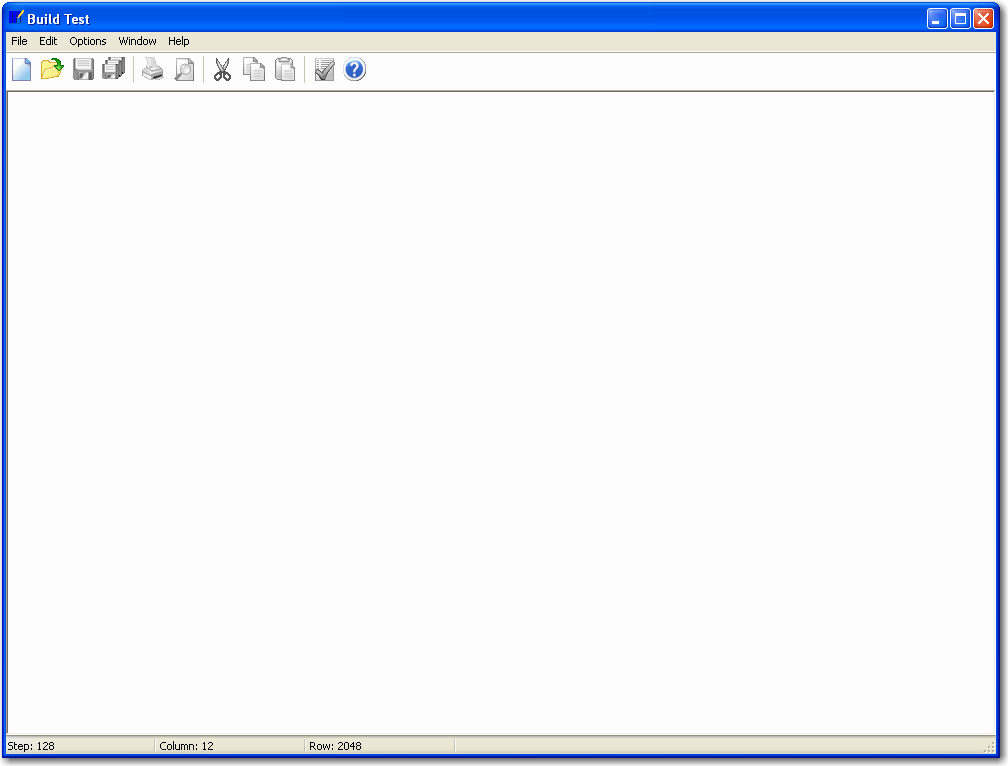
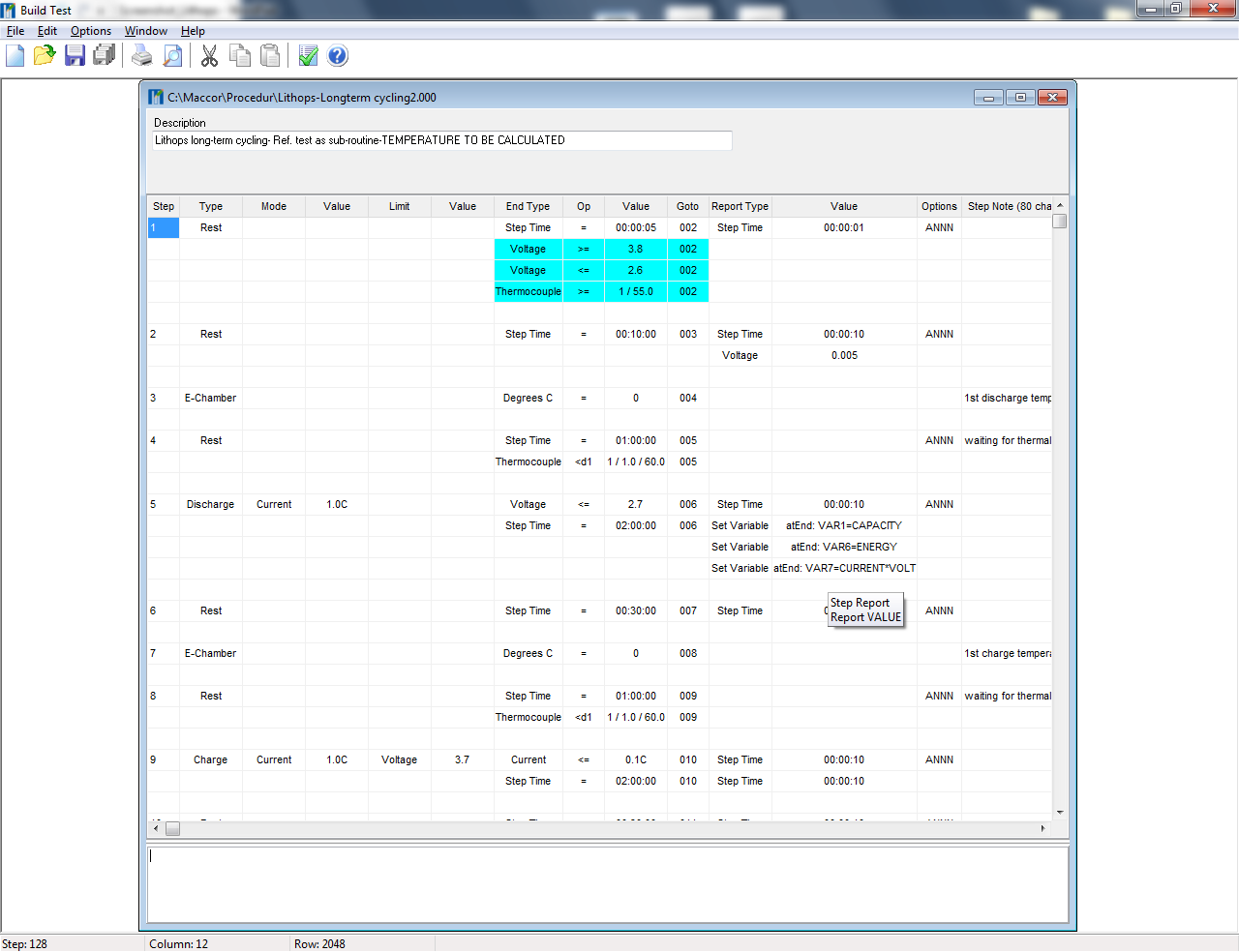
**Supplementary File 1.** Built Test function of the battery cycler where the executable cycling protocol is programmed.

