

A short tutorial on preparing / presenting PCM data for analysis

- 1) Run the newest PCM software, PCM32, (which should be v2.1). Select the appropriate Port, Units, and Delimiter (TAB). Add the Loss formula to make interpretation easier and set the other options as you wish.
- 2) Upload the data from the PCM to your computer. Make sure you know what directory it will be saved in (typically wherever the program file is saved such as c:\PCMv2.1) and what the file name is (typically Mapdata and/or todays_date.txt).
- 3) Run the spreadsheet of your choice, the following directions are optimized for Microsoft Excel.
- 4) The PCM upload program will have left a copy of the data in the windows clipboard so you can simply Edit/Paste the data into the spreadsheet. Alternately, do the usual File/Open then type '*.*' into the file name and press enter. Now Excel will show you all of the files in the directory. Change directory to the one where your PCM data is, highlight the filename and press the 'Open' button or the 'Enter' key.
- 5) Excel will recognize it as a text file and will open the Text Import Wizard.
- 6) Choose Delimited and press the Next button
- 7) Accept the TAB delimiter and press the Next button
- 8) Press the Finish button.
- 9) You data should now be neatly arranged in columns with the first reading you took at the top of the list.
- 10) The dBmA field gives the best basic interpretation of the collected data, but more importantly is the loss per distance ratio as in column (G) below. The formula is (for log number 5) $= (D5-D4)/(B5-B4)$ but remember, at least semi accurate distances are critical to get this to give meaningful data.

(A)	(B)	(C)	(D)	(E)	(F)	(G)
Log	Distance	4Hz	4Hz	Direction	Depth	Current
Number		(mA)	(dBmA)	(inches)	Loss	
1	100	151.8	43.63	Reverse	59.1	
2	400	151.8	43.63	Forward	45.7	0
3	700	185.3	45.6	Forward	70.53	-0.577357652
4	1000	257.7	48.22	Forward	57.52	-0.954926662
5	1300	274.8	48.78	Forward	47.67	-0.186015399

- 11) You may have to manually remove every second reading and/or removal of the occasional anomalous reading to get rid of the small fluctuations that hinder the readability.
- 12) ALSO KEEP THE INTERPRETATION OF PCM DATA data sheet handy to explain why and what we are seeing as well as an excellent explanation of why dBmA is better than absolute mA. (Use dBmA for the vertical scale as it results in equal sized steps for equal sized faults, regardless of how much current was lost at the first fault.)
- 13) Create a graph of the data by highlighting the Distance to the Loss columns from the Distance header down to the last entry. Use the chart wizard or Insert / Chart from the menu.
- 14) Use a Scatter or X-Y graph to display the readings versus distance, that will give a much better result when correlating the distance vs. current loss.
- 15) Right click on some of the lines in the graph and select Add Trendline, Select a type of Moving Average and choose from 2 to 12 as the number of reading to average, you will have to decide how many it needs to look best. You may want to add trendlines to the Loss and/or the mA lines.

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