

G5 ATCOM Image Enhancement

Thermal Turbulence Mitigation, LACE and Image Stabilization.

SEE MORE WITH LESS

Long-range thermal imagery can be degraded by atmospheric turbulence, low local contrast, and platform vibration. G5 ATCOM combines onboard NVIDIA edge computing with real-time image processing to mitigate turbulence, enhance local contrast through LACE, stabilize imagery, and apply super resolution. The result is sharper, more stable imagery with greater usable detail, even with shorter focal-length optics.

Benefits

- **Cleaner long-range thermal detail:** reduces visible turbulence effects and enhances scene structure.
- **Steadier video:** robust image registration keeps objects in place within the frame.
- **Improved local contrast:** LACE makes low-contrast thermal features easier to distinguish.

Use Cases

- Long-range ground and perimeter surveillance
- Airfield, border and critical-infrastructure monitoring
- Counter Drone and Threat Detection
- Fixed or mobile platforms where jitter degrades usable imagery

TURBULENCE MITIGATION + LACE



UNPROCESSED

Mitigates atmospheric distortion and raises local contrast to reveal finer thermal scene detail.



ATCOM PROCESSED

IMAGE STABILIZATION + LACE



UNPROCESSED

Frame-to-frame registration suppresses jitter and keeps thermal scene content aligned.



ATCOM PROCESSED

Processing shown includes turbulence mitigation, LACE and image stabilization. Results vary with optics, range, atmospheric conditions and platform motion.

How to order: choose TC in the ATCOM field on any HD G5 camera

Talk to your G5 representative about ATCOM integration.

Demonstrated values are source test results, not guaranteed performance. Specifications subject to change without notice.

Processing Modes & Features

TURBULENCE MITIGATION

Multi-frame atmospheric compensation reconstructs scene detail blurred and displaced by turbulence. Frames are aligned, region fused, and deconvolved in real time, recovering resolution that single-frame processing cannot.

- Real-time multi-frame reconstruction at the edge
- Effective on long horizontal paths and heat shimmer
- Strength adjustable to match conditions

LOCAL AREA CONTRAST ENHANCEMENT (LACE)

Adaptive contrast applied per region rather than globally, bringing out low-contrast thermal features without washing out hot or cold extremes elsewhere in the frame.

- Region-adaptive tone mapping preserves full scene dynamic range
- Reveals detail in shadows, foliage and uniform backgrounds
- Tunable enhancement level per deployment

IMAGE STABILIZATION

Electronic frame-to-frame registration removes platform jitter and line-of-sight motion, keeping scene content fixed in the frame for observation and recording.

- Robust registration under low contrast and noise
- Suppresses vibration from masts, vehicles and gimbals
- Works in combination with turbulence mitigation

SUPER RESOLUTION

Multi-frame super resolution exploits sub-pixel motion between frames to synthesize imagery beyond the native detector resolution, extending identification range without new optics.

- Up-samples beyond native detector resolution
- Improves target recognition at extended range
- Selectable output scaling

Selectable Region of Interest (ROI)

User-selectable ROI allows ATCOM processing to be applied only where needed within the scene, optimizing processing for mission-specific areas of interest.

- Real-time processing within the selected ROI
- Configurable for ISR applications, including sky exclusion and center-region processing
- Supports fixed-site, vehicle-mounted and mobile platforms