

UseCase.0046

## Creating Nice 2D-Diagrams

**Keywords:** 2D view,  $z=f(x,y)$ , axis, axes, bitmap, mesh, contour, plot, font size, color lookup table, presentation

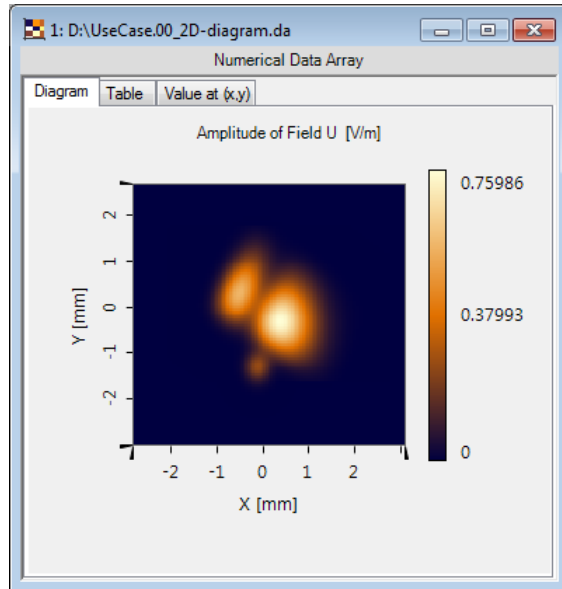
# Description

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- This use case demonstrates how to configure diagrams in a way they meet the demands of an appealing presentation.
- The configuration of 2D-diagrams (used for  $z=f(x,y)$ ) will be shown here.

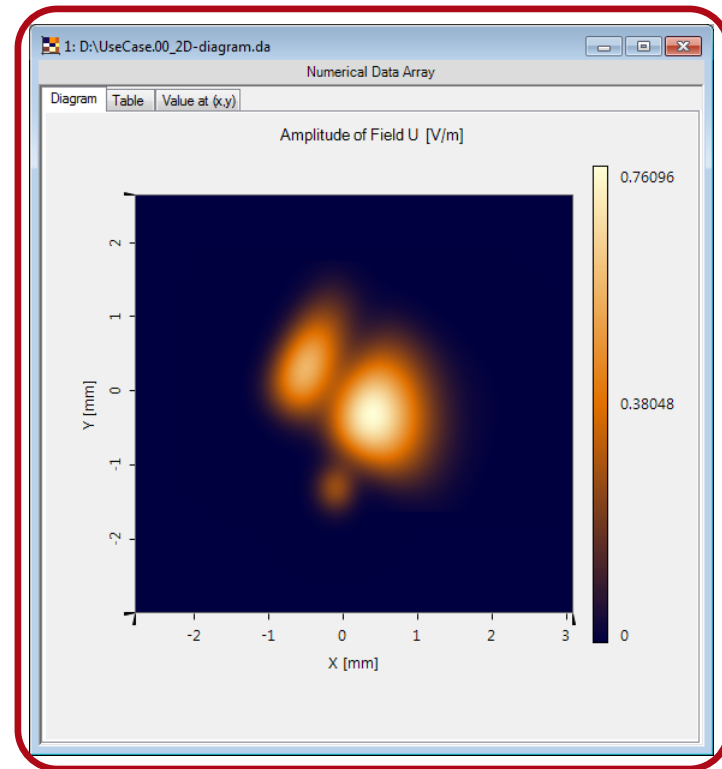
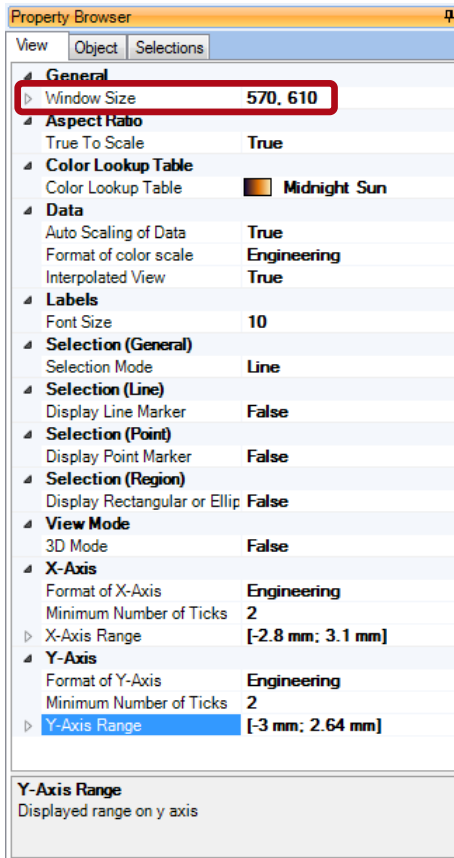
# Standard View Parameters

After loading the 2D sample diagram, it will be shown using the standard view parameters.



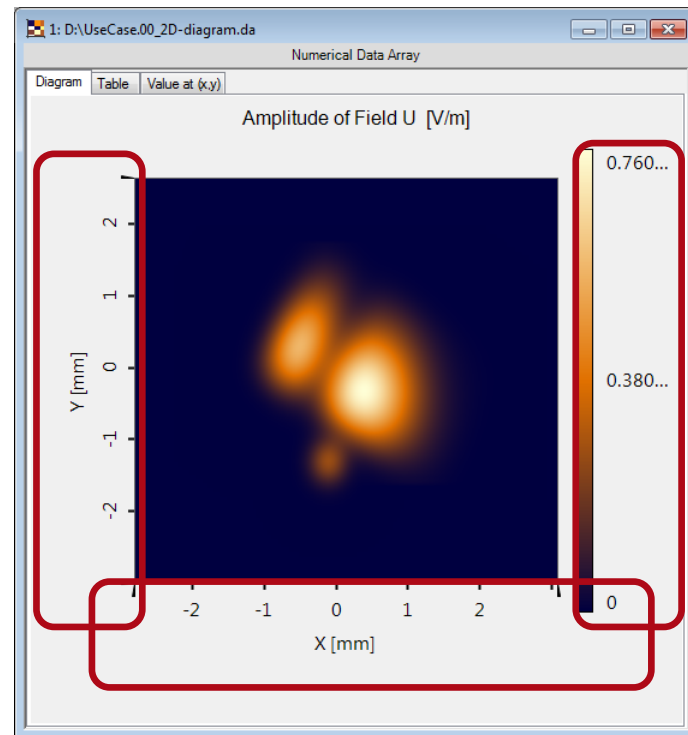
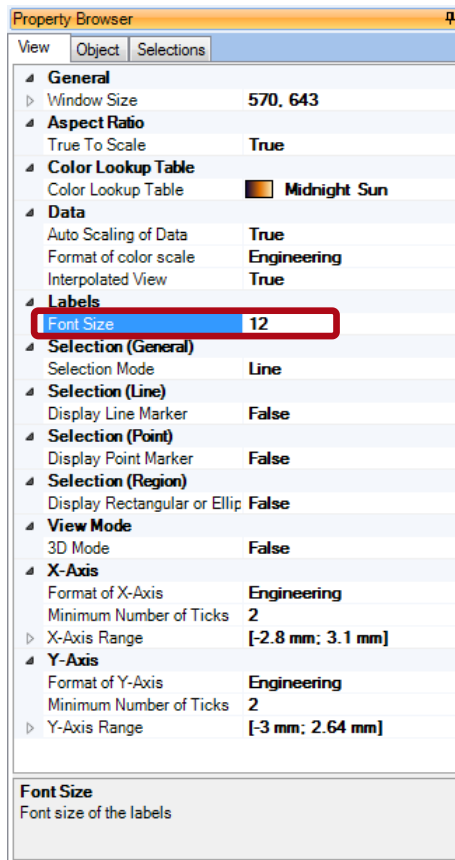
# Window Size

The window size can be defined by just dragging one of the corners as well as by entering the desired size into the Property Browser.



