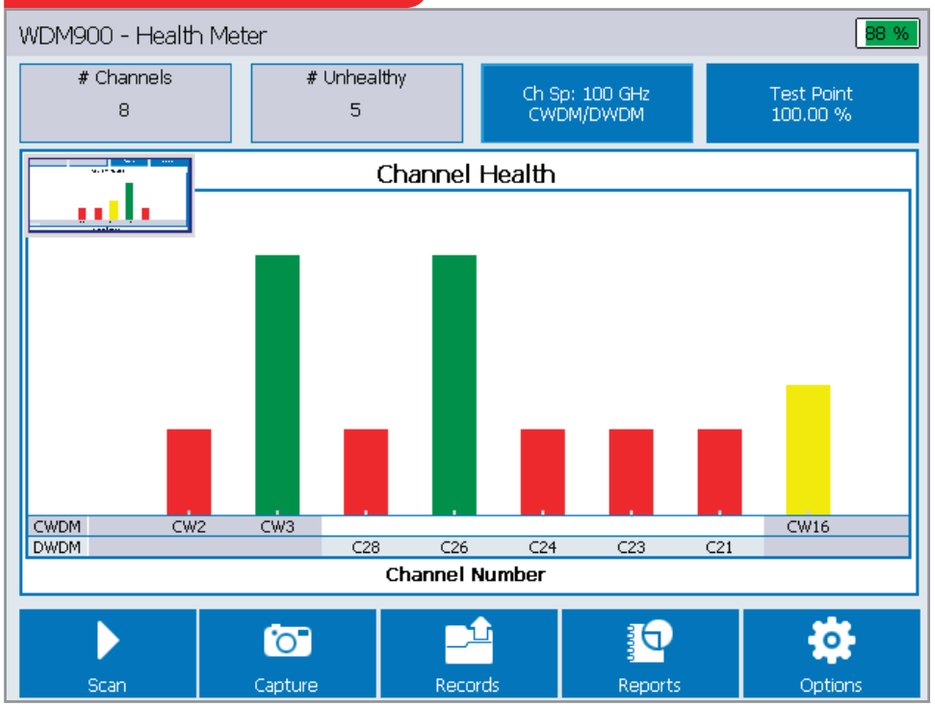
Product Overview

Health Meter Mode

The WDM900 analyses the CWDM/DWDM **(-60)** or DWDM **(-40)** optical spectrum and performs an automatic health analysis of every channel present. For CWDM, the channel health criteria used in this analysis are the minimum channel power and the marginal channel power. For DWDM, the channel health criteria used are the minimum channel power, the minimum channel OSNR, and the maximum channel frequency shift tolerance. The WDM900 is initialized with factory default values for these criteria, which can be edited by the user within valid ranges. Healthy (GREEN) channels meet or exceed all criteria. Marginal (YELLOW) CWDM channels meet the minimum channel power threshold, but fail to meet the marginal channel power threshold. Unhealthy (RED) channels fail to meet at least one of the criteria.

The Health Meter screen horizontal axis indicates the CWDM and/or DWDM channel number.

WDM900-60 shown

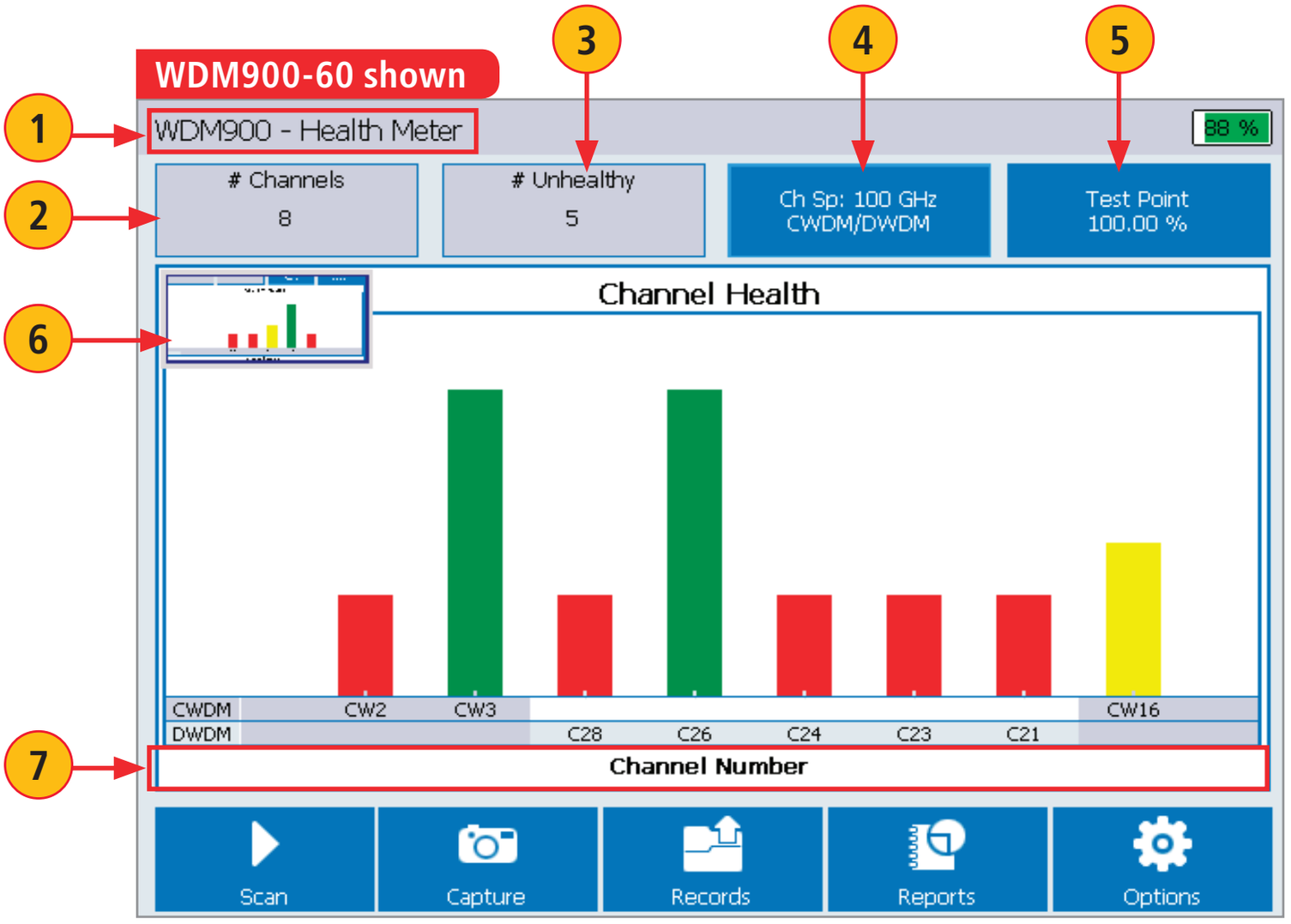


Product Overview

Health Meter Features

When the WDM900 operates in the Health Meter mode, it acquires a network signal, measures the characteristics of each channel* present, summarizes and graphically presents network performance with color-coded indicator for each channel. The user will see the Health Meter screen similar to the image shown below.

*CWDM/DWDM channel in **WDM900-60 model** or DWDM channel in **WDM900-40 model**.



Product Overview

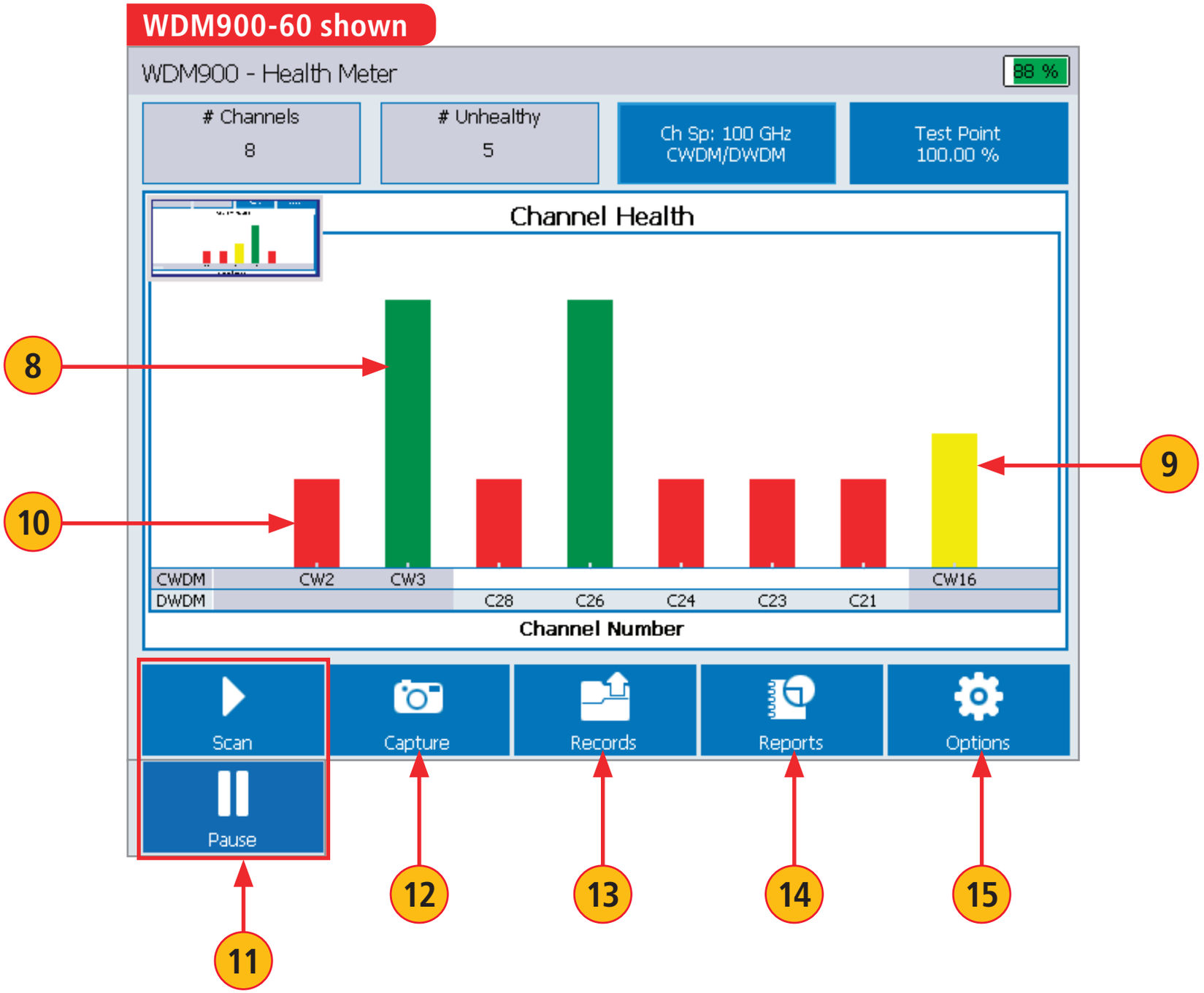
Health Meter Features

Ref	Feature	Description
1	Header	Screen header indicates the current mode. In our example on the previous page, it indicates that the WDM900 operates in the real-time Health Meter mode.
2	# Channels Field	The WDM900 analyzes network and reports the number of DWDM (Channel Spacing: 100 GHz or 50 GHz selectable) and CWDM channels present*.
3	# Unhealthy Field	The WDM900 compares the measured channel characteristics to the health criteria defined by the user. Channels that fail to satisfy the health criteria are reported as Unhealthy.
4	Channel Spacing and WDM Channel Configuration field	This field displays the WDM channel configuration* (CWDM and/or DWDM, plus DWDM channel spacing - 50 or 100 GHz). Pressing this filed opens the menu where the user may select the desired WDM configuration.
5	Test Point Setting	This field displays the current setting of the test port ratio. Also, pressing this field allows the user to open a menu and program specifications of the test port. See "Programming the Test Port Specification" on page 25 for details.
6	Capture Thumbnail	This Thumbnail displays the most recently captured test record.
7	Horizontal Axis	The horizontal axis displays CWDM and/or DWDM details*. The horizontal axis displays the CWDM and/or DWDM Channel Numbers*.

*CWDM/DWDM - in **WDM900-60 model**; DWDM - in **WDM900-40 model**.

Product Overview

Health Meter Features



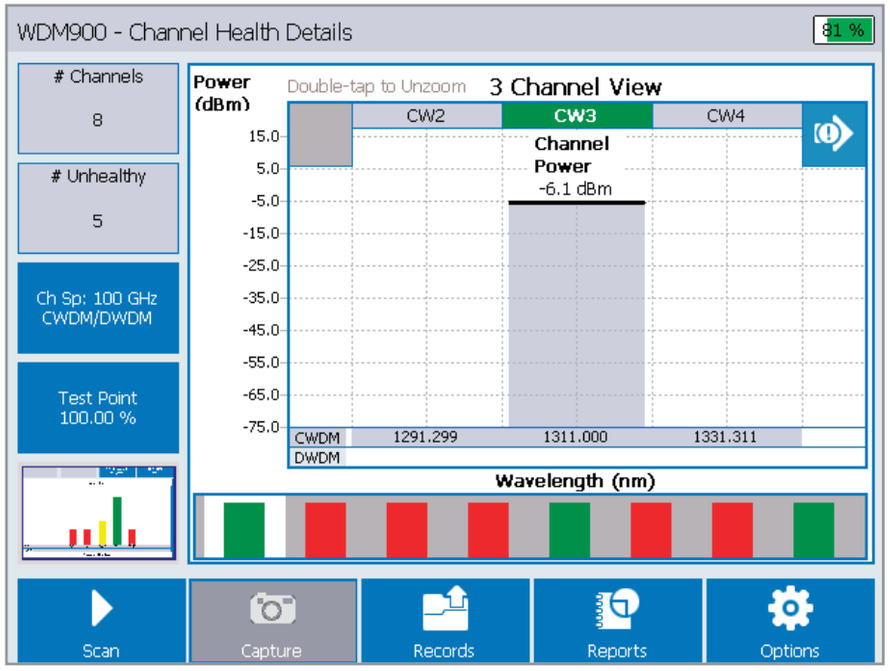
Product Overview

Health Meter Features

#	Feature	Description
8	Healthy Channel	Healthy (GREEN color is factory default; user-changeable) channels satisfy all channel health criteria used to perform an automatic analysis.
9	Marginal Channel	Marginal (YELLOW color is factory default; user-changeable) CWDM channels meet the minimum channel power threshold, but fail to meet the marginal channel power threshold.
10	Unhealthy Channel	Unhealthy (RED color is factory default; user-changeable) channels fail to satisfy at least one of the channel health criteria.
11	Pause / Scan Button	Press to pause or restart real-time Channel Health analysis.
12	Capture Button	Press to capture and store test records.
13	Records Button	Press to display a sequential Carousel view of all test records. See section "Test Record Carousel Viewer" on page 38 for details.
14	Reports Button	Press to generate test reports. See section "Report Generator" on page 40 for details.
15	Options Button	Pressing this button will display the Options settings screen, which allows the user to define the Health Meter analysis criteria, test result display, general setup, and view WDM900 Information screen.

Product Overview

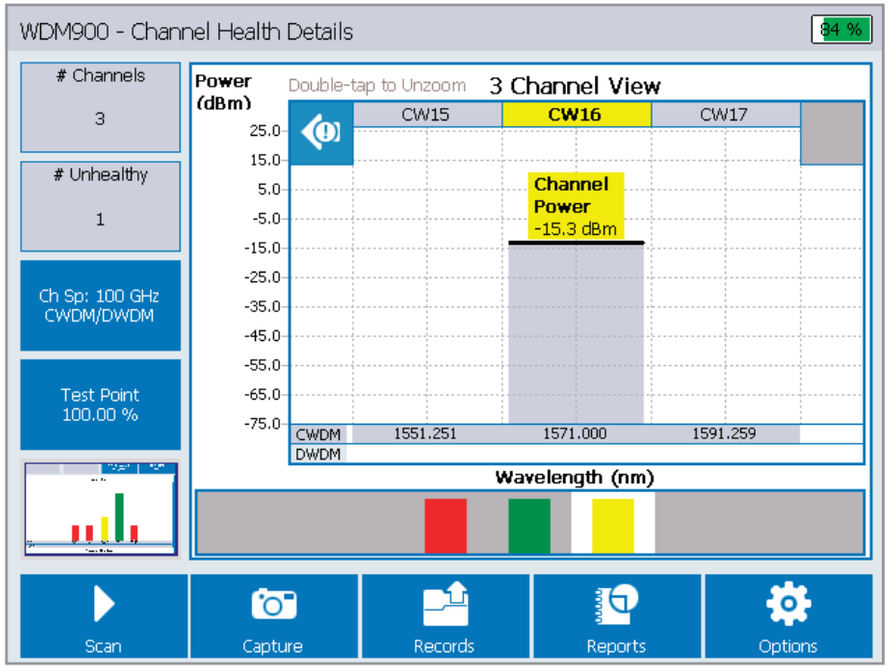
Examples of CWDM Channel Health Details Mode (-60 only)



CWDM Healthy Channel screen

This example screen shows a healthy CWDM channel.

As indicated by the GREEN highlight, channel CW3 is a Healthy channel (meet or exceed health criteria) with a total channel power of -6.1 dBm.



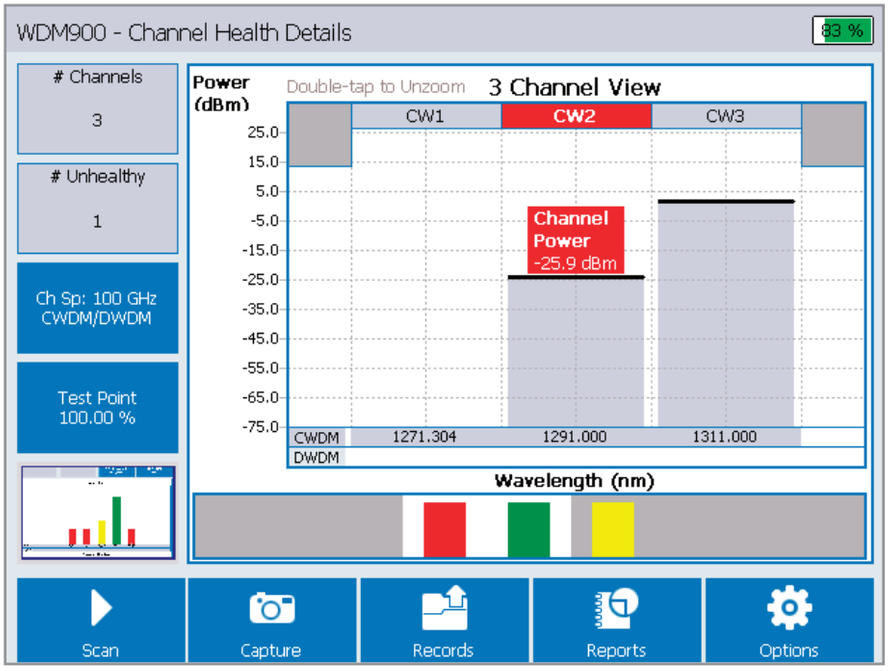
CWDM Marginal Channel screen

This example screen shows a marginal CWDM channel.

As indicated by the YELLOW highlight, channel CW16 is a Marginal channel with a total channel power of -15.3 dBm.

Product Overview

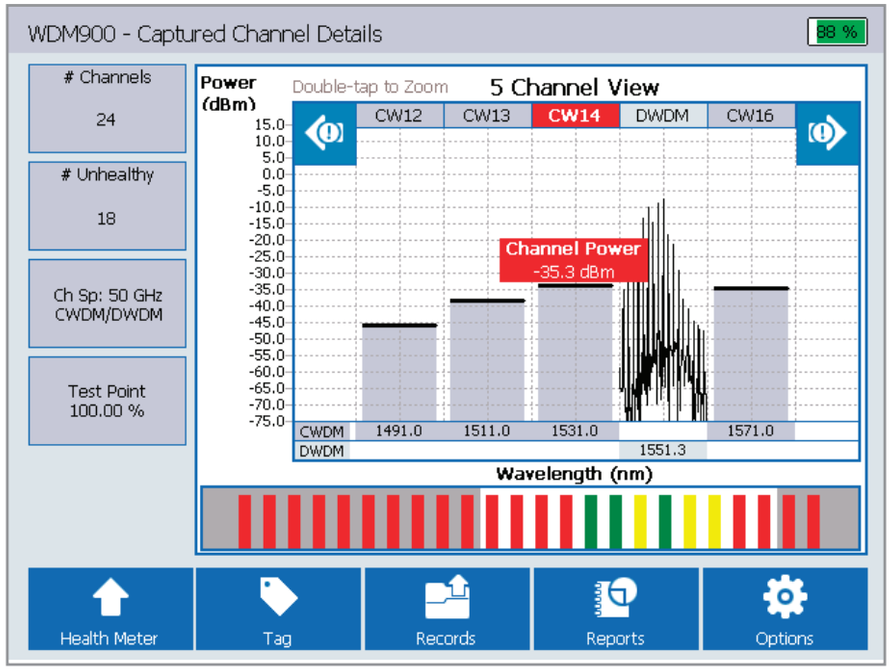
Examples of CWDM Channel Health Details Mode (-60 only)



CWDM Unhealthy Channel screen

This example screen shows an unhealthy CWDM channel with an adjacent CWDM channel.

As indicated by the RED highlight, channel CW2 is an Unhealthy channel with a total channel power of -25.9 dBm.



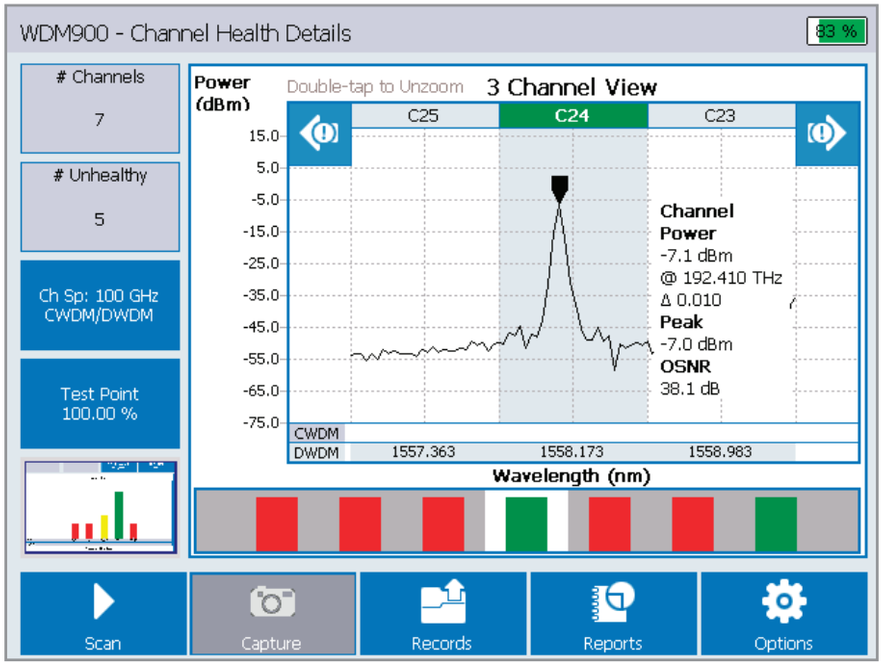
DWDM/CWDM Combined screen

This example screen shows an unhealthy CWDM channel with adjacent DWDM and CWDM channels.

As indicated by the RED highlight, channel CW14 is an Unhealthy channel with a total channel power of -35.3 dBm.

Product Overview

Examples of DWDM Channel Health Details Mode



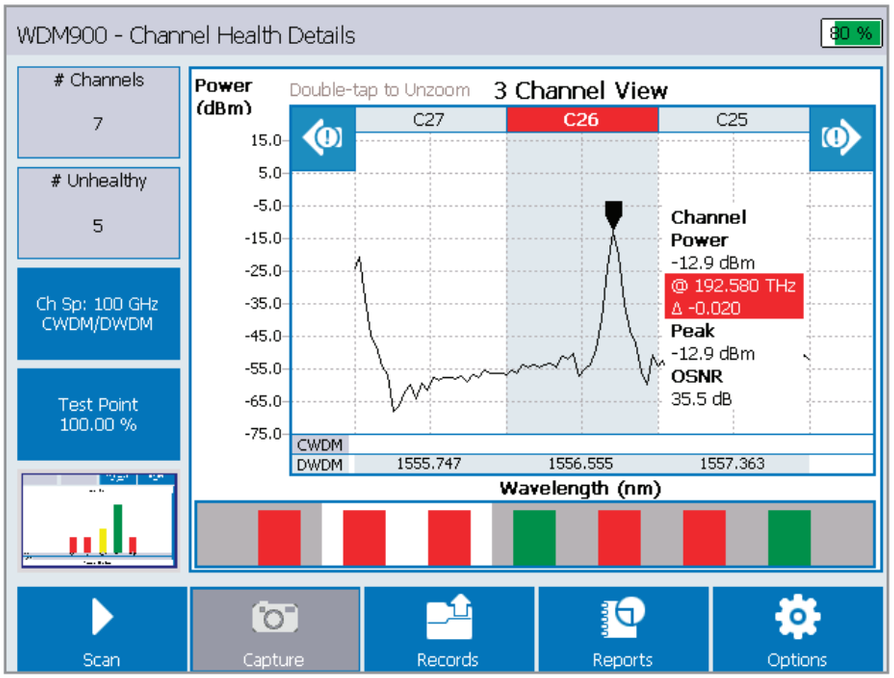
DWDM Healthy Channel screen

This example screen shows a healthy DWDM channel with adjacent DWDM channels.

As indicated by the GREEN highlight, channel C24 is a Healthy channel with a 38.1 dB OSNR value, a total channel power of -7.1 dBm and a peak power level of -7.0 dBm. The channel peak is located at 192.410 THz with deviation of 0.010.

Product Overview

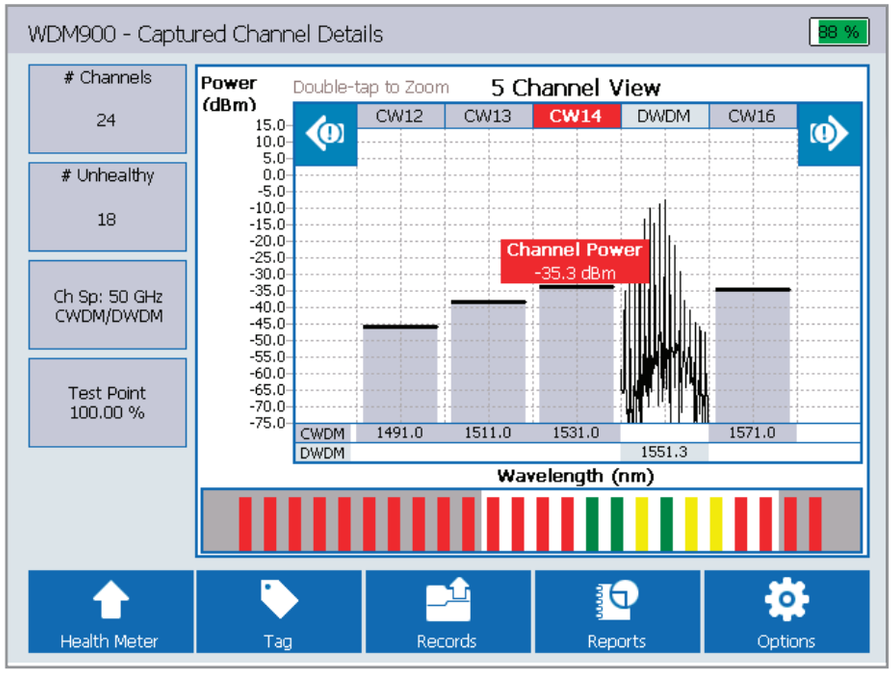
Examples of DWDM Channel Health Details Mode



DWDM Unhealthy Channel screen

This example screen shows an unhealthy DWDM channel.

As indicated by the RED highlight, channel C26 is an Unhealthy channel with a 35.5 dB OSNR value, a total channel power of -12.9 dBm and a peak power level of -12.9 dBm. The channel peak is located at 192.580 THz with deviation of -0.020.



DWDM/CWDM Combined screen

(-60 only)

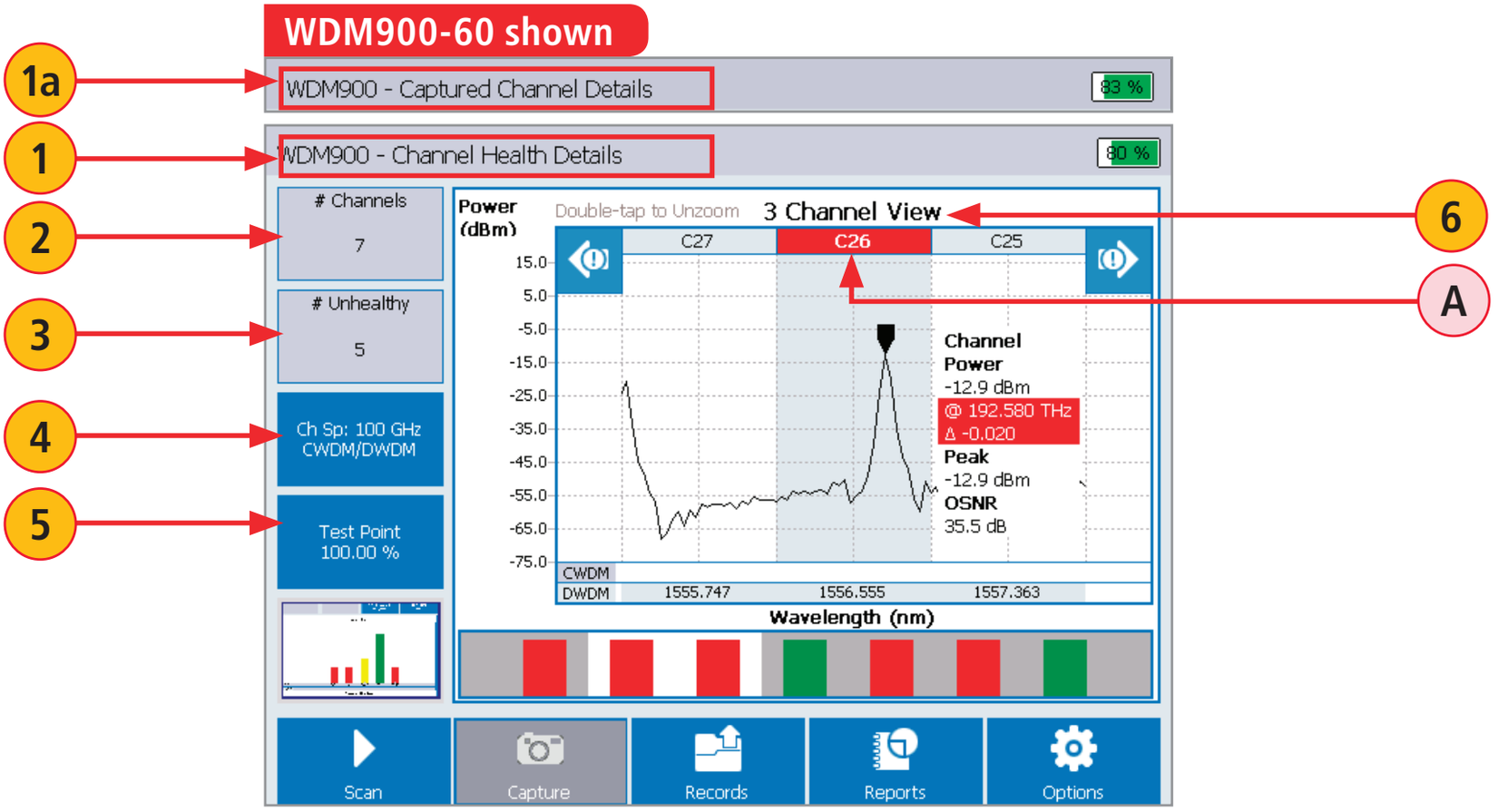
This example screen shows an unhealthy CWDM channel with adjacent DWDM and CWDM channels.

As indicated by the RED highlight, channel CW14 is an Unhealthy channel with a total channel power of -35.3 dBm.

Product Overview

Channel Health Details Mode

The Channel Health Details mode provides detailed information about the characteristics of any of the CWDM or DWDM channels present*. Failing and marginal parameters are identified giving the user information why the viewed channel is unhealthy. The Channel Health Details mode is accessed from the Health Meter mode by simply touching any channel displayed in the Health Meter screen. The user will see display similar to the image shown below. As indicated by the RED highlight (A), channel C26 is an Unhealthy channel with a 35.5 dB OSNR value, a total channel power of -12.9 dBm and a peak power level of -12.9 dBm. The channel peak is located at 192.580 THz with deviation of -0.020.



*CWDM/DWDM channel in **WDM900-60 model**; DWDM channel in **WDM900-40 model**.

Product Overview

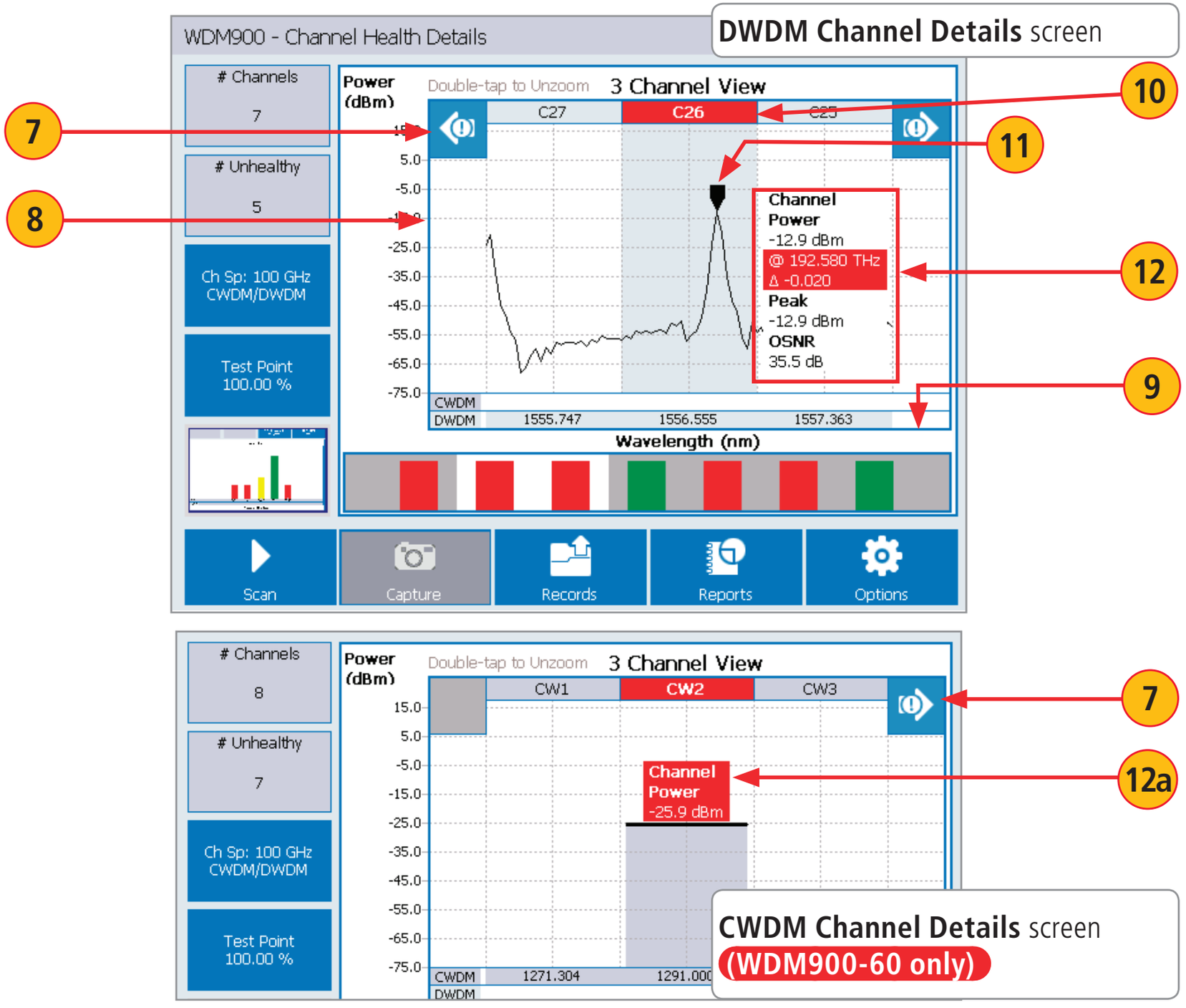
Channel Health Details Features

#	Feature	Description
1 & 1a	Header	Screen header indicates the current mode. In screen example on the previous page, header 1 'Channel Health Details' indicates that the WDM900 operates in the Channel Health Details mode, signifying that it is displaying real-time test results. 1a - 'Captured Channel Details' header indicates a captured record.
2	Number of Channels*	The WDM900 analyzes network and reports the number of 100 GHz or 50 GHz DWDM channels (based on selected Channel Spacing) and CWDM channels present.
3	Number of Unhealthy	The WDM900 compares the measured channel characteristics to the health criteria defined by the user. Channels that fail to satisfy the health criteria are reported as Unhealthy.
4	WDM Channel Configuration*	This field displays the WDM channel configuration (CWDM and/or DWDM, plus DWDM channel spacing - 50 or 100 GHz) of the network under test.
5	Test Point Setting	This field displays the current setting of the test port ratio. Also, pressing on this field allows the user to open a menu and program specifications of the test port. See section "Programming the Test Port Specification" on page 25 for details.
6	View Type	This tag indicates the View Type selected by the user: '3 Channel View' or '5 Channel View'. The user may alternate between two View Types by pressing Zoom hard key or double-tapping anywhere on the displayed channel.

*CWDM/DWDM - in **WDM900-60 model**; DWDM - in **WDM900-40 model**.

Product Overview

Channel Health Details Features



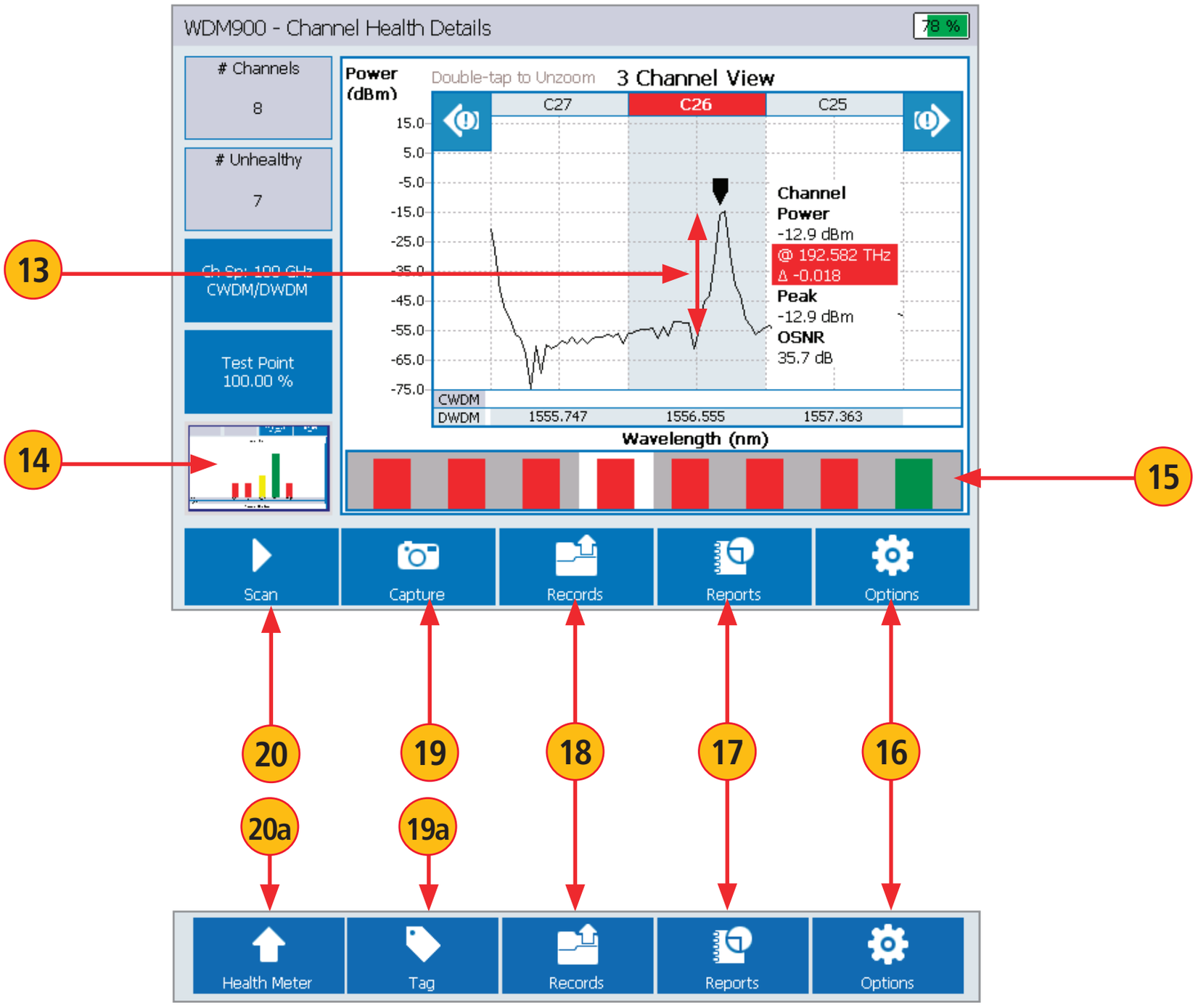
Product Overview

Channel Health Details Features

#	Feature	Description
7	Jump to Next/ Previous Unhealthy Channel Pointer	Press these on-screen pointers (if shown) to jump from the displayed channel to the next unhealthy channel. **Note:** these pointers are only present when Unhealthy Channel are present. Alternately, the user can pan across the C-band, one channel at a time, by pressing the left and right ◀ ▶ arrow keys located on five-way navigation button cluster.
8	Vertical Axis	Power level in dBm.
9	Horizontal Axis	User-defined, may be set to display Wavelength (nm) or Frequency (THz). Wavelength is the default setting.
10	Color-coded Channel Health Indicator	This field displays a user-defined color-coded background to indicate channel health as pass, marginal (CWDM only) or fail. In the example screen image on the previous page, RED background indicates an Unhealthy Channel.
11	Peak Power Indicator	This is a peak power indicator that shows peak power in the channel with the corresponding values of a peak power level of -12.9 dBm located at 192.580 THz with **Δ** of -0.020. Where **Δ** is a deviation in wavelength between the peak and the theoretical center of the ITU grid (shown as the dashed line).
12 & 12a	Channel Health Criteria	**12. In DWDM Channel Details Screen -** This field shows the selected channel health criteria values and the user-defined color-coded highlights as pass or fail. In this example, the total power measurement highlighted in red (fail) is below the threshold value. **12a. In CWDM Channel Details Screen (WDM900-60 only) -** This field shows total power values and the user-defined color-coded highlights as pass, marginal or fail.

Product Overview

Channel Health Details Features



Channel Health Details Features

#	Feature	Description
13	OSNR Indicator	This measurement corresponds to 35.7 dB OSNR value.
14	Capture Thumbnail	This Thumbnail displays the most recently captured record.
15	Navigation Bar	Used to quickly locate channels.
16	Options Button	Pressing this button will display the Options settings screen, which allows the user to define the Health Meter analysis criteria, test result display, general setup, and view WDM900 Information screen.
17	Reports Button	Press to generate test reports. See section "Report Generator" on page 40 for details.
18	Records Button	Press to display a sequential Carousel view of all test records. See section "Test Record Carousel Viewer" on page 38 for details.
19	Capture Button	When shown, press to capture and store test records. Capture Button is shown in the Channel Health Details screen.
19a	Tag Button	When shown, pressing this button will display a sub-menu where the user may tag the displayed test result with keywords for ease of identification. Tag Button is shown in the Captured Channel Details screen.
20	Pause / Scan Button	When shown, press to pause (Pause) or restart (Scan) real-time Channel Health analysis. Pause/Scan Button is shown in the Channel Health Details screen.
20a	Health Meter	When shown, pressing this button will display the Health Meter main screen. Health Meter Button is shown in the Captured Channel Details screen.

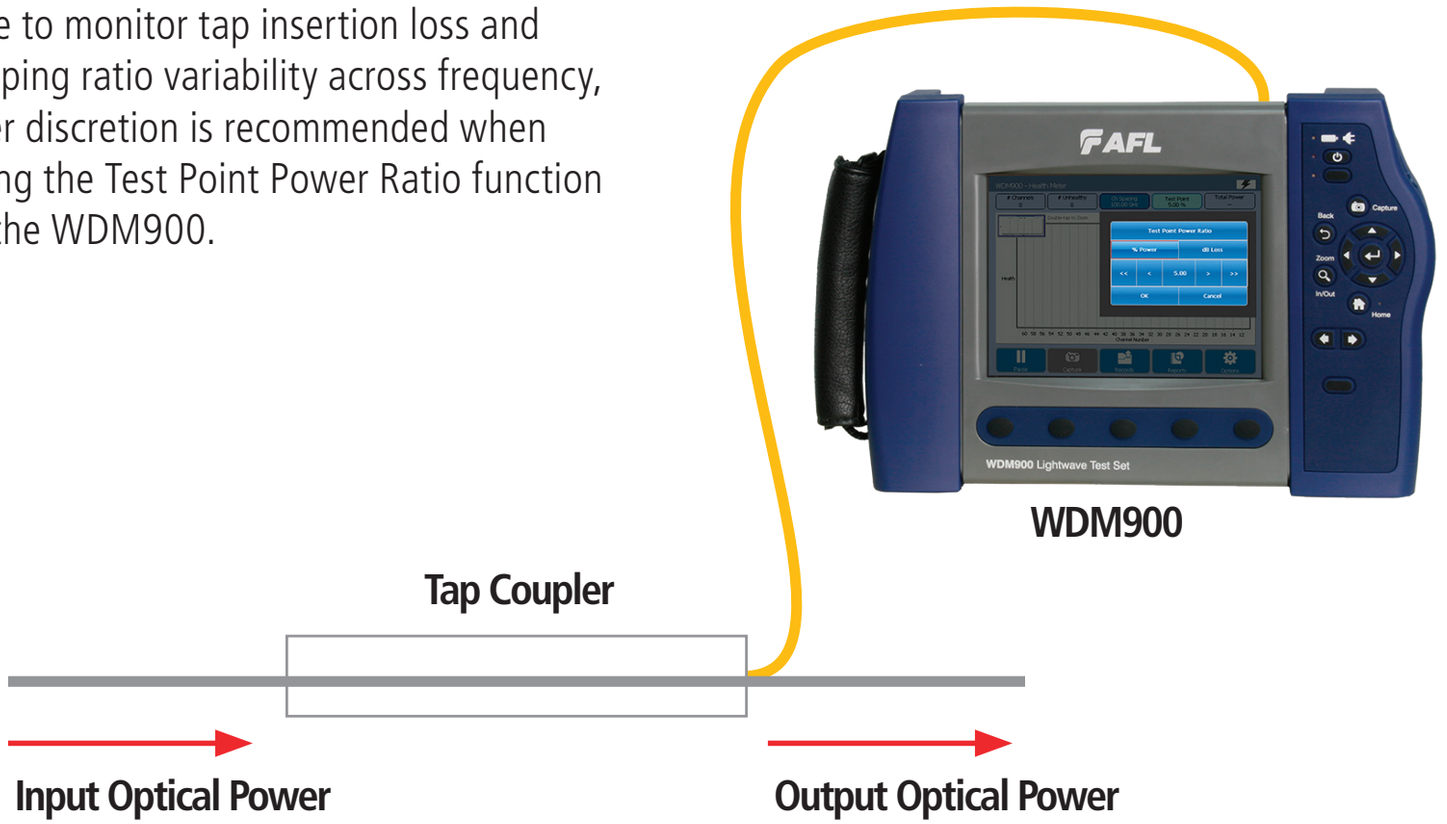
Product Overview

Understanding a Monitor Tap

A monitor tap simplifies network testing and troubleshooting by providing access to network signals without requiring the optical fiber to be cut or disconnected. A monitor tap couples a small amount of network signal power to a monitor output, which is typically reserved for test equipment. Monitor taps are specified by the % of input power directed to the test port (i.e. 1%, 3%, 5%) or the insertion loss (dB) from input to monitor output (20 dB, 15 dB, 13 dB).

When the WDM900 is connected to a monitor tap, the user should enter the port specification (either % or dB) in the WDM900 settings. When the WDM900 is connected directly to a network path (i.e. no monitor port) the user should signify the lack of a monitor port by entering 100% or 0 dB for the monitor port specification.

Due to monitor tap insertion loss and tapping ratio variability across frequency, user discretion is recommended when using the Test Point Power Ratio function of the WDM900.

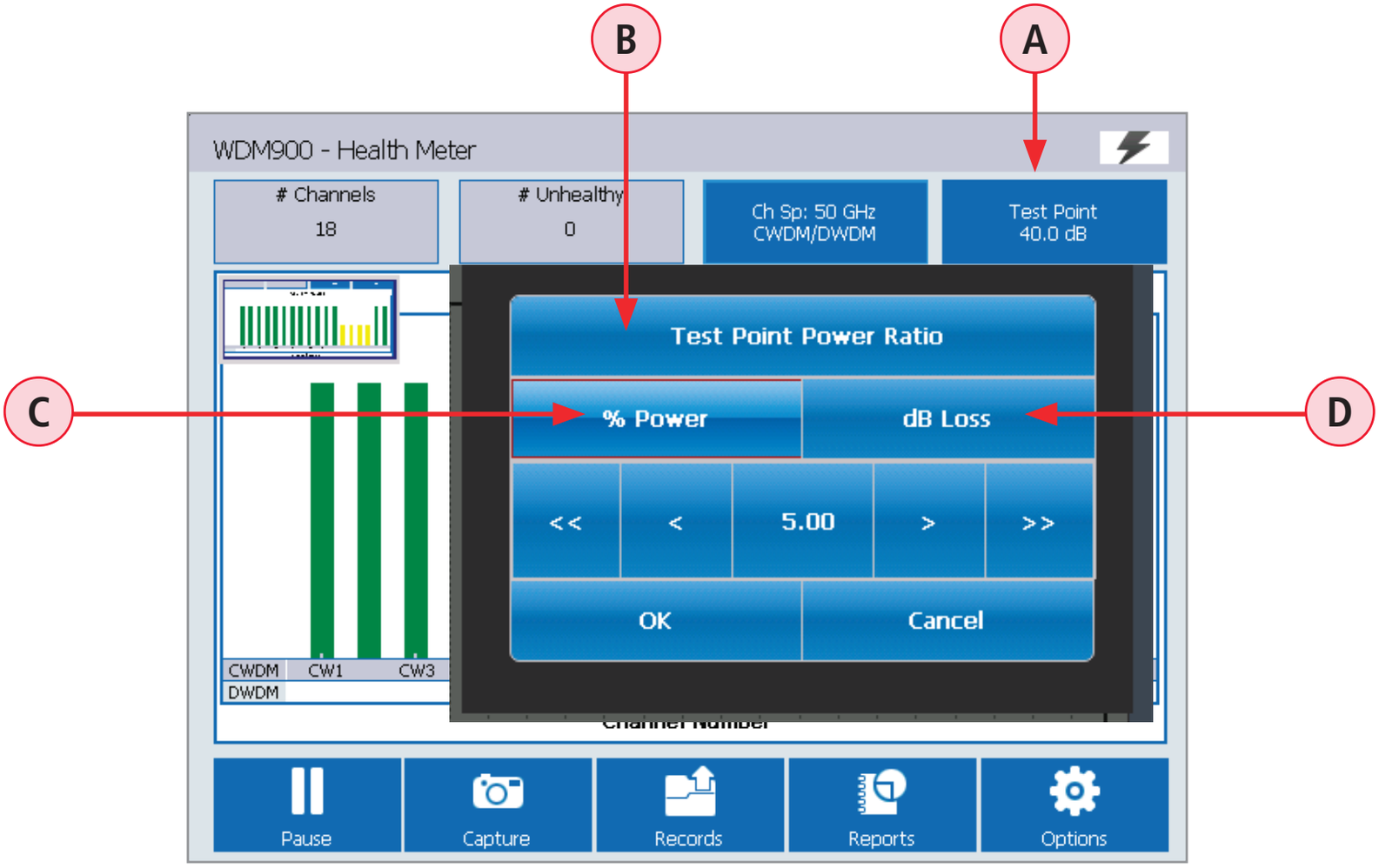


Product Overview

Programming the Test Port Specification

The user may program the specification of the test port as follows:

- While in the real-time Health Meter screen, press one the Test Point field (A).
- The Test Point Power Ratio menu (B) will be displayed.
- From the displayed menu, choose either % Power (C) or dB Loss (D) units.
- Increment or decrement the value to the desired setting by using </> and <<//>> controls. Use < / > for fine adjust, use << / >> for coarse adjust.
- When done, press OK.



