Renishaw plc

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Renishaw Raman instrument service acceptance form

Company name : University College London

System serial number : H42218

Risk assessment completed: Yes

Specifics of service

This is to certify that the following service specifics have been performed.

Purpose of visit; To install a replacement Modu laser which has been supplied by UCL and service the instrument.

- Prior to removing the failed MoDu laser I powered it up to confirm the fault. A ticking noise could be heard immediately after powering up and no laser emissions were present. This is a clear indication that the tube has outgassed and will need to be replaced.
- The failed laser was removed and replaced with a new unit which was sourced by UCL. However, the replacement unit (Model; Stellar-Pro Serial number; ML0884PRO11ACE) didn`t have any connector ports to allow it to be interlock with the instrument. This declassifies the safety aspects of the instrument for this laser path as the software will not be able to trip the laser if the interlock chain is broken. This has been explained to the customer and the customer is happy to continue using the system with no interlock for the subject laser. Furthermore, the customer has agreed to carry out a inhouse risk assessment with the laser safety officer at UCL. Renishaw would advise returning the laser to the supplier to have the interlock function fitted, but if UCL chose to use it with no interlock then they are liable if an accident would occur, not Renshaw. By signing this document you will be agreeing to these terms. PTO

For and behalf of Renishaw:

Name of service engineer: Shaun Buckley

Signature:  Date: 30.07.2021

Acceptance of service

I hereby accept that the service specifics described above have been successfully completed.

For and behalf of the customer:

Name of customer:

Signature: Date:

Name of distributor:

Signature: Date:

For support queries please contact raman.technicalsupport@renishaw.com

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Registered office
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Specifics of service - Continued

This is to certify that the following service specifics have been performed:

Renishaw reserves the right not to service and maintain the instrument moving forward, should they feel the engineers safety is compromised with the laser interlock in a defeated state

- A full service was then carried out; optics cleaned (including objectives), video to eye piece alignment, stage calibration, montage, white light alignment through the spectrometer, dispersion, focusing and calibration.
- The lasers were then delivered to the sample and through focus optimised. The 785nm was found to clipping the beam steer left, so this has been aligned to the centre of the mirror and pinhole re-optimised.
- Laser focusing at the sample and pre-slit lens positions were then checked – OK.
- Auto aligns were then ran for CCD area and Slit. As requested the laser auto algin were demonstrated to the customer after fixing the camera issue and this worked with no issues.
- The 785nm LineFocus configuration was then optimised and a map collected to optimise the white light Vs Raman image overlay.
- Standard test data was then collected to check the system performance. All test data has been saved to the instrument PC and Renishaw memory device.

Additional notes;

- As discussed during the visit the x50 objective was found to have a frosty lens. Efforts were made to clean this but no improvements were made. The laser spot is clearly being affected and throughput is lower than expected. Therefore, it`s advise that this is replaced or you could attempt to clean this at UCL.