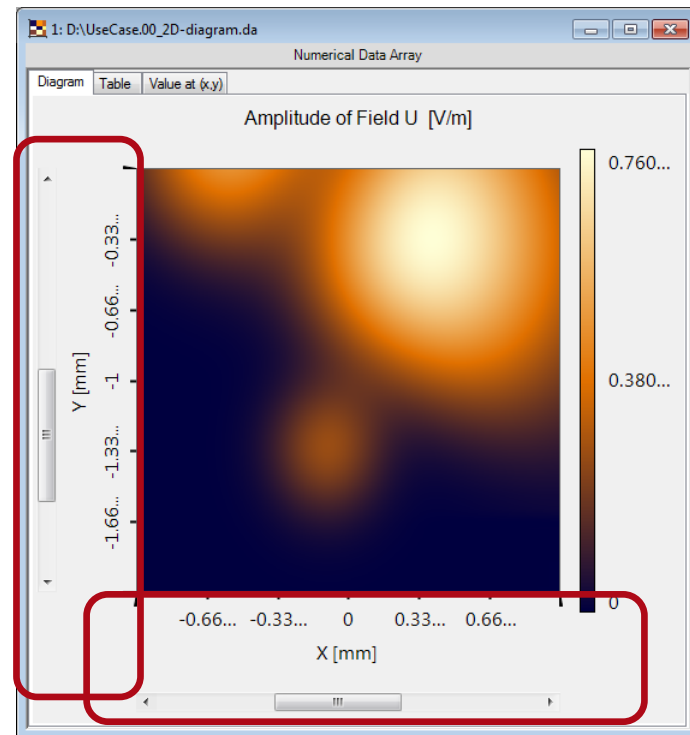
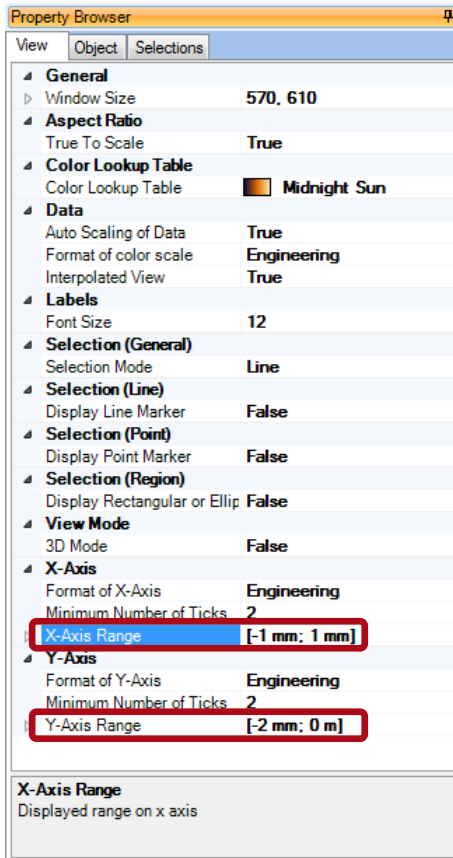
# Font Size

Increasing the font size improves the readability of the axes labels and the tick labels.

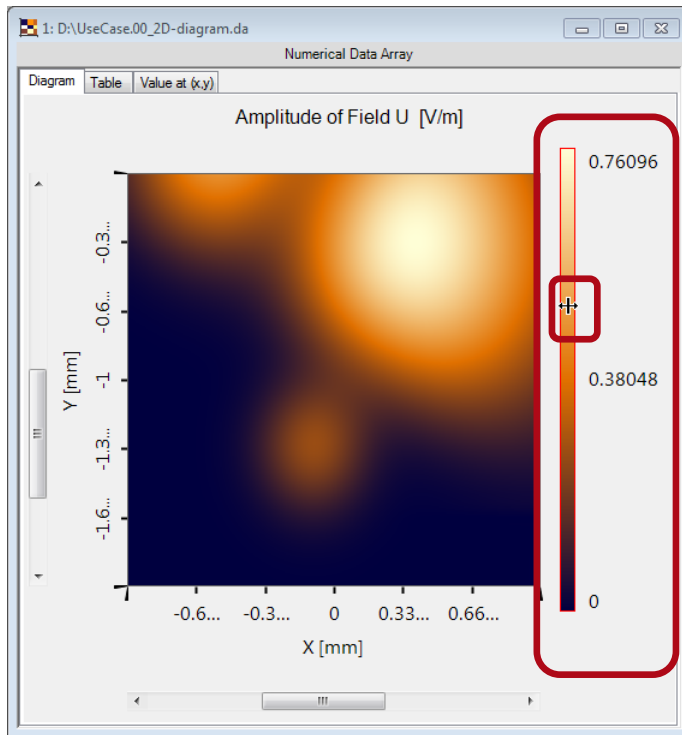


# Coordinate Range

If a certain coordinate range shall be shown, this can be specified via Property Browser too.

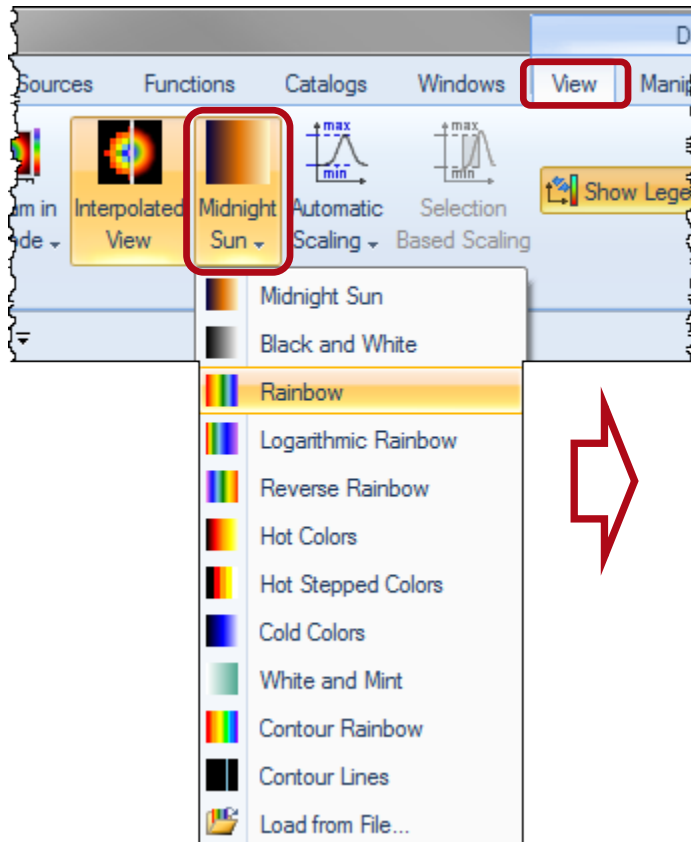


# Width of the Color Legend

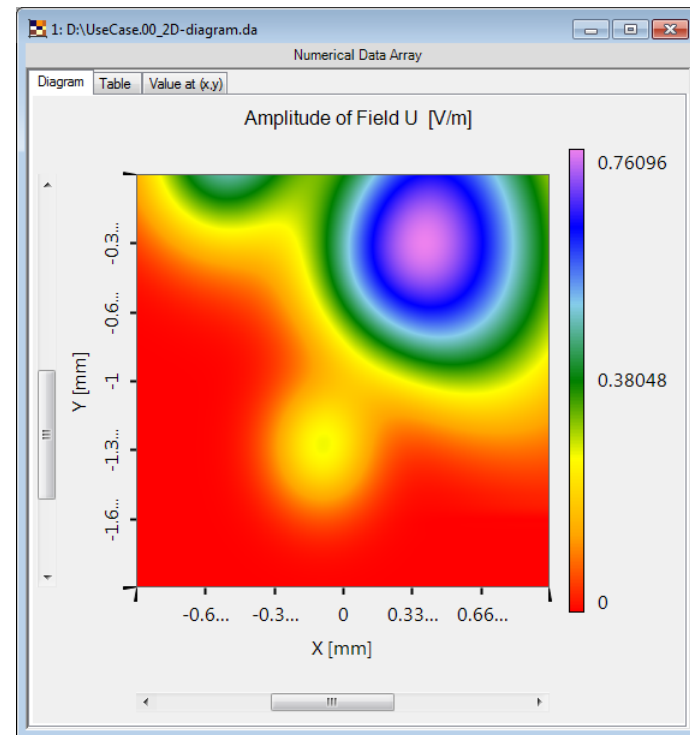


If the color legend needs more space, the color bar can be dragged to the desired horizontal position via mouse.

