Quiet Day Spectral Analysis

The FOURSQ1 program computes the Fourier harmonic spectral components (see Figure 1.12) of quiet field records (see Figure 2.23 and 2.24) along with a determination of the daily mean level and trend (slope). One can select the number of desired harmonics, up to twenty-four. A special iterative technique of W.H. Campbell is employed to extract the linear trend, embedded in the daily harmonics, to avoid improper trend contributions from sine wave harmonics. An input of field value data at evenly spaced intervals (with a point at the beginning and at the end) is required and a test is used to determine whether the number of points is sufficient for the highest selected harmonic. The output is to the computer screen and to a user-selected file. To start the program, place the disk in the drive bay, set the computer for that drive, and enter FOURSQ1. Answer the questions at the prompt. The daily quiet-time Sq field variations are analyzed using this program. An example screen is shown below: