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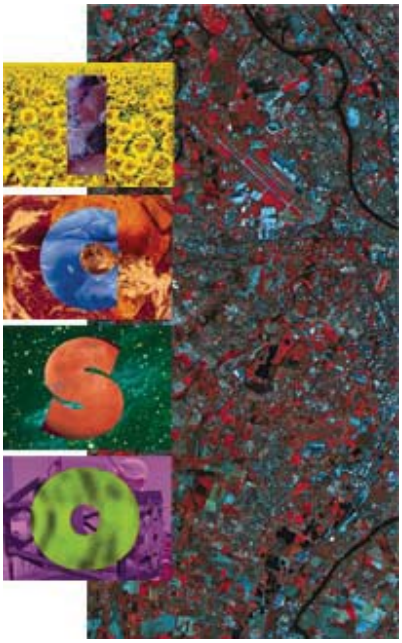

High resolution metric imaging payload

Y. Delclaud

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ABSTRACT

High resolution metric imaging payload

In french: "instrument observation optique haute résolution métrique"

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Alcatel Space Industries has become Europe's leader in the field of high and very high resolution optical payloads, in the frame work of earth observation system able to provide military government with metric images from space. This leadership allowed ALCATEL to propose for the export market, within a French collaboration frame, a complete space based system for metric observation.
The optical payload consists in a classical CASSEGRAIN telescope of a 450 mm aperture, with a focal length of 4.5 m so as to provide, with the associated detection design, the 1m on ground sampling distance. The detection chain, based on SPOT5 products and the video electronic unit are strictly recurrent from SPOT5. The nominal configuration provides 1 meter panchromatic images (0.5 to 0.8 µm broadband) with the TH7834 (12000 x 6.5 µm pixels) space qualified array developed by THOMSON, while an improve configuration equipped with an additional Quadrichrom array from THOMLSON THX 7835 provides also four narrow spectral bands with 2 meters resolution.
The mechanical and thermal architecture of the telescope ensuring internally baffling, mirrors, & detector supports and externally interface with the satellite is composed with highly stable Carbon Carbon structural materials already developed and qualified under civilian programs. The image telemetry is also a nearly recurrent design from SPOT 5.
Those characteristics made this proposal very sound and secure for an export product, since it profits by the several years ALCATEL experience.

After a short recall of the mission issue, the paper will describe the optical payload from the instrument (telescope, detection and video chains) to the added mage telemetry necessary to transmit the data with a high data rate.