# Color Lookup Table I

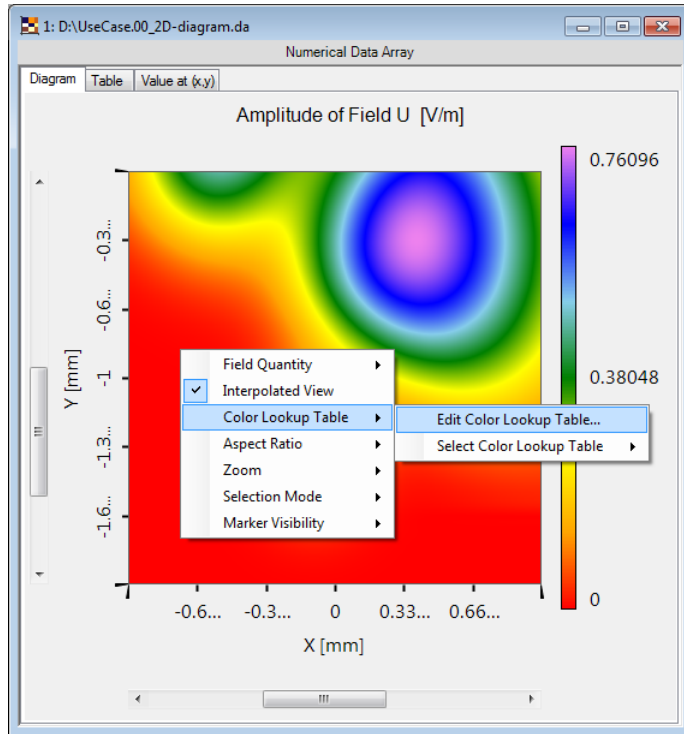


The color lookup table can be changed via View ribbon > Color Lookup Table“

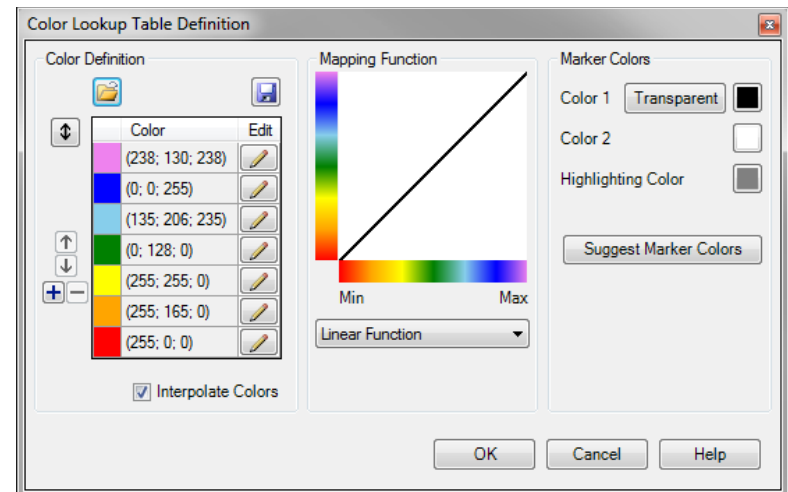




# Color Lookup Table II

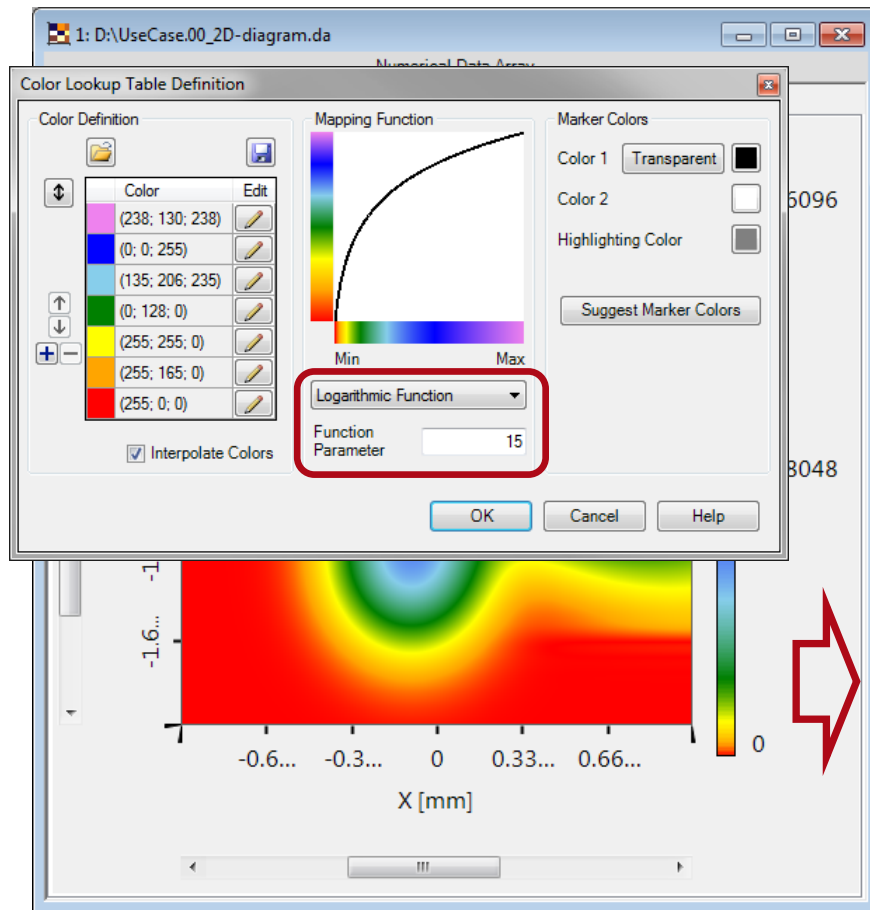


- It may be necessary to use a non-linear lookup table in order to see some features.
- The context menu (Color Lookup Table > Edit Color Lookup Table) provides a dialog for this change.



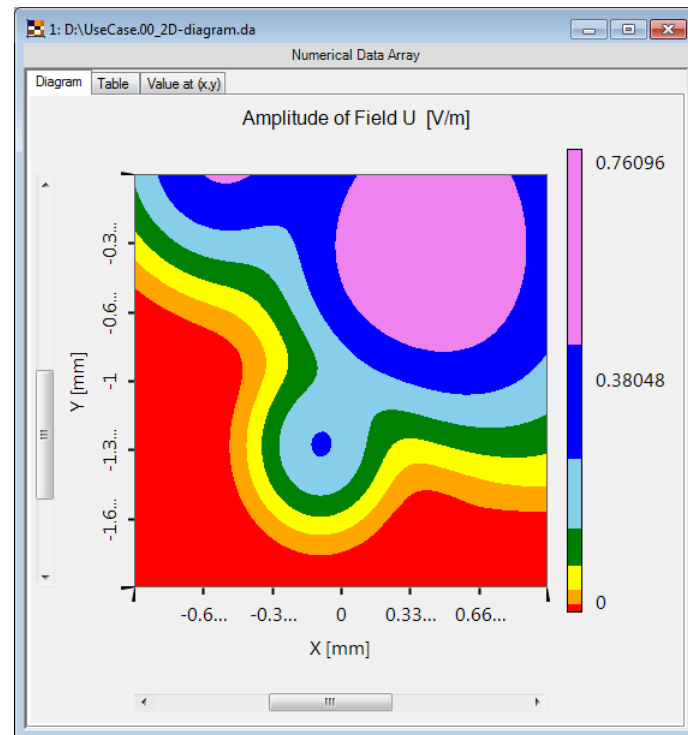
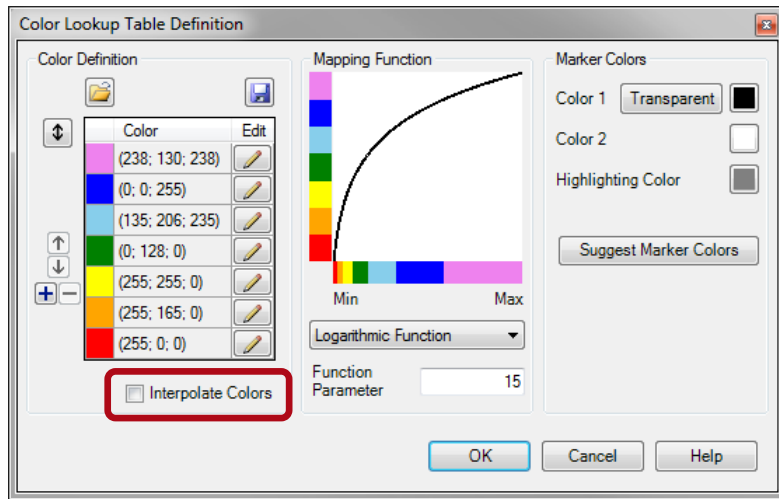
# Color Lookup Table III

- Defining a logarithmic function with a parameter of 15...  
...will highlight some features.

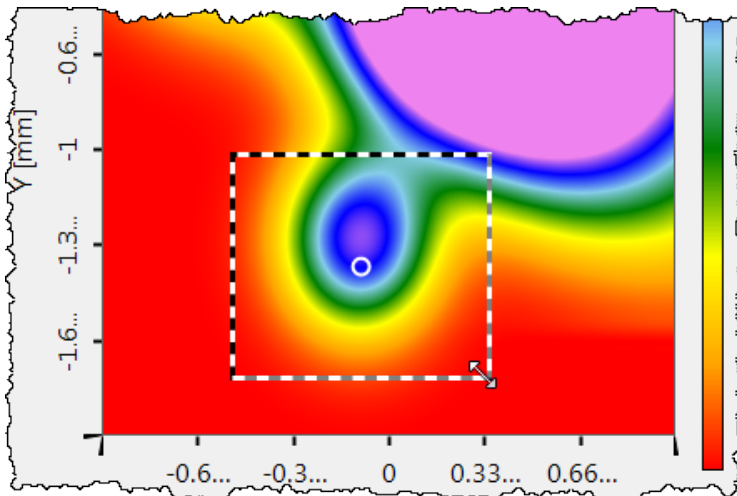
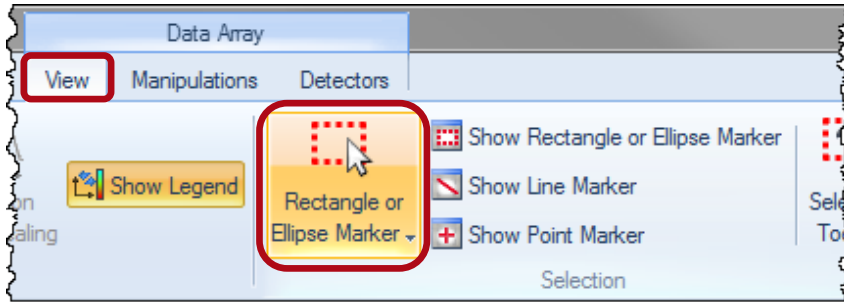


# Color Lookup Table IV

Using stepped colors instead of interpolated colors will produce some kind of contour plot.

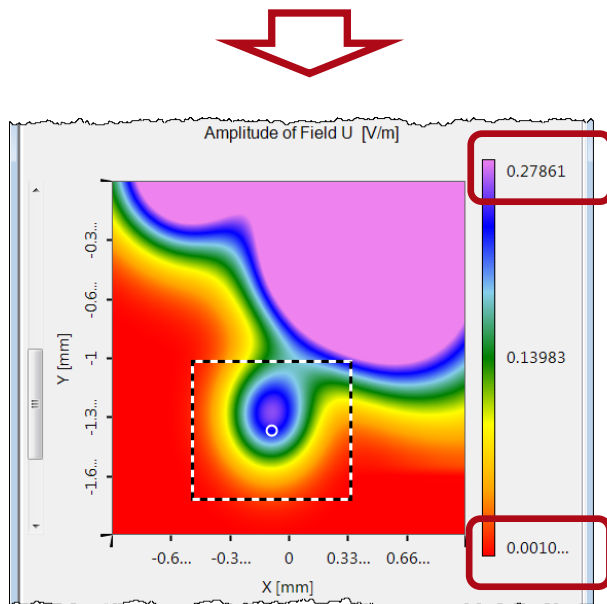
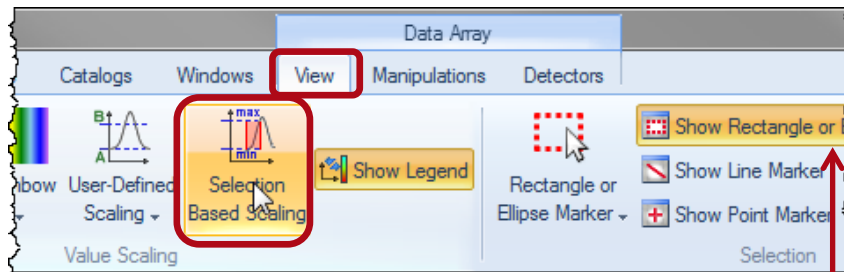


# Selection Based Scaling I



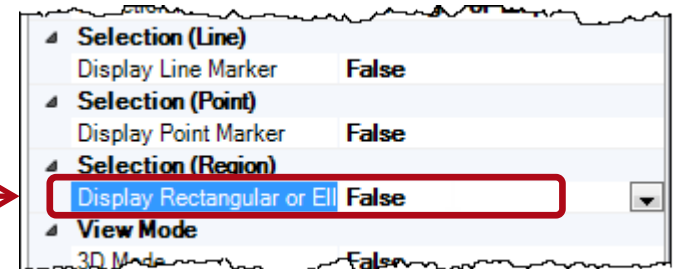
- Local features can be highlighted even with a linear color scale if we map the complete color map to a local value range.
- With an activated rectangular marker...
- ...we have to mark the range that shall be used for rescaling.

# Selection Based Scaling II



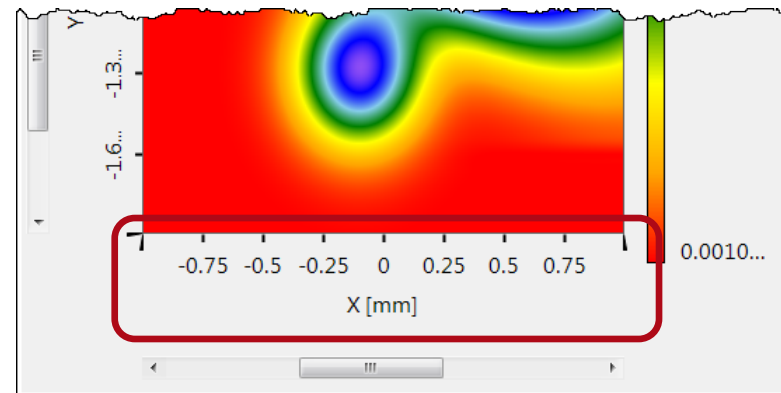
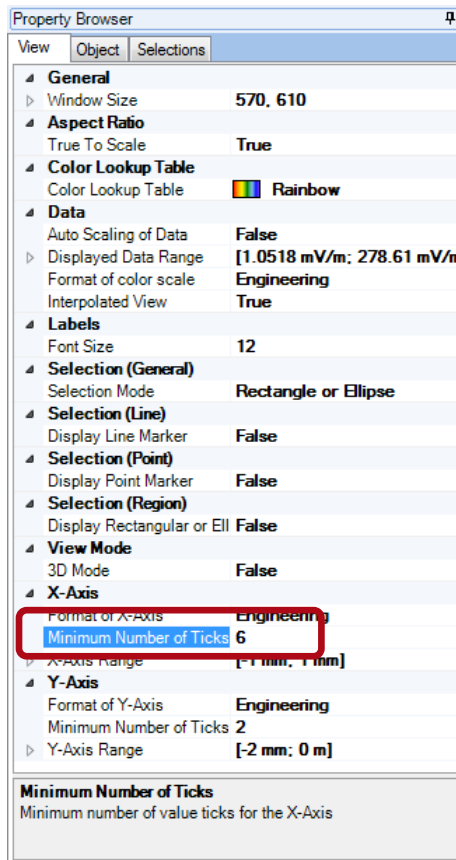
- Choosing „Selection Based Scaling“ will lead to a rescaled color legend where the available color range is used completely by the selected data range.
- The range marker can be deactivated, then.

via ribbon or Property Browser

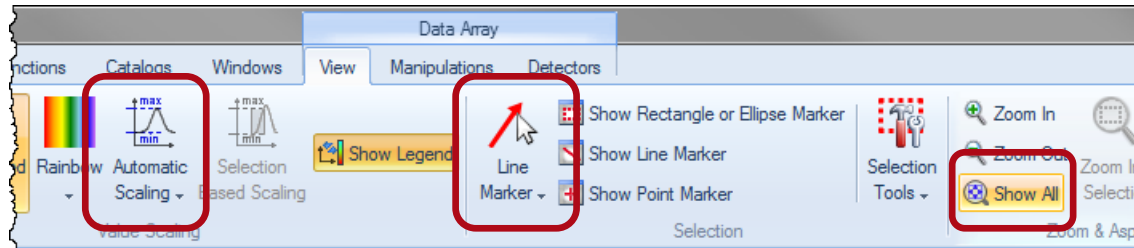


# Number of Axis Ticks

The number of ticks for the x-axis (for the y-axis as well) can be increased by setting a higher value for „Minimum Number of Ticks“ in the Property Browser.

