MEMBER OF THE NYNOMIC GROUP
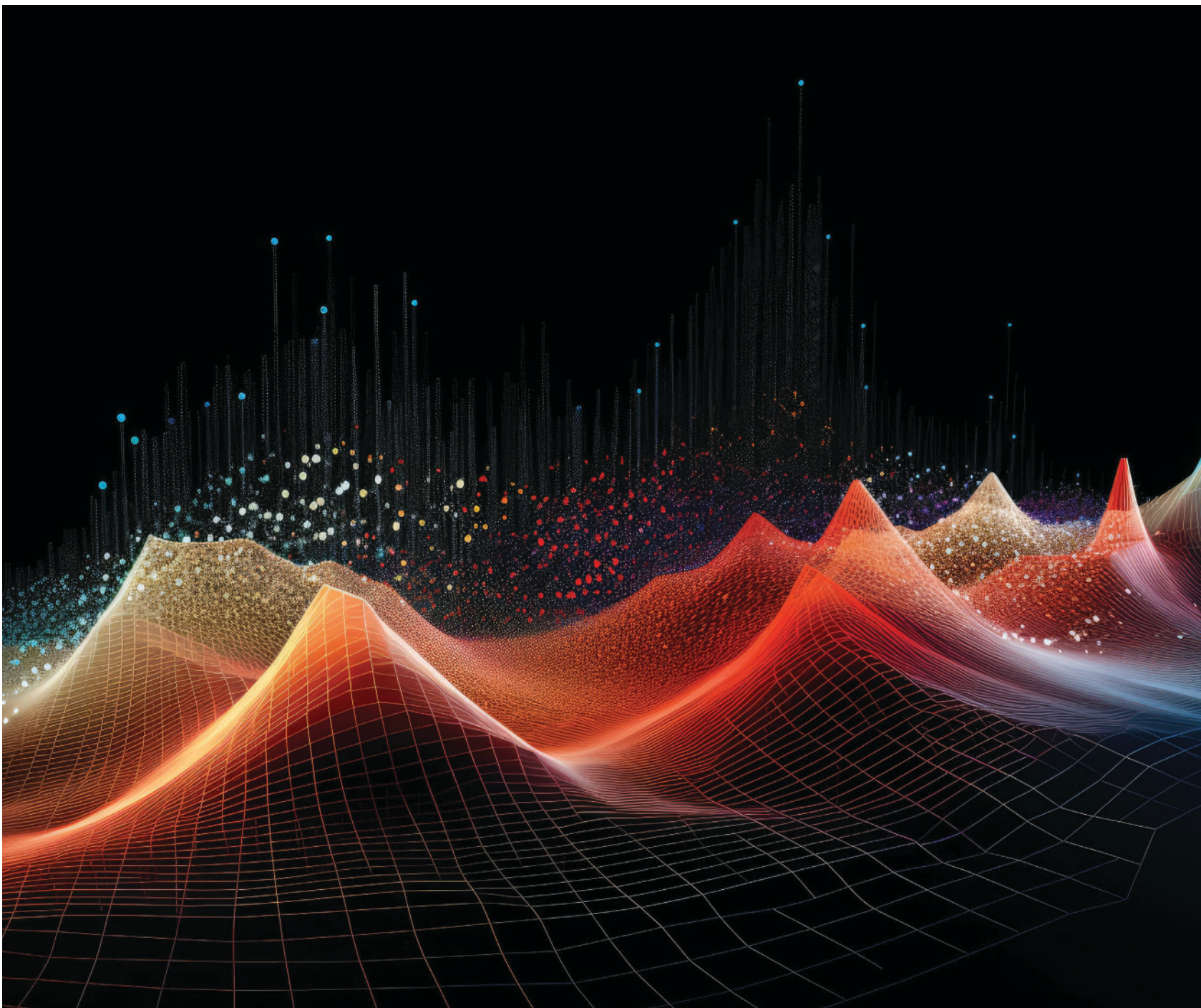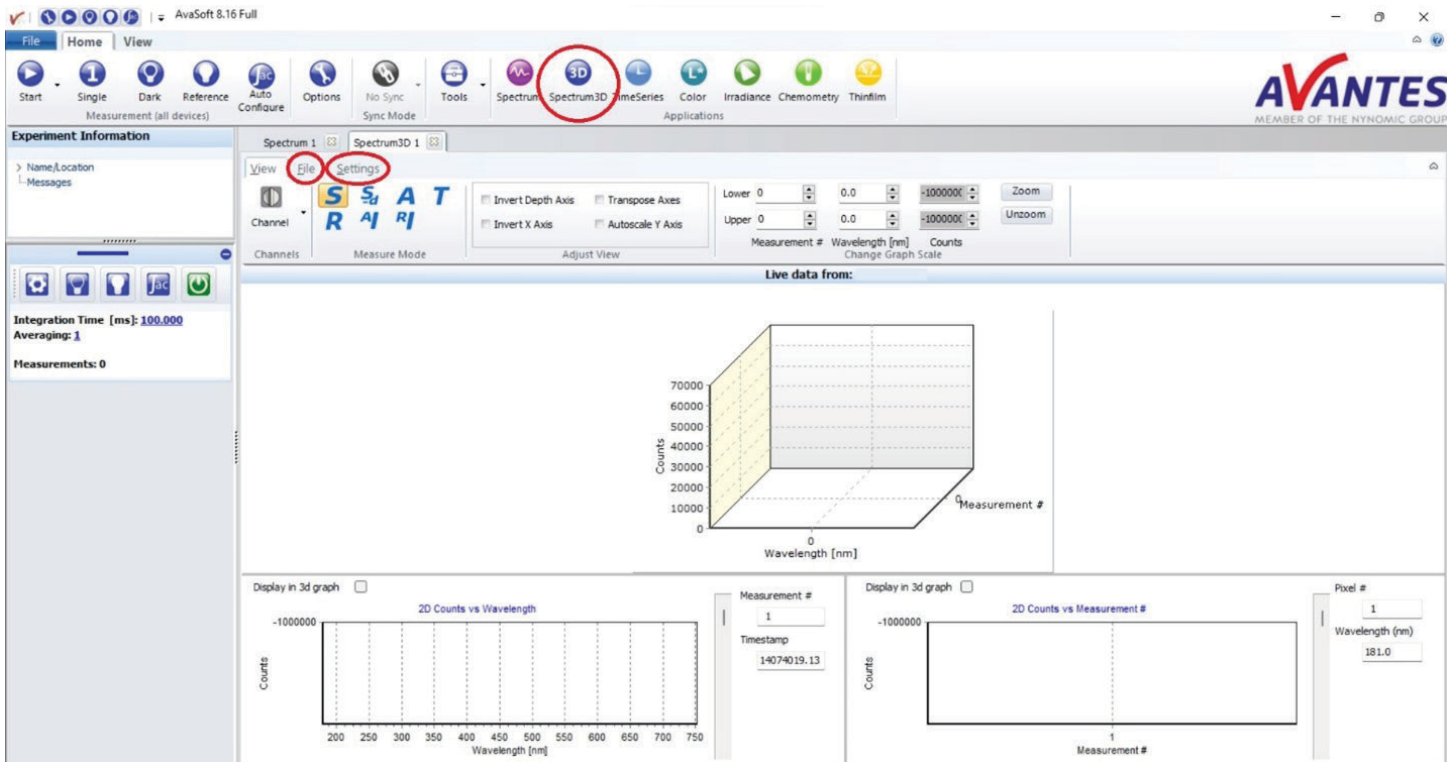
# SPECTRAL TIPS AND TECHNIQUES:
# USING THE SPECTRUM3D MODULE IN AVASOFT 8

# INTRODUCTION AND STEPS

Spectroscopic measurements are often displayed in two-dimensional graphs, with either wavelength or wave number in the x-axis and wide variety of quantifications in the y-axis (i.e., ADC counts, absorbance units, transmission or reflectance percentage, etc). These plots are measurements at a single point in time and are limited in that way. Indeed, sometimes spectral measurements are needed over time to quantify changes in the spectrum, such as measuring the change in light intensity at one point in the sky over the course of a day. In these cases, analyzing multiple spectra over time at once is crucial, and this is the exact tool that the Spectrum3D module in AvaSoft provides. Spectrum3D provides a three-dimensional plot with respect to wavelength and time and allows the user to observe a full spectrum at a specific time or a specific wavelength over a time interval. This data can be saved either as a single file or separate files based on the time stamp. Below is a short guide on using the Spectrum3D Module in AvaSoft 8.
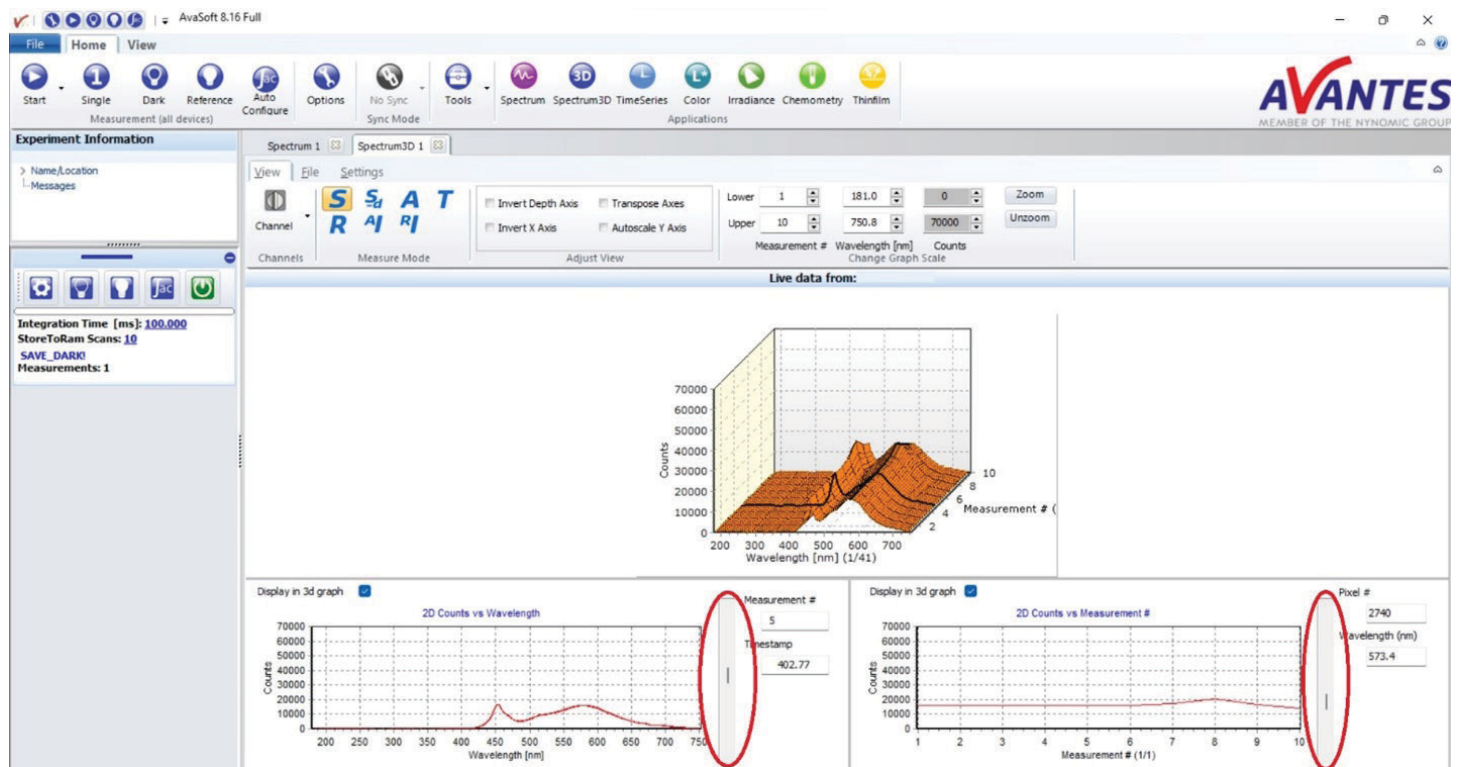
The Spectrum3D module is accessed by clicking the Spectrum3D button at the top of the window (circled in red below). This will open a new tab labeled "Spectrum3D 1" that has no loaded data (unless the connected spectrometer has scans saved to its onboard RAM). To populate this tab with new data, use the StoreToRAM function as explained in our previous StoreToRAM guide. To load data into the Spectrum3D module, navigate to the "File" tab of the window (also circled in red below), click the appropriate "Open" button, and select the desired data. Two options for loading data are available, either separate files or a single .str file. When loading separate files from units with different serial number, AvaSoft asks the user to select one serial number to display the respective data. Loaded files will automatically be sorted alphabetically. This can be changed to organization by file date/time in the "Settings" tab (also circled in red below).

