

# Delta Tips

NMDT\_0061

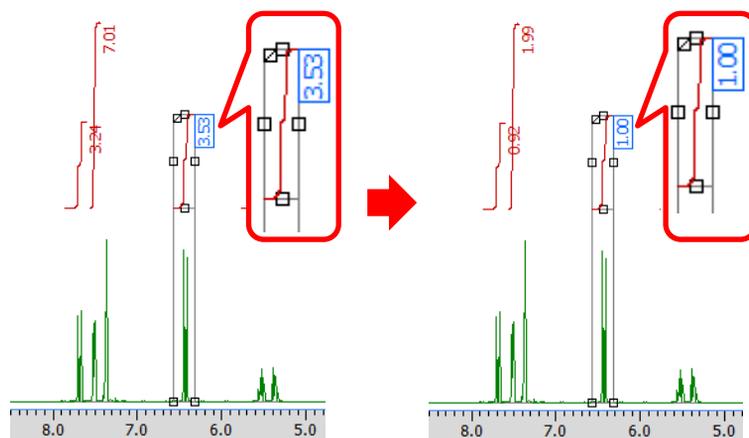
## Normalization of Integral Values

NMR data processing software

Delta  
NMR Software  
v5.0



In Delta software, it is possible to normalize the integral intensity of selected peaks.

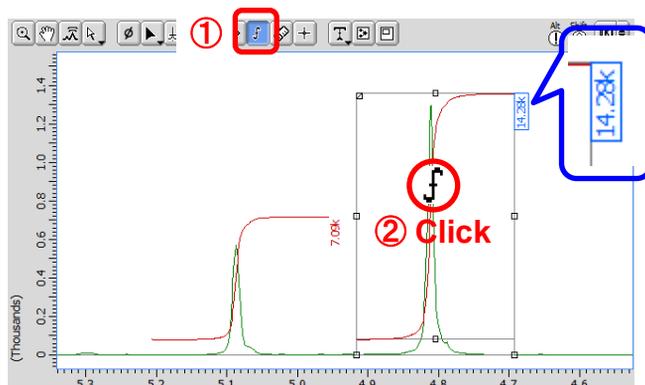


Normalization

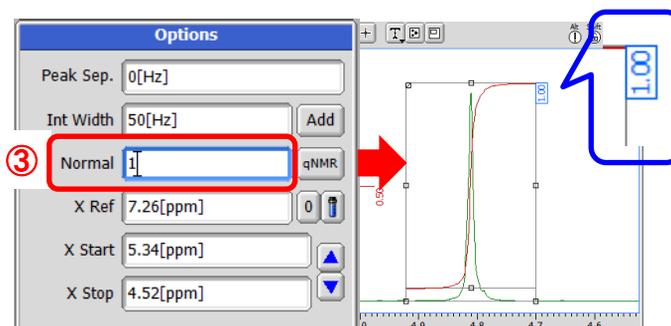
① Click the **Integral** button  in the data window.

The cursor has changed into the **Integral** symbol .

② Select an integral by clicking on the integral curve with the  cursor.



③ Input a normalization value into the **Normal** input box in the **Options** panel and hit the **ENTER** key. Note that the integral intensity has been normalized.



All normalized integral intensity values can be found in the **Normal** column of the **Spread Sheet** table.

④ Select **Analyze — Peak Spreadsheet** to open the **Spread Sheet** window.

The 'Analyze' menu is open, and 'Peak Spreadsheet' is highlighted with a red box and a red arrow. The 'Spread Sheet' window is open, showing a table with the following data:

X [ppm]	X Fold	Class	Normal	Integral	Intensity
5.087	0	M	0.507	7.171k	572.7
5.087	0	MI	0.500	7.065k	0.0
4.810	0	M	0.962	13.596k	1.2
4.801	0	MI	1.000	14.134k	0.0

★ How to perform this action in the **Data Slate** window

Select the **Integral Normal** input box and set the normalization integral value.

