

# 20 MP Sensor

## 3D Hyperspectral Light Field Camera

# ULTRIS

## 20



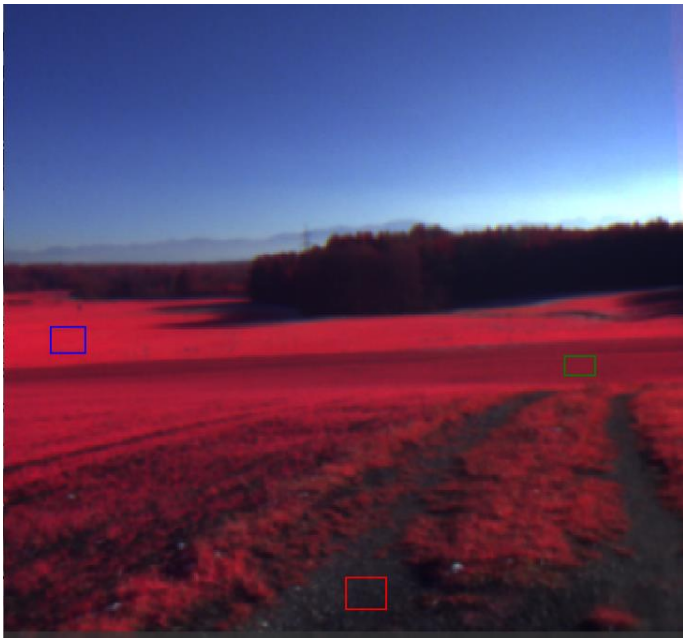
### Bringing Light Field Technology to HSI

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 20 MP sensor, making it the imaging spectrometer with the world-wide highest available resolution. The camera provides a native image resolution of 400x400 pixels with 100 spectral channels, continuously covering the wavelength range from 450 nm to 850 nm.

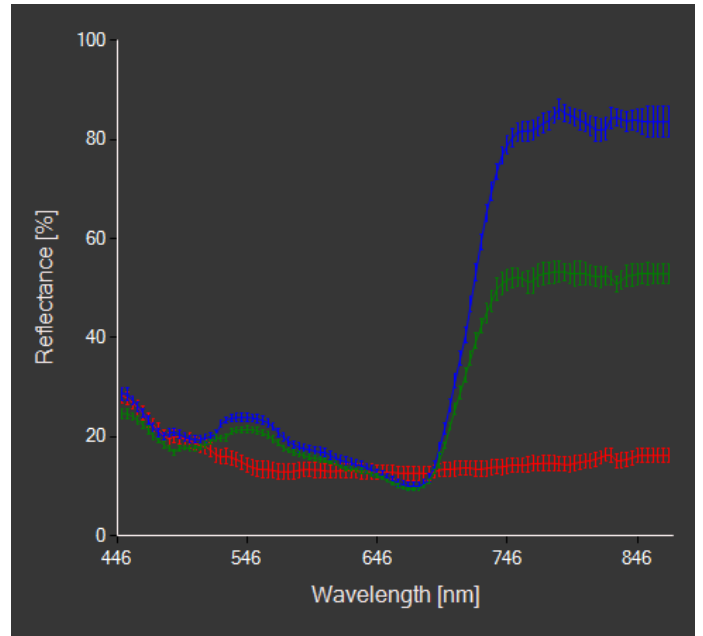
### Ultra HD Sensor Technology

#### 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



ULTRIS true resolution image (CIR). The corresponding spectra inside the drawn boxes are given on the right.



High spectral quality with low noise. The error bars show the standard deviation of all averaged pixels inside each drawn box.

### Spectral Properties\*

Wavelength range	450±10 – 850±10 nm
Spectral sampling	4 nm
Sampled bands	100
Spectral resolution / FWHM	12 nm @ 532 nm
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. 35°
---------------------	----------

### Sensor Properties\*

Detector	Silicon CMOS
Sensor size	20 Megapixel
Radiometric resolution	12 bit
Integration time	0.1 – 1000 ms
Frame rate	Up to 6 Hz (fps)
Data size (raw)	40 MB / data cube

### Camera Properties\*

Connection	2x GigE
Operation temperature	5 – 65° C
Protection class	IP 40 (S20) – IP 68 (U20)
Power consumption	DC 12 V / 10 W
Size (S20)	60 * 60 * 57 mm
Weight (S20)	< 350 g

\*Specs may be subject to change

## Pioneering Concept

The ULTRIS records an object with a multitude of images, each with its own optical bandpass filter with a 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 unprecedented number of **160,000 spectra** is acquired simultaneously.

## What you should know

With its mass of less than 350g, the camera is even more **light-weighted** than the established FirefLEYE 185, making it ready for an easy handling onboard a **UAV**.

To meet the requirements of harsh industrial environment, a special **ruggedized housing** is available with IP65, ensuring a high robustness. Upgrade the ULTRIS to waterproof IP68 and use it **underwater** to a depth of 5m.

Suitable for:

