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Title:

IRS Detector: The large infrared staring array for MWIR up to VLWIR space sounding applications

Abstract:

IRS detector is the large infrared LYNRED staring array which has been specifically designed for Fourier Transform Spectrometry (FTS) sounding applications. Based on building blocks extracted from LYNRED space proven portfolio (HgCdTe photodiode, ROIC CMOS, packaging technologies...), IRS detector is well suited for covering space sounding applications from MWIR up to VLWIR.

The goal of this presentation is to review first the IRS detector design and interfaces characteristics tailored for Meteosat Third Generation (MTG) IRS instrument (designed and developed by TAS/OHB/ESA in the scope of MTG mission (MTG-S Satellite)).

A specific focus on performance and environment robustness will then be realized in light of MTG IRS program end at LYNRED level. This review will highlight the main key figure of merit proving the suitability of IRS detector to high demanding space sounding applications (for example large dynamic range, high SNR/Operability performance, etc...).

Finally, recent activities driven by ESA in the scope of CAIRT instrument (candidate to Earth Explorer 11 mission) have enabled to extend the use case boundaries of IRS detectors in terms of frame rate (from 2.4kHz up to 4.25 kHz) thanks to an increase of the ROIC MasterClock (MCLK) frequency. These last results strengthen even more the relevance of IRS detector for future potential sounding applications.