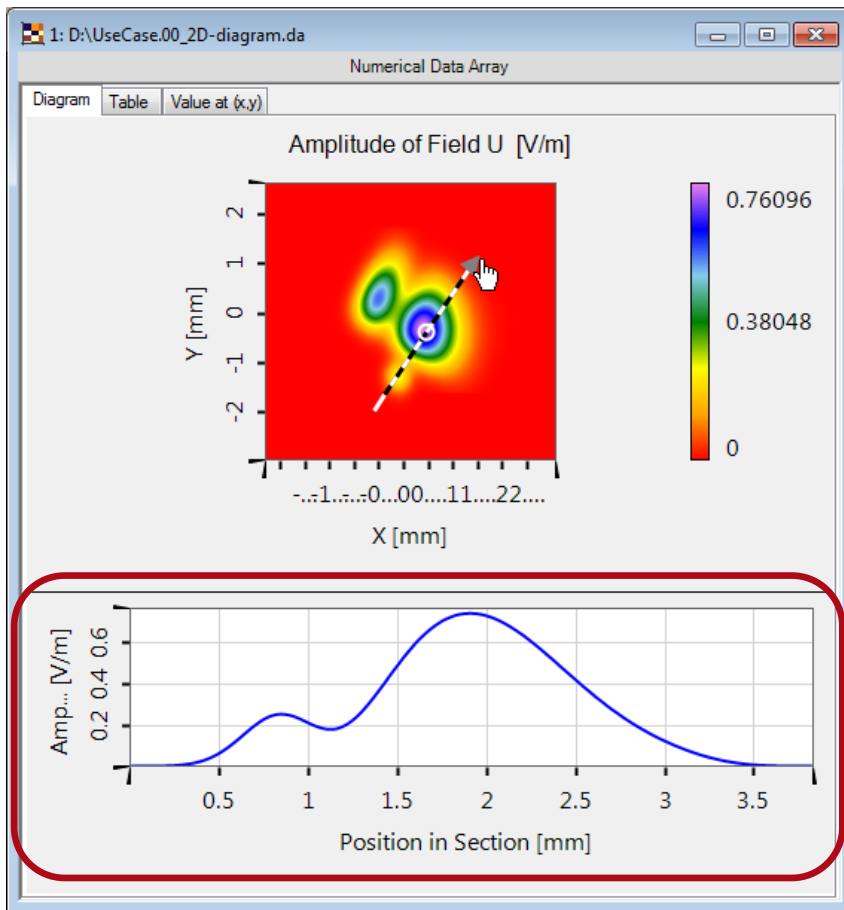


# 1D Cross Section I



- After setting the scaling back to automatic...
- ...and zooming out via „Show All“...
- ...we have to activate the line marker.

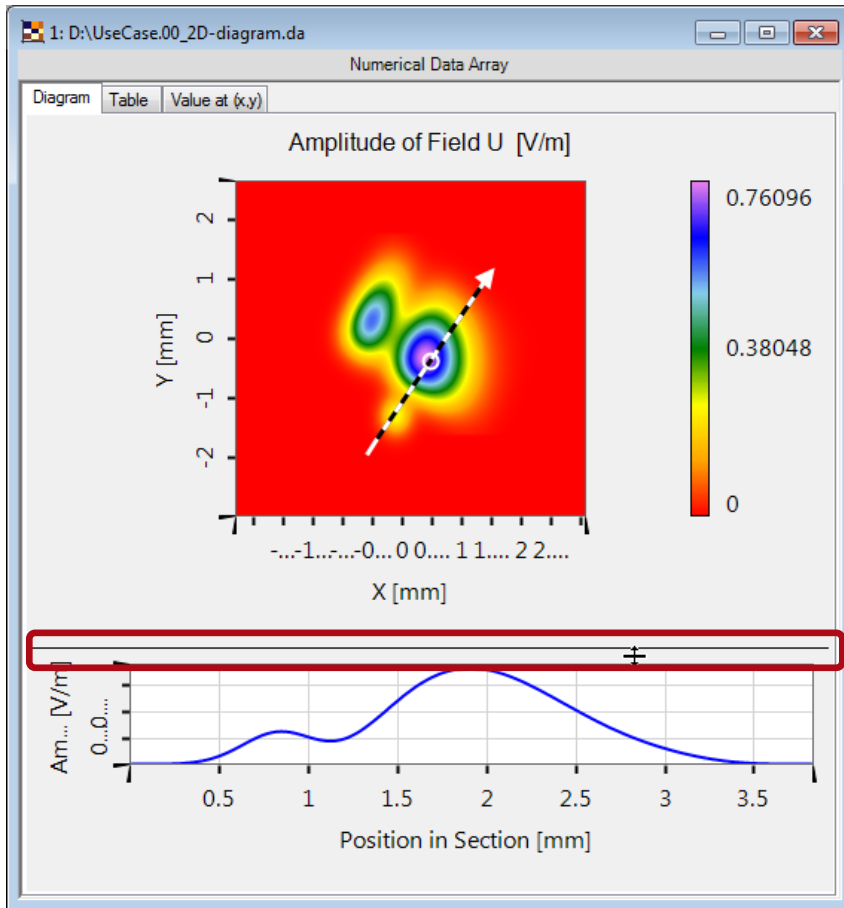
# 1D Intersection II



Drawing the line marker will create a 1D cross section profile below the 2D view.



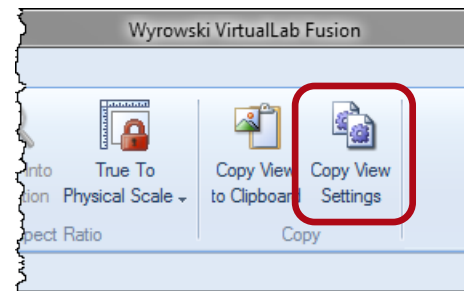
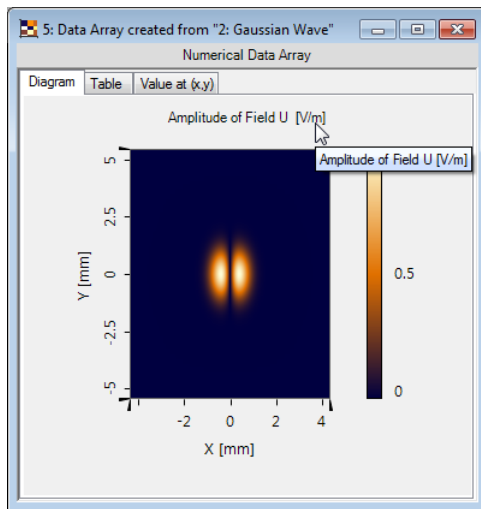
# 1D Intersection III



The horizontal splitter line can be used to change the height ratio of 2D-view and 1D-view by dragging via mouse.

