# **FAQs:** Spectra-FT Tunable Source

**Q. How many target Spectra can I match?**

A. There is no limit to the number of spectral distributions the Spectra-FT products can reproduce and save.

**Q. 我能匹配多少个目标光谱？**

A. Spectra-FT产品对可再现和保存的光谱分布数量没有设定限制，满足多样化的光谱匹配需求

**Q. Would you agree that there generally is no need for sending the Spectra-FT system back at all over its lifetime, if there are no faulty parts?**

A. Yes, this is the value of the customer recalibration and recharacterization feature. The Spectra-FT control software allows the user to recalibrate and recharacterize the systems with no extra hardware or tooling needed.

**Q. 若无故障部件，Spectra-FT系统是否在整个生命周期内通常无需送回？**

A. 确实如此。Spectra-FT的重新校准和重新表征功能确保客户无需送回系统，即可通过软件自主完成这些操作，减少停机时间和成本。

**Q. What is the project lifetime of the LED Light Engine in the Spectra-FTs?**

A. Labsphere warranties its Spectra-FT LED light engines for 12000 hrs of operation at Standard Illuminants over the dynamic range of the sources.

**Q. Spectra-FT中LED光源引擎的预期寿命多长？**

A. Labsphere保证Spectra-FT的LED光源引擎在标准光源动态范围内可稳定运行长达12,000小时，展现出色的耐用性。

**Q. What is the difference between Calibration and Characterization with the Spectra-FT?**

A. These two processes work in concert but should not be confused with each other.

**Q. Spectra-FT中的校准和表征有什么区别？**

A. 这两个过程协同工作但不应混淆。

*Calibration* pertains to the internal spectrometer spectral radiance response. The internal spectrometer is calibrated by transferring a calibration from an external spectrometer to an internal spectrometer. This transfer is done by measuring the Spectra-FT spectral radiance while the internal QTH reference calibration lamp is operating in the integrating sphere source. This measurement is transferred to the internal spectrometer. By saving these data the internal spectrometer can be recalibrated at any time using the QTH internal reference lamp. Customers can easily reproduce the process with the Spectra-FT-LS software calibration routine.

校准其实是校准内部光谱仪的光谱辐射响应。内部光谱仪的校准是通过将外部光谱仪的校准传递到内部光谱仪来完成的。此传递是通过在积分球光源中点亮内部QTH参考校准灯情况下，测量Spectra-FT光谱辐射来完成的。该测量结果被转传递到内部光谱仪。通过保存这些数据，内部光谱仪可以在任何时候使用QTH内部参考灯进行重新校准。客户可以轻松使用Spectra-FT-LS软件重复校准程序对设备进行重新校准。


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*Characterization* pertains to creating a characterization file that represents the total spectral radiance of the Spectra FT source for each contributing LED channel over its entire dynamic range. By measuring the output of each LED "channel" individually over the full scale of available power, a predictive model is created. Each channel is characterized and these, taken together, can be used to optimize the system's spectral radiance under any luminance level for any spectrum uploaded into the Spectra-FT-LS software.

表征涉及创建一个表征文件，该文件表示Spectra FT光源在其整个动态范围内每个LED通道的总光谱辐射。通过在可用功率的全范围内单独测量每个LED"通道"的输出，创建一个预测模型。每个通道都被表征，这些通道结合在一起可以用于优化系统在任何亮度水平下对任何上传到Spectra-FT-LS软件中的光谱的光谱辐射。

简而言之，校准确保了测量工具的准确性，而表征则优化了系统的输出性能，使其能够更精确地匹配目标光谱。这两个过程相辅相成，共同提升了Spectra-FT系统的整体性能和可靠性。

**Q: What is A' and how is it defined**

A: The metric A' is the ratio of the out of band total radiance produced by Labsphere's spectral tunable sources and the target spectrum total radiance. It is a metric Labsphere uses to define the total spectral matching confidence. With the FT-2200 and FT-2300, the A' value is less than 10% for most continuous spectra. With the UT-1000, the A' is typically less than 2% for most spectra.

**Q: A'是什么？如何定义？**

A: A'是衡量Labsphere光谱可调光源带外总辐射与目标光谱总辐射比率的指标，用于评估光谱匹配的置信度。FT-2200和FT-2300的A'值通常小于10%，UT-1000则更低，表明高精度光谱匹配能力。

**Q. If the embedded spectrometer is used to monitor the Spectra-FT spectral radiance and is also used for recharacterization the Spectra-FT systems, how often do we need to recalibrate the spectral radiance monitor?**

A. The spectrometer should be baseline offset corrected (BOC) at least once a week. More frequently if there are large temperature swings or low radiance levels testing. Monthly recalibration of the spectrometer is typical.

**Q. 若嵌入式光谱仪同时监测并重新表征Spectra-FT，多久需重新校准光谱辐射监测器？**

A. 建议至少每周进行基线偏移校正，温度波动大或光亮度低时需更频繁。通常每月进行一次全面校准，确保监测精度。



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**Q. How long does it take to recalibrate the spectral radiance monitor?**

A. The BOC is around 15 seconds or less, the spectrometer calibration is about 15 minutes. It is mostly warm up time of the embedded tungsten halogen reference lamp.