Product Overview

Selecting the Channel Spacing and WDM Configuration

The Channel Spacing and WDM Configuration menu allows the user to perform the following settings:

- Select 50 or 100 GHz channel spacing **(-60 and -40 models)**
- Specify DWDM only or CWDM/DWDM Mixed mode **(-60 model only)**

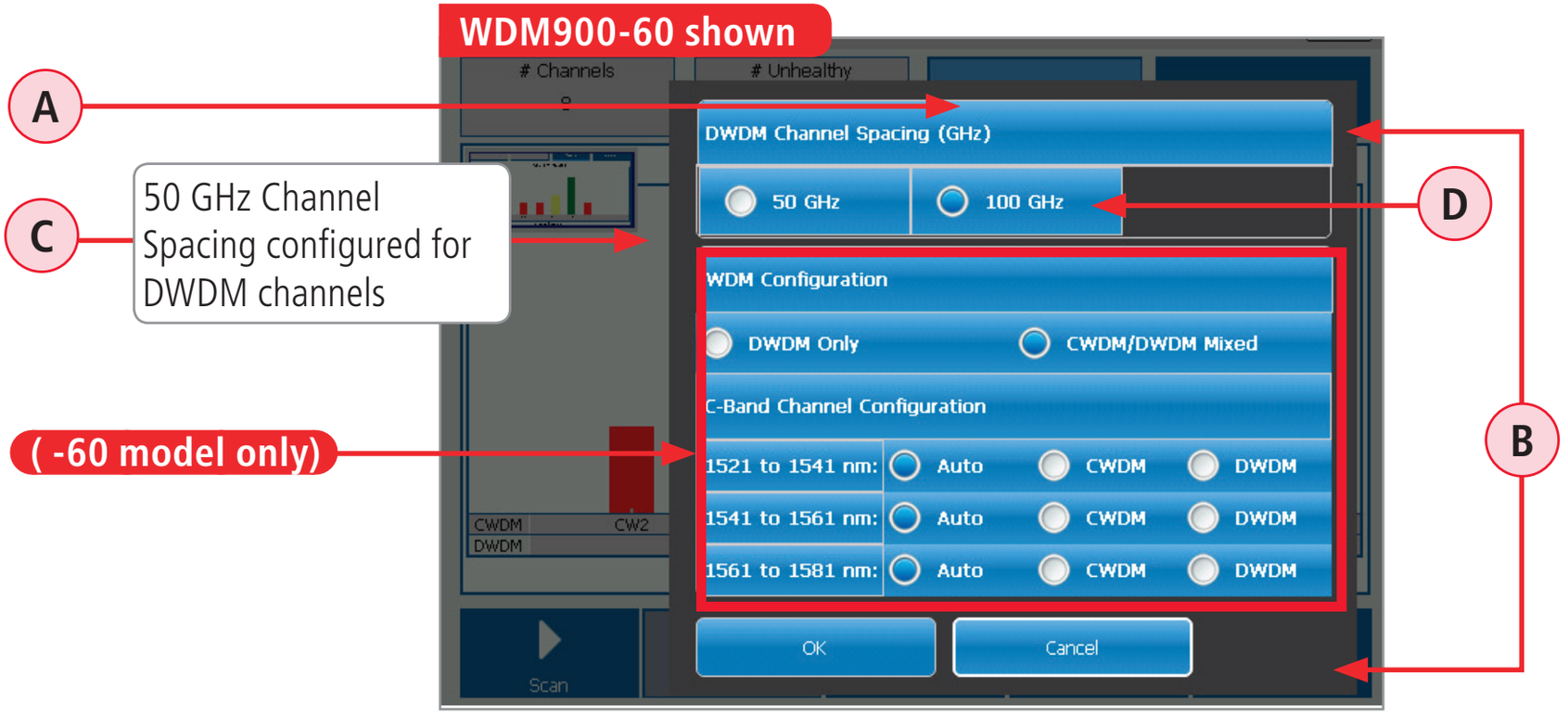
To display Channel Spacing and WDM Configuration menu

- While in the real-time Health Meter screen, press on the Channel Configuration field **A**.
- The Channel Spacing and Configuration menu **B** will be displayed.

Selecting the Channel Spacing

The 100 GHz channel plan is the factory default setting. The user may choose between the 100 GHz and 50 GHz channel plans as follows:

- From the displayed menu **B**, choose either 50 GHz **C** or 100 GHz **D** Channel Spacing.



Product Overview

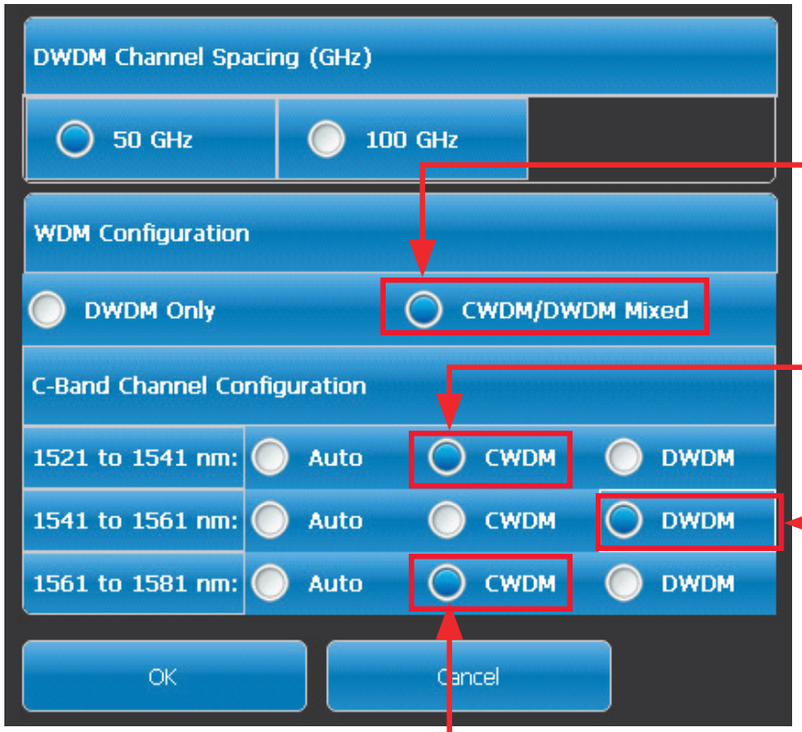
WDM Configuration (-60 model only)

Note: Select CWDM/DWDM Mixed for CWDM-only applications.

When CWDM/DWDM Mixed mode selected, the user may configure channels in C-band region (1530-1570) to be interpreted automatically, as CWDM, or as DWDM.

Notes:

- Isolated DWDM channels will likely be interpreted as CWDM if 'Auto' selected
- Forcing to 'DWDM' ensures isolated C-band DWDM channels are measured correctly



CWDM only, or a mix of CWDM and DWDM channels expected

Any light detected in wavelength region 1521 to 1541 nm will be interpreted as CWDM channel

Any light detected in wavelength region 1541 to 1561 nm will be interpreted as DWDM channel(s) with 50 GHz channel spacing

Any light detected in wavelength region 1561 to 1581 nm will be interpreted as CWDM channel

Product Overview

Understanding the Channel Spacing Plan

ITU-T G.694.1 is the international standard for DWDM/CWDM. It defines the spectral grids for 12.5 GHz to 100 GHz channel plans. Regardless of channel spacing, all ITU spectral grids are referenced to the 193.1 THz anchor frequency (1552.52 nm).

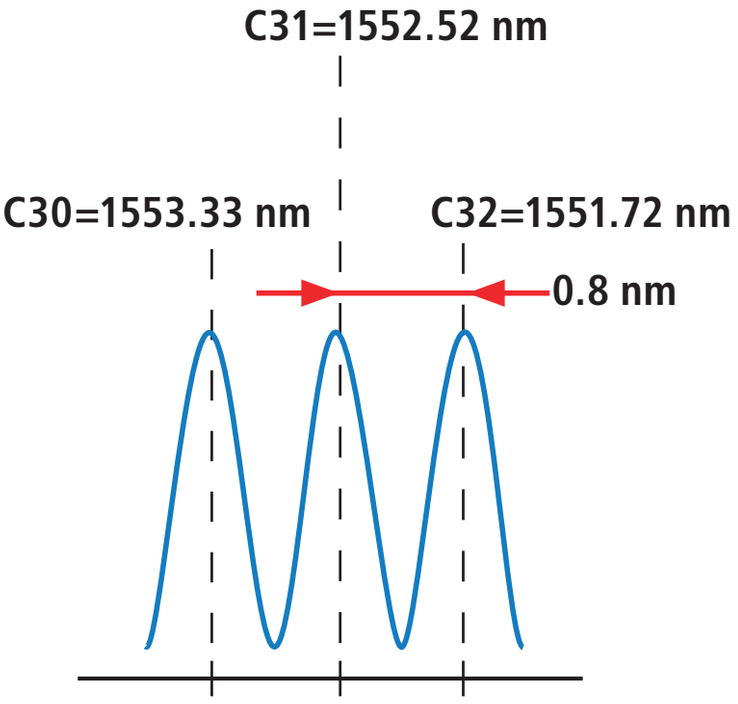


Figure 1: ITU 100 GHz Grids

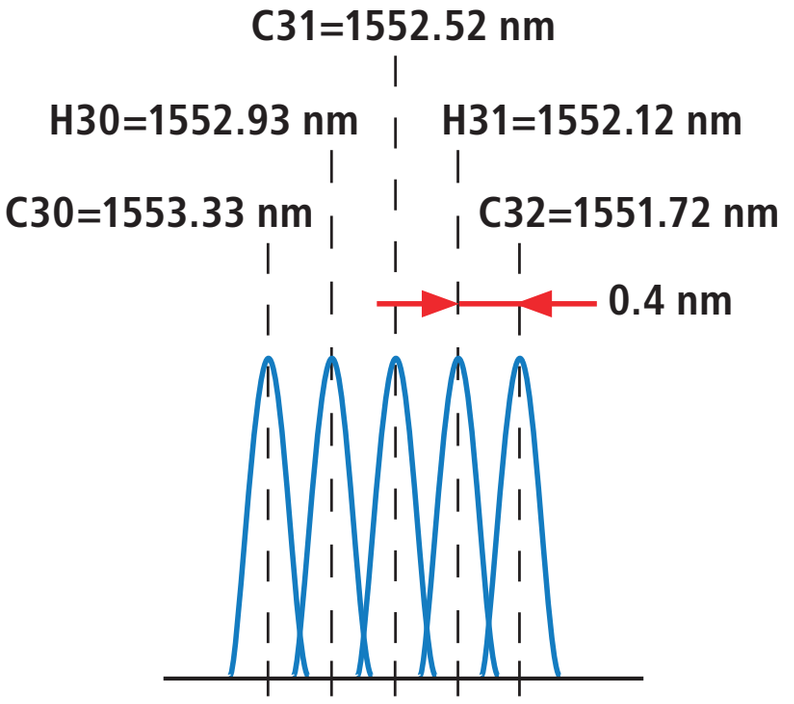


Figure 2: ITU 50 GHz Grids

Supporting industry-standard 100 GHz and 50 GHz channel plans, the WDM900 includes a default 100 GHz and 50 GHz channel plan configurations that adheres to the frequency grid defined in ITU-T G.694.1 and adheres to the channel number/wavelength relationship defined in Figure 1 (ITU 100 GHz Grids) and Figure 2 (ITU 50 GHz Grids).

