



Starna scientific
‘Setting the Standard’

Quality Assurance in the Analytical Laboratory

Spectrofluorometer Performance Validation

Starna SF Series Polymer Block References

Purpose

These references are designed for the routine performance qualification of fluorescence spectrophotometers and fluorimeters. They can be used in both continuous-source and flash-source instruments and are available in a variety of physical formats, suitable for use in conventional spectrofluorometers or for specialist applications such as microscopy or PCR.

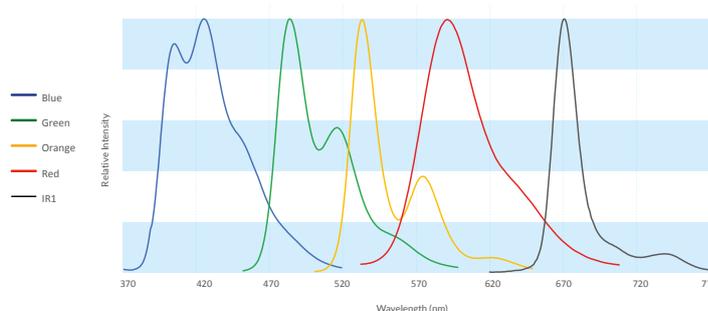


Description and Discussion

Polymer doped with organic fluorescent compounds with excitation and emission characteristics across the visible and NIR wavelengths.

This wide spectral range allows the user to select a reference material with broadly similar spectral properties to those of the analyte, ensuring a spectral overlap and measurable signals without changing important parameters such as slit widths and wavelength settings. The fluorescent materials are contained in a solid polymer matrix so solvent evaporation cannot occur and as they do not suffer from photodecomposition or “bleaching” under typical conditions, these references exhibit excellent long-term stability.

Starna Fluorescence Series Typical Emission Spectra



| COMPOUND | PEAK EXCITATION WAVELENGTH (NM) | EXCITATION RANGE (NM) | PEAK EMISSION WAVELENGTH (NM) | EXCITATION RANGE (NM) |
|----------------------------|---------------------------------|-----------------------|-------------------------------|-----------------------|
| Starna Fluorescence Blue | 378 | 280 - 420 | 427 | 380 - 510 |
| Starna Fluorescence Green | 476 | 380 - 500 | 485 | 460 - 590 |
| Starna Fluorescence Orange | 532 | 420 - 550 | 534 | 510 - 640 |
| Starna Fluorescence Red | 579 | 470 - 620 | 593 | 550 - 690 |
| Starna Fluorescence IR1 | 668 | 580 - 700 | 670 | 640 - 770 |

These materials can be supplied with Certified Spectra for Spectral Correction traceable to the NIST SRM 294X (X = 0 to 4) series. Two materials (Starna Fluorescent Green and Orange) can be made traceable to NIST SRM 1932 (Fluorescein) for Calibrated Intensity at some wavelengths:

Spectrofluorometer Performance Qualification

Starna SF Series Polymer Block References

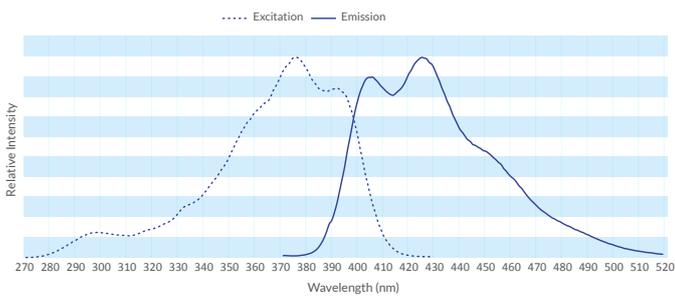
| COMPOUND | NIST TRACEABILITY (SPECTRAL CORRECTION) ¹ | NIST TRACEABILITY (CALIBRATED INTENSITY) ² |
|----------------------------|--|---|
| Starna Fluorescence Blue | NIST SRM 2943 (Cu) | |
| Starna Fluorescence Green | NIST SRM 2941 & 2943 (U & Cu) | NIST SRM 1932 (Fluorescein) |
| Starna Fluorescence Orange | NIST SRM 2940 & 2941 (Mn & U) | NIST SRM 1932 (Fluorescein) |
| Starna Fluorescence Red | NIST SRM 2940 & 2944 (Mn & Bi) | |
| Starna Fluorescence IR1 | NIST SRM 2940 & 2944 (Mn & Bi) | |

¹Certification suitable for scanning instruments only.

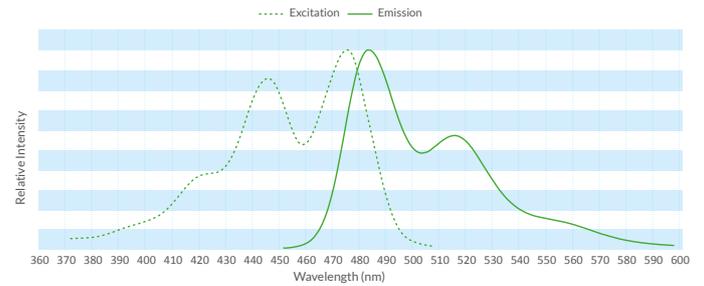
²Calibration at specified wavelengths only, which can be customer specified, and only valid for standard block format materials.

