

Attachment no 1
for the inquiry no 25/SSTPL02/2022
Technical parameters

Order subject: Delivery of 3 Front side Illuminated (FSI) and 2 Back Side Illuminated (BSI) image sensors made in sCMOS technology

Brief description of the device: 3 Front side Illuminated (FSI) and 2 Back Side Illuminated (BSI) image sensors made in sCMOS technology

CPV code and name: 35125100-7 - Sensors

- I. The tenderer's proposal shall meet requirements listed below:
 1. For FSI sensors:
 - Monochrome sensor
 - Resolution: 37MPix – 6144 x 6144 pixels
 - Pixel size: 10µm x 10µm
 - Active area: 61.44mm x 61.44mm
 - Maximum frequency at full resolution: at least 44 frames/s with at least 12 bit signal processing, 14 frames/s with at least 14 bit signal processing
 - Built-in shutter: electronic, "rolling shutter"
 - The ability to read image data using at least 50 pairs of LVDS lines with a frequency of up to 630MHz
 - Support for 4x CMS (Correlated Multiple Sampling) mode
 - Full Well Capacity: 127ke- for the mode with highest capacity
 - Read noise: no more than 5e-
 - Quantum efficiency: better than 71% for 550nm wavelength
 - Dark current: less than 35 e-/pix/s at 25 degrees Celsius and less than 0.01 e-/pix/s at -70 degrees Celsius
 - The ability to read image data by multiplexing data channels: 52/26/14/8 LVDS pairs
 - The package allows it to be used both at room temperature (approx. 25 degrees Celsius) and deeply cooled (approx. -50 degrees Celsius)
 - Pin compatibility with the "Back Side Illuminated" (BSI) version of the same sensor size
 - The cosmetics/blemish corresponding to at least "grade 2": - the sensor is fully functional, but it may have the following defects: maximum 10 damaged columns/rows, and maximum of 1500 total defect pixels
 2. For BSI:
 - Monochrome sensor

- Resolution: 4MPix – 2048 x 2048 pixels
- Pixel size: 6,5 μ m x 6,5 μ m
- Active area: 13,312mm x 13,312mm
- Maximum frequency at full resolution: at least 74 frames/s with at least 11-bit signal processing, 43 frames/s with at least 12-bit signal processing
- Built-in shutter: electronic, "rolling shutter"
- The ability to read image data using 8 or 16 pairs of LVDS lines with a total throughput of 4.8/9.6gbps (depending on the number of pairs) - 600mbps per pair
- Support for 2x CMS (Correlated Multiple Sampling) mode
- Full Well Capacity: 55ke- for the mode with highest capacity
- Read noise: no more than 1,6e⁻
- Quantum efficiency: better than 94% for 550nm, better than 83% for 450nm wavelength
- Dark current: less than 20 e-/pix/s at 20 degrees Celsius and less than 0.1 e-/pix/s at -35 degrees Celsius
- The package allows it to be used both at room temperature (approx. 25 degrees Celsius) and deeply cooled (approx. -30 degrees Celsius)
- The cosmetics/blemish corresponding to at least "grade 1": sensor fully operational but may have the following defects: max. 0 damaged columns/rows, of which max. 0 adjacent columns/rows may be damaged, max. 60 pixels may be damaged, of which no more than 1 pixel group should be present.