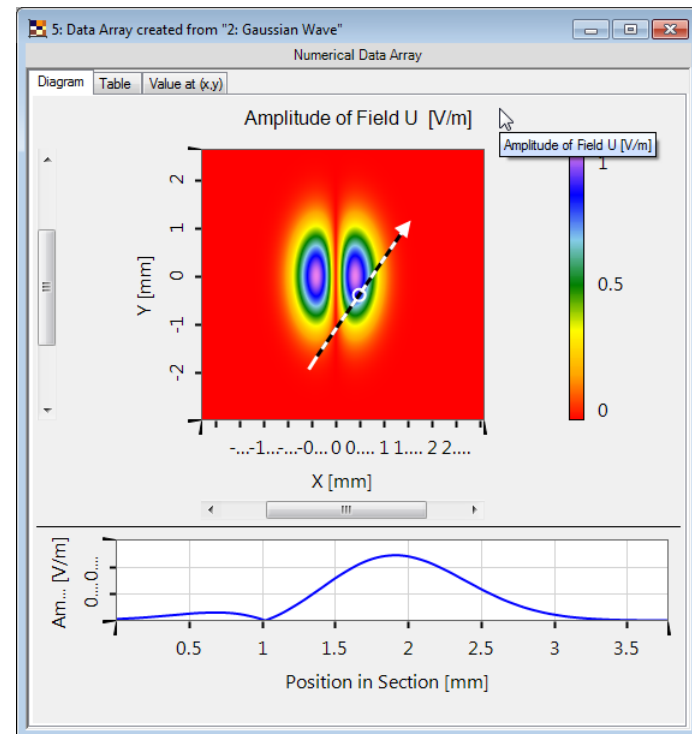
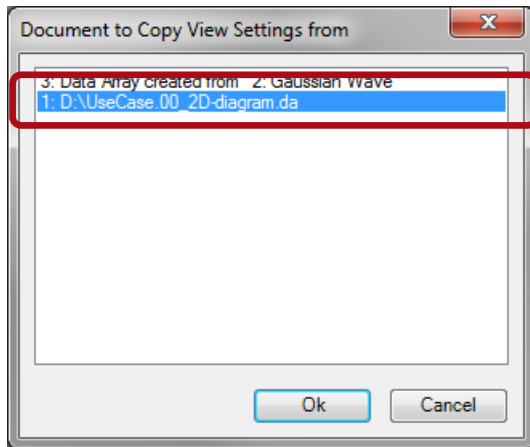
# Copy View Settings I

- The view configuration of one diagram can be transferred easily to another one.
- While the diagram the settings shall be copied to is activated, „View > Copy View Settings“ has to be called.



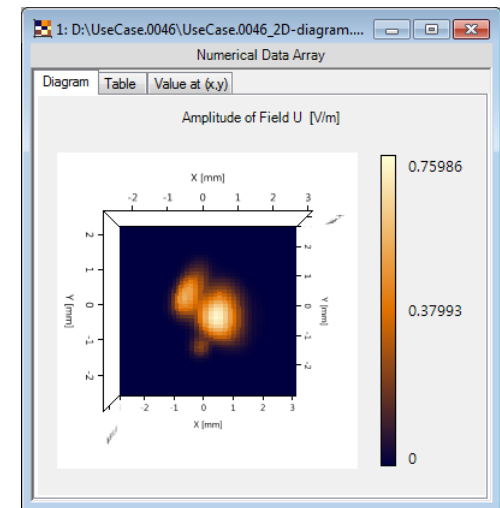
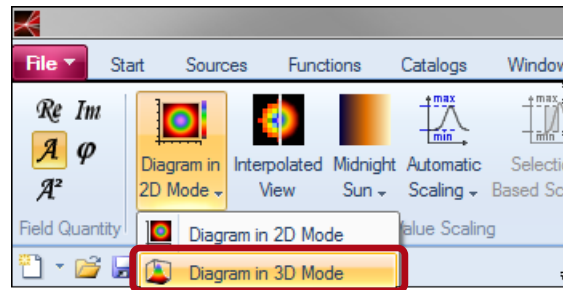
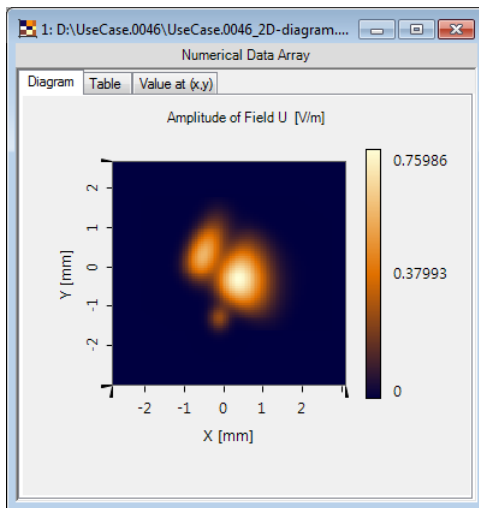
# Copy View Settings II

- After selecting the diagram the settings shall be copied from,...
- ...the view configuration is transferred automatically.



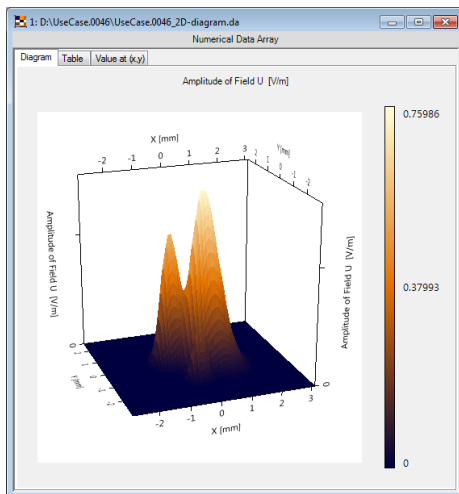
# Changing to 3D View Mode

Starting from the standard view parameters as used after loading the 2D sample diagram, the 2D view mode can be called by switching from „Diagram in 2D Mode“ to „Diagram in 3D Mode“.



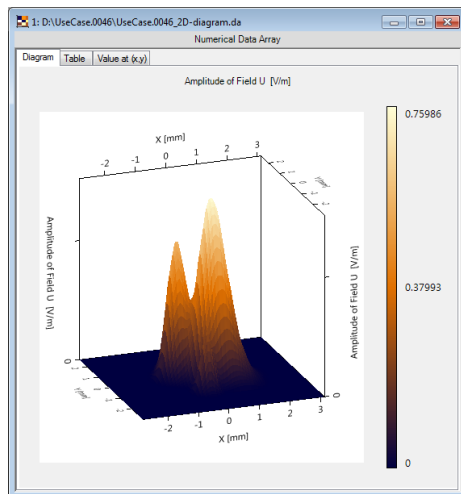
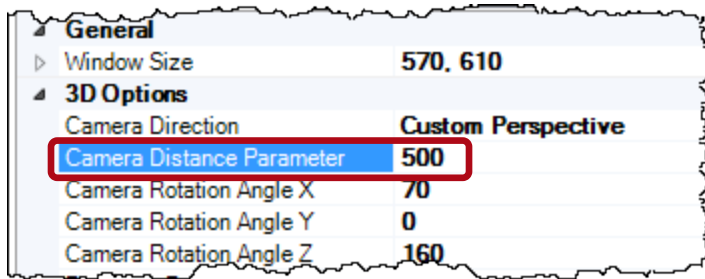
# 3D Perspective I

Window Size	570, 610
<b>3D Options</b>	
Camera Direction	Custom Perspective
Camera Distance Parameter	6
Camera Rotation Angle X	70
Camera Rotation Angle Y	0
Camera Rotation Angle Z	160
Font Size Factor	1
Show Data While Interacting	True
Show Mesh	False



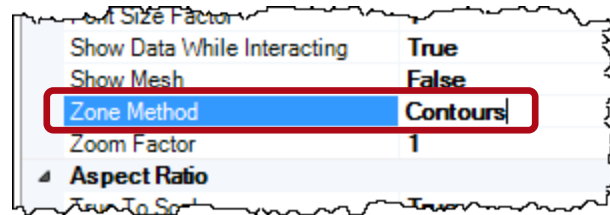
- The diagram size can be changed just as described before.
- Entering some Camera Rotation Angles will change the perspective. (This can be achieved by just clicking and dragging inside the diagram as well.)

