# Spectroradiometer “TKA-Spectr”

**Instrument complete set**

- Spectroradiometer “TKA-Spectr”
- Cosine corrector
- Power adapter with USB output
- PC communication cable
- Flash drive with software
- Manual
- Passport

- Plastic case
- Transport container

**Main technical characteristics**

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| Measurement mode | Continuous / Pause |
| Spectral range, *nm* | 390 ÷ 760 |
| Resolution / discreteness, *nm* (no more) | 10 / 0.4 |
| **Measurement ranges:**<br>spectral density of radiance, *W / (sr m $^2$ nm)*<br>spectral density of irradiance, *W / (m $^2$ nm)*<br>chromaticity coordinates x, y in the MCO 1931 systemgeneral color rendering index $R_{a\ of}$ self-luminous objects | $10 \cdot 10^{-6}$ ÷ 1.0<br>$10 \cdot 10^{-5+}$ ÷ 0.5<br>x = 0.004 ÷ 0.734;<br>y = 0.005 ÷ 0.834<br>1.0 ÷ 100.0 |
| Limits of the permissible value of the relative measurement error of the SPEY (or SPEO) ,% | ± 5.0 |
| Limits of permissible absolute measurement error on the chromaticity coordinate scale, abs. units, for self-luminous objects | ± 0.020 |
| Accepted limits of the absolute error measure correlated color in the temperature range (for white light sources):<br>• from 2000 *K* to 2300 K<br>• more than 2300 *K* to 3300 *K*<br>• more than 3300 *K* to 5100 *K*<br>• more than 5100 *K* up to 7,200 *K*<br>• more than 7,200 *K* up to 10,000 *K* | <br>± 50<br>± 100<br>± 200<br>± 500<br>± 1000 |
| Limits of permissible absolute error in measuring the general color rendering index of self-luminous objects $\Delta R_a$ | ± 3.0 |
| The limits of the additional relative error of the spectroradiometer when measuring energy quantities, due to the change in the sensitivity of the photodiode array when the air temperature changes by every 10 ° *C* in the range from 0 to +40 ° *C*,% | ± 1.0 |
| **Indication ranges:**<br>luminance of continuous, *cd / m $^2$*<br>illuninance of continuous radiation, *lx*<br>radiance of continuous, *W / (m $^2$ sr)*<br>irradiance of continuous radiation, *W / m $^2$*<br>correlated color temperature, *K*<br>PAR radiance in the range of 400 ÷ 700 nm, *µmol / (m $^2$ s sr)*<br>PAR irradiance in the range 400 ÷ 700 nm, *µmol / (m $^2$ s)* | <br>0.1 ÷ 60 000<br>1 ÷ 200 000<br>$5 \cdot 10^{-4}$ ÷ 1000<br>$1 \cdot 10^{-4}$ ÷ 2000<br>1600 ÷ 50 000<br>0.01 ÷ 500<br>0.1 ÷ 2000 |

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| **Calculated parameters:**<br>weighted radiance in the range 390 ÷ 760 *nm* , *W / (m $^{2}$ sr)*<br>weighted irradiance in the range 390 ÷ 760 *nm* , *W / m $^{2}$*<br>color coordinates in MCO systems<br>chromaticity coordinates in MCO systems<br>dominant wavelength λ $_{s}$ , *nm*<br>color rendering indices of self-luminous objects<br>difference between brightness in conditions of twilight and daytime vision<br>color difference with an arbitrary reference source | blue light L $_{B}$ , burn hazard L $_{R}$<br>blue light E $_{B}$ , burn hazard E $_{R}$<br>1931 XYZ and 1964 XYZ<br>1964 XYZ, 1976 u'v 'and 1976 L * a * b *CRI и CQSS/PΔE*$_{ab}$ |
| Receiver | Polychromator, 1024-pixel array of silicon photocells |
| The minimum diameter of the photometric area, *mm* | 15 |
| Signal exposure time, *s* | 0.007 ÷ 4 |
| Measurement time, *s* , no more | 10 |
| Maximum output power of Bluetooth, class 2, *mW* | 2.5 |
| The maximum amount of supported micro SD, *GB* | 2.0 |
| Time of continuous operation of the spectroradiometer, *h* , not less | 8 |
| Spectroradiometer service life, *years* | 7 |

**Mechanical data of the device**

- Ambient temperature: 0 to +40 ° *C*
- Weight of the device with a power supply: no more than 1.0 kg
- Overall dimensions: no more than 250 (L) x 100 (B) x 80 (H) *mm*
- Interface: USB / Bluetooth
- Power supply: built-in battery 3.7 *The*

On the underside of the device there is a threaded socket **(1/4 ″)** for mounting on a tripod

- *Operation manual "TKA-Spectr"*
- *Brief description of YUSUK.73.0001 MI*
- *Utility model patent*