Entanglement Lab tasks

1. Measure the visibility $V=(C(0,0)-C(90,0))/(C(0,0)+C(90,0))$
How high is it? Where could errors in the measurement arise?

2.   Take correlation curves.
Set one polarizer to 0 degrees and rotate the other one from zero to 90 degrees in 5 degree steps and record the coincidences for each of the steps. Repeat this for the 1st polarizer set to 45 degrees.
How do the single counts behave while rotating the polarizer?

3. Identifiy the Bell states.
Record the number of coincidences for the following settings of the polarizers. 0,0; 0,90; 90,0; 90,90 (HV-basis) and 45,45; -45,45; 45,-45; -45,-45 (AD-basis). Repeat this for the waveplate in laser setup flipped by 180 degrees. Which Bell state are you preparing in each case?

4. Violate the CHSH-inequality.
In the controller press the middle button until you end up at the CHSH-menu where you can do 16 different measurements. Record coincidences for the 16 different polarizer combinations, by tapping the panel after setting the polarizers.
If you cannot reach a value with the polarizer, add or subtract 180 degrees, this will do the same. - and + correspond to -45 degrees and +45 degrees.