SPARTA DSP

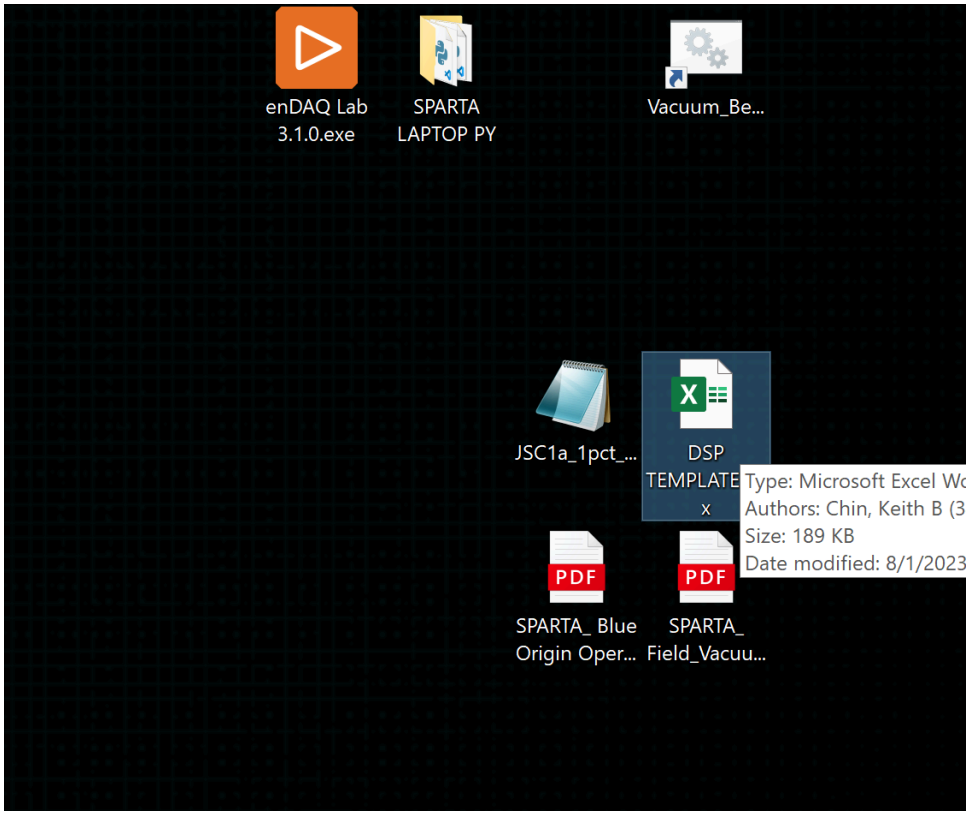
DSP Plotting Guide: Operation Guide

Matthew Duong (3223 Affiliate)

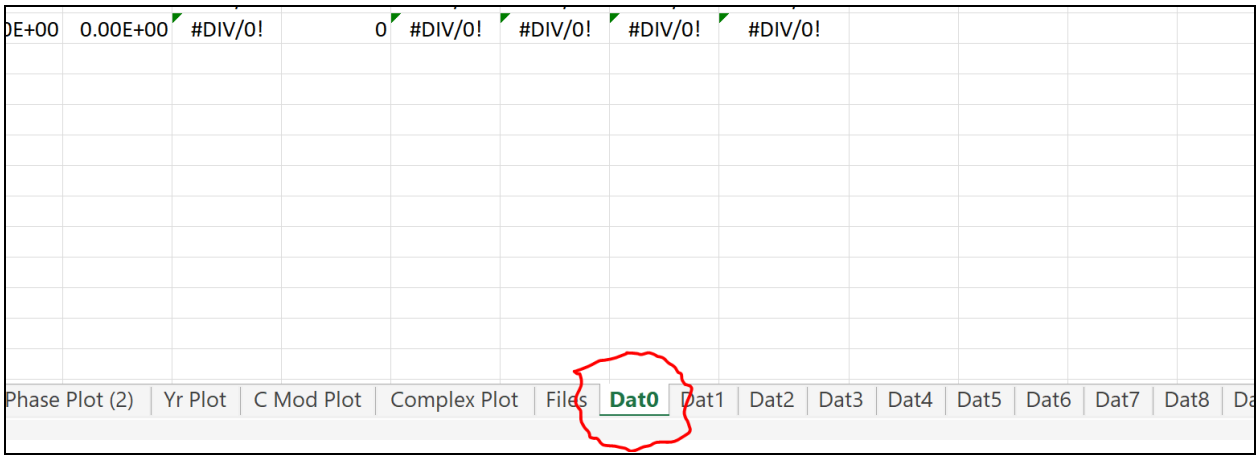
Created: December 13th, 2024
Last Updated: December 13th, 2024

Open the Plotting Template:

1. Open the excel file called ‘DSP TEMPLATE.xlsx’ in the middle right side of the desktop.



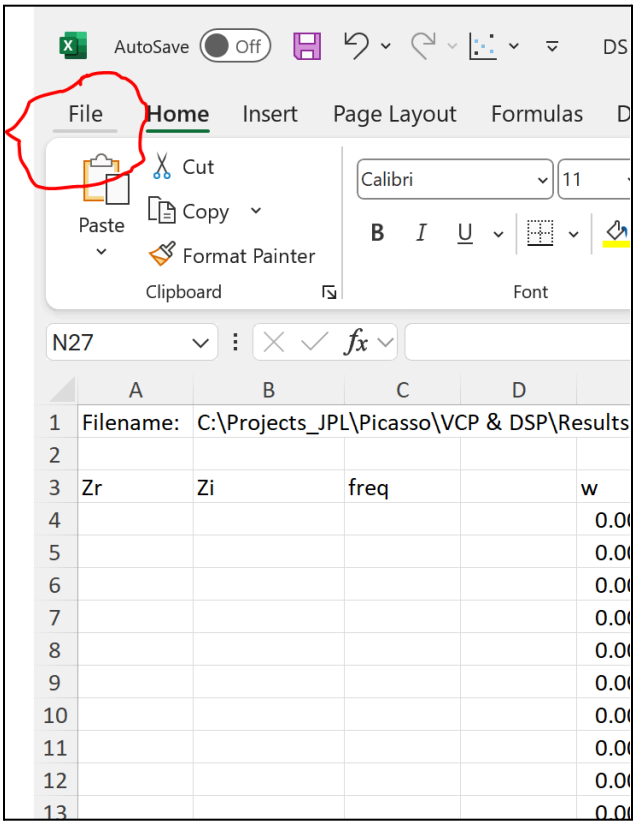
2. Look at the bottom of the file and keep going to the right until you see the tabs called ‘Dat0’, ‘Dat1’, ‘Dat2’, … ‘DatX’. Start with ‘Dat0’.



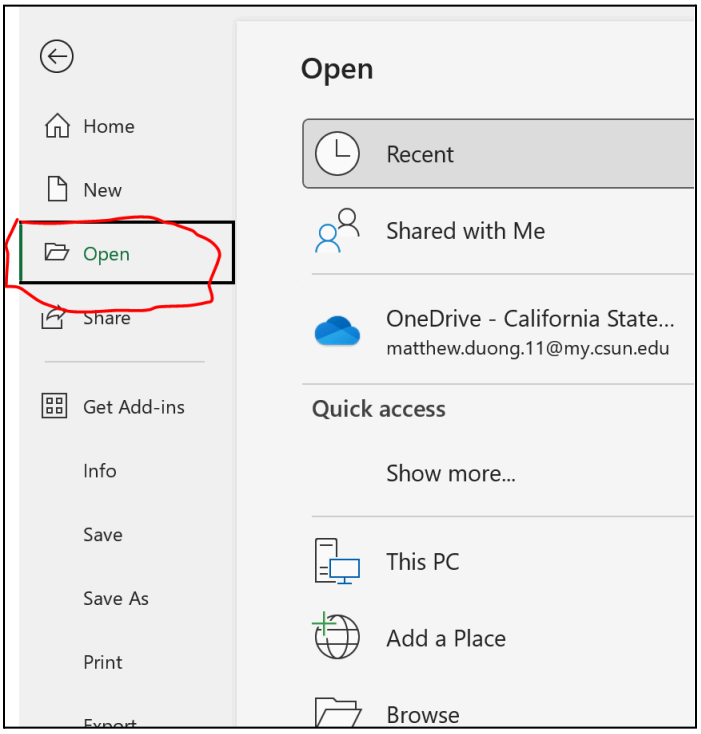
3. Each of these tabs handle one DSP's primary data. So if you use five of them for example, the final plot will have five different lines on it.

Selecting a DSP file:

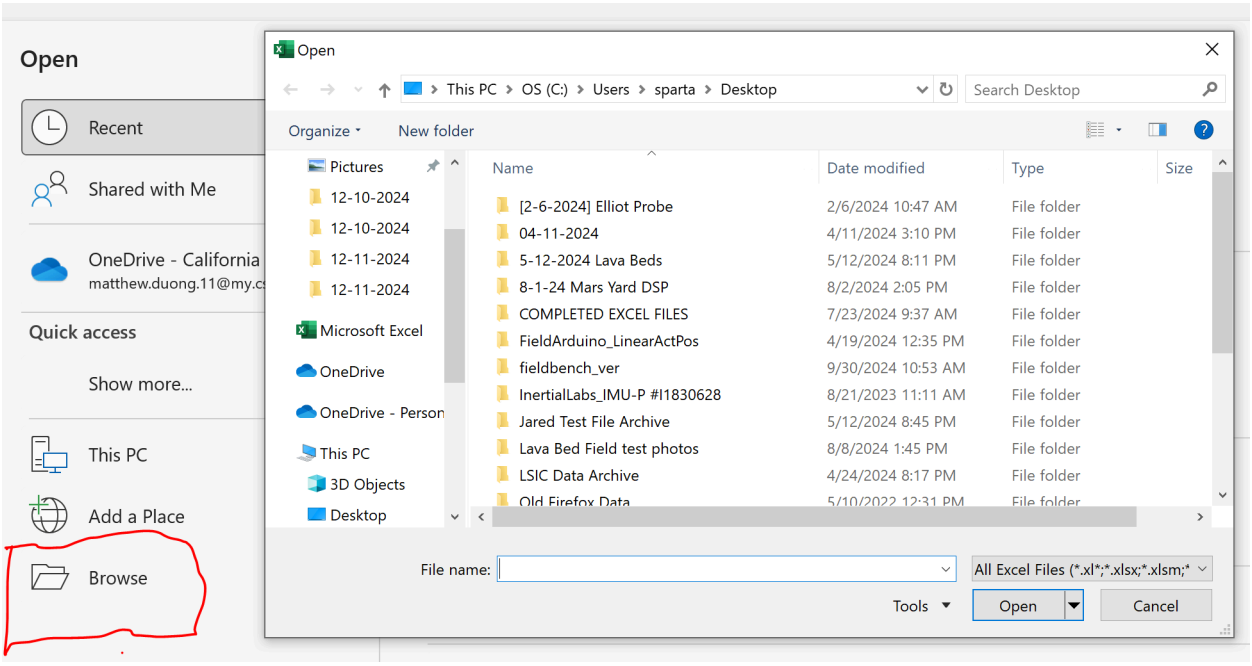
4. Click on 'File' at the top left corner



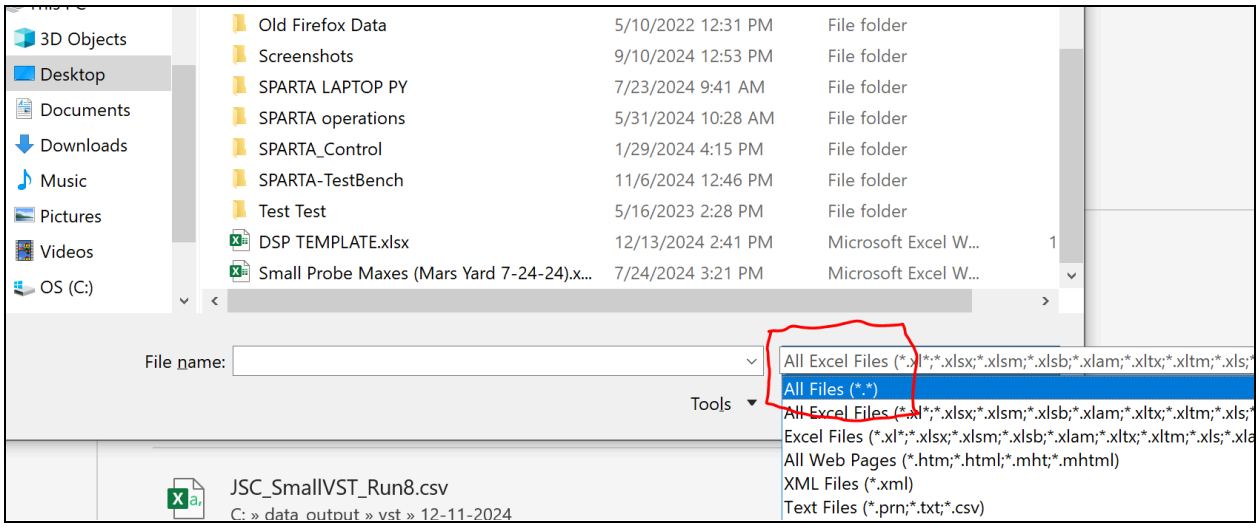
5. Click on ‘Open’



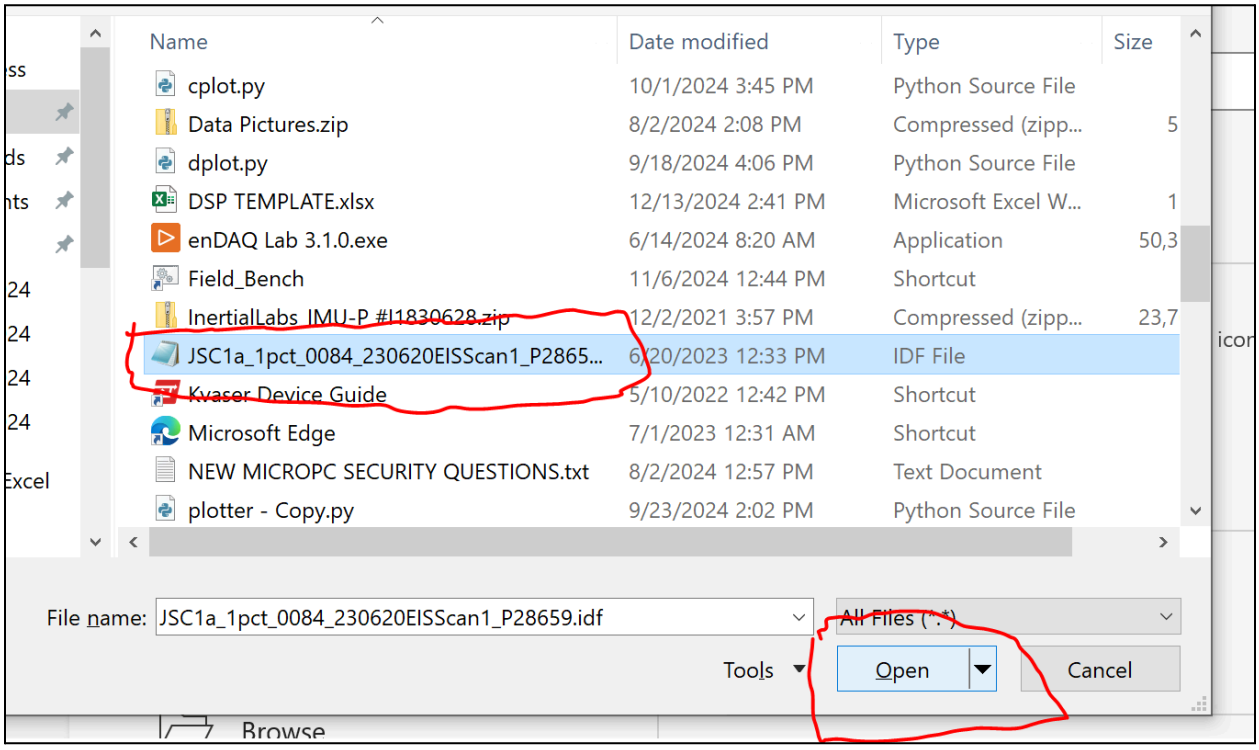
6. Click on ‘Browse’



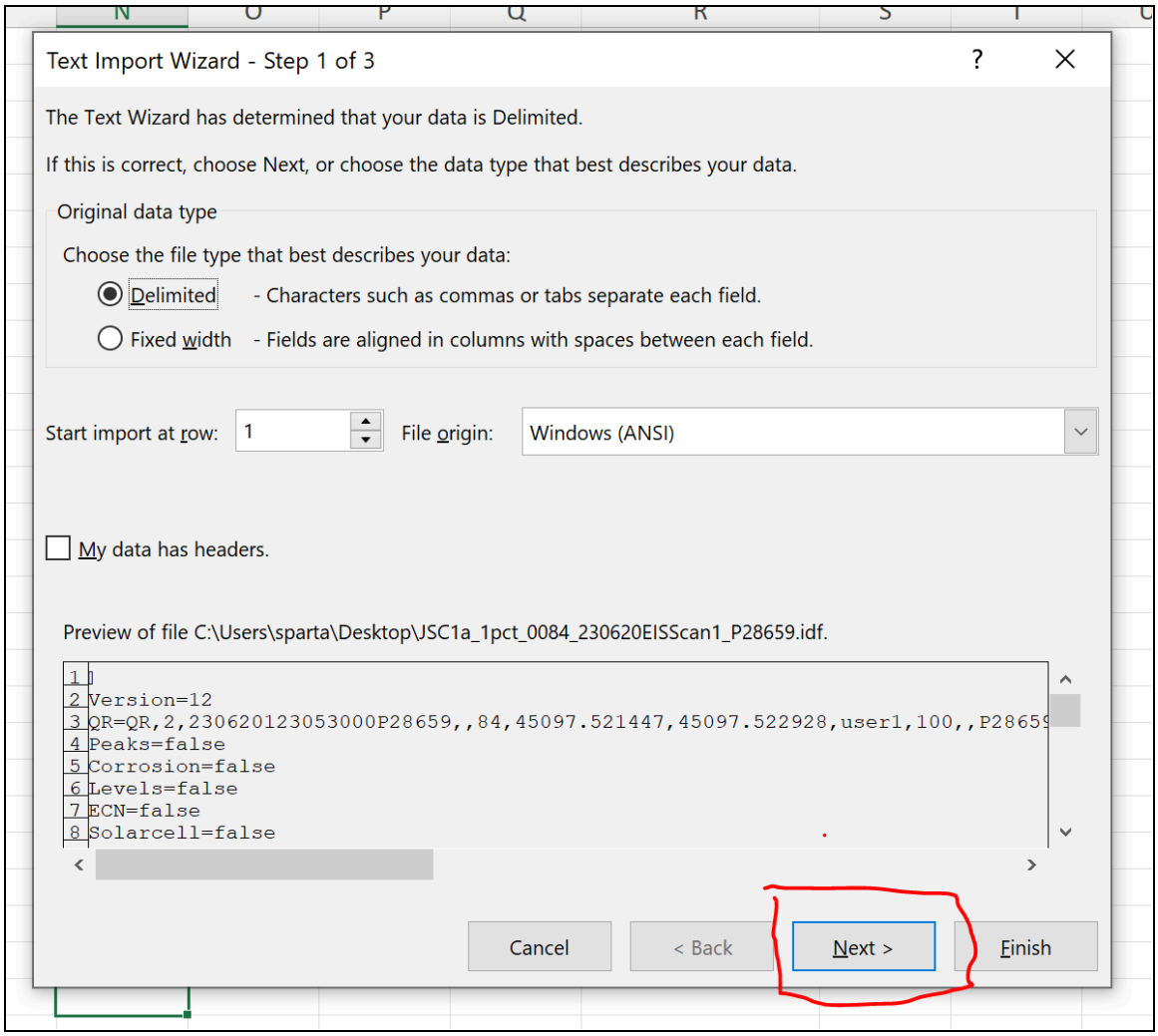
7. Change the file type filter to ‘All Files (*.*)’ by clicking on the drop down menu



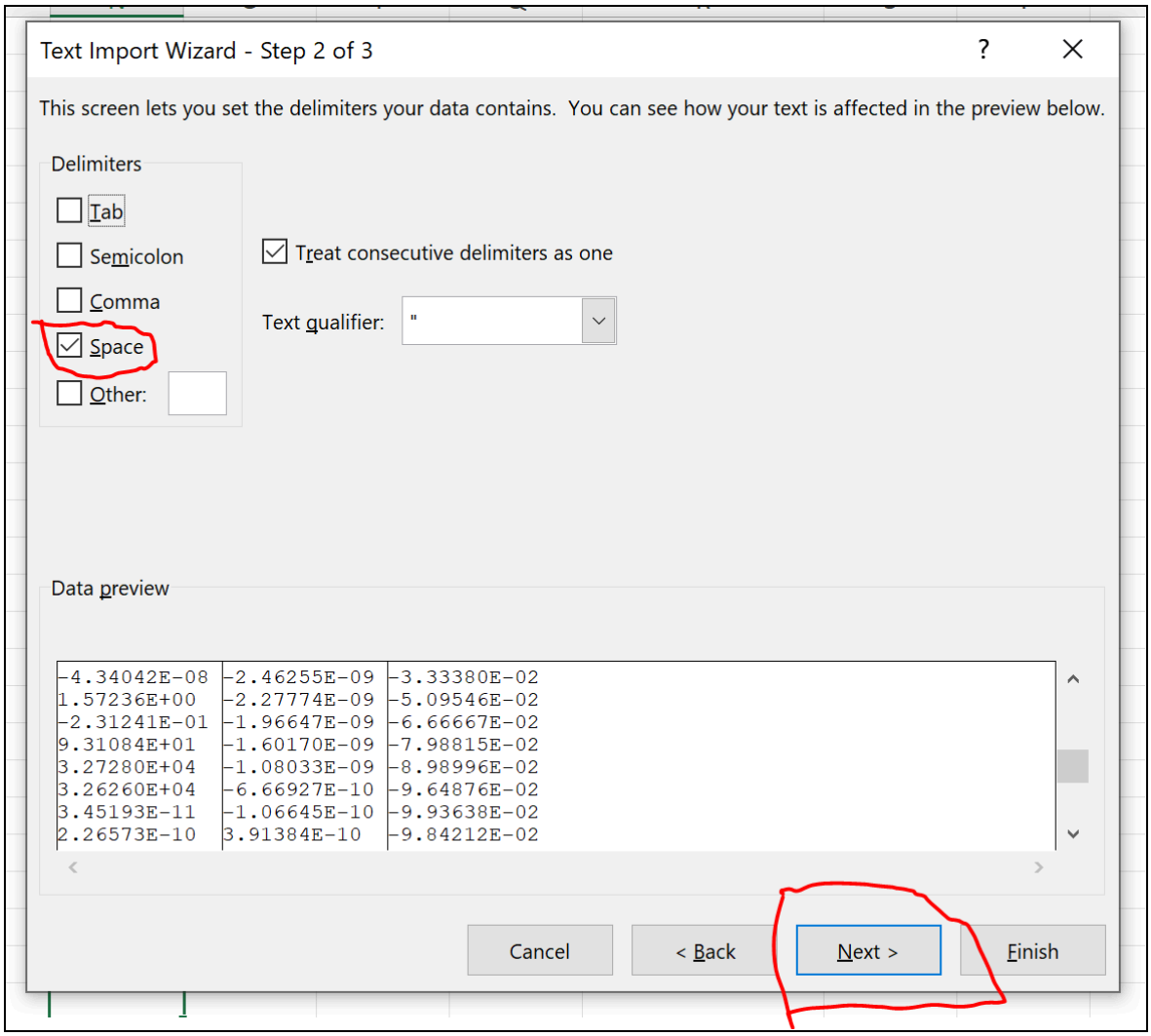
8. Locate and open the DSP .idf file that you want to plot



