

4000 Series Release Notes

dBm Optics

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For a brief overview of changes in each release, please see the Appendix on page [23](#). If you are skipping releases when upgrading it is important to read the release notes for any important changes between the old release and the new one.

Firmware Release 5.01.036

New Features or Changes

- Support for saving/recalling a switch configuration to/from a file.

Bugs Fixed

- Fixed issue causing New Focus lasers to show the sweep bar intermittently.

Known Issues

- Known problem that after updating to this version, when using the WaveRef2 option, one sees the “Unexpected Wr2 Cal value” warning. This does not affect the operation of the instrument. Please call technical support with any questions.

Firmware Release 5.00.035

New Features or Changes

- Support for wavelength specific PDL Ref Sets.

Bugs Fixed

- Fixed issue caused when the FLSs were turned on twice.
- Fixed an issue in determining Gas Cell lines for WaveRef2.

Known Issues

- Known problem that after updating to this version, when using the WaveRef2 option, one sees the “Unexpected Wr2 Cal value” warning. This does not affect the operation of the instrument. Please call technical support with any questions.

Firmware Release 5.00.034

New Features or Changes

- Added support for a newer SBC board.
- Prohibit downgrading below 5.00.
- Added password for FTP logins: gauss. Username is anonymous.
- Support for a higher range PD card (10mA)
- Support for a dBA and mA/mW units for PD cards.
- Tmax and Tmin traces enabled on PDL.
- Support for FLSs.

Bugs Fixed

- Now saving the active laser after a System Settings save/restore.
- Fixed race condition when checking the laser status.
- Fix to allow up to 2000 nm/sec continuous sweep rate.
- Fixed E-mail Log to Tech Support to go to the correct address.
- Removed inaccurate over power warning during WaveRef sweeps.
- Min/max PD Bias voltages are now correctly displayed.
- Fixed issue causing Display Settings to not be saved when the power button was used to turn off the instrument or the power was lost.

Known Issues

- Known problem that after updating to this version, when using the WaveRef2 option, one sees the “Unexpected Wr2 Cal value” warning. This does not affect the operation of the instrument. Please call technical support with any questions.

Firmware Release 4.86.032

New Features or Changes

- TLS now locks, and unlocks with a password of 1234
- Now can interrupt sweep by pressing start/stop/measure/run a second time
- Added new black and white icon, displayed when WaveRef correction did not succeed
- Added logging for serial port traffic when SCPI logging is enabled

Bugs Fixed

- screen laser icon now better behaved
- we now save the tls password and lock status over a .sst file load
- changed wording of “tls wl stopped” warning, and only issue warning once
- Ftp access is now read/write

Known Issues

- Known problem with mismatch of stored values and what is displayed on the GUI
- Known problem that after updating to this version, when using the WaveRef2 option, one sees the “Unexpected Wr2 Cal value” warning. This does not affect the operation of the instrument. Please call technical support with any questions.

Firmware Release 4.71.028

New Features or Changes

- None

Bugs Fixed

- support for internal TLS's, screen laser icon and timeout.
- fix config for shutter icon operation.

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.70.028

New Features or Changes

- No longer displays an inappropriate error when changing the TLS sources.

Bugs Fixed

- None

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.69.027

New Features or Changes

- None

Bugs Fixed

- Marker value not updated under certain conditions
- Wavelength offset value not applied for certain WaveRef configurations

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.68.026

New Features or Changes

- When Wave reference (option 410) fails to find enough gas lines, this will be reported in the SCPI command “:fetch?” header as “WaveRefSuccess,No”.

Bugs Fixed

- SCPI command `":System:Relative:SplitRef:Clear"` option 'ALL' was treated as a subcommand, requiring a colon but should be an option. Users should type `":System:Relative:SplitRef:Clear All"` to clear split calibration data.
- Debugging statements removed from SCPI `":fetch?"` output.

Known Issues

- Marker value not updated under certain conditions
- Wavelength offset value not applied for certain WaveRef configurations

Firmware Release 4.67.026

New Features or Changes

- Reduced precision in X & Y axis for WaveLength Offset wizard.
- WaveReference and WaveReference Traces buttons synchronized in Special Measurement Setup menu.
- TLS offset can be set, whether or not a TLS is installed (4200) or detected. If no TLS is present, the only way to set offset is using the WaveLength Offset wizard or SCPI command, `:Config:Tls:Offset`.

