

## Specim FX10 FOV51 lens specifications

### 1. Technical specifications

#### 1.1. General information

Spectral camera	Specim FX10
Wavelength range ( $\mu\text{m}$ )	0.4 - 1.0
Product code	06FOB00010

#### 1.2. Specifications with spectral camera

PARAMETER	VALUE	COMMENT
Nominal working distance (mm)	1000	Working distance used for all specifications
Field of view (deg)	51	Nominal value
Entrance pupil position (mm)	13.7	From the first lens surface
Working distance (mm)	300 - $\infty$	Distance from the object to the first lens surface
Minimum object length (mm)	300	Object length at minimum working distance
Adjustable focus	Yes	Focus can be adjusted and locked
Filter thread	M37.5 x 0.75	
Lens mount	Custom	
Resolution (pix)	2.3	Average over all field points and wavelengths
MTF (%) at 50 lp/mm	19	
Maximum distortion (%)	-11.1	
Minimum relative illumination (%)	90	

#### 1.3. Specifications for lens only (A) and lens with spectral camera (B)

PARAMETER	A	B	COMMENT
Image width (mm)	10.2	8.2	
Effective focal length (mm)	12.0	9.7	At infinite working distance; tolerance $\pm 1\%$
Working F-number	2.3	1.9	
Average transmission (%)	94	-	
Dimensions (mm)	41 x 50	-	Diameter x Length

All specification values given above are valid at the nominal working distance if not stated otherwise.

## 2. Figures

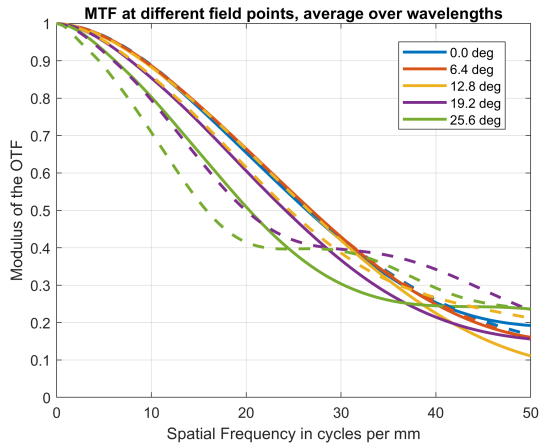


Figure 1. MTF averaged over wavelengths as a function of frequency.

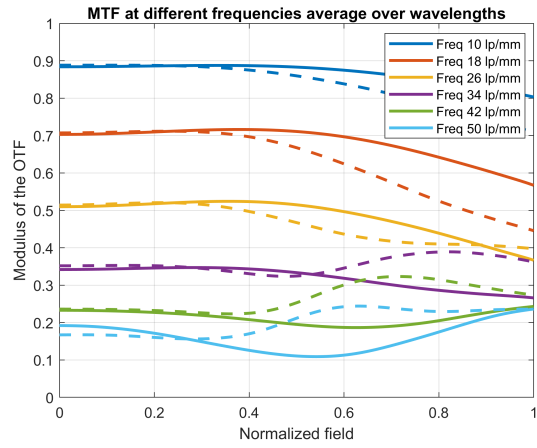


Figure 2. MTF averaged over wavelengths as a function of normalized field.

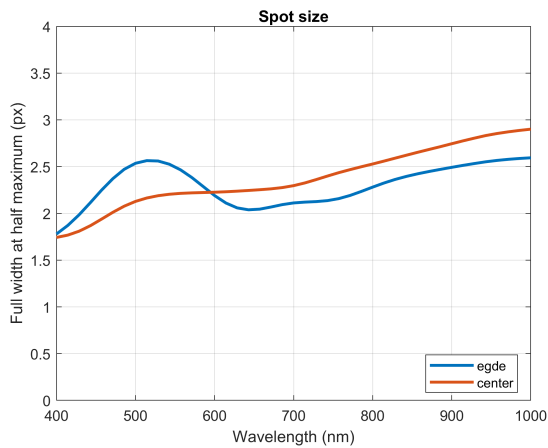


Figure 3. Full width at half maximum of the spatial spot as a function of wavelength.

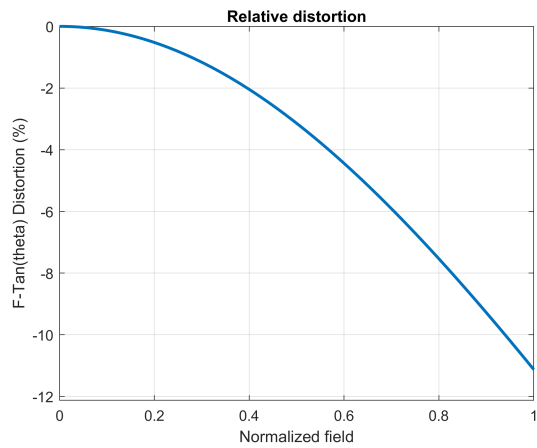


Figure 4. Relative distortion as a function of normalized field.

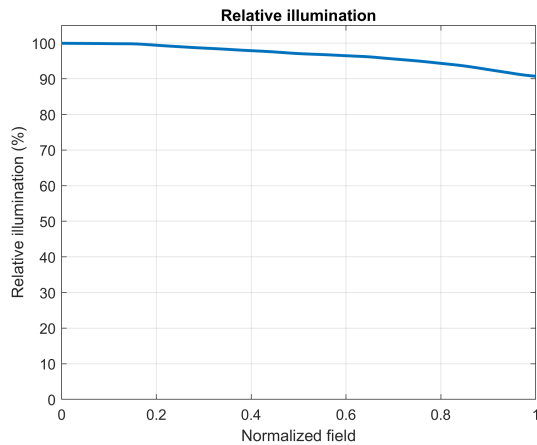


Figure 5. Relative illumination as a function of normalized field.

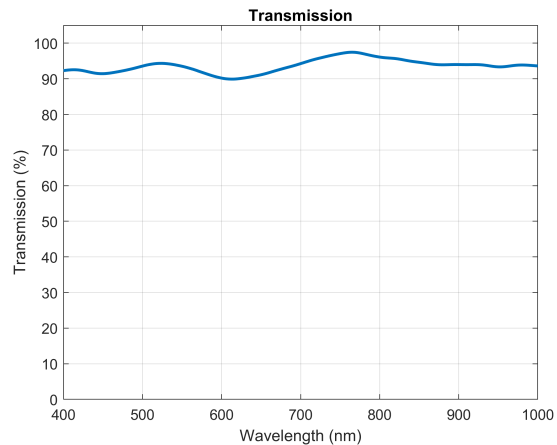


Figure 6. Transmission as a function of wavelength (lens only). Measured data is scaled with respect to the F-numbers ratio.

All specification values given above are valid at the nominal working distance if not stated otherwise.

### 3. Object dimensions and depth of field at different working distances

WORKING DISTANCE (CM)	NOMINAL OBJECT DIMENSIONS		DEPTH OF FIELD (MM)
	ACROSS TRACK / LENGTH (MM)	ALONG TRACK / WIDTH (MM)	
30	300	1.1	30
40	396	1.4	53
50	491	1.8	83
60	587	2.1	120
70	683	2.5	160
80	779	2.8	210
90	875	3.2	270
100	971	3.5	330
150	1450	5.3	780
200	1930	7.0	1400
300	2890	10.5	3800
500	4800	17.5	23000