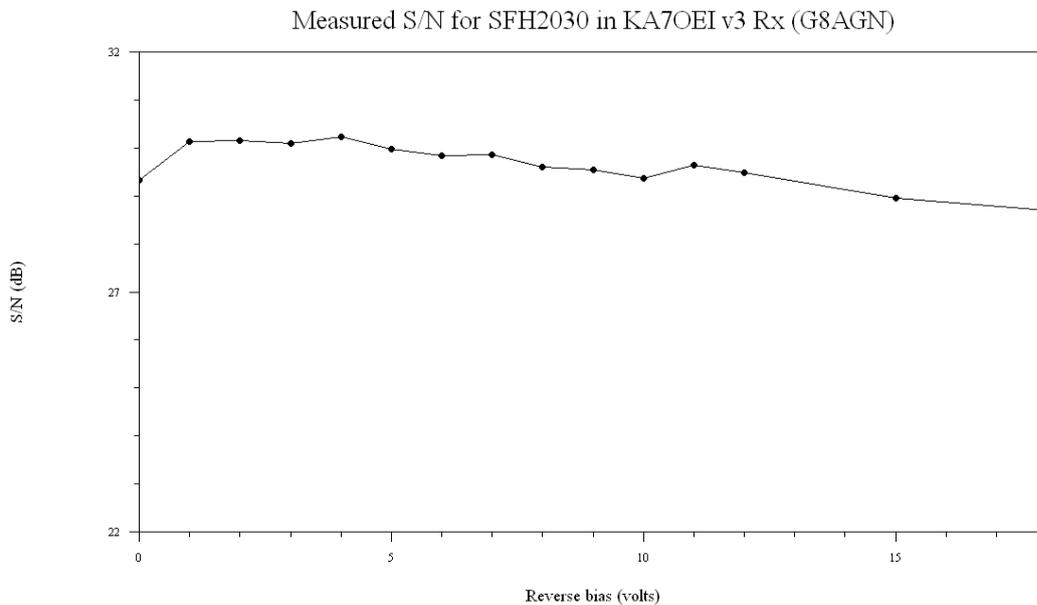


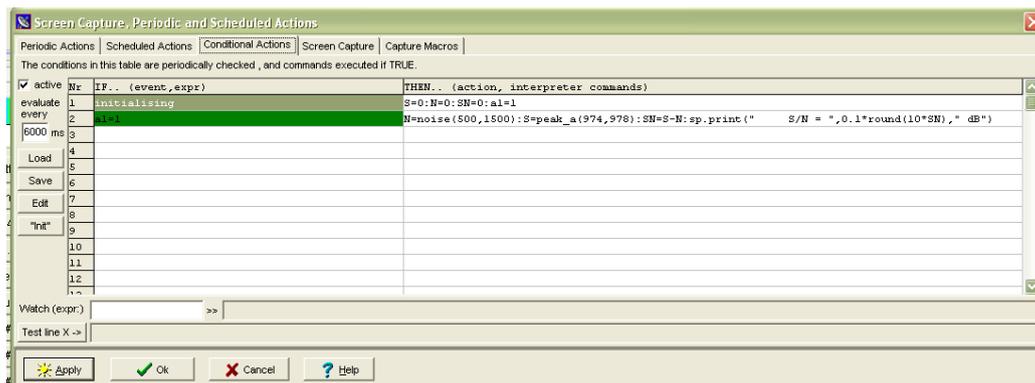
Measuring optical receiver S/N performance using a photon range G8AGN 27 Feb 2012

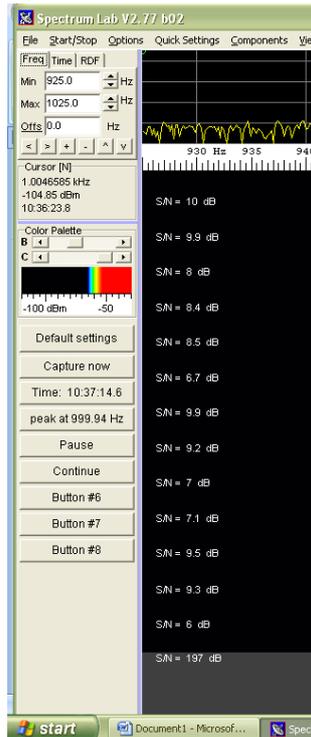


The graph shows a typical result obtained using my 2m long pipe photon range. The walls of the pipe are lined with black flock non-reflecting paper. The test source is a 625nm red LED modulated with a crystal controlled, variable amplitude, 976Hz square wave.