Bugs Fixed

- Linear interpolation of data, combined with significant TLS offsets, potentially are corrected wrong since they fall outside a 'known' wavelength range. This primarily affected wavelength data on the boundaries of WaveRef sweeps.
- WaveRef Uncorrected Data mode was left ON after closing WLOffset wizard.
- Disabling WaveRef Display Traces (Special Measurement Setup) also turned off Wavelength referencing.

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.66.025

New Features or Changes

- Wavelength reference wavelength offset wizard implemented.
- Improved TLS detection algorithm.
- When communication with external TLS is lost, the TLS is removed which makes for a more responsive GUI.

Bugs Fixed

- Issuing SCPI command, :POWM?, while unit is in Power Meter Mode causes Read Card Error.
- Unable to set TLS to None if TLS previously detected.

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.65.024

New Features or Changes

- Wavelength Referencing (Option 410) significantly improved accuracy. Channel measurements can be optionally 'uncorrected' to see differences.
- Speed of ORL Calibration screens significantly improved.
- GUI events (touchscreen events) saved to event log, enabled by default

Bugs Fixed

- Older versions of hardware came up slower, preventing GUI from loading properly.
- GUI reboot when closing 'Select filename' dialog box in *Revert to stored firmware* or *USB Firmware Upgrade* buttons
- GUI reboot when changing displayed channel in Power Meter Mode (initial startup).
- Blank dialog when saving data (CSV) to either USB or hard drive.

Known Issues

Using new button in 'More Global Settings', the operating system (OS) logs can be compressed to save disc space. While this function is performed automatically by the OS and normally not required, it has fixed some performance issues. Please contact dBm Optics Technical Support for more information about your particular hardware.

Firmware Release 4.64.023

New Features or Changes

- WL adjustment in sweep, time or step screen can be immediately applied with new 'Apply' button in select menus. Focus remains at the digit previously selected for rapid changes
- Synchronization of external laser state and settings with TLS Configuration menu
- File format of screen or data file is set to YYYYMMDD-TTTTTT format, i.e. 4 digit year and 24 hour clock.
- 'Output' in Output Control shows progress dialog when starting laser.
- When data is off-screen, arrow pointer indicates data above shown axis

Bugs Fixed

- GUI reboots for 'selected trace' when changing axis scaling.
- Unable to detect external lasers. Detection of external laser possible with 'autodetect', but not by selecting individual manufacturer
- If user presses 'Menu' key instead of either Yes/No in 'Confirm Operation' screen, this dialog permanently locked out until the next reboot.

Known Issues

- Wavelength Reference enabled is not possible with ORL calibration. Enhancements and fixes to ORL expected Mid-2008
- GUI reboot when cancelling (close button) firmware update from 'Revert to stored firmware' or 'USB Firmware Upgrade' - Will be fixed in next release.

Firmware Release 4.63.022 (broken: external TLS detection)

New Features or Changes

- Internal laser option using GPIB interface

- In Output Control panel, the '*Output*' button is enabled for a detected external TLS
- If supported by the TLS, '*Coherence*' button is enabled in the Output Control panel
- New Coherence status icon at the top of the screen, if supported
- Initial value for sweep rate is within the allowed range for the detected TLS
- SCPI Command interface identifies sub-commands with colon (:) prefix when querying ("?"). Command options remain the same.
- For internal TLS models, the large laser icon will blink if initiated from both the GUI and remotely (GPIB)

Bugs Fixed

- External (GPIB) detection of TLS occasionally causes reboot
- Several SCPI commands fixed
- Upon initial power up, the first touchscreen event in the Menu activated the Configure Channels
- On certain TLSs, fixed sweep rates did not function properly in the 'numeric entry dialog'

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.62.021

New Features or Changes

- IP subnet address can be set when using static addresses. The subnet mask can be verified with SCPI "Config:Communications:ENET?"
- SCPI interface allows an additional (and optional) subnet address
 - "Config:Communication:TCP <address|dhcp|bootp> <term> [subnet_address]"

Bugs Fixed

- None

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.61.020

New Features or Changes

- 1x2 Switch for internal and external (TLSIn) fixed

Bugs Fixed

- User messages partially off screen

Known Issues

- – No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.60.019

New Features or Changes

- Sweep Setup button enables TLS A Setup(if available)
- Internal TLS initialization from cold start has more consistent messages to the user
- Splitter calibration can be copied to another channel
- Previously, individual channel's splitter calibration could not be cleared, i.e., all channels or none. Individual calibrations can be cleared.
- Upon start up, the physical DUT did not reflect what the software reported. This is now corrected.