# 3D Perspective II

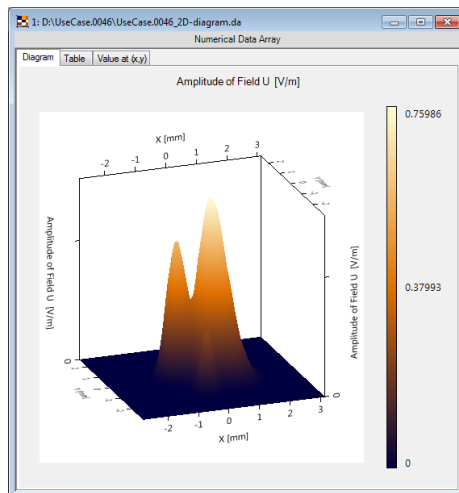


Setting the Camera Distance Parameter to a large value will make the axes parallel.

# Texture

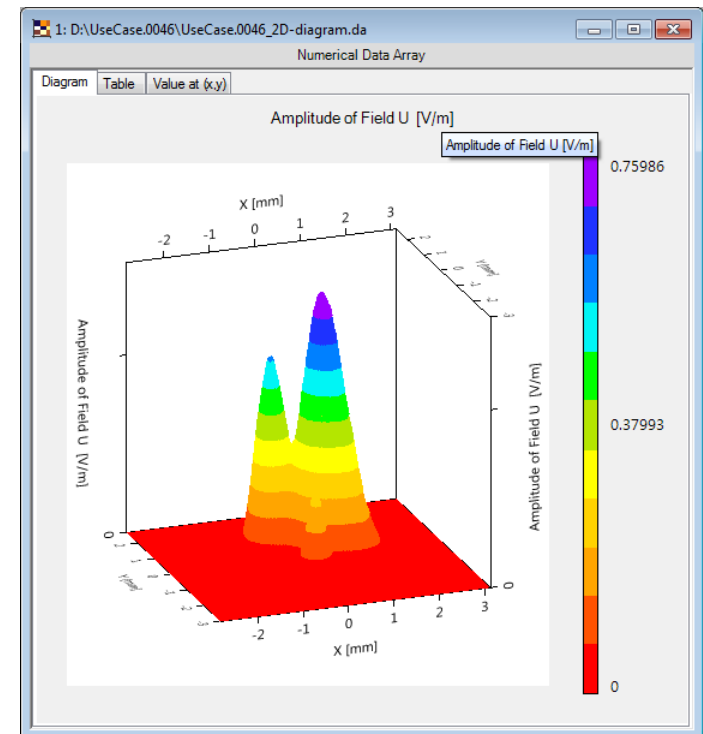
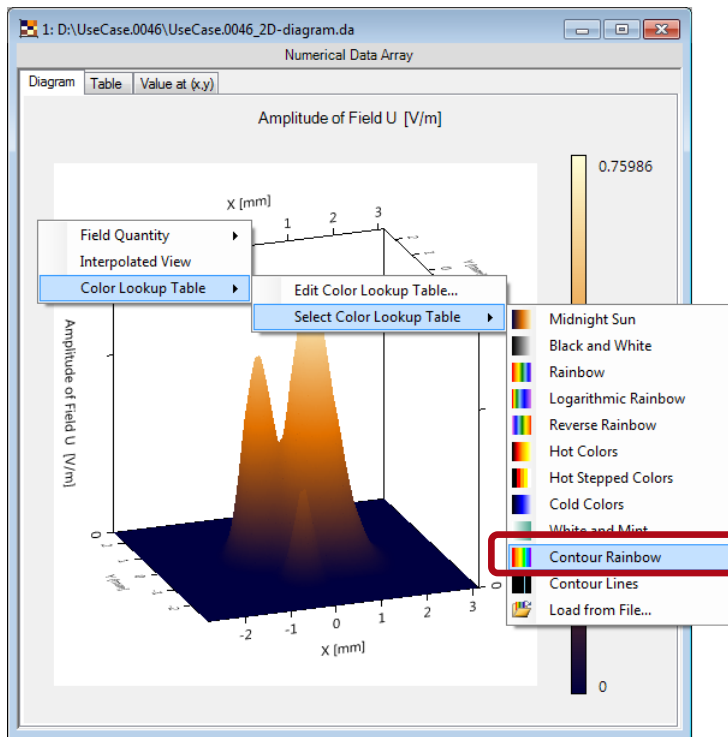


Changing the Zone Method from ,Cells' to ,Contours' improves the smoothness of the surface.



# Emphasizing Contours I

In order to emphasize contours in the plot, the Color Lookup Table should be changed.

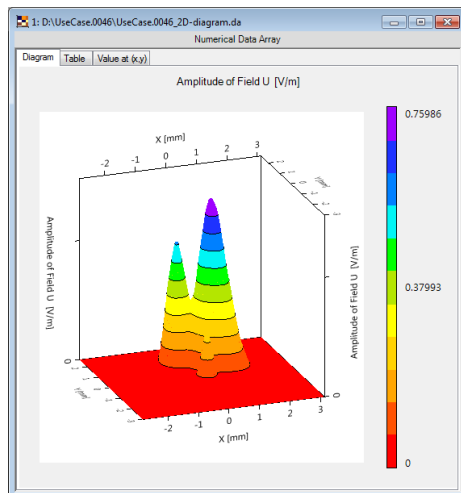




# Emphasizing Contours II

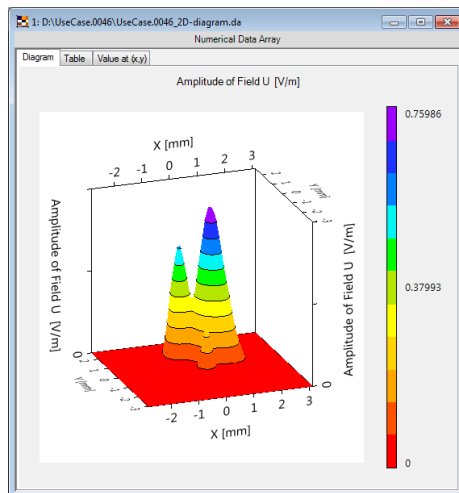
Now the contour borders can be highlighted as well.

3D Options	
Camera Direction	Custom Perspective
Camera Distance Parameter	500
Camera Rotation Angle X	70
Camera Rotation Angle Y	0
Camera Rotation Angle Z	160
<b>Draw Contours</b>	<b>True</b>
Font Size Factor	1
Show Data While Active	True



# Font Size inside the 3D View

Camera Rotation Angle Y	0
Camera Rotation Angle Z	160
Draw Contours	True
Font Size Factor	1.5
Show Data While Interacting	True
Show Mesh	False
Zone Method	Contours
Zoom Factor	1
▲ Aspect Ratio	
True To Scale	True



A special ,Font Size Factor‘ can be used to get diagram labels which are better readable.