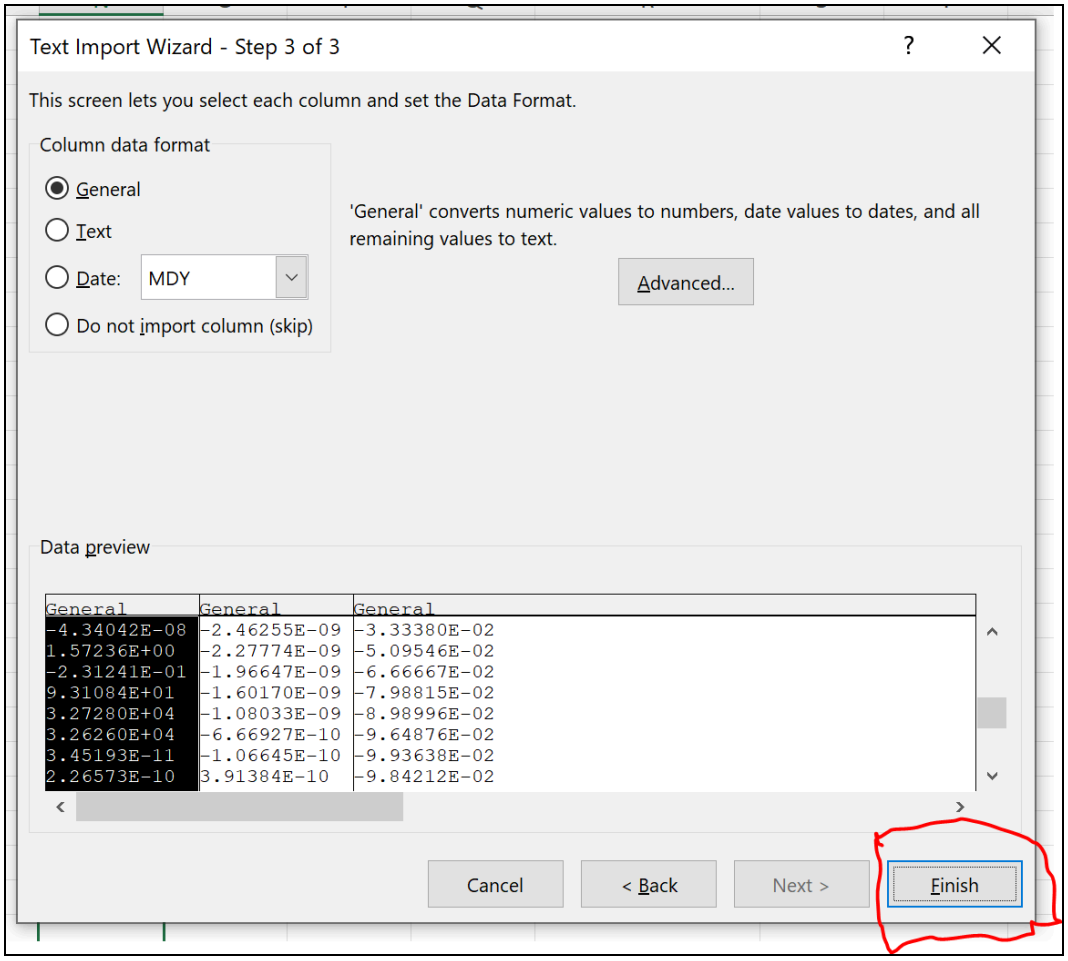
9. Text Import Wizard will open, click ‘Next’



