## 7. Appendix A List of project files with brief descriptions

- **4kcoef.asm**
  - contains the coefficients for the IIR filters which filter the power spectrum
- **averaging.c**
  - averages the power spectrum band levels, puts averages into array bands1
- **bands.c**
  - contains function calc_bands() which calculates band levels, modifies values of array outputs
- **c_fft_given_iirc.asm**
  - contains code used to compute the FFT, code taken from http://cnx.rice.edu/content/m12391/latest/#sec_appendix_b
- **coefs.asm**
  - contains coefficients for peaking for peaking filters
- **decimation.c**
  - contains functions decimation4() and decimation16() used to analyze the low frequency spectrum
- **iirfilter_4k3.asm, iirfilter_4k4.asm, iirfilter_4k5.asm**
  - these three files contain code that will filter the power spectrum (lowpass IIR), they modify array temporary
- **outputting.c**
  - contains function outputting(), this function outputs the values of the power spectrum bands to array outputs2
- **peak.asm**
  - code for peaking filter for which no coefficients were divided, modifies values of array pink
- **peak2.asm**
  - code for peaking filter for which coefficients were divided by 2, modifies values of array pink
- **pink_noise.asm**
  - code for filtering white noise into pink noise, modifies values of array pink
- **pn_gen3.asm**
  - code for generating white noise, modifies values of array pink
- **power_spec.c**
  - contains function power_spec() which calculates the power spectrum of the signal coming from the microphone, modifies values of array temporary
- **lab4bmain2.c**
  - core project file, contains function main() and irq(), controls the overall flow of the RTA-DEQ process
- **loopme.asm**
  - contains several looping functions needed in order to decimate for low frequency analysis
- **states.c**
  - contains the definitions for the peaking filter state variables