

NEW SWIR STARING ARRAYS FOR EARTH OBSERVATION SPACE APPLICATIONS AT LYNRED

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ABSTRACT

LYNRED (formerly Sofradir) is a global leader in designing and manufacturing high quality infrared technologies for aerospace, defense and commercial markets. Its vast portfolio of infrared detectors covers the entire electromagnetic spectrum from near to very far infrared, especially thanks to a well-mastered wavelength tunable MCT technology.

Over the past 20 years, LYNRED has been involved in numerous space applications requiring SWIR detectors for Earth observation like atmosphere chemistry (such as TROPOMI instrument on-board Sentinel 5 precursor satellite) or hyperspectral imaging (such as PRISMA or HYSIS satellites). Most of these instruments used the well-known SATURN detector. These kind of missions are increasing and will keep growing in the near future in order to provide new measurement tools to control, measure and preserve our environment.

Pulled by this trend, the need corresponding to short wavelength infrared detectors is evolving in order to match with these mission's expectations. In particular, spatial and spectral resolutions of instruments are more demanding, resulting in requirements for larger detectors with better radiometric performances.

In this paper, we introduce our new generation of SWIR detectors answering future Earth observation missions. In the first part, we will describe the key requirements to be considered when developing infrared sensors for such applications. We will then present our dedicated space product line based on the mature NGP detector (1024x1024, 15 μ m pixel pitch) that is currently in production and the new COBRA detector proposed in two versions (COBRA-L = 1840x1112 and COBRA-S = 1380x640, 20 μ m pixel pitch). Their state-of-the-art features and main performances will also be detailed. Finally, examples of passive and active detector packages well adapted to these IRFPAs will be proposed.