# Large Format MWIR and LWIR Detectors at AIM

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AIM's roadmap indicates a wide range of efforts to improve the performance and expand the capability of MCT FPA IR detectors. Emphasis is placed on MWIR and LWIR large-format FPAs, which offer superior spatial resolution required for applications such as rotorcraft pilotage, persistent surveillance or threat level determination in personnel targets. Adding to these benefits, operation in the LWIR spectral range offers superior detection in cluttered battlefield scenery and under adverse visibility conditions as well as short integration times for observation of fast-moving objects.

To put these advantages into practice, AIM is producing on the basis of its well established 640 x 512 pixel, 15 µm pitch staring detector a MWIR and LWIR 1280 x 1024 pixel design with 15 µm pitch size. Benefitting from continuous improvements of traditional liquid phase epitaxy (LPE) and n-on-p array technology, excellent electro-optical performance has been achieved for this new large format detector design. In parallel, the performance of MCT material grown by molecular beam epitaxy (MBE) on GaAs substrates, which is being developed to take advantage of 3rd generation device architecture, is evaluated for this application.

In this paper we will present AIM's MWIR and LWIR detector roadmap for different formats, pixel pitches (e.g.10µm) and operating temperatures and will report electro-optical performance and IR images of MWIR and LWIR FPAs fabricated by both LPE and MBE.

**Keywords:** Infrared Detectors, HgCdTe, large-format, long-wavelength, MBE, LPE

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**Short version (35 – 50 words):**

AIM is producing MCT MWIR and LWIR 1280 x 1024 pixel detectors with 15 µm pitch to take advantage of the benefits of large-format and MWIR and LWIR MCT FPAs. The paper will give an overview of AIM's roadmap and will present electro-optical performance of both LPE and MBE grown MWIR and LWIR MCT Focal Plane Arrays.