

How to Format VirtualLab Fusion Results

Abstract



While providing handy tools to obtain fast and accurate results for a desired optical task is the main purpose of any optical simulation software, the value of a versatile post processing should not be underestimated. The adaption of the appearance of the resulting data enables to either fit specific requirements for a publication in a journal or reports, but moreover to emphasize and highlight interesting aspects of the results. In this Use Case different options for the customization of detector results in VirtualLab Fusion are demonstrated. These tools can be utilized for usual 2D field representations, but also for 1D cross-sectional data and multigraphs.

This Use Case Shows



Color Schemes



In the tab *Manipulations* of the menu ribbon, the user can choose from a selection of different color schemes for the depiction of 2D data. It is also possible to adapt the existing schemes or to define a customized ones.



Logarithmic & Exponential Color Tables



Examples for Color Schemes



Scaling and Axis Configuration

🗾 10: SSTF S	etup		
		Numerical Data Array	
Diagram Ta	able	Value at (x,y)	
		Amplitude of "Electric Field Component" [V	//m]
Position on Line [mm]			33.8 16.9 0
	1	3.8075 3.808 3.8085 Time [ns]	3.809

Property Browser	
25: Time Domain (Ex) from [-	100 μm, 0 mm] to [100 μm, 0 mm] – "F
View Object Selections	
Biii AJ Search	
▲ General	
Window Size (Width, Height)	600, 600
Data Restricted Zoom	v
Zoom Factor	(214.69 px/ps, 1.935 px/µm)
Colors	
Color Table	Tricolor
🖌 Data	
Field Quantity	Amplitude
Format of Color Scale	Engineering
Auto Scaling of Data	✓
Displayed Data Range	[0.019317 µV/m; 33.74 V/m]
View Interpolation	Pixelated View
Labels	
Font Size of Axis Labels	10
Font Size of Title	10
 Selection (General) 	
Selection Mode	Rectangle or Ellipse
 Selection (Line) 	
Display Line Marker	
Selection (Point)	
Display Point Marker	
 Selection (Region) 	
Show Rectangle or Ellipse	
View Mode	
3D Mode	

In the *Property Browser* the user can configure various parameter like the size of the overall window and the used fonts. Moreover, the displayed data range of the color scheme can be adjusted here.

All these parameters can be preset in the *Global Options*.

Configuration of Axes



	Selection Mode	Rectangle or Ellipse
4	Selection (Line)	
	Display Line Marker	
4	Selection (Point)	
	Display Point Marker	
4	Selection (Region)	
	Show Rectangle or Ellipse	
4	View Mode	
	3D Mode	
4	X-Axis	
	Description	Time
Þ	x-Axis Range	[3.8073 ns; 3.8091 ns[
	Minimum Number of Ticks	2
	Format of x-Axis	Engineering
4	Y-Axis	
	Description	Position on Line
⊧	y-Axis Range	[-632.91 nm; 199.37 µm[
	Minimum Number of Ticks	2
	Format of y-Axis	Engineering

Furthermore, parameters like the format of the axes and the minimum number of displayed ticks can be adapted. For the format of the axes, three different options are available:

- *Standard*: The numbers are shown as usual.
- Scientific: Powers of ten are used to make to highlight the magnitude and to reduce the number shown zeros.
- *Engineering*: SI prefixes are used to reduce the displayed zeros.

Coordinate and Interpolation Settings



Description	Measured Time		Description	x	Interpola	tion Settings	Subsets +	Operat
Physical Property	Time	•	Physical Property	Length	•			
Interpolation Method	Cubic 4 Point	~	Interpolation Method	Cubic 4 Point	~			
Dimensions			Dimensions					
Sampling Distance	~	1.5712 fs	Sampling Distance	~	1.2658 µm			
Positioning			Positioning					
Start Coordinate		3.8073 ns	Start Coordinate		0 mm			
	3			- 4				
ŤŤ	t t t	Ť	ŤŤ	<u>t t t</u>	Ť			

More advanced options for the control of the axes are provided by the *Coordinate and Interpolation Settings,* which can be found in the *Manipulations* menu. Here, the user can rename the axes, change the physical unit and adjust the sampling according to the requirements.

Point and Rectangle Markers



1D Cross-Sectional Selection / Line scan



		Sampling Manipulations
tings for the Line Extraction		×
lo. of Data Points to Extract		1161
Interpolation Method for Extraction	n	
Method of Source Array 🛛 🔾 N	learest Neighbor / Const	ant Interval
Parameters of Result		
Try to Keep Coordinate and Inte	rpolation Settings	
New Axis Description	Position in Section	
New Physical Property of Axis	No Unit	*
New Coordinate Positioning		
Center Around Zero 🗸 🗸		
New Interpolation Method	Cubic 4 Point	~

ipulations +	Select	ion Related Miscellaneous	
	320	Fill Rectangular Selection	Þ
	22	Clear Rectangular Selection	F
×	×.	Clear Inverse of Rectangular Selection	×
	19	Extract Rectangular Selection	
161	A	Extract Equidistant 1D Data Along Selected Line	
		Extract Subset Data at One Point	
al	뽯	Extract Cross Profile at Point	
	14	Normalize According to Rectangular Selection	Þ
		Remove Phase Dislocations in Rectangular Selection	×

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Line Marker is lied, the esponding 1D array displayed right below initial document. With option *Extract* idistant 1D Data ng Selected Line an individual document can be created.

Lines and Symbols of 1D Graphs



In case of 1D data, it is possible to utilize symbols to indicate the actual sampling points in the curve. Their appearance can be adjusted in the *Property Browser*.

Generation of a Multigraph Document



Formatting of a Multi-Graph Document



With *Change Subset Parameters* in the *Manipulations* tab the basic properties of each individual subsets (such as the name and displayed physical quantity) can be set.

Formatting of a Multi-Graph Document



When the *Multigraph Mode* is active, a new option will appear next to it in the *View* tab. The *Multigraph Settings* allow for a customized visualization (like e.g. color of the graphs and position of the legends).

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