Product Overview

Understanding the Channel Spacing Plan

The user can create custom channel numbering plans to accommodate ones in use in their own networks. New channel numbering plans may be defined in the Graph Setting screen that is opened by pressing Options 

and then Graph 

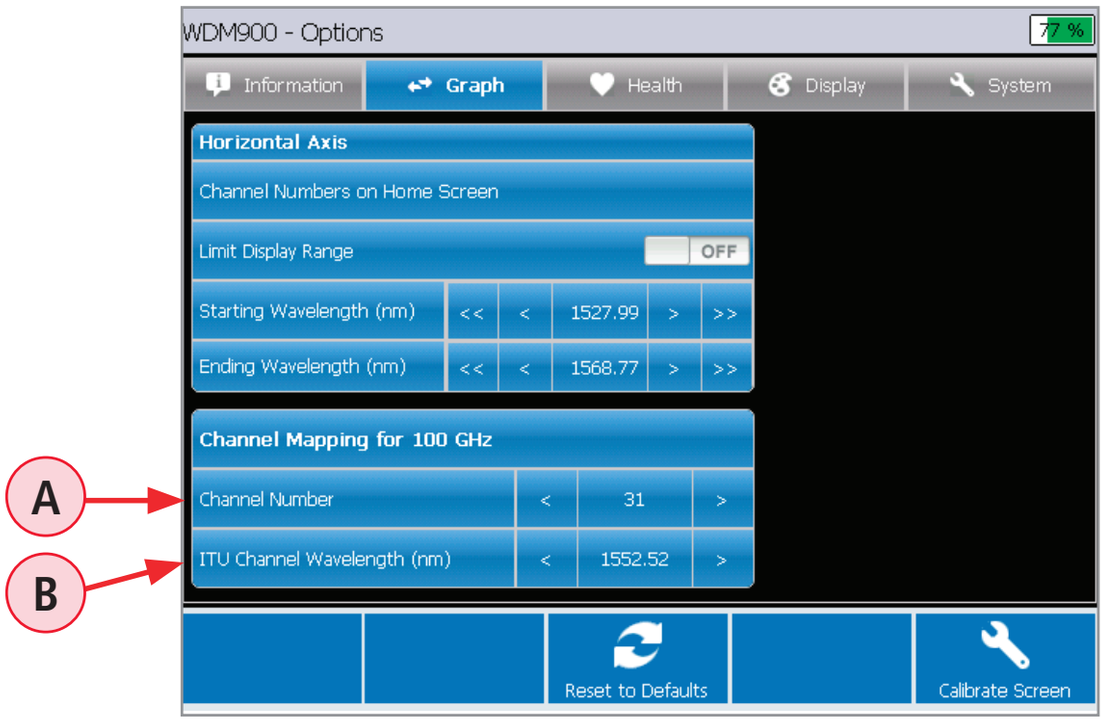
.

As indicated in the example Graph Settings screen below, the factory default settings of Channel Mapping for 100 GHz are:

- ITU Channel Number = 31 --> (A)
- ITU Channel Wavelength = 1552.52 --> (B)

To adjust the default Channel Numbering plan settings:

- Tap on the desired parameter and use < / > controls to modify values.
- To reset Channel Mapping setting to default values, press the Reset to Default button.



In DWDM systems using 50 GHz channel spacing, channels can be labeled using whole numbers only, using fractional numbers (such as C20 and C20.5), or using C/H notation (such as C20 and H20).

Product Overview

Options: Information Screen

The Information screen is accessed from the Health Meter screen or from the Channel Details screen by pressing Options 

and then pressing Information 

.

This screen provides the user with the following information: instrument model and serial number, calibration date, application and OS version, OS build date, power interface and power manager version, copyright and patent information, technical support contact information.

Press this button to reset Options to default values.

Press this button and follow on screen instructions to calibrate screen. Press the Back key to cancel.

Product Overview

Options: Health Settings

The Health settings screen is accessed from the Health Meter screen or from the Channel Details screen by pressing Options 

and then pressing Health 

. The Health settings screen allows the users to define the CWDM/DWDM Channel Thresholds (WDM900-60 model) and DWDM Channel Thresholds (WDM900-40 model).

Use Edit buttons to configure CWDM and DWDM Thresholds as follows:

- **A** - CWDM Thresholds: Minimum and Marginal Channel Power level required to be healthy/marginal.
- **B** - DWDM Thresholds: Minimum Channel Power level required to be healthy, Minimum Channel OSNR and Maximum Channel Frequency Shift Tolerance required to be healthy.

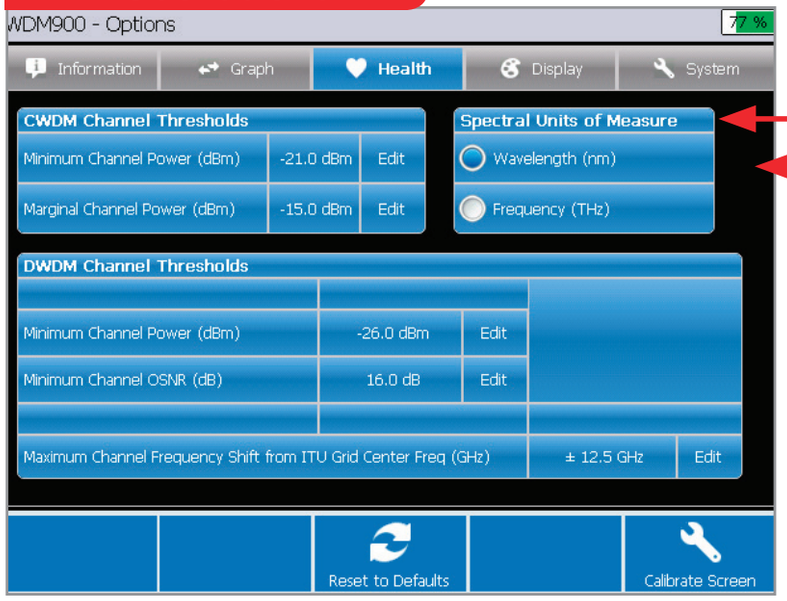
WDM900-60 shown

WDM Model	Channel	Available Threshold Parameter	Settings Range
WDM900-60	A - CWDM	Minimum Channel Power	-50.0 to 10.0 dBm
		Marginal Channel Power	-50.0 to 10.0 dBm
WDM900-60 WDM900-40	B - DWDM	Minimum Channel Power	-45.0 to -2.0 dBm
		Minimum Channel OSNR	0.1 to 28.0 dB
		Channel Frequency Shift Tolerance	0.1 to 40 GHz

Product Overview

Options: Health Settings

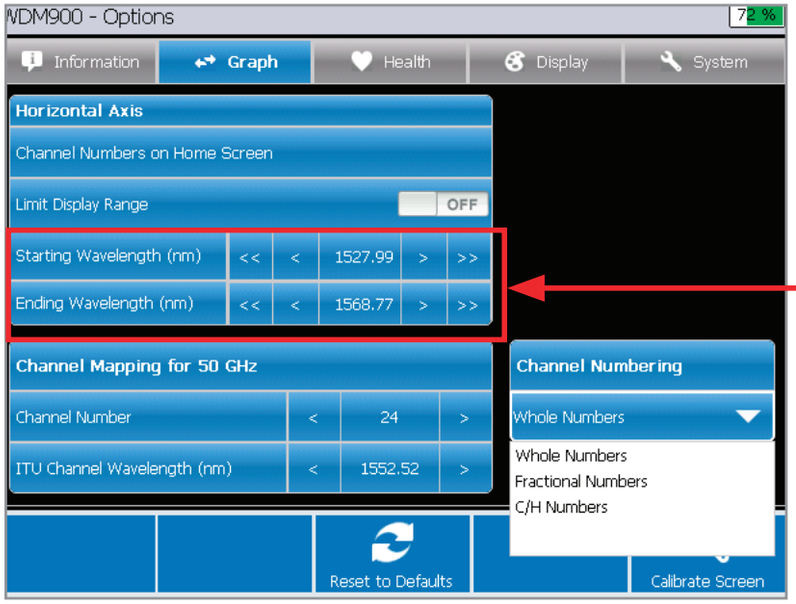
WDM900-60 shown



The Spectral Units of Measure menu allows the user to toggle between Wavelength (nm) and Frequency (THz).

This selection only affects the Channel Health Details screen, not the Health Meter screen.

Note: depending on the units of measure selected in the Spectral Units of Measure menu, the user will define Starting and Ending Wavelength/Frequency values in the 'Graph Settings Screen' screen.



Product Overview

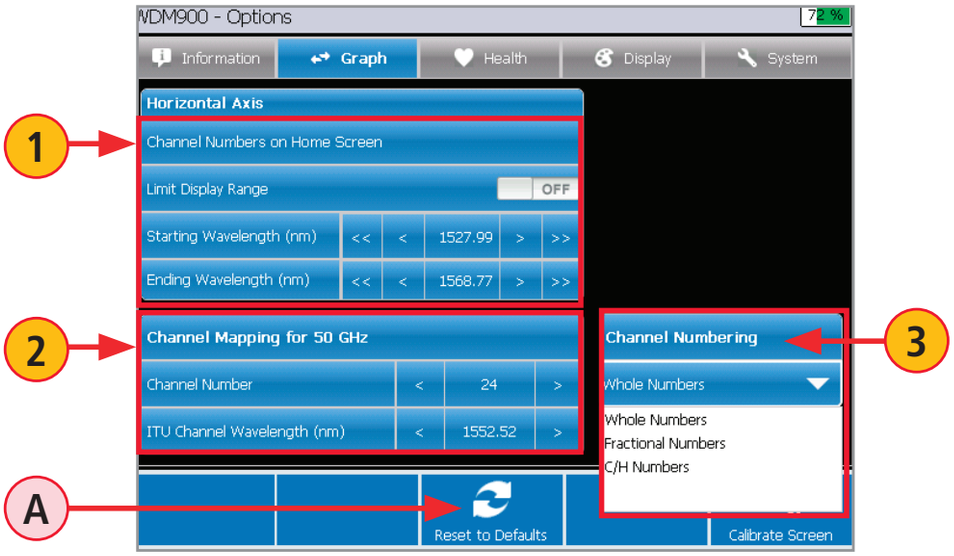
Options: Graph Settings Screen

The Graph settings screen is accessed from the Health Meter or Channel Details mode by pressing Options 

and then from the Options screen by pressing Graph 

.
The Graph settings screen contains several menus that allow the user to customize how Health Meter measurements are displayed.

- Tap <</>> for course adjustment
- Tap </> for fine adjustment
- Tap 'Reset to Defaults' (A) to resets values



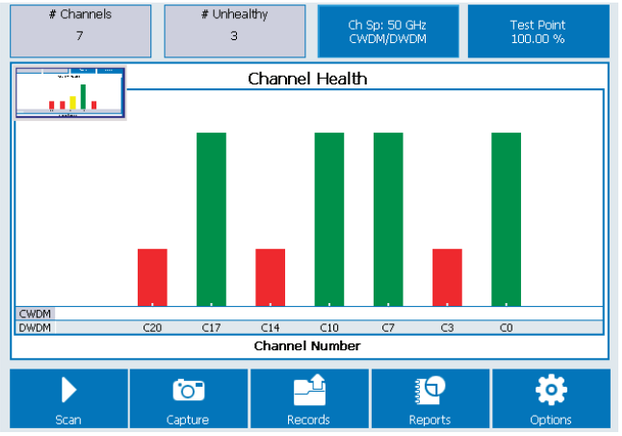
Ref	Feature	Description
1	Channel Numbers on Home Screen	This menu allows the user to turn On/Off Limit Display Range. Also, depending on the selected units of measure set in 'Health Settings Screen', define Starting and Ending Wavelength/Frequency values.
2	Channel Mapping Menu	This menu allows the user to define a custom channel numbering plan (see "Understanding the Channel Spacing Plan" on page 28 for details).
3	50 GHz Channel Numbering	**Note:** Available for 50 GHz Channel Spacing Only! For 50 GHz Channel Spacing, Channel Numbers may be defined as Whole, Fractional or C/H Numbers.