If you cannot see the **Integral Normal** input box, you need to activate it as follows:

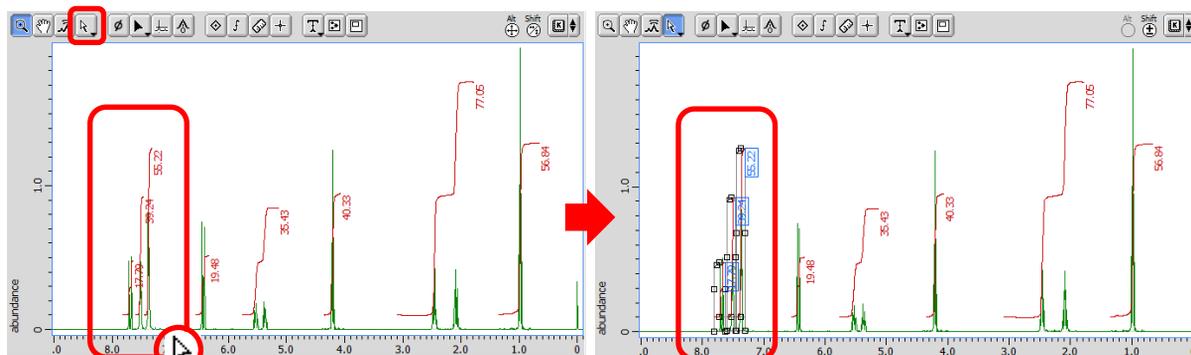
Select **Options — Show Option Bar** in the **Data Slate** window.

The 'Data Slate' window shows an NMR spectrum with integration curves. The x-axis is labeled 'X : parts per Million : 1H' and ranges from 7.9 to 7.1 ppm. The y-axis is labeled 'abundance' and ranges from 0 to 4.0. The spectrum shows several peaks with integration curves. The 'Integral Normal' input box is highlighted with a red box and set to 3.

★ It is possible to normalize the integral intensity of several peaks with the normalization value which corresponds to the sum of integral values of the selected peaks.

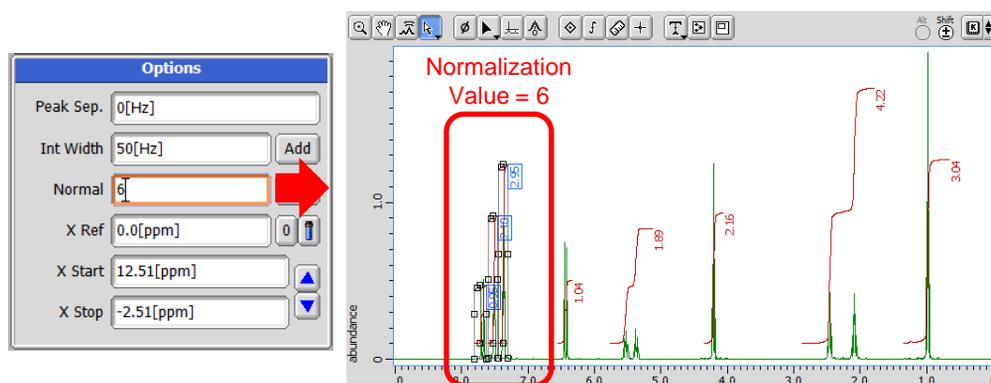
⑤ Click the **Select** button  and select the peaks with the **Select** symbol  cursor.

Note that the integrals have been highlighted as in the figure below.

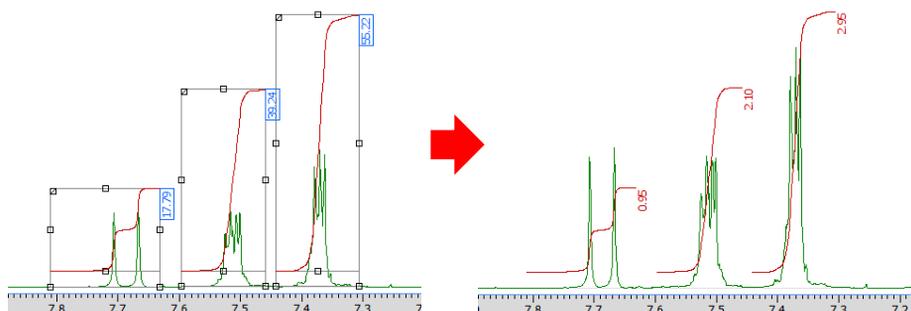


⑤ Drag

⑥ Input the normalization value into the **Normal** box in the **Options** panel and hit the **ENTER** key. The integral intensity values have been normalized.



The sum of the integral values of all the selected peaks was normalized to the normalization value which you set.



The sum of all integral values was normalized to 6.