1. A class A (class AAA) solar simulator is rated based on these three parameters

- [ ] Humidity stability
- [x] Spectral match

Correct

That is correct.

The spectral match must be within ±25% evaluated in six defined spectral regions between 400 and 1100 nm.

- [x] Temporal stability

Correct

That is correct.

A temporal stability of 2% is required for a class A rating.

- [x] Spatial irradiance uniformity

Correct

That is correct.

The spatial non-uniformity cannot exceed 2%.

- [ ] Temperature stability

2. Why is it important that we have the same light spectrum when we determine the efficiency of a solar cell?

Due to change in light spectrum pin changes

✓ **Correct**

The **spectral response** may vary from solar cell to solar cell, and therefore their efficiency may vary significantly when differently illumination sources is used.

If we imagine an extreme example of two light sources each with a monochromatic spectrum (one single color of light). If the first light source is red (700 nm) and the other is infrared (1400 nm) we would see that a silicon solar cell would be quit efficient under the red light source, while under the infrared light source the efficiency would be zero. This is of course an extreme case, but it illustrates that the spectrum of the illumination source is impacting the efficiency we determine. Notice that we can correct for this effect by doing spectral mismatch correction in which we determine the spectral response of the solar cell and take this into account along with the spectrum of the illumination source.

In the next week of the course we will dig deeper into the spectral response of the solar cells.

3. What constitutes standard test conditions?

- ○ 25% spectral match, 2% irradiance spatial non-uniformity, and 2% temporal stability
- ◉ 25°C temperature, 1000 W/m^2 irradiance, and AM1.5G spectrum

✓ **Correct**

That is correct