**Q. 重新校准光谱辐射监测器耗时多久？**

A. 基线偏移校正仅需约15秒，而全面校准约需15分钟，主要耗时在于嵌入式钨卤素参考灯的预热。

**Q. How long does it take to run a characterization of the system?**

A. The routine can take about 15 hours. We recommend setting it up and running it at the end of the day or shift and run it overnight. This is rarely done if not very infrequently. It depends on the usage of the source. When you come back to the office it is complete. With this feature, there is virtually no need to send it back to Labsphere, resulting in minimal user downtime.

**Q. 运行系统表征程序需多长时间？**

A. 大约需要15小时，建议在工作日结束或班次结束时启动，通宵运行，减少对正常工作的干扰。此功能显著降低了送回原厂的需求，提升了用户体验

**Q. If I recharacterize my Spectra-FT system after a year, can I expect to get as reliable performance as the factory characterization?**

A. Yes. The method used in the Spectra-FT-LS software is the same method used during factory calibration at Labsphere. The only difference will be related to any changes to the NIST traceable tungsten reference lamp output between the time Labsphere calibrated it and the time the lamp is used for the calibration of the spectrometer before recharacterization. After one year, the tungsten lamp should only have about 3 hours of use on it, if it is used only once a month as recommended.

**Q. 一年后对Spectra-FT系统进行重新表征，性能是否仍可靠？**

A. 是的。当您在一年后对Spectra-FT系统进行重新表征时，由于Spectra-FT-LS软件采用的方法与Labsphere工厂校准期间完全一致，您可以期待获得与初次工厂表征相媲美的可靠性能。尽管存在一点细微差异，这主要源于NIST可追溯性钨参考灯在两次校准过程中的使用差异，但如果您每月仅使用一次，那么一年后该钨灯的总使用时间将非常有限，约为3小时，因此对表征结果的影响几乎可以忽略不计。

**Q. What is happens if we have an LED failure?**

A. Labsphere must replace the LED board(s) if the system is deemed to be in need of repair. Followed by the Re-Characterization of the Spectra-FT product, replacement and calibration of tungsten reference calibration lamp and LED engine, system recharacterization. Like new again.

**Q.如果发生LED故障怎么办？**

A.一旦发现LED故障，若系统需要维修，Labsphere将立即更换LED板。随后，我们将对Spectra-FT产品进行彻底的重新表征，包括更新并校准钨参考校准灯，以及检修LED引擎。这一系列措施完成后，系统将恢复到最佳工作状态，仿佛是新的一样。

**Q. Do you replace the tungsten reference source when the Spectra-FT is returned for repair?**

A. Labsphere's recommendation is when the system is back for relamping and recharacterization, we will recommend the Tungsten reference source be replaced at this time as well.

**Q.当Spectra-FT送回维修时，你们会更换钨参考光源吗？**

A. 在Spectra-FT送回进行换灯和重新表征服务时，Labsphere强烈推荐同时更换钨参考光源。这是因为长期使用后，钨参考光源的性能可能会自然衰减，从而影响系统的整体准确性和可靠性。为了确保系统始终保持最佳性能，我们在进行换灯和重新表征的同时，也会更换钨参考光源，以恢复并提

升系统的测量精度。

**Q. Can one run several CCSs from one PC? How would you distinguish them in the software?**

A. The Spectra-FT-LS User Application can create and use solution files (optimized spectral profiles) as well as run the integrated spectrometer for real-time measurements and longer-term calibration and characterization.

The FT-2200/2300-W Hardware itself manages individual channel control, including safe operating parameters, as well as storing and transitioning between profiles sets in a hardware or software triggered operation. For triggering, the hardware has a list of pre-defined profiles (channel settings) that it can quickly iterate through. *Example scripts are available.*

Use without the Spectra-FT-LS User Application could provide mechanisms to run more than one FT-2200-W Hardware system at a time.

Use with the Spectra-FT-LS User Application is restricted to one system at a time.

**Q.可以从一台PC上运行多个CCS吗？在软件中如何区分它们？**

A. Spectra-FT-LS 用户应用程序具备高度灵活性，能够创建并应用优化的光谱配置文件（即解决方案文件），同时驱动集成光谱仪执行实时测量、长期校准及特性化任务。

FT-2200/2300-W 硬件设备则独立管理各通道的精细控制，确保操作安全，并在硬件或软件触发的场景下无缝存储与切换不同的配置文件集。对于触发操作，该硬件内置了预定义的配置文件列表（即通道设置），能够实现快速遍历与切换。此外，我们还提供了详尽的示例脚本，以辅助用户更好地利用这些功能。

值得注意的是，在不借助Spectra-FT-LS 用户应用程序的情况下，可能存在同时运行多个FT-2200-W 硬件系统的技术途径。然而，在使用Spectra-FT-LS 用户应用程序的环境中，系统操作被限制为单次仅处理一个硬件系统，以确保操作的专注性和精确性。

**Q. How long are your Spectra-FT products supported?**

A. The Spectra-FT products are available for a life cycle of 5 to 7 years. When Labsphere makes an announcement that we are discontinuing a product, we still provide support for 3 more years.

**Q.你们的Spectra-FT产品支持多久？**

A.我们承诺为Spectra-FT 产品提供长达5至7年的生命周期支持。即使当某款产品宣布停产，我们仍将继续提供长达3年的后续支持服务，确保客户能够持续获得必要的技术支持和维护。

**Q. Can I get a virtual demonstration?**

A. Yes contact us at www.labsphere.com to request your personal demonstration.

**Q. 我能获得虚拟演示吗？**

A. 是的，请联系我们（微信公众号留言或者发送邮件 chinasales@labsphere.com） 来请求您的个人演示。