10. Change the delimiter to check ONLY ‘Space’ and click next

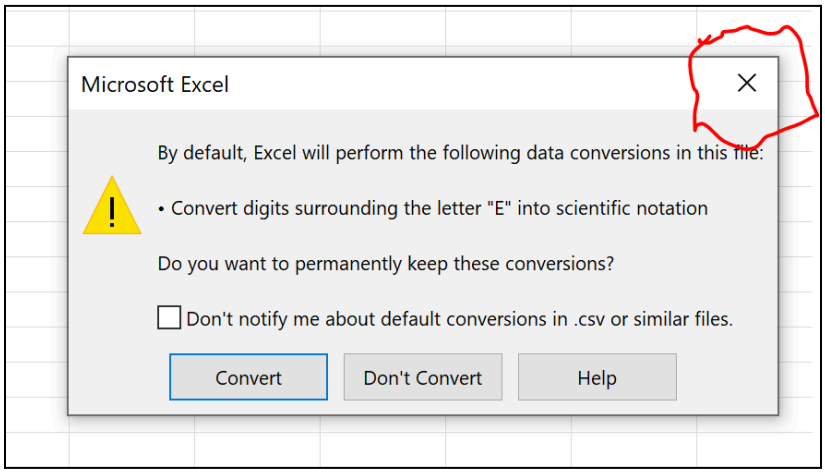


11. On the last page, just click finish



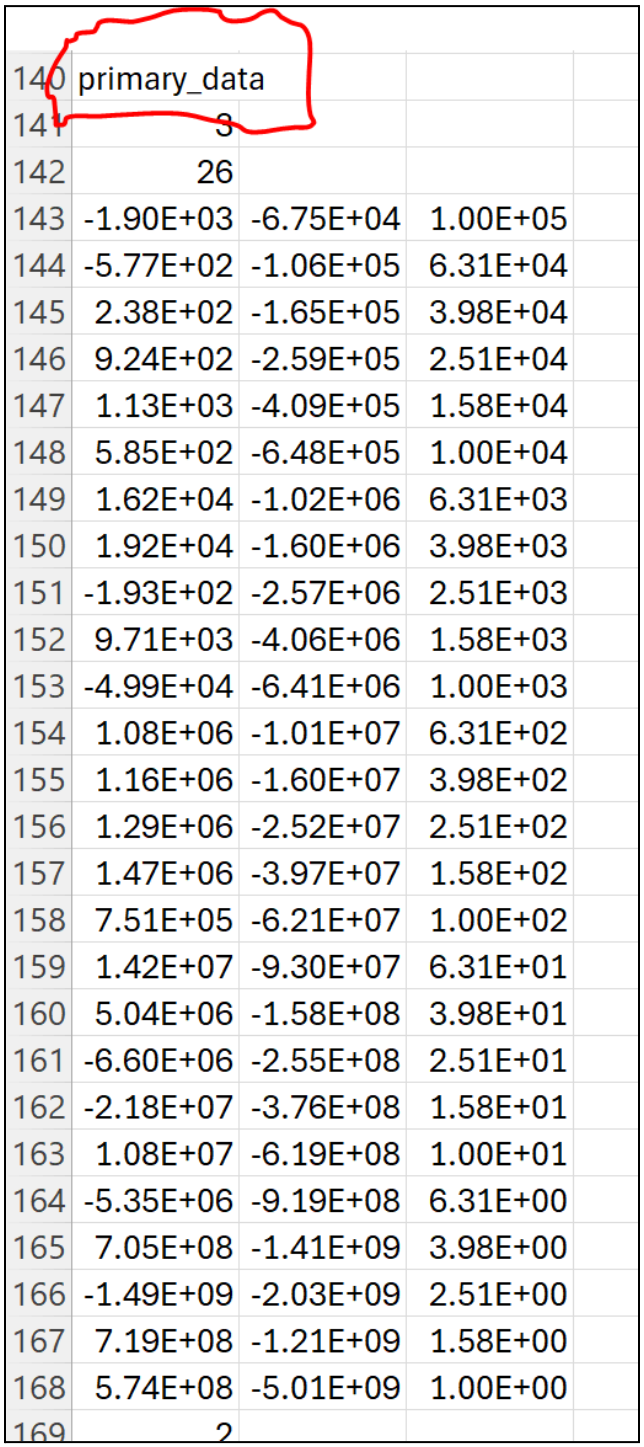
12. This will open up a new excel window holding the DSP data.

13. It will also open up this window about converting, just close it and ignore it



Copying DSP data to the plotter:

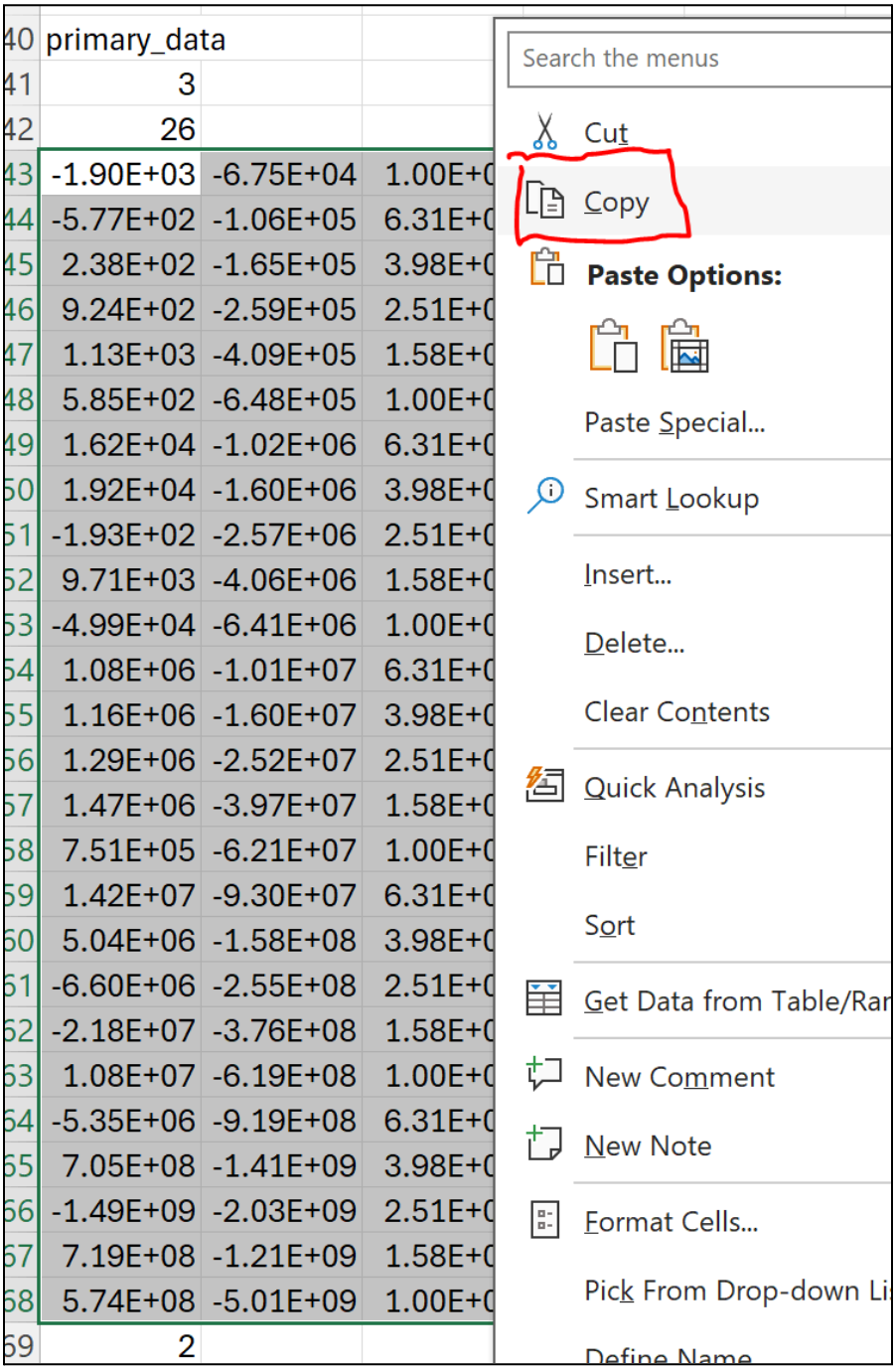
14. Scroll down until you see a line that is labelled ‘primary_data’. It’s usually around line 140



140	primary_data		
141	3		
142	26		
143	-1.90E+03	-6.75E+04	1.00E+05
144	-5.77E+02	-1.06E+05	6.31E+04
145	2.38E+02	-1.65E+05	3.98E+04
146	9.24E+02	-2.59E+05	2.51E+04
147	1.13E+03	-4.09E+05	1.58E+04
148	5.85E+02	-6.48E+05	1.00E+04
149	1.62E+04	-1.02E+06	6.31E+03
150	1.92E+04	-1.60E+06	3.98E+03
151	-1.93E+02	-2.57E+06	2.51E+03
152	9.71E+03	-4.06E+06	1.58E+03
153	-4.99E+04	-6.41E+06	1.00E+03
154	1.08E+06	-1.01E+07	6.31E+02
155	1.16E+06	-1.60E+07	3.98E+02
156	1.29E+06	-2.52E+07	2.51E+02
157	1.47E+06	-3.97E+07	1.58E+02
158	7.51E+05	-6.21E+07	1.00E+02
159	1.42E+07	-9.30E+07	6.31E+01
160	5.04E+06	-1.58E+08	3.98E+01
161	-6.60E+06	-2.55E+08	2.51E+01
162	-2.18E+07	-3.76E+08	1.58E+01
163	1.08E+07	-6.19E+08	1.00E+01
164	-5.35E+06	-9.19E+08	6.31E+00
165	7.05E+08	-1.41E+09	3.98E+00
166	-1.49E+09	-2.03E+09	2.51E+00
167	7.19E+08	-1.21E+09	1.58E+00
168	5.74E+08	-5.01E+09	1.00E+00
169	2		

