The circuit was assembled according to the diagrams given in specifications.xlsx and the assembly document. After that, the MAX1249 was connected via SPI interface to an Arduino Uno. Various light levels were then used when shining upon the photodiodes.

It was observed that the voltage range output of the second Op-amp was indeed limited to within the 0V – 3.3V range. It was also observed that the digital output of the ADC varied with intensity and angle of incidence as expected. This confirms that the selected components work as intended.

It was noticed that Channel 1 (CH1) of the MAX1249 was not working as intended, and is deemed to have been defective. This highlights the need for testing of components beforehand as to ensure a defective panel is not assembled.

It was also noticed that there was a somewhat significant amount of noise in the digital output, but this could be solved by applying an average-algorithm which greatly reduced the noise in the readings. This however may imply that the circuit may be improved; a 0.1uF capacitor was not on hand during the testing, which would normally be used to reduce noise of the Vref input of the ADC. It is thought that the use of this capacitor may reduce noise a significant amount.

Future testing should require the use of a ‘sun simulator’ or equivalent to produce an accurately known light intensity for verifying that the circuit output is correct.