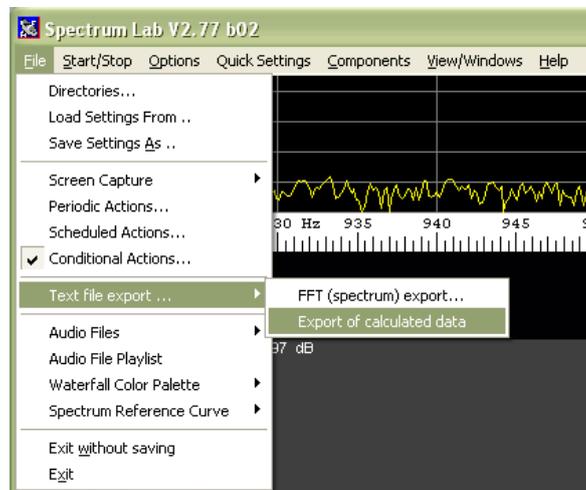
The S/N values are only indicative since they depend on the day to day stability of my LED light source. They do, however, give an indication of the variation of S/N with diode reverse bias.

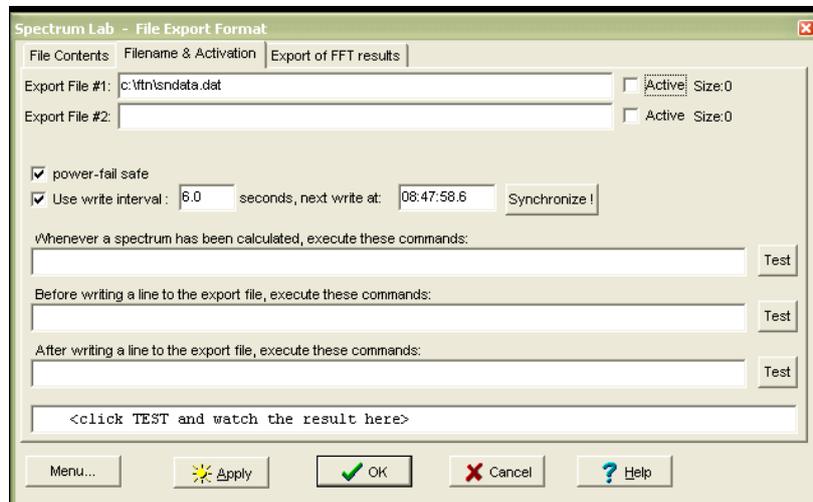
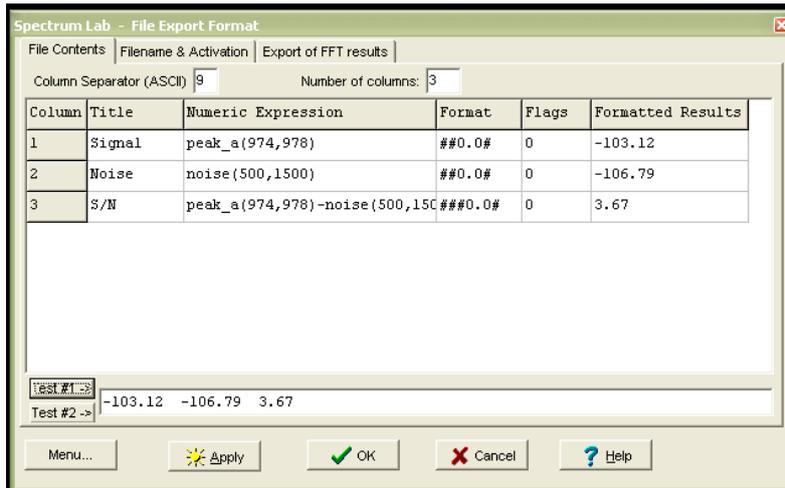
Each data point on the graph is the average of 20 readings, taken 6 seconds apart using Spectrum Lab and the Conditional Actions option to write data to the waterfall display. Spectrum Lab was set to use a 64K point FFT.





The measured values of S/N (dB) were noted from the waterfall display and recorded by hand for subsequent calculation of the average value and standard deviation of a data set. This process can, however, be made less tedious by using another of Spectrum Lab's facilities, that of Text File Export.





When set up as shown, readings of S, N and S/N in dB are saved every 6 seconds to a file called sndata.dat in the directory \ftn\. The format of the saved data is compatible with Excel.