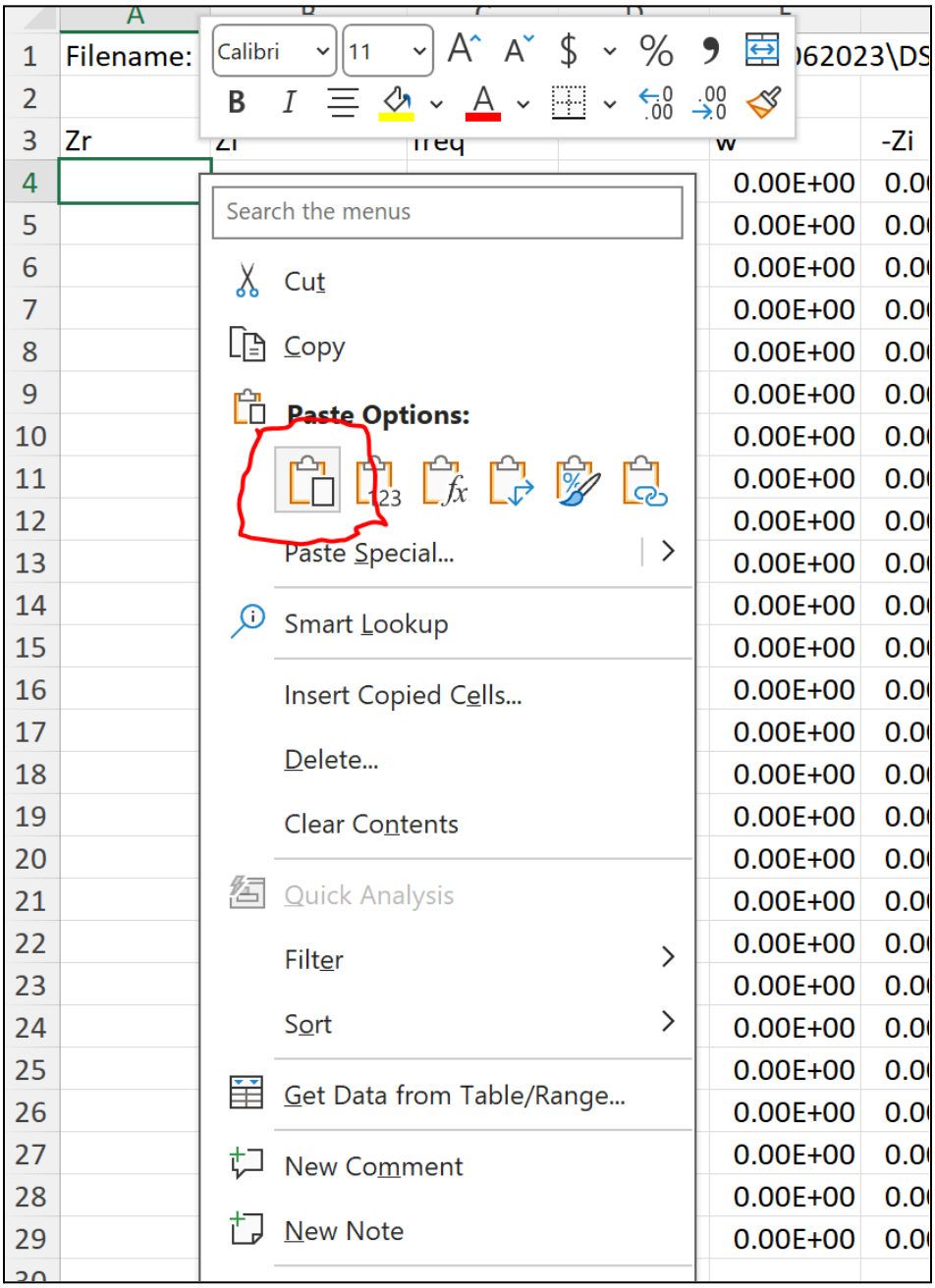
15. This is the primary DSP data.

16. Highlight the entire block of data and copy it



17. Switch back to the ‘Dat0’ tab on the template file

18. Click on the box under the ‘Zr’ labelled column and paste the data block in


Filename:
062023\DS
Zr
-Zi
0.00E+00
Calibri
11
Search the menus
Cut
Copy
Paste Options:
Paste Special...
Smart Lookup
Insert Copied Cells...
Delete...
Clear Contents
Quick Analysis
Filter
Sort
Get Data from Table/Range...
New Comment
New Note

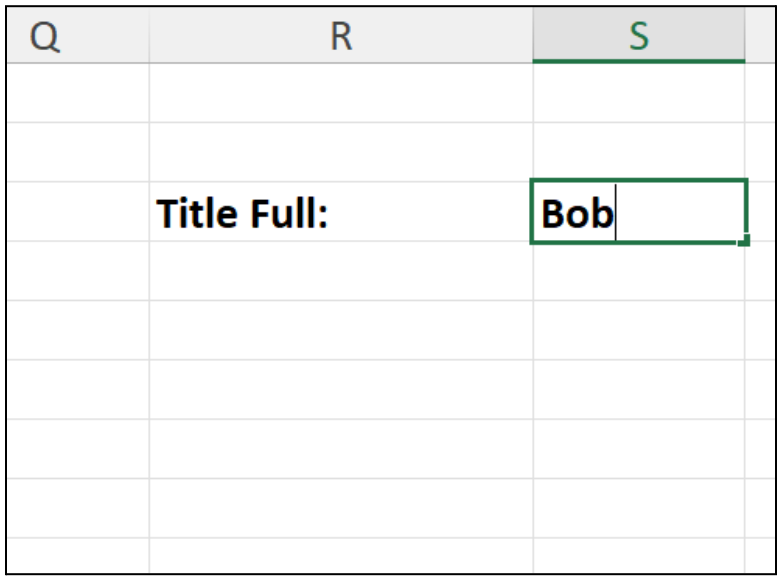
3	Zr	Zi	freq		w	-Zi
4	-1.90E+03	-6.75E+04	1.00E+05		6.28E+05	6.75E
5	-5.77E+02	-1.06E+05	6.31E+04		3.96E+05	1.06E
6	2.38E+02	-1.65E+05	3.98E+04		2.50E+05	1.65E
7	9.24E+02	-2.59E+05	2.51E+04		1.58E+05	2.59E
8	1.13E+03	-4.09E+05	1.58E+04		9.96E+04	4.09E
9	5.85E+02	-6.48E+05	1.00E+04		6.28E+04	6.48E
10	1.62E+04	-1.02E+06	6.31E+03		3.96E+04	1.02E
11	1.92E+04	-1.60E+06	3.98E+03		2.50E+04	1.60E
12	-1.93E+02	-2.57E+06	2.51E+03		1.58E+04	2.57E
13	9.71E+03	-4.06E+06	1.58E+03		9.96E+03	4.06E
14	-4.99E+04	-6.41E+06	1.00E+03		6.28E+03	6.41E
15	1.08E+06	-1.01E+07	6.31E+02		3.96E+03	1.01E
16	1.16E+06	-1.60E+07	3.98E+02		2.50E+03	1.60E
17	1.29E+06	-2.52E+07	2.51E+02		1.58E+03	2.52E
18	1.47E+06	-3.97E+07	1.58E+02		9.96E+02	3.97E
19	7.51E+05	-6.21E+07	1.00E+02		6.28E+02	6.21E
20	1.42E+07	-9.30E+07	6.31E+01		3.96E+02	9.30E
21	5.04E+06	-1.58E+08	3.98E+01		2.50E+02	1.58E
22	-6.60E+06	-2.55E+08	2.51E+01		1.58E+02	2.55E
23	-2.18E+07	-3.76E+08	1.58E+01		9.96E+01	3.76E
24	1.08E+07	-6.19E+08	1.00E+01		6.28E+01	6.19E
25	-5.35E+06	-9.19E+08	6.31E+00		3.96E+01	9.19E
26	7.05E+08	-1.41E+09	3.98E+00		2.50E+01	1.41E
27	-1.49E+09	-2.03E+09	2.51E+00		1.58E+01	2.03E
28	7.19E+08	-1.21E+09	1.58E+00		9.96E+00	1.21E
29	5.74E+08	-5.01E+09	1.00E+00		6.28E+00	5.01E