Bugs Fixed

- SST restore function fixed and SST file format updated. *Recommend all SST files be re-saved*
- Numerous conditions which caused reboot have been fixed
- Time sweep function fixed when using interval.

- X-axis in time sweep view is updated when changing time sweep mode parameters.
- Command structure to channel cards, Waveref cards, etc, clearly separated. This prevents calibration data from being erased under certain conditions.
- Polarization scrambler state reversed from the actual (on was OFF, off was ON)

Known Issues

- While WaveRef is ON, Max/min hold is on *uncorrected* wavelengths, and will not show properly. Recommend not using Max/min hold with WaveRef.

Firmware Release 4.59.018

New Features or Changes

- Moved *Use Splitter Calibration as Default* panel button into *Add SplitCal Scan* wizard
- Better control of splitter calibration data
- SST file restore disabled for this release

Bugs Fixed

- Garbled channel when selecting ORL or PRef in 'Use Channel for SplitCal'. Neither ORL nor PRef channel is used subsequently used in splitter calibration.
- Several buttons in the *Channel Configuration* GUI partially functional, confusing or both.

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.58.017

New Features or Changes

- PDL RefSet icon appears when “in use” and “valid”
- External GPIB communications logging now supported
- Text Entry Dialog now allows input from an external USB keyboard

Bugs Fixed

- Random GUI reboot under remote operation
- GUI displayed meter range is not always correct
- GPIB Address does not set properly from Power-On SST
- “View Log” does not display the log in some circumstances
- Query to the number of closed switches truncated the response to 100 characters.

Known Issues

- Possible 'Out of memory Error'

Firmware Release 4.57.016

A hard-reboot is required to gain access to the new kernel

New Features or Changes

- Support for Matrix Switch type added
- Measurement Diagnostic tool added to “Special Measurements”
- This release includes a new kernel in order to implement DMA hard-drive access

Bugs Fixed

- Santec laser loses communication
- Saving files to USB Flash causes GUI reboot
- Channel card communication/read errors (DMA fix)
- Wavelength Error trace does not return wavelengths
- Polarization State Generator view does not show state
- Random lockup when performing DarkCal from the GUI
- Equipment with no channel cards lock up after a few days
- Querying *OPC? too quickly after :INIT can return an incorrect value
- :Fetch:Data?, :Fetch:Header?, and :Fetch:Trace? slow down instrument
- Cycling through a non-measurement view breaks the “Measure” button

Known Issues

- Random GUI reboot under remote operation
- GPIB Address does not set properly from SST
- GUI displayed meter range is not always correct
- “View Log” does not display the log in some circumstances

Firmware Release 4.56.015

New Features or Changes

- GUI now supports renaming files
- PDL RefSet wizard returns results much faster
- SplitCal now warns the user if the input power is too low

Bugs Fixed

- Unable to downgrade firmware
- Using the “Menu” key to close a menu causes a soft reboot
- Using GPIB to fetch back measurements causes GUI slowdown

Known Issues

- Santec laser loses communication
- Saving files to USB Flash causes GUI reboot
- Channel card communication/read errors (DMA fix)
- Wavelength Error trace does not return wavelengths
- Polarization State Generator view does not show state
- Random lockup when performing DarkCal from the GUI
- Equipment with no channel cards lock up after a few days
- Querying *OPC? too quickly after :INIT can return an incorrect value
- :Fetch:Data?, :Fetch:Header?, and :Fetch:Trace? slow down instrument
- Cycling through a non-measurement view breaks the “Measure” button

Firmware Release 4.55.014

New Features or Changes

- Allow scaling on currently selected trace
- X-Axis is now maintained between sweeps
- Added ability to set a TLS wavelength offset
- Alternate Display can now be changed over SCPI
- “Active Displays” settings are retained on reboot
- Added more gas cell wavelengths for wavelength referencing
- Changing the sweep mode now changes the current Alternate Display

Bugs Fixed

- Remote module communication problem
- GUI displays WaveRef units as picoseconds
- Large SplitCal operation causes GUI lockup
- PDL RefSet Ignore/Use button does not work

Known Issues

- Using GPIB to fetch back measurements causes GUI slowdown
- This firmware release cannot be downgraded, please upgrade to 4.56.015 before attempting to downgrade to an earlier release.

