WG1 meeting 07-10-2020

Participants

Present

Laurent Gelman, Stan Schwartz, Alex Laude, Nathalie Gaudreault, Roland Nitschke, Ulrike Boehm, Sebastian Munck, Andrea Bassi, Frank Eismann, Britta Schroth-Diez, Marcel Kirchner, Ute Resch-Genger, Claudia Jaffee, Ralf Dietzel, Andreas Felscher, Konstantin Birngruber, Orestis Faklaris, Oxxius, Mišo Mitkovski, Steve Bagley

Excused

Manual Deutsh, Werner Zuschratter

Meeting Notes

From the agenda:

1. Welcome new participants (new participants were added)
2. Agreement on minutes of last meeting (all agree)
3. Agreement about recording the meeting (yes, meeting was recorded starting at 8:07)
4. Timing of the meeting: are Wednesdays still ok for all? Yes, all in favor
5. Review comments on ISO_Manual_WG1

Link to the document:
https://bwsyncandshare.kit.edu/apps/onlyoffice/394015561?filePath=%2FQA%20and%20Reproducibility%20for%20Instruments%20and%20Images%20in%20LiMi%2FWG%201%20Illumination%20power%2FISO_manual_V2.docx

Discussion about the ISO Manual V2:

1. Editing Manual V2

Lasers need to be warmed up for at least 5min, it takes longer for the entire system to reach temperature equilibrium (up to an hour). Alex: made his measurements after 30min, time varies between system (different lasers). Safe with 1hr but it may not be necessary. Gas laser may need more time, one can potentially measure how long it takes for their system to reach stability. Stan : we could use the same statement that the Illumination WG made. Decision: We recommend 1hr but this can be measure and reduce. What is important is to have your laser and system warmed up. Measurements should be taken after same warmup time for consistency.

Ulrike: We should have a WG for room and environment standards & recommendations

Objective: 10x is a service tool and may explain why it is used. It should be a standard 10x. If intensity is important should not use a phase ring.

Background light: Ambient light needs to be subtracted. LED light source if they are dimmed, they do not give full range of emission. SNR? Need to set zero level of your power meter (background light removed). Non-fully enclosed light source needs more precaution (ambient light and movement). Airflow, Humidity may also affect your measurements. Expend the section of set up? You need to know the temperature and humidity. What about the room? We should have a protocol written (should be included in the troubleshooting guide). Guide for recommendation for the room.

Relative position of the sensor: Miso- if sensor is reflective the focal position should be able to achieve and then be defocused always to the same distance. Is distance important? Alex: +-3mm doesn't matter as long as the laser beam does not extend outside of the sensor area. What is critical is how much of the sensor area needs to be covered? At least 50%? You know you are in the right position if by moving up and down you do not change the value of your sensor or reach max value. Andreas Felscher: Back reflection? Need to keep laser power low enough to not get it. I you get back reflection you may create some damage and influence your results, introduce error signal. You need to misalign the back reflection so that it does not interfere with your laser. Ulrike suggested to keep intensity of your laser fairly low to minimize back reflection, this minimal intensity may be indicated in the spec sheet.

Discuss Power meter response. See also below (in blue) and in attachment the information sent by Alex Laude and Dinuka Jayasuriya

- Bi-directional and area of scan:
- Pixel dwell time has a big effect
- The beam needs to be fixed or parked.
- There is a mode that should be used to make calibration measurements. Service mode (no blanking time)?
- Suggested to use large scan area and max dwell time if stationary cannot be used.
- One more effect: a diffuser over the sensor will be affected by the angle of the laser.
- Important to know how measurements are obtained.
- AOTF: may behave differently if laser power is very low…

2. Other topics (laser power value at which to measure stability)

Value provided should be system dependent, % vs mW? Dependency between measurement value and laser range.

For a spinning disk it may be a specific case.

We want to measure the stability at a specific laser power value. We could measure at high, low and medium values. The % are based on calibrated values. A specific value in mW will be difficult to recommend for all lasers. We may need different sections for different system: LSM & spinning disk.

Next steps

- Finish discussion on recommended values of laser power at which to measure the stability of your laser. Ulrike to bring a slide to illustrate the point of Roland and Laurent.
- Review new comments and suggestion on main document
- Review supplement/appendix
- Next meeting first Wednesday of November (November 4th 2020, 5pm)