JCI-Graph
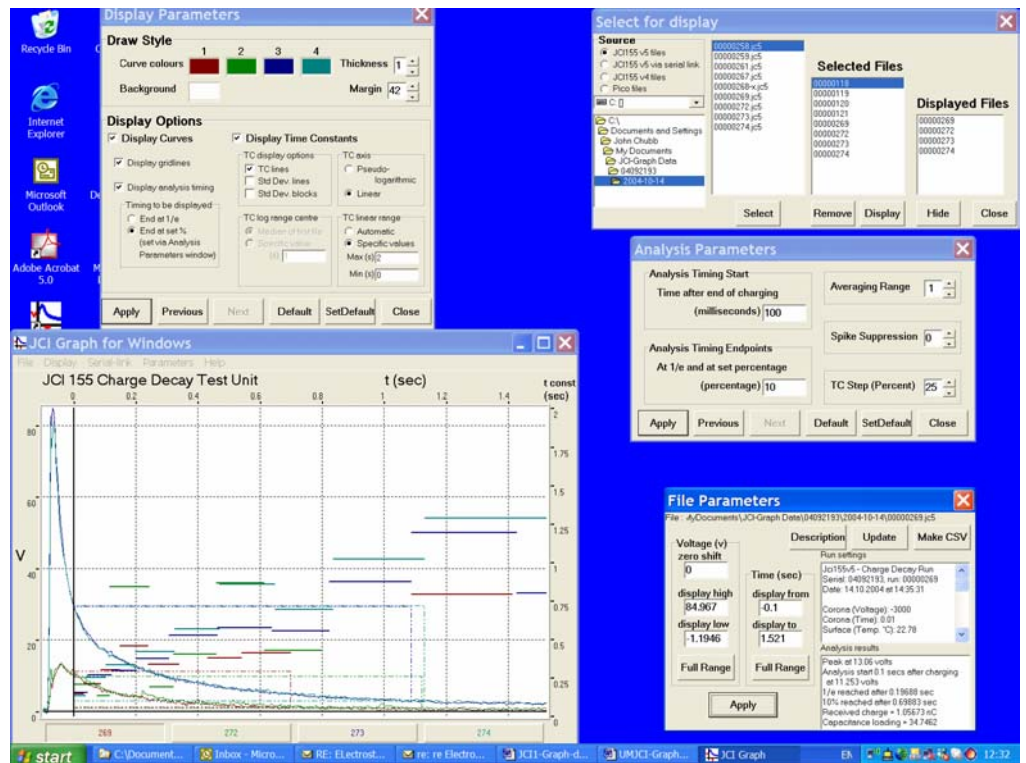
Windows based software for graphing and presenting charge decay observations made using JCI 155 instruments.

Screen display during operation of JCI-Graph

DESCRIPTION:

JCI-Graph is Windows based software for the display of graphs and test details of charge decay studies made by JCI 155 Charge Decay Test Units. Primarily, it is aimed at observations by JCI 155v5 instruments. It can also be used with observations made by JCI 155v4 (and JCI 149) instruments operated in conjunction with software DECAY18.

Up to 4 graphs may be displayed at a time with opportunity to select and scale areas of special interest. Facilities are provided for alternative settings for analysis and display. The graphs, as displayed, can be copied to other Windows applications, such as word-processing. Details of test conditions and measurement results can be included.
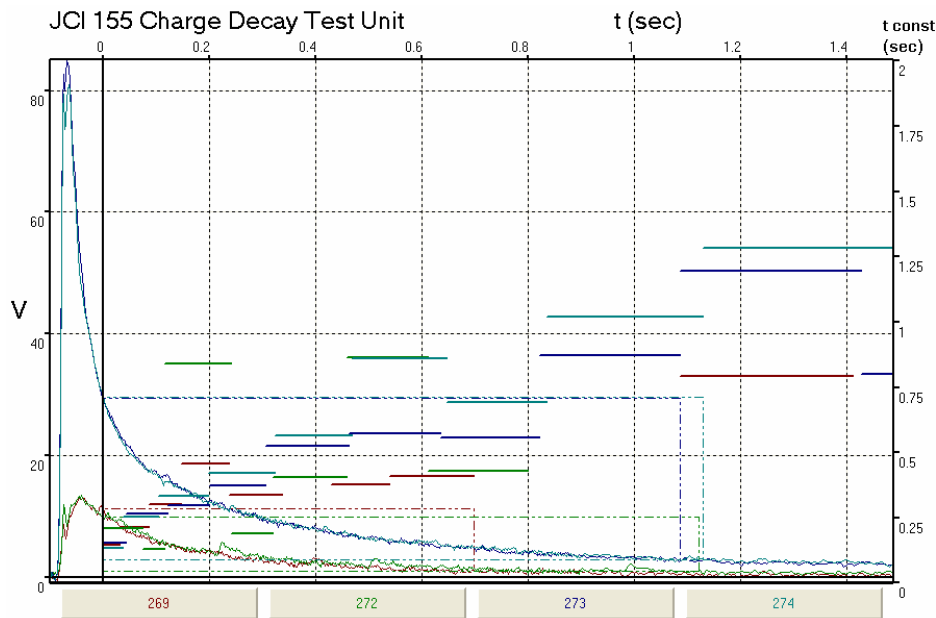
Where measurements are made of the charge transferred to the sample using a JCI 176 Charge Measuring Sample Support linked to the JCI 155v5 then the 'capacitance loading' presented to charge at the test surface is calculated.

