NAME

      spfrqpeel − calculate time constant for spike frequency curve

SYNOPSIS

      spfrqpeel [−**n** sec] [−**c** wfnum] [−**s** wfnum] [−**t** thresh] [−**h** hyst] [−**d**] [−**r** start**,**end] [−**p**|−**g**|−**v**] runfile

DESCRIPTION

      Spfrqpeel first looks at the injected current waveform, to determine the range of samples to be analysed. It then backs off the end point (when current is turned off) by 0.2 ms, to avoid spikes that are artifacts of the current being switched off. It then skips the specified number of seconds from the start of the injected current, and calculates the time constant for the frequency curve of the spikes in the remaining range.

      Output will be in this form:

      "Filename", Start, End, Spikes, Current, Slope, Intercept, r, Tau

      where the time constant Tau is output in ms, as are the start and end, and the current is output in the units for which the waveform was calibrated.

      It runs the *analysis*(1) program on a copy of each specified *runfile*, so the changes it makes during analysis (copying or differentiating waveforms, setting waveform parameters) will not alter any of your run files or their parameters.

   Options

      −**n** *sec*

            Specifies the number of seconds to skip from the start of the current burst (default is 5).

      −**c** *wfnum*

            Specifies the waveform number for the injected current waveform (default is 0). *Spfrqpeel* will try to automatically detect a single current burst on this waveform, using the mean current level as threshold, or the cycle threshold previously set in the waveform parameters for this current waveform.

      −**s** *wfnum*

            Specifies the waveform number for the waveform containing the spikes to be measured (default is 1).

      −**t** *thresh*

            Specifies the spike threshold to be used for the waveform above, given as a differential (default is 500). If the −**d** option is used, then the spike threshold is given in whatever units the analysis program uses for displaying this waveform, but the default is stil the same.

      −**h** *hyst*

            Specifies the spike triggering hysteresis to be used for the waveform above, given as a second differential, i.e. relative to the threshold. The default is 0, for no hysteresis.

      −**d**   Specifies that spike triggering will not be on a differential waveform, and threshold above will be an actual waveform level. By default, the spike waveform is differentiated to allow triggering on a waveform with a lot of baseline shift.

      −**r** *start***,***end*

            Specifies the start and end time in the *runfile*, in milliseconds or whatever is selected as the current time units in the runfile's analysis parameters. This overrides the range determined by detecting a current burst in the injected current waveform.

      −**p**   Specifies that an HPGL plot file of the frequency curve should be generated for each run file.

      −**p**   Specifies that a GIF plot file of the frequency curve should be generated for each run file.

      −**v**   Specifies that a plot of the frequency curve should be viewed via the *xhpgl* command for each run file.

−a   Specifies that an ASCII text file of the times and frequencies should be generated for each run file, as comma-separated values (a **.csv** file). The times (X values) are first on each line, followed by frequencies (Y values).

−f   Specifies that a frame file be generated for each runfile, representing the frequency curve as mV, for further analysis by the *peel*(1) program. This frame file will have the same name as the runfile, with the name **−freq.frm** appended to it.

−−help
          Causes the program to output a summary of command usage and options.

EXAMPLES
     spfrqpeel −s 2 −c 1 FF1740521
          Simple case using mostly defaults. The FF1740521 in the command line is the runfile analysed, and the spike and current waveform numbers are given explicitly as 2 and 1 respectively.

     spfrqpeel −r 30,557 −t 400 FF1327174 FF1327215
          Two run files are analysed with a specified range and the differential spike threshold is set at 400.

     spfrqpeel −n 0 −c 1 −s 0 −t −27 −h −15 −d −r 65000,70000 −p −g −v −a 090929-013
          The run file 090929-013 will be analysed in the range of 65 to 70 seconds (specified in ms), which the plot of the frequency curve being shown on screen, as well as saved in HPGL, GIF and CSV formats. Almost all options are specified explicitly. Differentiation is turned off, and the spike threshold is set to a level of −27 mV, with a hysteresis level 15 mV below that.

SEE ALSO
     analysis(1), avgspfrq(1), spfrqramps(1), emuhpgl(1), peel(1)