19. At this point, all of the automated calculations on the right of the data block should be completed

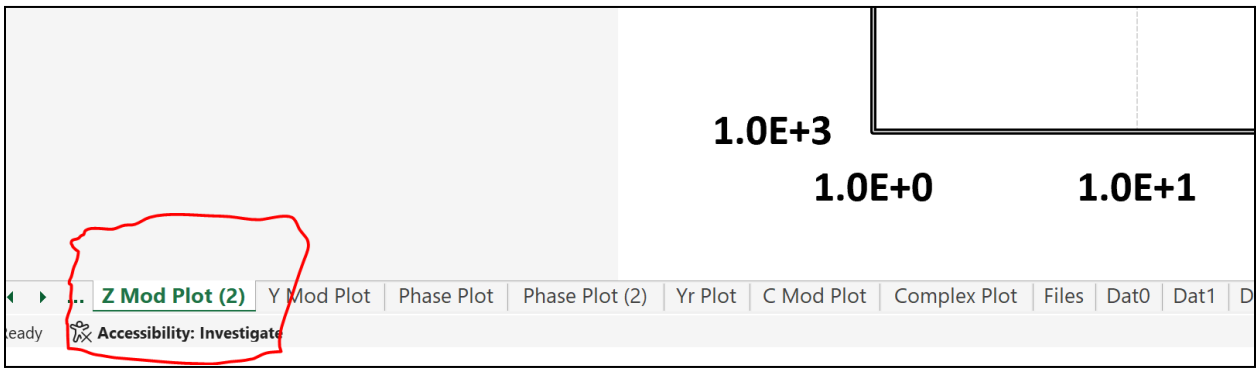
1	Filename:	C:\Projects_JPL\Picasso\VCP & DSP\Results 062023\DSP_Data\LCClayMERS_Dry_0095_230620EISScan1_P28659.idf									
2											
3	Zr	Zi	freq	w	-Zi	Theta	|Z|	|Y|	Yr	Yi	C = Yi/w
4	-1.90E+03	-6.75E+04	1.00E+05	6.28E+05	6.75E+04	-88.3913	67519.91	1.48E-05	4.16E-07	-1.5E-05	-2.36E-11
5	-5.77E+02	-1.06E+05	6.31E+04	3.96E+05	1.06E+05	-89.6865	105541.6	9.47E-06	5.18E-08	-9.5E-06	-2.39E-11
6	2.38E+02	-1.65E+05	3.98E+04	2.50E+05	1.65E+05	89.91733	165233.2	6.05E-06	8.73E-09	6.05E-06	2.42E-11
7	9.24E+02	-2.59E+05	2.51E+04	1.58E+05	2.59E+05	89.79597	259458.6	3.85E-06	1.37E-08	3.85E-06	2.44E-11
8	1.13E+03	-4.09E+05	1.58E+04	9.96E+04	4.09E+05	89.84124	409376.6	2.44E-06	6.77E-09	2.44E-06	2.45E-11
9	5.85E+02	-6.48E+05	1.00E+04	6.28E+04	6.48E+05	89.94823	647901.3	1.54E-06	1.39E-09	1.54E-06	2.46E-11
10	1.62E+04	-1.02E+06	6.31E+03	3.96E+04	1.02E+06	89.08877	1019699	9.81E-07	1.56E-08	9.81E-07	2.47E-11
11	1.92E+04	-1.60E+06	3.98E+03	2.50E+04	1.60E+06	89.31441	1603065	6.24E-07	7.46E-09	6.24E-07	2.49E-11
12	-1.93E+02	-2.57E+06	2.51E+03	1.58E+04	2.57E+06	-89.9957	2571040	3.89E-07	2.92E-11	-3.9E-07	-2.46E-11
13	9.71E+03	-4.06E+06	1.58E+03	9.96E+03	4.06E+06	89.863	4060262	2.46E-07	5.89E-10	2.46E-07	2.47E-11
14	-4.99E+04	-6.41E+06	1.00E+03	6.28E+03	6.41E+06	-89.5545	6413064	1.56E-07	1.21E-09	-1.6E-07	-2.48E-11
15	1.08E+06	-1.01E+07	6.31E+02	3.96E+03	1.01E+07	83.87545	10150234	9.85E-08	1.05E-08	9.8E-08	2.47E-11
16	1.16E+06	-1.60E+07	3.98E+02	2.50E+03	1.60E+07	85.8272	16007634	6.25E-08	4.55E-09	6.23E-08	2.49E-11
17	1.29E+06	-2.52E+07	2.51E+02	1.58E+03	2.52E+07	87.06225	25221546	3.96E-08	2.03E-09	3.96E-08	2.51E-11
18	1.47E+06	-3.97E+07	1.58E+02	9.96E+02	3.97E+07	87.87475	39728427	2.52E-08	9.33E-10	2.52E-08	2.53E-11
19	7.51E+05	-6.21E+07	1.00E+02	6.28E+02	6.21E+07	89.30671	62097046	1.61E-08	1.95E-10	1.61E-08	2.56E-11
20	1.42E+07	-9.30E+07	6.31E+01	3.96E+02	9.30E+07	81.31157	94044618	1.06E-08	1.61E-09	1.05E-08	2.65E-11
21	5.04E+06	-1.58E+08	3.98E+01	2.50E+02	1.58E+08	88.17082	1.58E+08	6.34E-09	2.02E-10	6.34E-09	2.53E-11
22	-6.60E+06	-2.55E+08	2.51E+01	1.58E+02	2.55E+08	-88.5184	2.55E+08	3.92E-09	1.01E-10	-3.9E-09	-2.48E-11
23	-2.18E+07	-3.76E+08	1.58E+01	9.96E+01	3.76E+08	-86.6743	3.76E+08	2.66E-09	1.54E-10	-2.7E-09	-2.66E-11
24	1.08E+07	-6.19E+08	1.00E+01	6.28E+01	6.19E+08	88.99897	6.19E+08	1.62E-09	2.82E-11	1.62E-09	2.57E-11
25	-5.35E+06	-9.19E+08	6.31E+00	3.96E+01	9.19E+08	-89.6664	9.19E+08	1.09E-09	6.34E-12	-1.1E-09	-2.75E-11
26	7.05E+08	-1.41E+09	3.98E+00	2.50E+01	1.41E+09	63.44122	1.58E+09	6.34E-10	2.83E-10	5.67E-10	2.27E-11
27	-1.49E+09	-2.03E+09	2.51E+00	1.58E+01	2.03E+09	-53.725	2.52E+09	3.97E-10	2.35E-10	-3.2E-10	-2.03E-11
28	7.19E+08	-1.21E+09	1.58E+00	9.96E+00	1.21E+09	59.30536	1.41E+09	7.1E-10	3.63E-10	6.11E-10	6.13E-11
29	5.74E+08	-5.01E+09	1.00E+00	6.28E+00	5.01E+09	83.46766	5.04E+09	1.98E-10	2.26E-11	1.97E-10	3.13E-11
30											

