

# 20 MP Sensor

## 3D Hyperspectral Light Field Camera

# ULTRIS

## 20



### Bringing Light Field Technology to HSI

The Cubert ULTRIS breaks new ground as the first HSI camera that is based on the light field technology. The camera features an Ultra-HD CMOS sensor with 20 MP, making it to the imaging spectrometer with the world-wide highest available resolution. The camera provides a native image resolution of 400x400 px with 100 spectral channels, continuously covering the wavelength range from 450 nm to 850 nm.

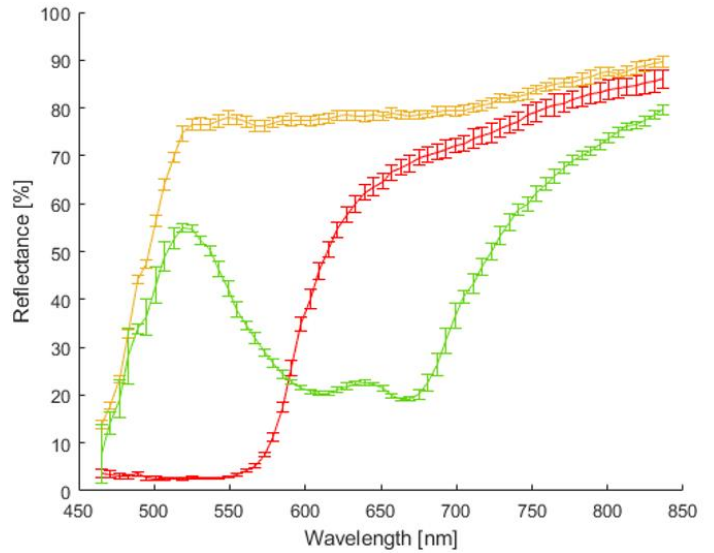
### Ultra HD Sensor Technology

#### Advantages

- 3D hyperspectral snapshot imager (x, y,  $\lambda$ )
- 100 bands, 400\*400 pixel
- VNIR coverage (450-850 nm)
- Based on light field technology
- No pan-sharpening
- No scanning
- Full video functionality



True resolution hyperspectral snapshot image, taken with the ULTRIS 20 out of the window (CIR)



ULTRIS high spectral quality with low noise. The error bars show the standard deviation of averaged pixels of the same surface

### Spectral Properties\*

Wavelength range	Typ. 450 – 850 nm
Spectral sampling	4 nm
Sampled bands	100
Spectral resolution / FWHM	2% of center wavelength
Wavelength accuracy	0.5 nm

### Spatial Properties\*

Spatial resolution	400 * 400 px
Data cube	160,000 spectra / cube

### Optical Properties\*

Field of View (FOV)	Typ. 45°
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### Sensor Properties\*

Detector	Silicon CMOS
Sensor size	20 Megapixel
Radiometric resolution	12 bit
Integration time	1 – 1000 ms
Frame rate	Up to 6 Hz (fps)
Data size (raw)	40 MB / data cube

### Camera Properties\*

Connection	2x GigE
Operation temperature	0 – 40° C
Protection class	up to IP 68
Power consumption	DC 12 V / 10 W
Size (length * diameter)	100 * 100 * 60 mm
Weight	410 g

\*Specs may be subject of changes

## Pioneering Concept

The ULTRIS records an object with a multitude of images, each with its own optical bandpass filter with different center wavelength. This is made possible by combining a continuously variable bandpass filter with a lenslet array.

Applying this concept to the **UHD sensor**, the previously unheard number of **160,000 spectra** is acquired simultaneously.

## What you should know

With its 410g the camera is even more **light-weighted** than the established FireEYE 185, making it ready for an easy handling onboard a **UAV**.

In order to fulfill the requirements of an industrial environment, a special **ruggedized housing** with IP65 ensures a high robustness. Upgrade the ULTRIS to waterproof IP68 and use it **underwater** to a depth of 5m.

UAV

SPECIAL  
OPTICS

UNDERWATER

**cubert**  
REAL-TIME SPECTRAL IMAGING