Firmware Release 4.54.013

New Features or Changes

- Added Santec laser to TLS wizard
- Internal TLS screen available for all models, if installed

Bugs Fixed

- Graph gridlines do not match the axis labels

Known Issues

- Remote module communication problem
- GUI displays WaveRef units as picoseconds
- Large SplitCal operation causes GUI lockup
- PDL RefSet Ignore/Use button does not work

Firmware Release 4.53.012

New Features or Changes

- PDL Reference Set feature added
- Added support for GPIB control of Model 4300

Bugs Fixed

- Progress indicator starts at 75%
- Display takes a long time to render
- Santec laser not found

Known Issues

- Graph gridlines do not match the axis labels

Firmware Release 4.52.011

New Features or Changes

- Added TLS activity icon to top bar
- Improved support for absolute units
- Improve rendering time for large sweeps
- Enable numeric keypad for entering IP address
- Enable TLS view for non-4200 models with an internal TLS

Bugs Fixed

- Varous minor GUI fixes
- Various fixes to support model 4300
- Fix “loop” number of sweeps restarts the GUI

Known Issues

- Display takes a long time to render
- Progress indicator starts at 75%
- Santec laser not found

Firmware Release 4.51.010

New Features or Changes

- Fix version comparison for Web upgrades
- Fix problem with loss of autoranging configuration
- GUI Option to change the TLS Trigger Edge added
- Add GUI support for selecting the filename of saved measurement data

Bugs Fixed

- X-Axis displays unreadable text beneath values
- Y-Axis displays incorrect values on Time display

Known Issues

- No issues have been reported at this time, please visit <https://bugzilla.dbmoptics.com/> or contact your dBm Optics representative to report issues.

Firmware Release 4.50.009

New Features or Changes

- Added support for DUT Switch (option 3302)
- Added support for Source Switch (option 974)
- Added support for Internal TLS on model 4650

Bugs Fixed

- Improper calculation of ORL gain
- Y-Axis displays values for the previous sweep
- Improper Passthru command hangs instrument
- Long-running execution can cause the GUI to reset

Known Issues

- X-Axis displays unreadable text beneath values
- Y-Axis displays incorrect values on Time display
- **Performing an upgrade changes installed options**

Firmware Release 4.49.008

New Features or Changes

- Added +/- symbol to numeric keypad
- Support for Model 210 Channel Card added
- “Configure Y Axis” buttons now allow for nine decimal places
- “Configure Y Axis” dialog now shows numbers in the simplest form

Bugs Fixed

- Rel/Zero does not un-zero
- Autoranging reports errors in logfile
- Email Log to Tech Support locks GUI
- “Data From” button causes the GUI to crash
- GUI crashes infrequently with no user interaction

Known Issues

- Improper calculation of ORL gain
- Y-Axis displays values for the previous sweep
- Improper Passthru command hangs instrument
- Long-running execution can cause the GUI to reset

Firmware Release 4.48.007

New Features or Changes

- Better support for Variable Optical Attenuator
- Support for autoranging in Power Meter Mode
- Open/Save file dialogs now only require one click
- Save System Settings dialog allows selection of existing files

Bugs Fixed

- WaveRef II displays incorrect traces
- WaveRef II reading spacing returns to default on sweep with TLS installed
- Garbage GUI Version displayed in some circumstances
- Changing between dBm/mW does not properly update the output power dialog on the TLS

Known Issues

- Rel/Zero does not un-zero
- Autoranging reports errors in logfile
- Email Log to Tech Support locks GUI
- “Data From” button causes the GUI to crash
- GUI crashes infrequently with no user interaction

Firmware Release 4.46.006

New Features or Changes

- Auto-detect DHCP/BOOTP IP on cable insertion

Bugs Fixed

- GPIB Address can be set to 0
- Math traces can not be enabled
- Saved traces can not be enabled
- Digital Filtering does not update GUI correctly

- Incorrect firmware version shown until reboot
- Searching for DHCP IP with no DHCP server on the network bogs down GUI

Known Issues

- WaveRef II displays incorrect traces
- Garbage GUI Version displayed in some circumstances
- WaveRef II reading spacing returns to default on sweep with TLS installed
- Changing between dBm/mW does not properly update the output power dialog on the TLS

Firmware Release 4.44.005

Known Issues

This release did not repair the issues it was meant to, please see release 4.46.006.

Firmware Release 4.42.004

New Features or Changes

- Added Support for Switching
- New graphical rendering back-end
- Added command-passthru for controlled devices
- Additional method for accessing the “Remote Assistance” tool
- Storing Wavelength Referencing Sweep Data is now supported in the GUI
- Activating Wavelength Referencing now turns on the Wavelength Reference Channel

Bugs Fixed

- Unusable buttons display on Model 4100
- Unable to save data files directly to USB drive
- GUI performance degrades when running for several days
- GUI performs a soft-reset when sweeping continuously for several hours
- Execution of nearly simultaneous commands locks up the internal TLS

Known Issues

- GPIB Address can be set to 0
- Math traces can not be enabled
- Saved traces can not be enabled
- WaveRef II displays incorrect traces
- Digital Filtering does not update GUI correctly
- Incorrect firmware version shown until reboot
- WaveRef II reading spacing returns to default on sweep with TLS installed
- Searching for DHCP IP with no DHCP server on the network bogs down GUI

Firmware Release 4.40.003

New Features or Changes

- Added ORL Configuration Wizard

Bugs Fixed

- “Remote Assistance” button missing from GUI menu
- IP Address Dialog crashes when changing the IP

Known Issues

- Unusable buttons display on Model 4100
- Unable to save data files directly to USB drive
- GUI performance degrades when running for several days
- GUI performs a soft-reset when sweeping continuously for several hours
- Execution of nearly simultaneous commands locks up the internal TLS

Firmware Release 4.40.002

New Features or Changes

- Added support for changing the GPIB address
- Added support for Raw Wavelength Reference Traces
- Added a visual keypad for the Numeric Entry Dialog
- Added “Infinite Loop” sweep option to Model 4200

Bugs Fixed

- Changing the View or Update status of a trace remotely not reflected by the front panel
- Auto-ranging uses difficult max/min and division values
- PDL Graphs always autorange

Known Issues

- “Remote Assistance” button missing from GUI menu
- IP Address Dialog crashes when changing the IP

Firmware Release 4.34

New Features or Changes

- Support for markers when multiple graphs are displayed
- System Re-imaging using a USB DVD-ROM
- Improved data rendering performance
- Infinite “Sweep Repeat” Option

Bugs Fixed

- Repeated sweeps do not wait for GUI to update
- Legend overlapping with markers enabled
- Remote FTP access not responding

Known Issues

- Changing the View or Update status of a trace remotely not reflected by the front panel
- Auto-ranging uses difficult max/min and division values
- PDL Graphs always autorange

Firmware Release 4.32

New Features or Changes

- Remote assistance tool added (requires Internet access and service password)
- Soft reboot button added

Bugs Fixed

- Right arrow key causes soft reboot
- First touch-screen press does not work
- GUI settings do not always save on shutdown/reboot

Known Issues

- Repeated sweeps do not wait for GUI to update
- Legend overlapping with markers enabled
- Remote FTP access not responding

Firmware Release 4.28

New Features or Changes

- Support for Internal Polarization Controller
- Support for Current Controlled Lasers

Bugs Fixed

- Corrupted GPIB and Serial Device Driver configuration files

Known Issues

- The “right arrow” key can cause a soft reboot under a very specific set of circumstances
- First touch-screen press does not work, clicks the middle of the screen rather than the requested location
- GUI settings do not always save on shutdown/reboot

Firmware Release 4.26

New Features or Changes

- Trace Statistics now defaults to the first trace of the first channel rather than “All”
- Digital Smoothing now defaults to 11 readings rather than 101
- Align Polarization with DUT Dialogs Added
- Semi-Transparent Graph Foreground Labels
- Markers

Bugs Fixed

- Memory leaks greatly reduced performance over time
- Run-away task caused rotary knob to run slow
- Bottom status text too small

Known Issues

- There are corrupted GPIB and Serial Device Driver configuration files, if you are unable to update to Firmware Release 4.28 then please contact your dBm Optics representative for assistance.

Brief Firmware History

The table below shows which components of the 4000 Series Firmware were modified in each release. The GUI refers to the graphical rendering application that supplies the Front Panel on the instrument, the Core/Engine is the internal software that handles communications and processing of all commands, and Support Files are any operating system config files or applications.

Version	GUI	Core/Engine	Support Files
4.26	X	X	X
4.28	X	X	X
4.32	X	X	X
4.34	X	X	X
4.40.002	X	X	
4.40.003	X		
4.42.004	X	X	X
4.44.005	-	-	-
4.46.006	X	X	X
4.48.007	X	X	
4.49.008	X	X	
4.50.009	X	X	
4.51.010	X	X	
4.52.011	X	X	
4.53.012	X	X	
4.54.013	X	X	
4.55.014	X	X	X
4.56.015	X	X	X
4.57.016	X	X	
4.58.017	X	X	
4.59.018 - Current	X	X	X