

StellarRAD User Guide

The StellarRAD is a rugged, turn-key solution for portable light measurement. This handheld radiometer is an easy to use research grade spectrometer for field testing of lights with no additional setup required. The NIST traceable system can measure spectral Irradiance & Illuminance, CCT, xy chromaticity, CRI, PAR and much more!

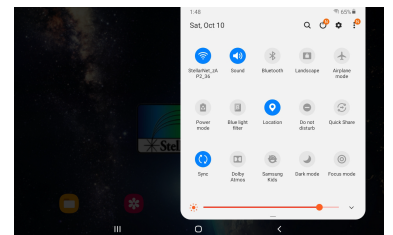


System Power & Spectrometer Engine Connection

The StellarRAD Handheld SpectroRadiometer system is delivered pre-installed and has pre-loaded calibration files. All a user must do is press the main system power button on the right side of the handheld case and the power button will illuminate. This turns on the main spectrometer engine and usually takes about 1 minute to initialize.

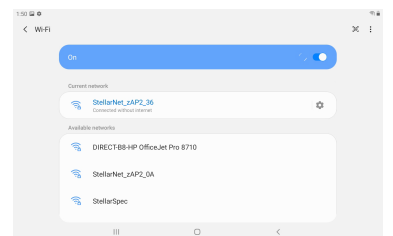


Next, the user must turn on the the system's Android tablet interface located on the top side of the touchscreen display. The tablet will turn on and allow normal operation of the Android system.



As soon as the spectrometer engine initializes, the Android tablet will automatically connect to its WiFi signal. You can verify or reconnect to your spectrometer engine at anytime by reviewing your WiFi settings.

WiFi network is StellarNet_zAP2_deviceID and password is always *stellarnet*. If connection is lost it could be because you (1) have added a stronger wireless network to your device and your system connects to it automatically or (2) your spectrometer engine's main battery supply is depleted and a re-charge or plug-in is required to reconnect. Forgetting other wireless networks allows your device to automatically connect.



Launching the StellarRAD Software

The handheld system's software, also named StellarRAD, will be located on your system's home screen and can be launched by pressing the icon.

This is the same App found on Google Play and Apple Store for our WiFi enabled spectrometers; however, we have tailored the graphics for an 8" touchscreen and upgraded and added many new features, such as continuous mode, snapshot, and multi-file review.



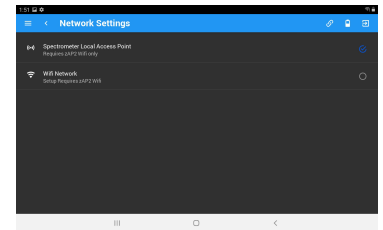
The StellarRAD software allows users to capture basic and more advanced light measurement parameters such as spectral irradiance and

LUX (lumen/m²). Colorimetric analysis such as CRI (color rendering index), CCT (correlated color temperature), xy chromaticity, and much more are included. Easily save and export your data and full spectral graph as an .IRR text data file, screenshot, and/or PDF report with all parameters listed.



Software and Spectrometer Engine Connection

Once the StellarRAD software has been successfully launched the first step is to verify connection. Click the connection icon to visit the Network Settings menu option. There you can see your connection. For this device the ***Spectrometer Local Access Point*** should be automatically checked. If there is a problem with connection, you can uncheck and recheck this option to re-establish connection. If you can not connect either (1) you are connected to a different wireless network or (2) your spectrometer engine's main battery supply is depleted.



Main System Icon Button Overview



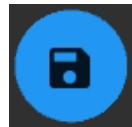
Capture - captures single spectrum



Continuous Mode Start/Stop - starts or stops captures spectra continuously



Expand Screen - expands screen to increase size of the spectral plot



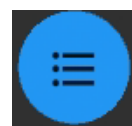
Save Data - saves spectral data as .SSM, IRR, screenshot, and PDF report with all parameters listed to StellarRAD folder



Share Data - saves spectral data as .SSM, IRR, screenshot, and PDF report with all parameters listed to StellarRAD folder. SSM/IRR are .txt files that can be reviewed in SpectraWiz or Excel



Take Dark Spectrum - a dark spectrum should be taken after your Device Settings are changed. Simply cover the CR2 light receptor and press the take dark spectrum button



List Setup - select which measurement units should be display on the main StellarRAD screen

Main Menu

The left side menu is the StellarRAD's main menu containing Review Data, Device Settings, App Setup, Stellar Themes, and About Section.