Typical excitation and emission spectra are given below.

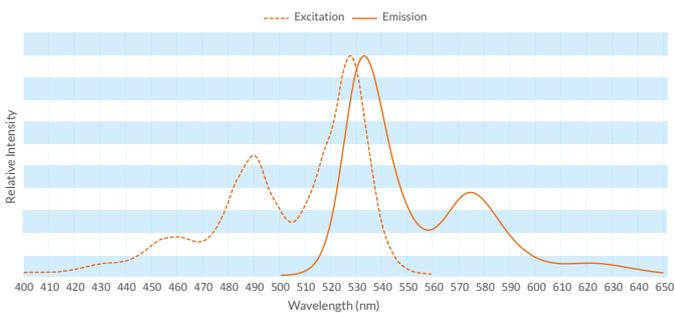
Starna Fluorescent Blue Excitation and Emission Spectra



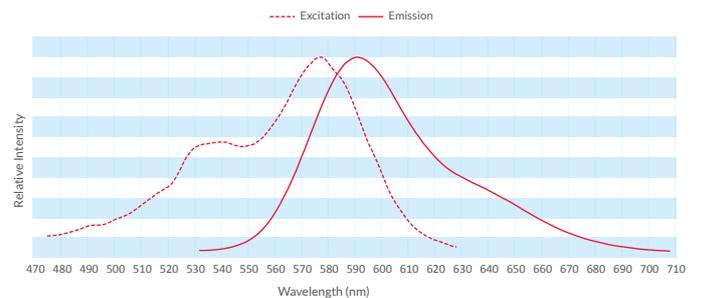
Starna Fluorescent Green Excitation and Emission Spectra



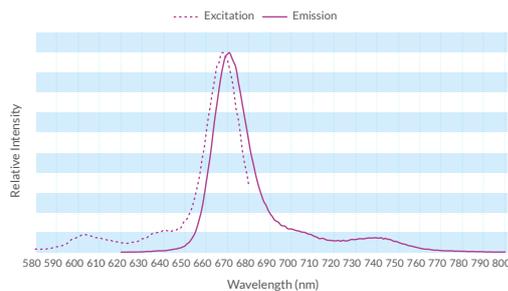
Starna Fluorescent Orange Excitation and Emission Spectra



Starna Fluorescent Red Excitation and Emission Spectra



Starna Fluorescent InfraRed 1 Excitation and Emission Spectra



Spectrofluorometer Performance Qualification

Starna SF Series Polymer Block References

Certification and Documentation

If requested a Certificate of Calibration and Traceability can be provided with each Certified Reference Material as listed in the table above. The certificate is supplied in electronic format, on a USB drive in the same box as the references, allowing hard copy to be produced on demand and giving easy interface to the user's own IT systems. Certification measurements are made on a reference fluorescence spectrophotometer that has been qualified using Standard Reference Materials certified by the National Institute of Standards and Technology (NIST) in the USA, or against primary physical references such as elemental emission lines.

STARNA warrants that all its Reference Materials have been

produced in accordance with ISO17034. The ISO 17034 compliant certificate supplied states that the Reference Material has the required stability and homogeneity characteristics and is fit for its intended use.

Accreditation

Starna Scientific is accredited to both ISO 17034 as a Reference Material producer, and ISO/IEC 17025 as a Calibration Laboratory for optical reference measurements. Starna Scientific's manufacturing facility is accredited to the ISO 9001 Quality Management System with BSI. For details see www.starna.com/accreditations.

How to Order

| COMPOUND | CATALOGUE NUMBER ¹ (STANDARD BLOCK FORMAT) | CATALOGUE NUMBER ² (MICROSCOPE SLIDE FORMAT) |
|--|--|--|
| Set of 5 SF Series polymer blocks and blank | 5SF | |
| Starna Fluorescence Blue | RM-SFB | RMM-SFB |
| Starna Fluorescence Green | RM-SFG | RMM-SFG |
| Starna Fluorescence Orange | RM-SFO | RMM-SFO |
| Starna Fluorescence Red | RM-SFR | RMM-SFR |
| Starna Fluorescence IR1 | RM-SFIR1 | RMM-SFIR1 |
| Blank PMMA block | 5SF-BLK | |

¹These catalogue numbers relate to polymer blocks in standard rectangular cell format (12.5 mm x 12.5 mm x 45 mm). For other formats please contact Starna at sales@starna.com

²These catalogue numbers relate to polymer discs (10 mm diameter) secured in a metallic microscope slide.



Starna scientific
'Setting the Standard'

www.starna.com
sales@starna.com
+ 44 (0) 20 8501 5550