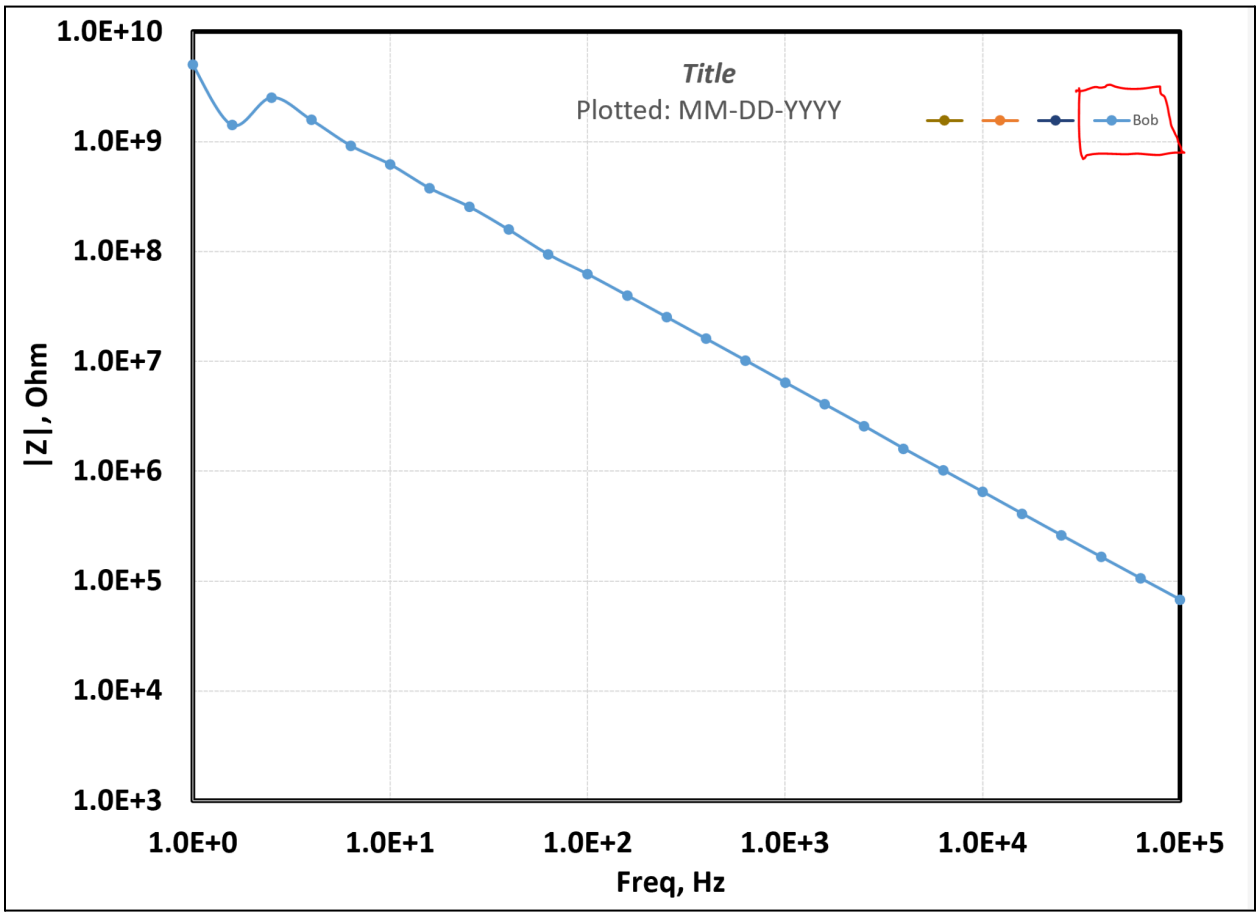
20. To name this particular plot line, look on the right side where you will see ‘Title Full:’

21. Type in the name you want in the box next to ‘Title Full:’



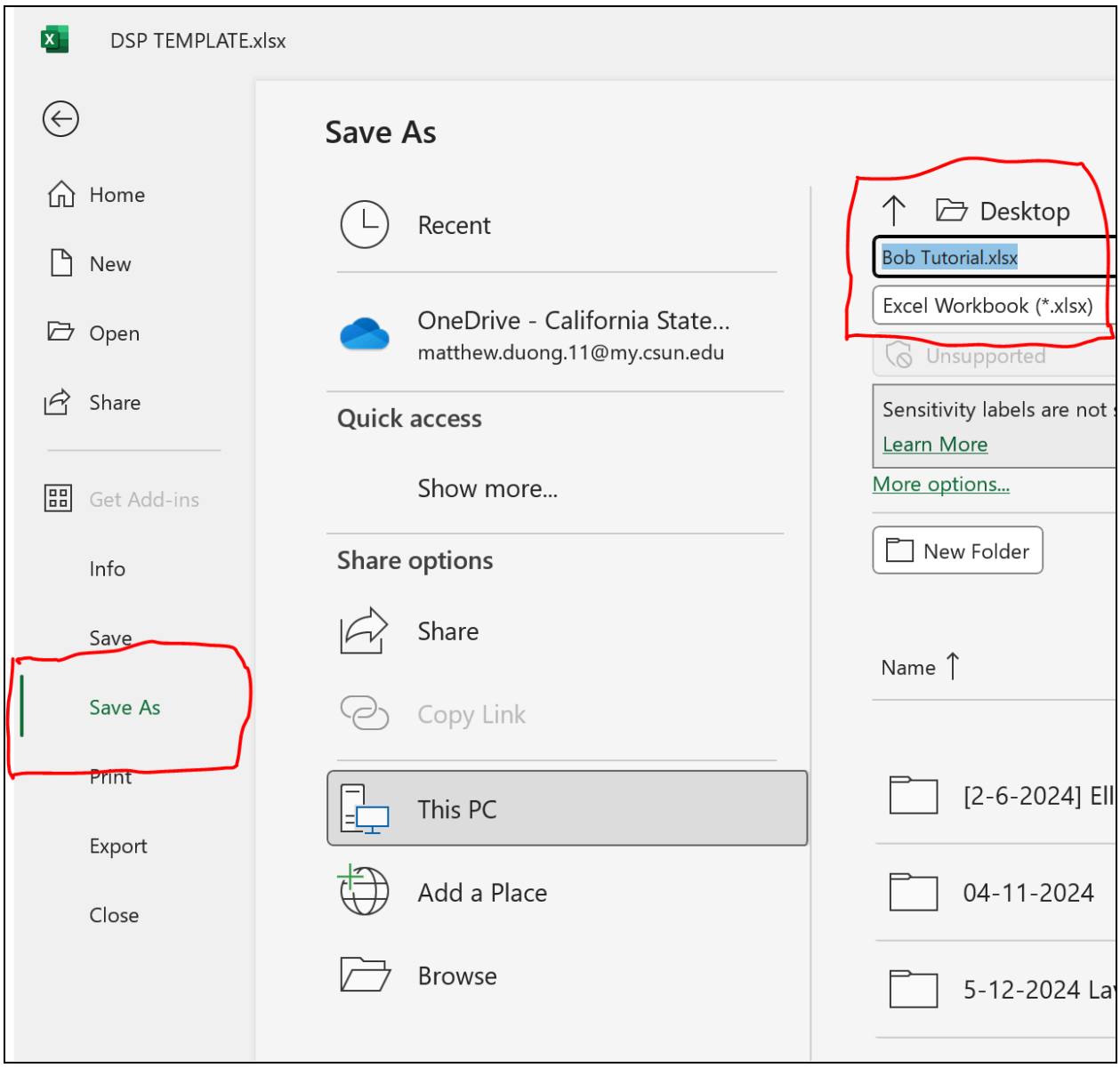
22. To view the impedance plot, look back at the bottom tabs and keep going left until you see ‘Z Mod Plot (2)’





23. For every additional plot you want to add, just keep using all of the different ‘Dat’ tabs and the previous steps to open DSP .idf files as before. They should all appear on the ‘Z Mod Plot (2)’ tab.

24. When you want to save, make sure to use ‘Save As’ so that the template does not get overwritten.



25. There are other tabs and different types of plots on the other ones (I think phase is included), but I don’t know enough about those to give you a solid answer.