Review Data

Selecting the Review Data menu item allows you to browse all of the existing saved spectra you have taken. All systems will also be delivered with DEMO spectral data. This option lists all .SSM files located in the StellarRAD folder and will open them using the currently loaded calibration file. Most StellarRAD hardware is delivered with only 1 or 2 calibration files. Please make sure to have the correct file loaded when reviewing your data using this option.

Device Settings

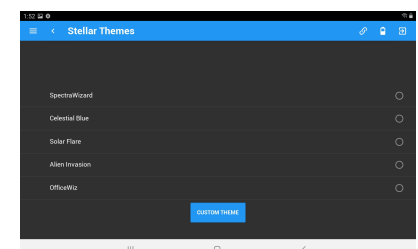
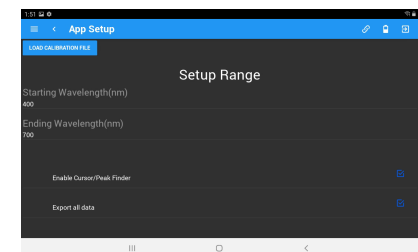
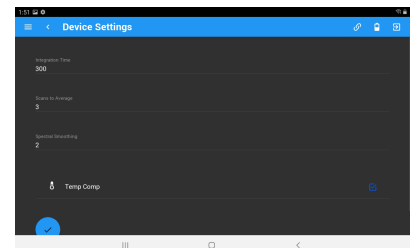
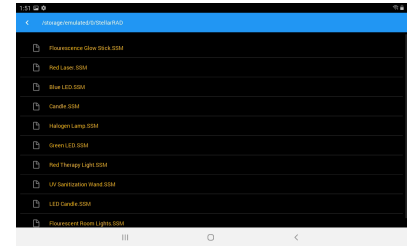
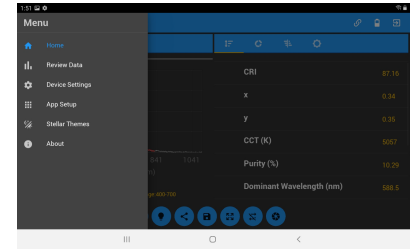
The Device Settings menu option allows you complete control of the main spectroradiometer parameters. These are integration or exposure time, scans to average, and pixel smoothing. You can also toggle on and off temperature compensation. Device setting parameters are saved to a system configuration file and are remembered when the software is re-opened.

App Setup

The App Setup menu option allows you to load or re-load your calibration files, adjust your start and ending wavelength of the calculated power values, and enable/disable the peak finder tool. All calibration files will be found in your StellarRAD directory

Stellar Themes

This menu option allows you to choose the color theme of the app! Choose from SpectraWizard purple, Celestial blue, Solar Flare red, Alien Invasion green, and Office Wiz white. Or design your own color to go along with your company or university.



Measurement Procedure (LED or device under test)

1. Turn on the StellarRAD's main spectrometer engine (right side power button) and tablet (top)
2. Launch the StellarRAD App
3. Verify software and spectrometer engine connection
4. Turn on your LED or device under test and **capture** its raw spectrum in the Scope tab
5. Adjust the integration time in the **Device Settings** menu and then press the **capture** button or use **continuous mode**. Set the integration time so that your spectrum is not saturated but as close to 65,000 counts as possible. A signal with a flat top indicates that you are saturating the detector and should decrease your integration time. If you do not see any signal, increase your integration time until you do.
6. Choose your favorite **Device Settings** such as spectral smoothing controls or samples to average. A pixel box car set to 3 and averaging set to 5 often gives nice results. Press the **capture** button or use **continuous mode** to see the effect.
7. Next, cover or turn off your LED and select the **Take Dark Spectrum** button in the toolbar at the bottom of the screen. You will see your baseline drop to zero.
8. Click on the Watts tab to see your LEDs spectral curve and power output. Press the **capture** button or use **continuous mode** to see your results.
9. All radiometric values should be updated with each measurement and displayed in the list tab. View CIE chart tab, CRI tab, and solar/uv tab for measurement data and results.
10. Save Data as .SSM, .IRR, Screenshot, or PDF report with all parameters listed.
11. Share via E-mail or transfer via USB. Note: if you share via email and change the WiFi network you will have to re-connect to the device in order to begin collecting spectral data again.

