Delta Tips NMDT_0071 Print a Layout with Signal-to-Noise Ratio Report

In Delta, it is possible to calculate signal to noise ratio (S/N ratio) of an NMR signal by using the **S/N Tool**. Then you can also display the calculated S/N ratio on the spectrum. This issue of Delta Tips explains how to use the **S/N Tool** and how to load this S/N ratio to the **Page Layout Editor**. This function is useful in regular maintenance of your NMR system.



How to use the S/N Tool :

① Select Analyze—Signal to Noise Calculator on the menu bar to open the S/N Tool window.

Curve Analysis Kinetics Analysis	💰 S/N Tool				
J-Coupling Analysis	Select File	RMS	\$	No presets	4
Quantitative Analysis	Width	1.000[ppm]		Hold	Base Fit
CRAFT	Get Signal	1		1	
Peak Spreadsheet	Get Noise	1		1	
Lineshape Tool	Calculate	S	/N Rat	io = 0:1	
DEPT/INEPT Analysis	N				

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2 Click the Select File button Select File in the S/N Tool window and select a data to

load the data to the **S/N Tool** window.

<i>c</i>	S/N Tool	- 🗆 X	R R R S R R R R R R R R R R R R R R R R	
L	Select File	RMS No presets	0 1.2 Mahamana	
-	Width	1.000[ppm] Hold Base Eit	08 r	
	Get Signal			
	Get Noise			
	Calculate	S/N Ratio = 0:1	:0 11.0 10.0 9.0 8.0 7.0 6.0 5.0 4.0 3.0 2.0 1 X : parts per Million : Proton	1.0 0

③ Zoom the signal whose S/N ratio you are going to calculate and click the Get Signal button
Get Signal to load the upper and lower limits to the Get Signal input boxes.



4 Zoom the range which you wish to calculate noise from and click the **Get Noise** button

Get Noise to load the upper and lower limits to the **Get Noise** input boxes.

	5 St E \$	🗳 S/N Tool : test-1-4.je	df – 🗆 🗙
	0000	🧞 Select File	RMS 🔷 Parameter Presets
		Width	1.000[ppm] Hold Base Fit
cettres 20.0 multimutural		Get Signal	4.27005[ppm] (4.13962[ppm]
		Get Noise	12.01001[ppm]
12.0 11.9 11.0 11.7 11.0 11.5 11.4 11.3 11.2 X : parts per Million : Proton	11.1	Calculate	S/N Ratio = 0:1

(5) Select an algorithm from the List (5) and then click the **Calculate** button

to display the result of S/N ratio calculation in the S/N Tool window as shown below.

🖉 S/N Tool : 🕞 1	Peak to Peak Peak Ratio	- 🗆 X	💰 S/N Tool : test-1-4	4.jdf — 🗆 🗙
Selec	RMS Window	Parameter Presets	Select File	RMS Window Parameter Presets
Width	1.000[ppm]	Hold Base Fit	Width	1.000[ppm] Hold Base Fit
Get Signal	4.27005[ppm]	4.13962[ppm]	Get Signal	4.27005[ppm]
Get Noise	12.01001[ppm]	11.01005[ppm]	Get Noise	12.01001[ppm]
Calculate	S/N Rat	io = 0:1	Calculate	S/N Ratio = 29845 : 1

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★ If you need to calculate S/N ratio on a spectrum of standard sample, select the standard sample from the Parameter Presets list in the S/N Tool window.

💰 S/N Tool : test-1-4	jdf	- 🗆 🗙
🧞 Select File	RMS Window	Parameter Presets 0.1% Ethyl Benzene
Width	1.000[ppm]	HUIU Base FIL
Get Signal	4.27005[ppm]	[4.13962[ppm]
Get Noise	12.01001[ppm]	11.01005[ppm]
Calculate	S/N Ratio =	= 29845 : 1

★ Additional details related to the S/N ratio calculation can be found in the **Delta Console** window as shown in the example below:

🔗 JEOL Delta v5.3.1	-	Х
File Options Acquire Process View Analyze Tools		
		⊗ ⊘ ▼
v5.3.1 [Windows] Copyright 1990-2019 by JEOL RESONANCE Inc. License Will Expire: 31-MAY-2020		
RMS Window range: 12.01115[ppm]11.01119[ppm] Signal value: 0.9403 Noise value: 0.00002		
I		

★ It is also possible to create a report on the S/N ratio calculation as follows: Click the File Information button in the Delta Console window to open the File Information window. Select the Reports tab and select the report in the Reports in this file box.

tions Acquire Process View Analyze Tools				
		File View Formatting		
	8			
		Parameter Reports Leaks	Processing Rulers Experiment	Molecules
		Reports in this file		
MR Processing and Control Software		RMS WINDOW : Signal To Noise (2	9-MAY-2020 11:37:13)	
[Windows]				
Int 1990-2019 by OBOL RESONANCE Inc.				
	· · · · ·		0	
		Signal to Noise Report for tes	st-1-4.jdf	
		Created on: 29-MAY-2020 11:37:	13	
		Name	Value	
		Signal		0.9403
		Noise		0.0000
		SN Ratio	2984	4.6462
		Signal area (From)	4.270	5[ppm]
		Signal area(To)	4.139	7 [ppm]
		Noise area (From)	427.000	0[pnt]
		Noise area (To)	1.3010	[kpnt]
		Noise width	1.000	0[ppm]
		Noise area Window determined		
			111	N.

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How to create a layout :

In the example below, we will demonstrate how to make a layout with calculated S/N ratio by using the **Page Layout Editor**.

★ For the details on creating a layout, refer to the Delta Tips issue titled How to Make a Print Layout (1) (⇒NMDT_0068).





② Select a template from the Template list on the menu bar in the Page Layout Editor window. In the example below, we have selected the Param Right template to load this template to the Page Layout Editor.





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③ Select a data box in the Page layout Editor window and then click the Select Data button . Note that the cursor has changed into the Finger cursor .

④ Select a data with the Finger cursor to load this data to the data box. Note that the name of the selected data is shown in the data box.



(5) Create a data box to display the result of S/N ratio calculation. Click the Region buttonand drag the cursor
to create a data box.



⑥ Link the data boxes. Select a data box and then select a source data box from the SelectData list ⑥. In the example bellow, we have linked Box 4 to Box 1.





Select the data box and click the button to select Data/ Parameters/ a Report/ a
 Processing List. In the example below, we have attributed a Report to Box 4.



(8) Select Import—Select Report to open the Select Report window. Select the Signal To Noise : RMS Window report from the list and click the Select button select to load the report.







(9) Click the Print button	B	to pri
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to print the spectrum.

	Налае	Value]		JEO	
II II	Signal Noise SN Ratio Signal area(Prom) Signal area(Po) Noise area(To) Noise width リイズ領線 Kindow(Pazzh&した	4 12 13 1	0.9403 0.0000 29933.1926 1.1396(ppm) .0340(ppm) .0244(ppm) .0000(ppm)			Filename Author Experiment Sample Id Solvent Actual Start_Time Revision_Time	- test-1-2.jdf = delta = proton.jxp = cshe = CHLOROPORM-D = 19-JJNF-2019 18:06:11 = 19-MJY-2020 13:50:56
0.1 0.0						Comment Data_Format Dim_Size X_Domain Dim_Title Dim_Title Dim_Toits Dimensions Spectrometer	= single pulse = 10 COMPLEX = 13107 = Proton = Proton = (ppm) = X = JNM-SC24005/L1
0.8						Field_Strength X_Acq_Duration X_Domain X_Freq X_Offset X_Points	= 9.309766[T] (400[MHz]) = 2.18628096[s] = Proton = 399.78219838[MHz] = 5[ppm] = 16384
9.6						X Prescans X_Resolution X Sweep X_Sweep_Clipped Irr_Domain Irr_Preq Irr_Offset	= 2 = 0.45739775[Hz] = 7.4540048[kHz] = 5.99520384[kHz] = Proton = 399.76219838[MHz] = 5[ppn]
4 0.5						Tri_Domain Tri_Preq Tri_Offset Blanking Clipped Scans Total_Scans	= Proton = 399.78219838[MHz] = 5[ppm] = 2[us] = FALSE = 8 = 8
0.3 0.		<u>f</u> t			1.	Relaxation_Delay Recvr Gain Temp_Get X 90 Width X_Acq_Time X_Angle	= 5[s] = 32 = 27[dC] = 7.24[us] = 2.18628096[s] = 45[deg1
0.2						X Atn X_Pulse Irr Mode Tri_Mode Dante_Loop Dante_Presat Decimation Bate	= 4.2(dB) = 3.62[us] = Off = Off = 500 = FALSE = 0
bundance 0 0.1			I M			Experiment Path Initial_Walt Phase Presat_Time Presat_Time Flag Relaxation_Delay_Calc	= c:\Program Files\JEOL\ = 1[s] = (0, 90, 270, 180, 180, = 5[s] = FALSE c = 0[s]
	11.0 10.0 9.0	8.0 7.0	6.0 5.0	4.0 3.0	2.0 1.0	Relaxation_Delay_Tem Repetition_Time	p = 5[s] = 7.18628096[s]

- ★ For the details on saving a layout, refer to the Delta Tips issue titled How to Make a Print Layout (1) (⇒NMDT_0068).
- ★ For the details on setting features of data boxes, refer to the Delta Tips issue titled How to Make a Print Layout (3) (⇒NMDT_0070).

How to set font:

It is possible to set the size and style of letters in a data box as follows: Select **Box—Attributes** to open the **Attributes** window.

★ For the details on the **Attributes** window, refer to the Delta Tips issue titled **Page Layout** Editor (Part 1) (⇒NMDT_0019).



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