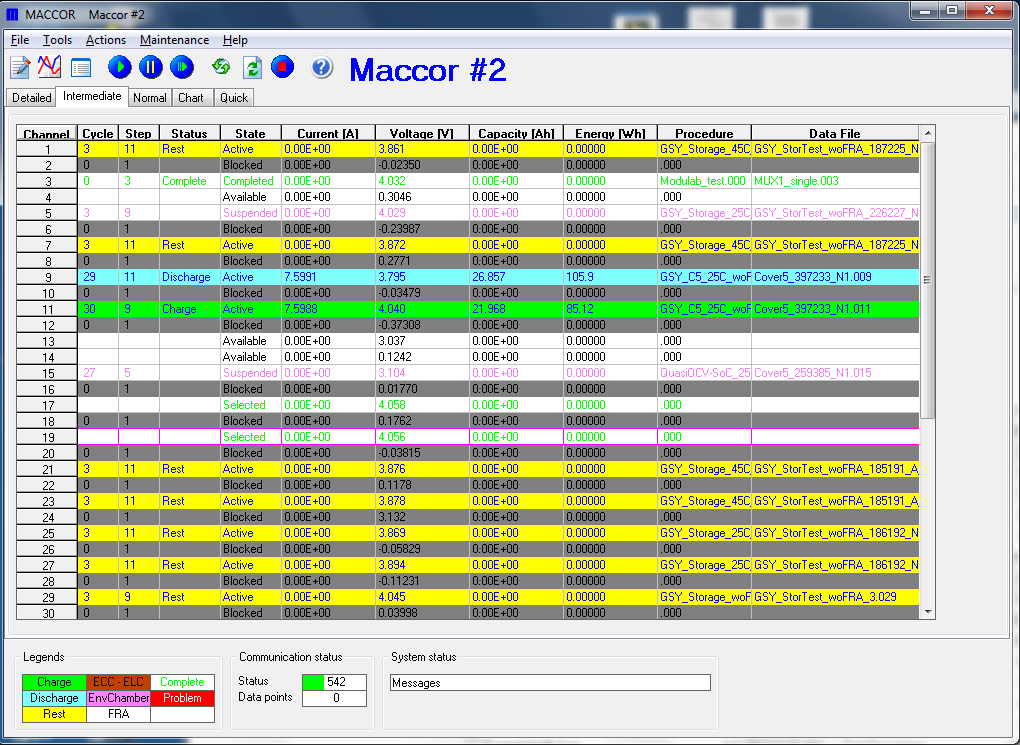
a). Display of the build Test screen



b). Display of the protocol definition screen



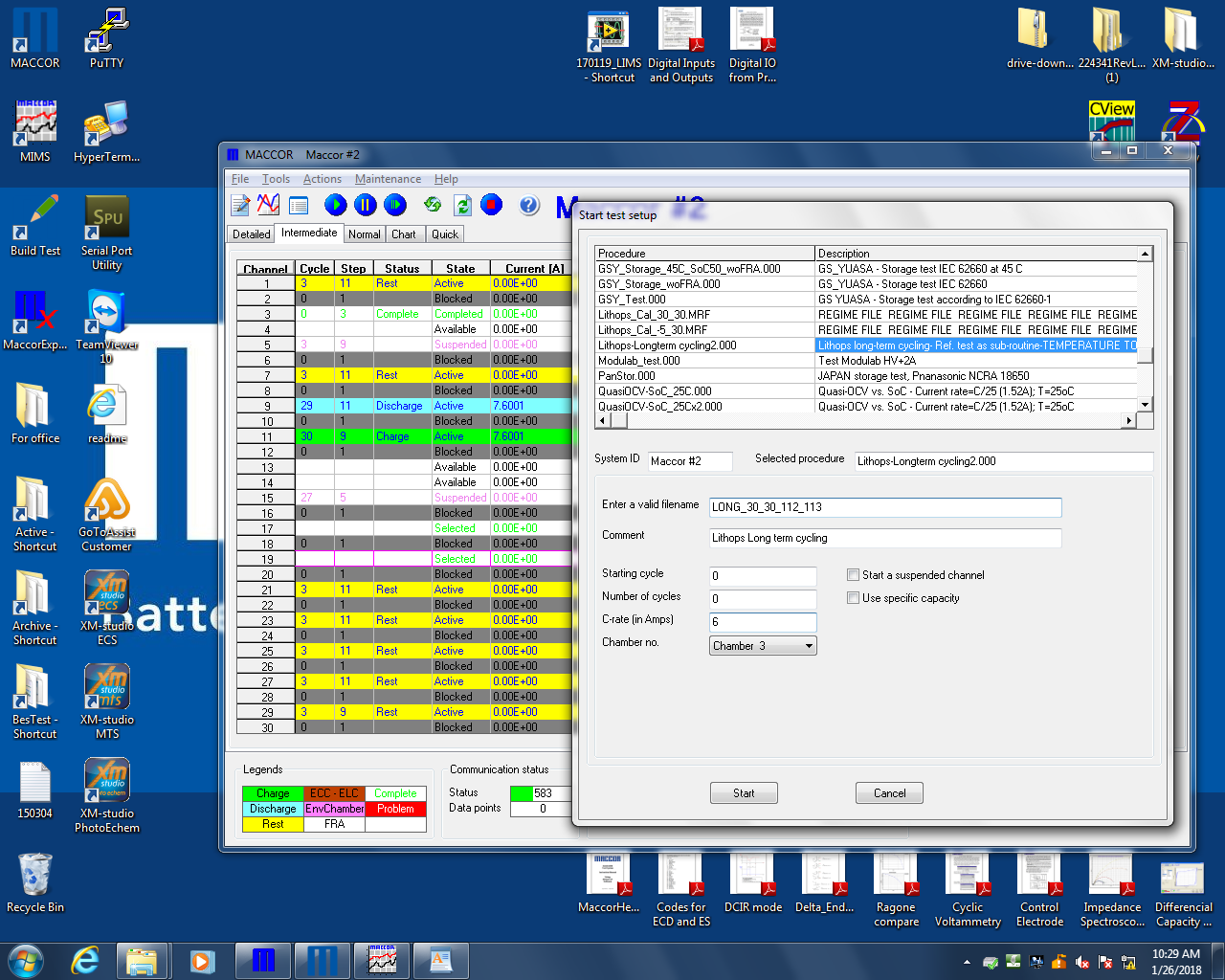
**Supplementary File 2.** Battery cycler software: overall status page and selection of channels.



**2**

**1**

**Supplementary File 3.** Starting a test in battery cycler, selection of protocol and file name definition.

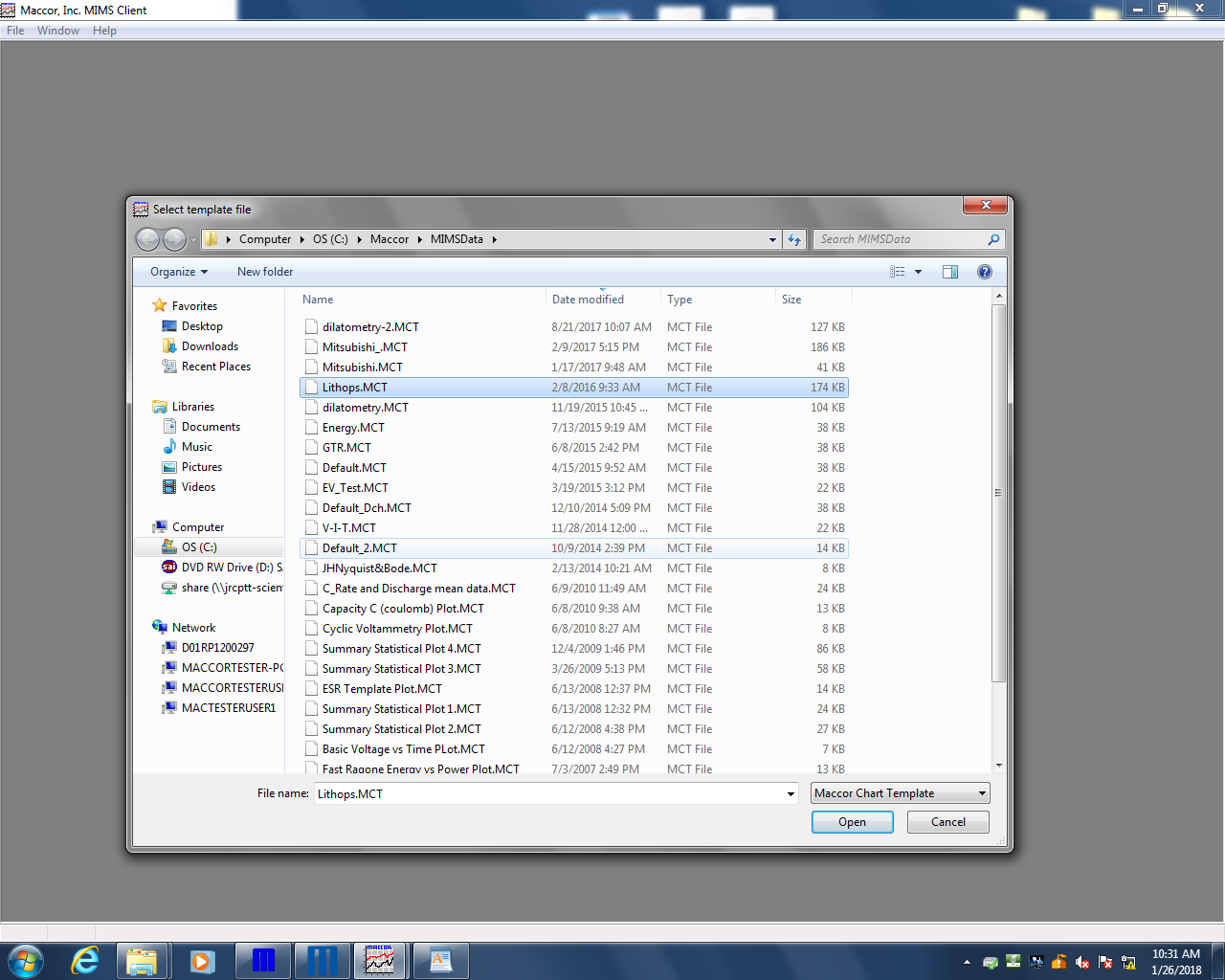


**3**

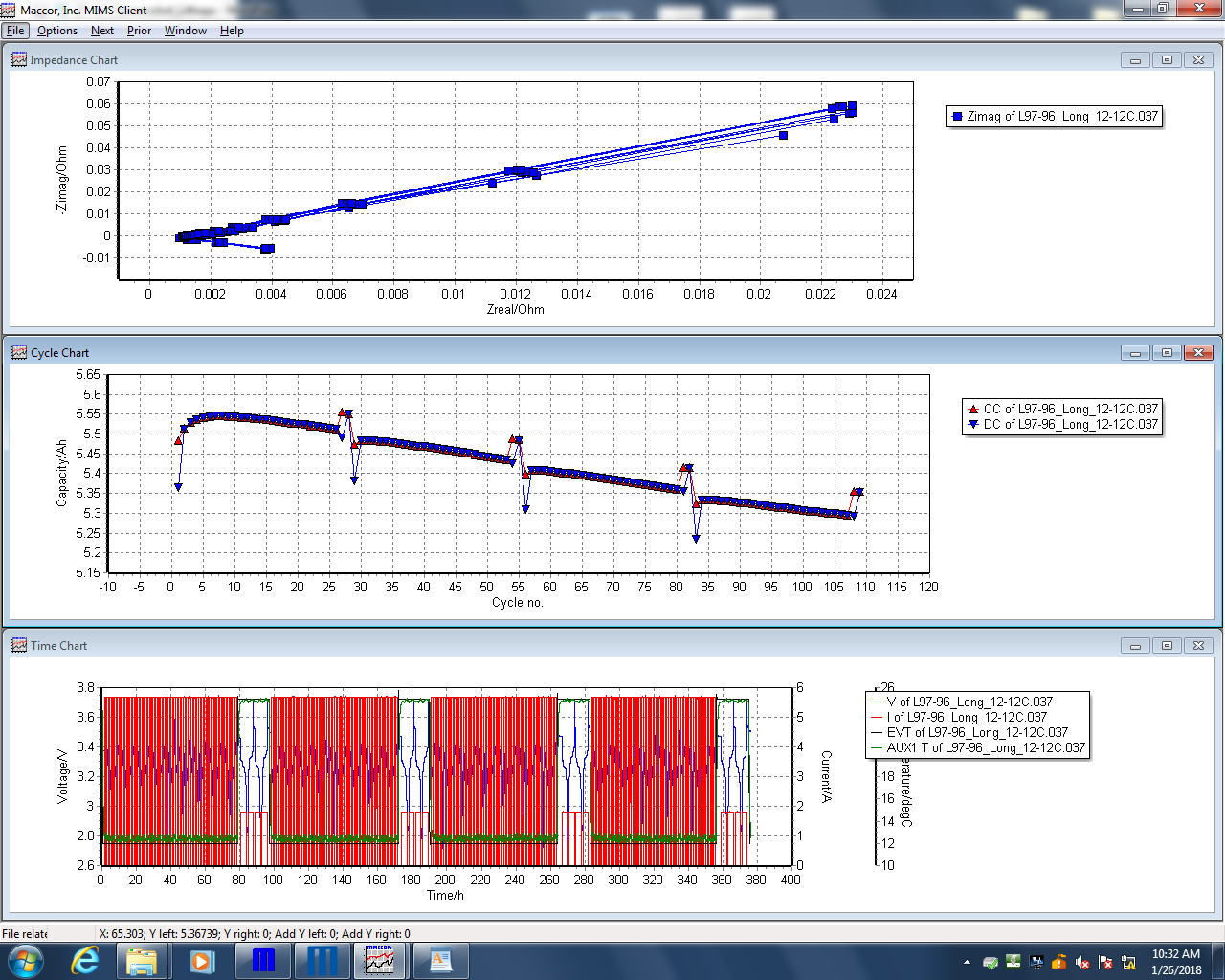
**2**

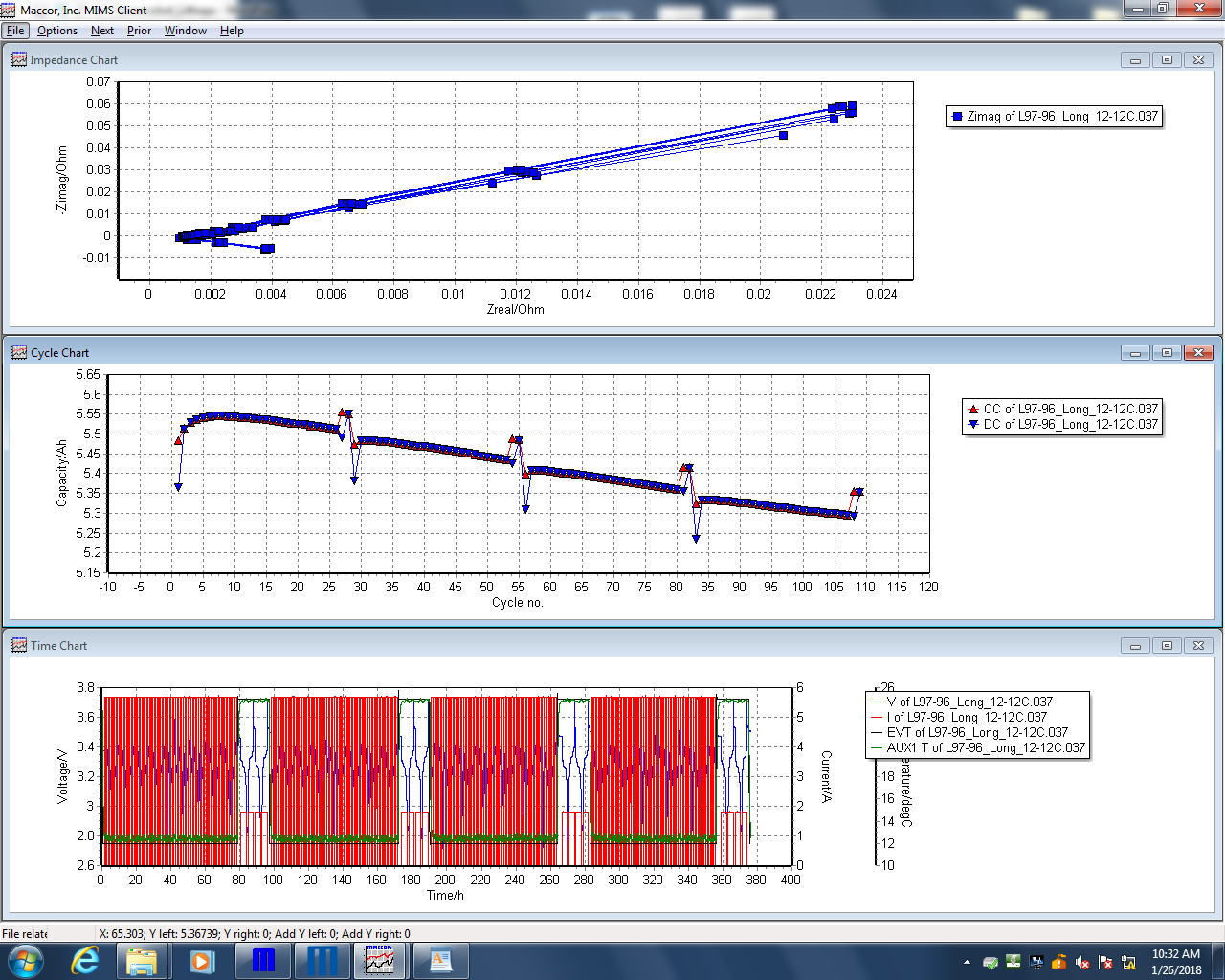
**1**

**Supplementary File 4.** Selection of the appropriate built-in template for visualization of the cycling data.

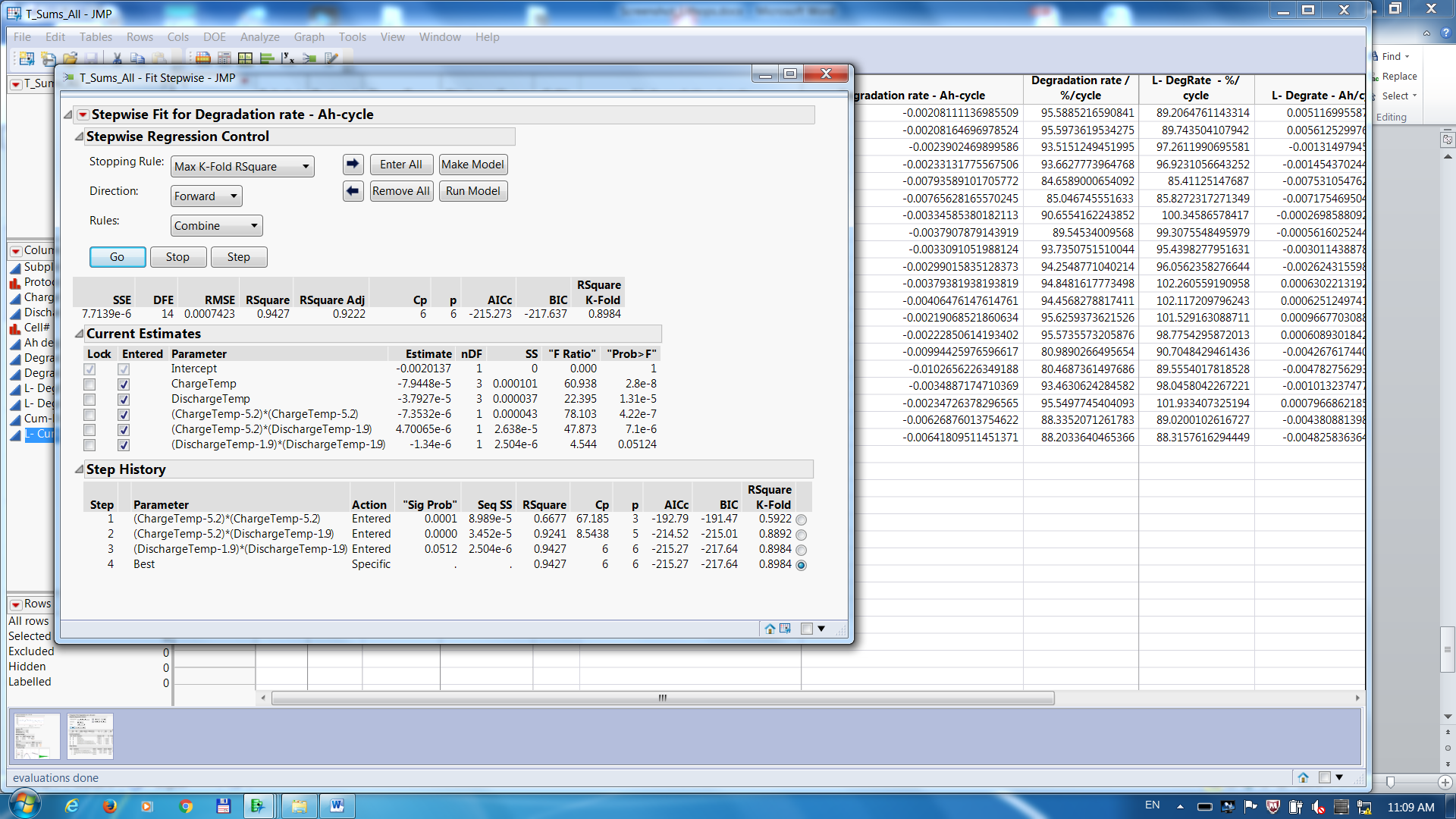


**Supplementary File 5.** Evaluation of cycling data. Top plot shows capacity retention vs. cycle number and bottom plot shows the variation of potential, current and temperature in time.





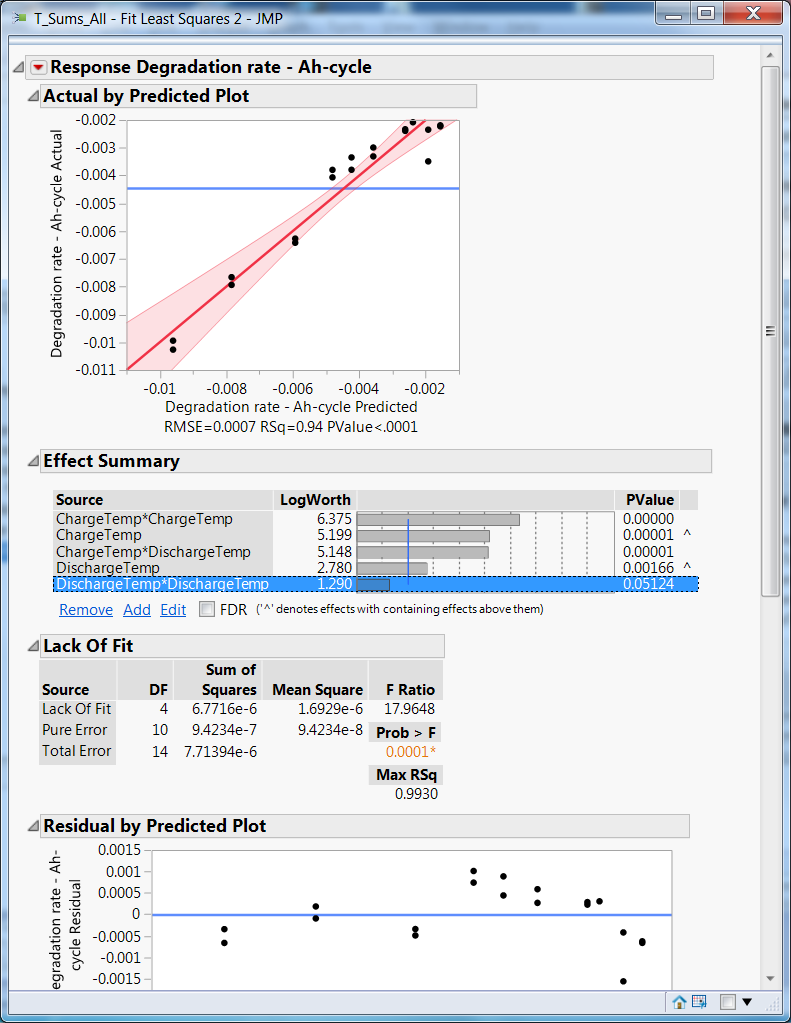
**Supplementary File 6.** Initiation of data fitting in JMP software



**2**

**1**

**Supplementary File 7.** Selecting the most significant parameters by using ANOVA



**Supplementary File 8.** Visual validation of the results