Under the Start button in the Experiment Information window, a message should appear indicating "store to ram busy", and a progress bar should be visible just above the spectrometer integration time. Both circled in red in the following image:

Under the integration time, the number of StoreToRam Scans is seen and can be easily changed by clicking the number. It should be noted that, if dark or reference measurements are needed for the measurements, these should be taken first in continuous measurement mode before switching to the Store to RAM measurement mode.
Once the StoreToRAM scans are complete, the scans can be analyzed and saved through the Spectrum3D module. To open a window for this module, simply click the Spectrum3D button at the top of the window (circled in red below). This will auto populate the window with the scans saved on the instrument's RAM. This data can be saved as separate AvaSoft files, a single AvaSoft file, an Excel or ASCII file, or a graph via the File tab (also circled in red below). Other tools available in the Spectrum3D module will be covered in a future guide.



This data can be saved as separate AvaSoft files (which will be notated as *00001.raw8 - *99999.raw8 based on the number of scans in the data set), a single AvaSoft file (a .str file), an Excel or ASCII file, or a graph (either .rtf file or various image files such as .jpg or .png) via the "File" tab.
With these steps complete, a whole data set over a period of time can be loaded into

 AvaSoft, analyzed with respectr to wavelength and time, and saved to the computer in a multitude of formats. Please reach out to our support team at support@avantes.com for further explanation or troubleshooting options.

# SUPPORT & ADVICE

Providing high-quality equipment is only part of what we do. The other equally important factor is the high level of service we deliver. Our organization includes various services to provide you with the best support and advice:

**Feasibility studies**
Our sales engineers perform free feasibility studies to find your most ideal measurement setup.

**Support team**
Our support team never sleeps and provides you with the best possible service.

**Demo program**
Our demo program allows you to try our products for free to ensure that you find the perfect solution.

**MyAvantes**
Personal platform including AvaSoft software and other helpful material for you to download.

**Online support**
Helpful documents and tutorial videos on demand regarding to your products.

# ABOUT AVANTES

We are Avantes, a leading player in the compact spectrometer industry. We operate in various industries, including (bio)medical, agriculture, semiconductor, and consumer electronics. Our instruments are found in world-class research laboratories, embedded in devices, or playing a crucial role in quality control during production.

With a long history of consulting with clients across various industries, Avantes is an **experienced partner** equipped to guide customers who want a solution tailored to their application and research needs.

Through our headquarters in the Netherlands and offices in the USA and China, our sales engineers work closely with our customers to find the most ideal measurement solution. In addition to our direct offices, Avantes has a **worldwide network** of distributors in over 35 countries ready to assist you. All of our products are made in our own production facility in the Netherlands.

**Let our solutions empower your application**
Scan the QR-code and discover how our solutions will empower your application. We are happy to help!

# AVANTES
MEMBER OF THE NYNOMIC GROUP

## CONTACT

# WE'RE HAPPY TO HELP

Curious how spectroscopy can help you reveal answers by measuring all kind of materials, in-line, at your production facility, in a lab or even in the field? Please visit our website or contact one of our technical experts, we're happy to help you.

**Avantes Headquarters**
Phone:      +31 (0) 313 670 170
Email:       info@avantes.com
Website:    www.avantes.com

**Avantes Inc.**
Phone:      +1 (303) 410 866 8
Email:       infousa@avantes.com
Website:    www.avantesUSA.com

**Avantes China**
Phone:      +86 (0) 108 457 404 5
Email:       info@avantes.com.cn
Website:    www.avantes.cn

**Follow us on social media:**