A.1 Yes, the slope is very close to the theoretical constant. A difference of 0.2% - 0.02% difference I would say is within a reasonable tolerance.

A.2 I would assert that averaging out the distance/capacitance measurement would eliminate most human error. I would further hypothesize that a “constant” source of environmental electro-magnetic “noise” could be a source of random error. This “noise” could originate from over head lighting or humans. I do believe that this is a reasonable way to **demonstrate** the permittivity constant but an electro-magnetically shielded room that is able to create a vacuum would be a better place to do precise measurements.

Randy McMillan

[rmcmillan1@mail.usf.edu](mailto:rmcmillan1@mail.usf.edu)