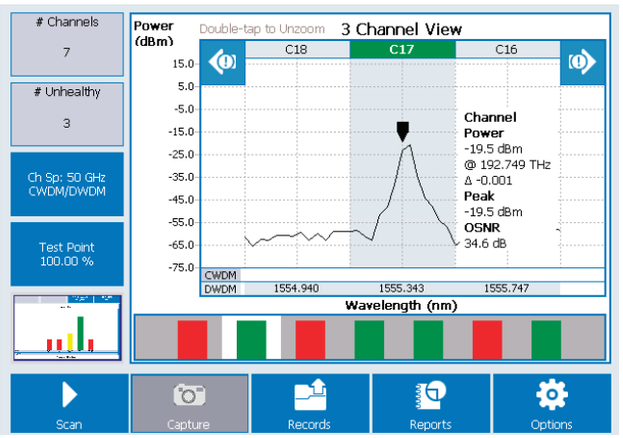
Product Overview

Channel Numbering Options for 50 GHz Channel Spacing

Whole Numbers Option

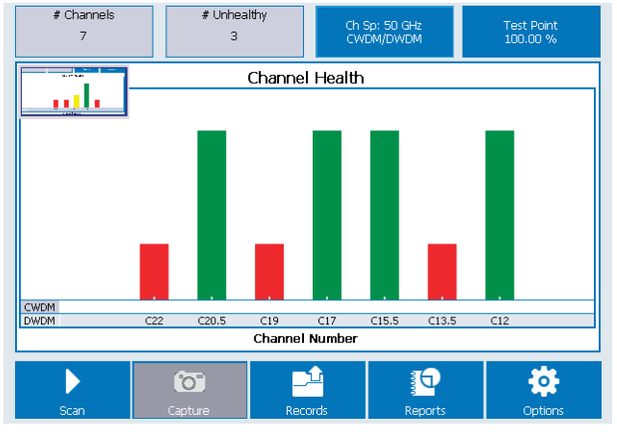
When Whole Numbers Option is enabled, channels are numbered using whole numbers using the channel mapping specified.

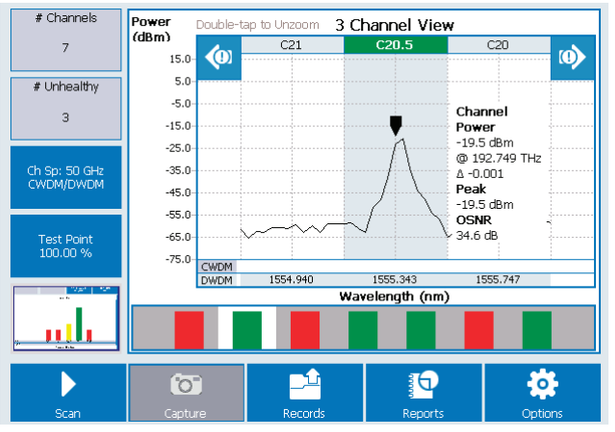




Fractional Numbers

Fractional Numbers correspond to "Half numbers used for 50 GHz grid spacing". Channels are numbered using fractional numbers based on the 100 GHz grid spacing. 50 GHz channels that line up with 100 GHz grid are displayed as whole numbers, channels in between are displayed as X.5 numbers.





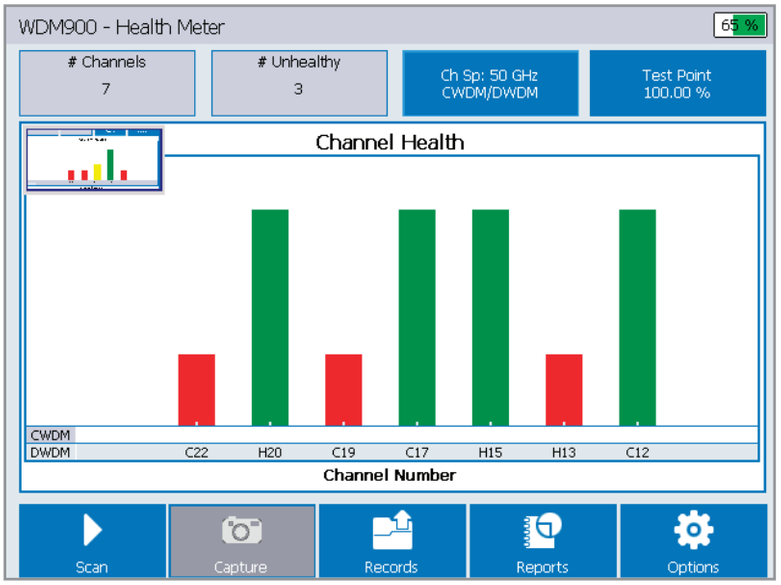
Product Overview

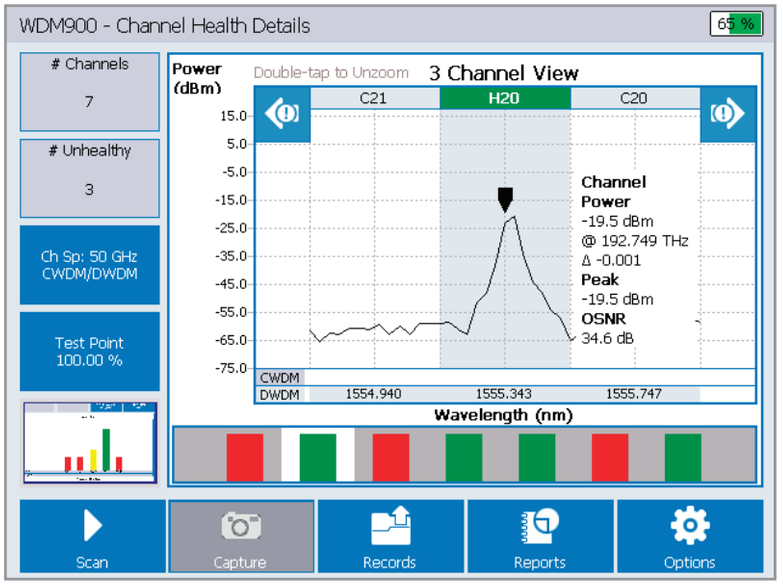
Channel Numbering Options for 50 GHz Channel Spacing

C/H Numbers Option

When C/H Numbers Option is enabled, channels are numbered using C/H Letters used to denote channel spacing.

50 GHz channels that line up with 100 GHz grid are denoted by “C”, channels in between are displayed as “H” numbers (example: C21, H21).



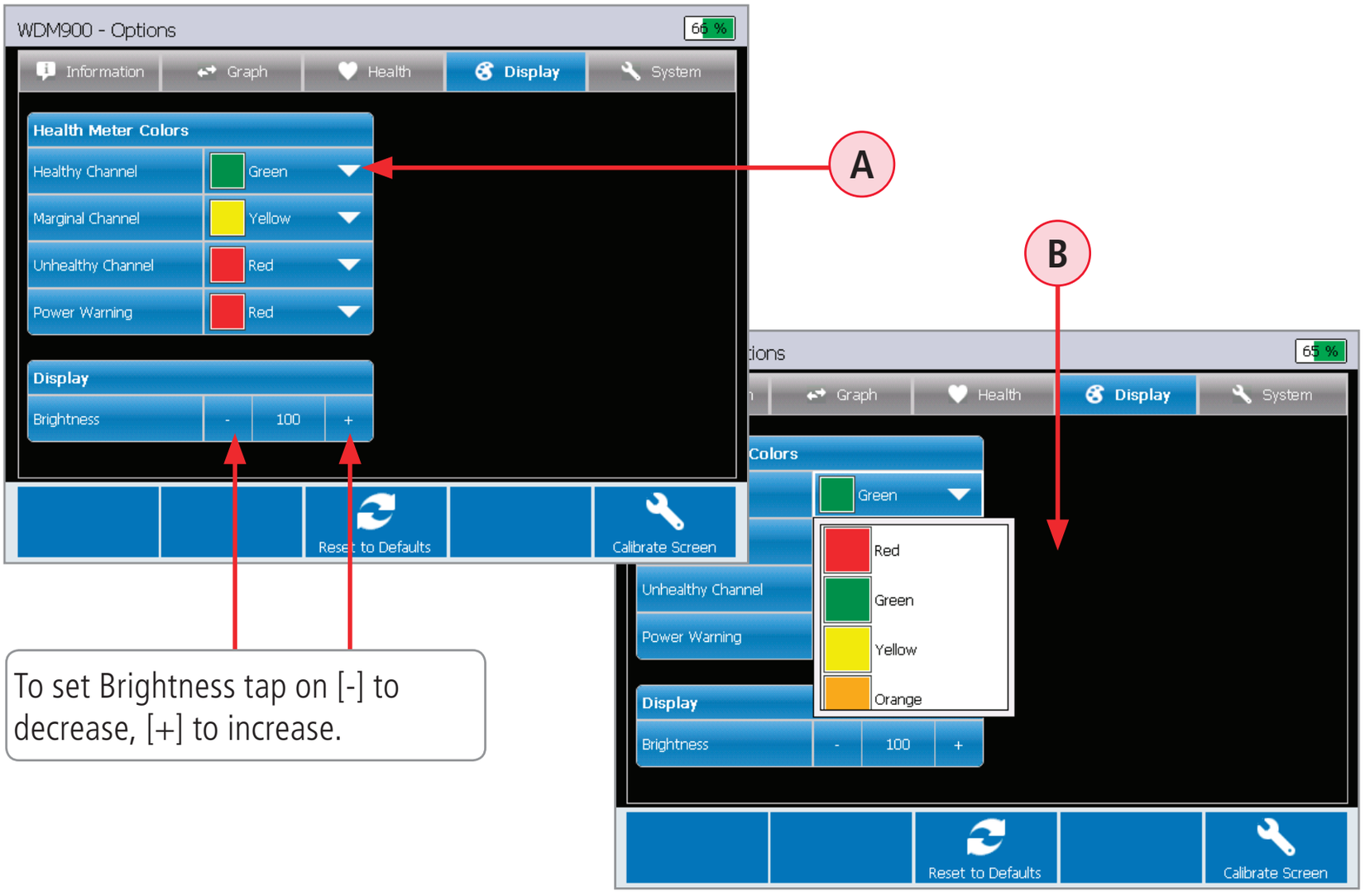


Product Overview

Options: Display Settings Screen

Display settings allow the user to customize the appearance of the Health Meter and Channel Detail displays. To set Health Meter or Channel Health Details colors:

- Tap on the desired parameter down arrow (A) to display a color palette sub-menu (B).
- Tap on the desired color swatch to select.



Product Overview

Options: System Settings Screen

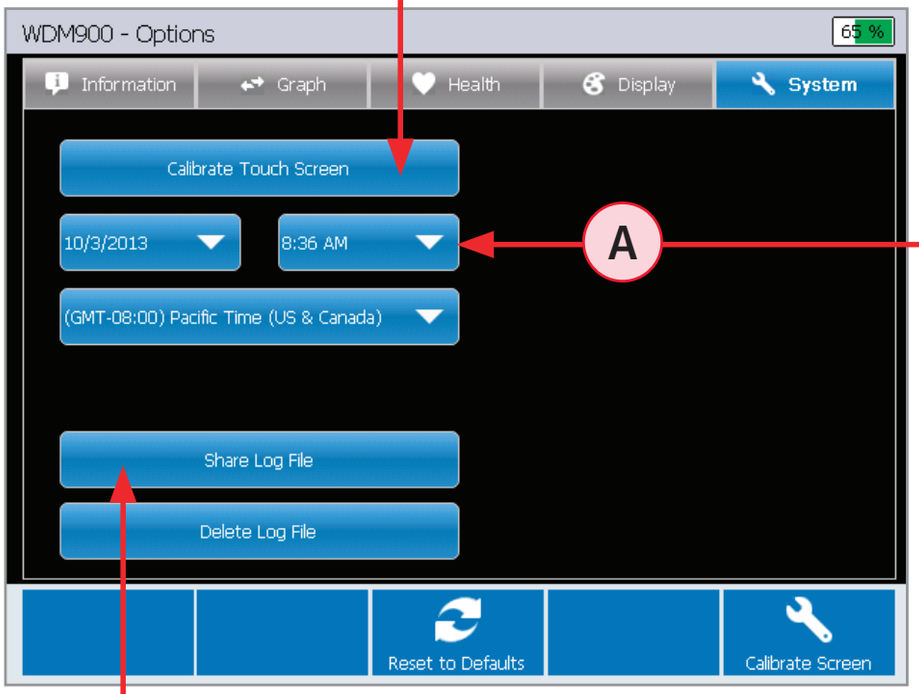
This screen allows the user to set date and time and perform Touch Screen calibration.

To set date and time:

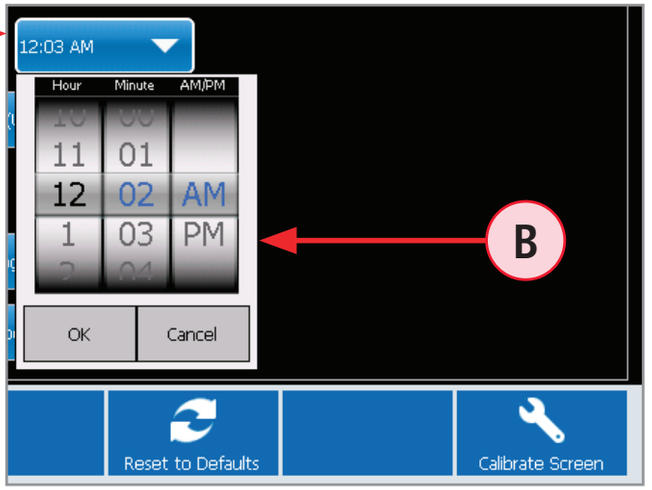
- Tap on the desired parameter down arrow (A) to display a sub-menu (B).
- Tap on the desired parameter to select.
- Tap OK.