When data is extracted from the memory card all information for a test run is stored in a file that is uniquely identified by the run number within a date folder and within an instrument serial number folder. This file extraction may be done with the memory card loaded into a PC or over a serial link to the JCI 155v5. With

direct serial linkage opportunity is also provided for direct quasi-real time display of charge decay tests in progress and for remote control of testing.

At data extraction from the memory card a .csv file is generated that gives a summary of all numerical values of test conditions and measurements. This is directly loadable into a Spreadsheet. This provides an easy way to compare performance between samples. A .csv file may also be created with full details of test conditions and observations.

Decay time measurements are made in JCI-Graph in exactly the same way as in JCI 155v5 instruments. To overcome the influence of signal noise when working with very low level signals and with very slow charge decays the measurement of time is made using a proprietary method termed 'stutter timing'. In this approach, as the signal falls below the target level the timing clock is stopped and then restarted if it rises back above. Thus as a noisy signal gradually falls through a target voltage level the clock may stop and start many times until the signal level no longer rises up to the level at which it can restart the clock. Modelling studies have shown this to be an excellent way to average noisy signals. Operation of this stutter timing approach may be seen at inspection of the end of timing markers with noisy signals.

JCI 155 Charge Decay Test Unit   t (sec)   t const (sec)

269   272   273   274

1 : MyDocuments\JCI-Graph
Data\04092193\2004-10-14\00000269.jc5

Serial: 04092193, run: 00000269
Date: 14.10.2004 at 14:35:31
Corona (Voltage): -3000
Corona (Time): 0.01
Surface (Temp. °C): 22.78
Surface (% R.H.): 58.56
Pretest (Voltage): 0.45
Peak at 13.06 volts
Analysis start 0.1 secs after charging
 at 11.253 volts
1/e reached after 0.19688 sec
10% reached after 0.69883 sec
Received charge = 1.05673 nC
Capacitance loading = 34.7462

2 : MyDocuments\JCI-Graph
Data\04092193\2004-10-14\00000272.jc5

Serial: 04092193, run: 00000272
Date: 14.10.2004 at 14:37:15
Corona (Voltage): -3000
Corona (Time): 0.01
Surface (Temp. °C): 22.8
Surface (% R.H.): 58.35
Pretest (Voltage): 0.81
Peak at 13.273 volts
Analysis start 0.1 secs after charging
 at 9.9037 volts
1/e reached after 0.28867 sec
10% reached after 1.1217 sec
Received charge = 1.14171 nC
Capacitance loading = 36.9372

3 : MyDocuments\JCI-Graph
Data\04092193\2004-10-14\00000273.jc5

Serial: 04092193, run: 00000273
Date: 14.10.2004 at 14:39:22
Corona (Voltage): -10000
Corona (Time): 0.01
Surface (Temp. °C): 22.8
Surface (% R.H.): 58.38
Pretest (Voltage): 0.89
Peak at 83.99 volts
Analysis start 0.1 secs after charging
 at 29.406 volts
1/e reached after 0.25156 sec
10% reached after 1.0875 sec
Received charge = 150.218 nC
Capacitance loading = 768.006

4 : MyDocuments\JCI-Graph
Data\04092193\2004-10-14\00000274.jc5

Serial: 04092193, run: 00000274
Date: 14.10.2004 at 14:40:06
Corona (Voltage): -10000
Corona (Time): 0.01
Surface (Temp. °C): 22.8
Surface (% R.H.): 58.08
Pretest (Voltage): 0.45
Peak at 79.846 volts
Analysis start 0.1 secs after charging
 at 29.578 volts
1/e reached after 0.25547 sec
10% reached after 1.1305 sec
Received charge = 149.583 nC
Capacitance loading = 804.457

HELP LINE
*JCI offers consultancy
through which we advise
and assist customers
who need to assess and
overcome problems with
static electricity. We also
test customer materials
for static charge dissipation
and capacitance loading
performance*

jci
John Chubb
Instrumentation