Pressing this button will enable Touch Screen calibration.

To exit calibration mode, press the Back hard key ⮌.

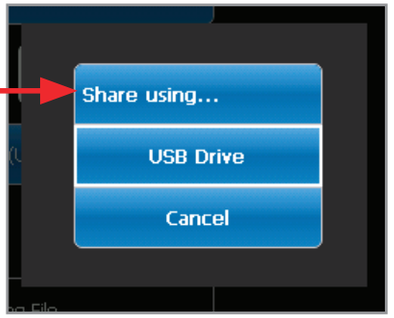


A



B

Pressing this button allows the user to share Log File using USB.



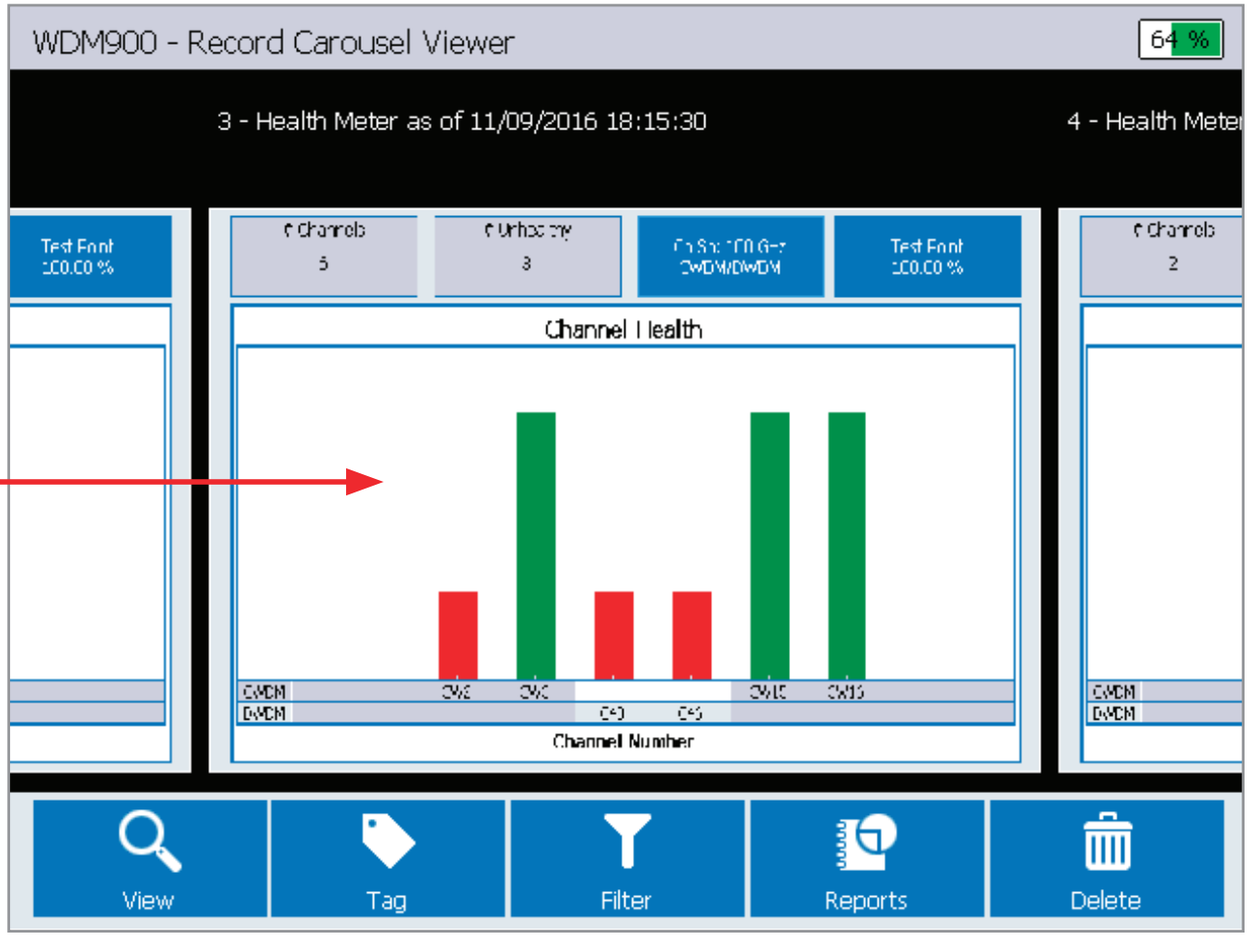
Product Overview

Test Record Carousel Viewer

The Test Record Carousel Viewer is accessed by pressing the Records button. The Record Carousel Viewer presents a sequential carousel view of all records. The user may scroll through records by performing one of the following:

- Pressing the left and right ◀ ▶ arrow keys located on five-way navigation button cluster will scroll one record at a time.
- Pressing the left and right tab keys ⇦ ⇨ will scroll 5 records at a time.
- Touch the adjacent record to bring it to the center of the screen.

The view displayed in the center of the screen is selected for further actions such as Viewing, Tagging, Reporting and Deleting.



Product Overview

Record Carousel Viewer Function Buttons

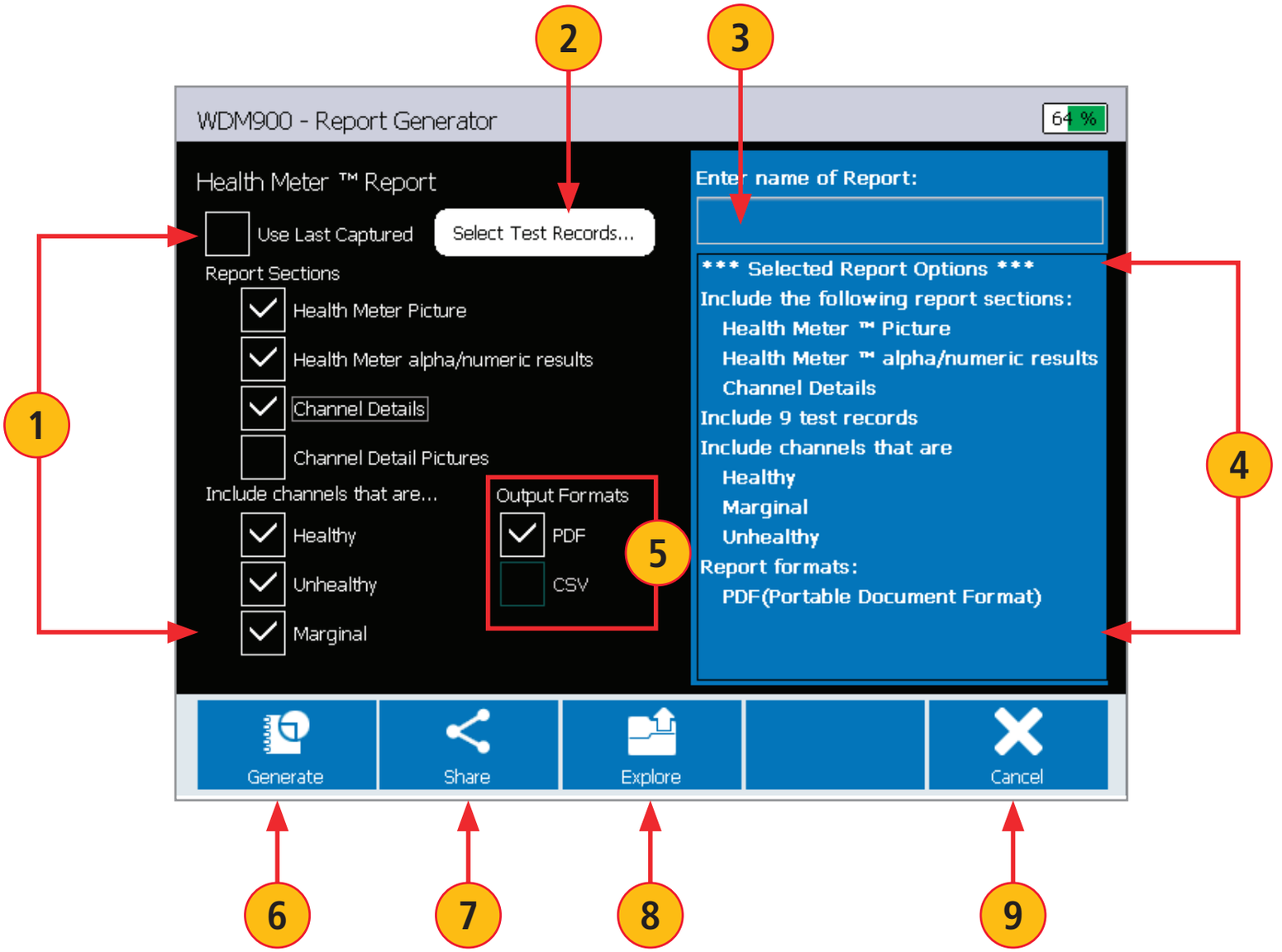
Refer to the Record Carousel Viewer image shown on the previous page.

Button	Description
View Button 	Pressing on this button will recall the Captured Health Meter screen, from which the user may tap on a channel to display the captured Channel Details screen.
Tag Button 	Pressing on this button will display a sub-menu where the user may tag the test result with keywords for ease of identification.
Filter Button 	Pressing on this button will display a sub-menu where the user may filter all test results by Tag Filter, Date Filter and Health Filter.
Reports Button 	Pressing on this button will display a sub-menu where the user may generate a test report.
Delete Button 	Pressing on this button will delete the currently displayed test result.

Product Overview

Report Generator

Report Generator is accessed from the from Record Carousel Viewer screen by pressing the Reports button. Reports can include various user-defined information (Health Meter details, Channel Details, failed channels, etc.) and may be produced in either .csv or .pdf formats.



Product Overview

Refer to the Record Carousel Viewer image shown on the previous page.

Ref	Feature	Description
1	Report Options	These are the Options that the user may select to include in the generated report. Tap on the desired option to select ☑ or deselect ☐.
2	Select Records Button	Press this button (with 'Use Last Captured' option unchecked) to display the Report Viewer screen that contains a list of saved test results and allows the user to filter (by date / time) and select the desired data for the report generation.
3	Report Name Field	This is an editable text field, where the user may enter a name for the generated report. Tap on this field to display a virtual on screen keyboard, enter the name for your report, then press Enter.
4	Report Summary	This field displays a summary of the selected Report Options.
5	Output Format Selector	Tap on the desired option check-box to select/deselect. Note: Health Meter Picture and Channel Detail Picture must both be unchecked to create .CSV report.
6	Generate Button	Press to enable report generation. When done, the WDM900 displays the Reports Viewer screen with the newly created report added to the displayed reports list.
7	Share Button	Press to copy the current report to USB Drive.
8	Explore Button	Pressing this button will display the Reports Viewer screen, where the user may to choose to Share, Rename or Delete the selected reports.
9	Cancel Button	Press to stop the report generation and return to the previous screen.

General

Warranty Terms and Conditions

All AFL Test & Inspection products are warranted against defective material and workmanship for a period of (1) one year from the date of delivery to the end user. Optional Extended Warranty starts at the end of the standard (1) one year warranty period. Any product that is found defective within the warranty period, will (at the discretion of AFL) be repaired or replaced. Warranty will be voided if the product has been repaired or altered by other than an authorized AFL repair facility or when it has been subjected to misuse, negligence, or accident. In no case shall AFL liabilities exceed the original purchase price.

Standards Compliance Information

WDM900 has been designed and tested to comply with the relevant sections of any applicable specifications including full compliance with all essential requirements of the applicable EU Directives.

Safety Information

CAUTION! Never view a live fiber. Never look directly into the optical outputs of fiber optic network equipment, test equipment, patch cords and jumpers. Laser radiation is harmful to eyes.

NOTE! WDM900 Lightwave Test Set contains no user serviceable parts. This instrument must be returned to AFL or authorized agents for repair.

NOTE! Refer to your company's safety procedures when working with optical systems.

NOTE! Follow your company's approved cleaning procedures.

General

Contact Us and Repair Services

To return equipment, please contact AFL to obtain additional information and a Service Request (S.R.) number. To allow us to serve you more efficiently, please include a brief description specifying the reasons for the return of the equipment.

AFL Test & Inspection Division

16 Eastgate Park Road, Belmont, NH 03220

Phone 800-321-5298 • 603-528-7780

Repair Services

Please contact customer service for a return authorization number prior to sending your AFL test equipment in for repair or calibration.

USA Repair and Calibration services

AFL

Test & Inspection Division

16 Eastgate Park Road

Belmont, NH 03220

603-528-7780

800-321-5298

Europe Repair and Calibration services

Fujikura Europe Ltd.

C51 Barwell Business Park

Leatherhead Road

Chessington, Surrey, KT9 2NY

+44 (0) 208 240 2020

Test & Inspection

Thank you for choosing AFL Test & Inspection!

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