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Field IQ Executive Brief

Post-Mission Telemetry AAR Support for Defensible Review

(Deterministic • Explainable • Plan-Gated Adherence/Readiness • Human Authority Retained)

What It Is

Field IQ turns post-mission telemetry into an AAR-ready picture: it makes the track legible, surfaces drift/dwell patterns, and—when a plan exists—shows where execution diverged from intent, with evidence you can point to later. Field IQ is post-mission, read-only, and advisory. Humans remain the decision authority.

Applicable anywhere you have post-mission track/position telemetry that can be exported to CSV (e.g., UAS/UAV flight tracks, aircraft training runs, maritime/USV tracks, ground vehicle routes, range test runs, and simulator outputs), and, if desired, provided planned route geometry.

Post-Mission Telemetry → Advisory Outputs (Plan-Gated)

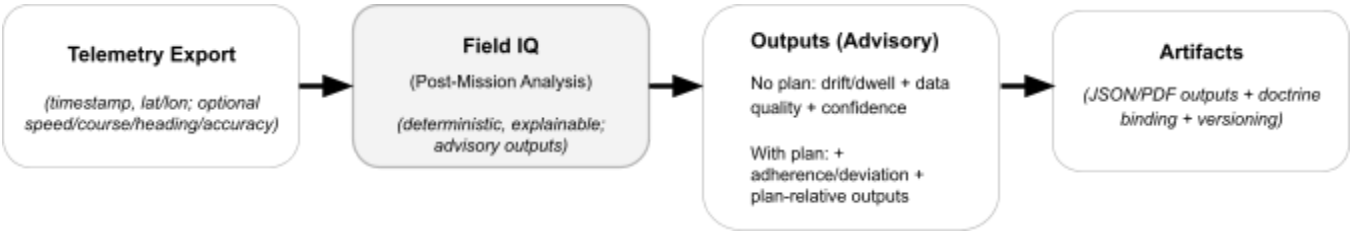

Figure 1 — Post-mission, read-only telemetry interpretation producing advisory outputs; adherence and plan-relative outputs require provided route geometry.

End-to-end inputs today: CSV telemetry + optional KML/KMZ route geometry.

What it produces (review-ready outputs)

- Actual track + motion states (e.g., drift/dwell) with evidence references
- Telemetry quality + confidence (how trustworthy the data is; not a grade)
- Planned vs actual adherence (only when an explicit plan/route geometry is provided)
- Advisory reviewer roll-ups to prioritize attention (not pass/fail; not adjudication)
- Exportable artifacts (e.g., JSON/PDF) designed for defensible post-mission review

What It Is NOT (non-negotiable boundaries)

- **Not autonomous:** does not act, decide, or direct
- **Not real-time:** no live operational guidance; no control-loop integration
- **Not command and control:** no tasking, directives, or operational advisories
- **Not automated grading/adjudication:** no pass/fail, no punitive outcomes
- **Not self-learning/adaptive scoring:** does not self-modify behavior in production
- **Not an instructor/evaluator replacement:** outputs are advisory; humans remain accountable
- **Not safety-of-operations:** not used for safety-of-flight, safety-of-navigation, watchstanding decisions, collision avoidance, mission authorization, or go/no-go

The Simple Mode Gate (Plan vs No-Plan) — How It Actually Works

Field IQ can ingest and process telemetry without a plan, but adherence evaluation (and plan-relative outputs) do not execute without provided route geometry.

If a plan/route geometry IS provided (adherence enabled)

Field IQ can:

- Show planned vs actual and evaluate adherence
- Identify and characterize deviations relative to the plan
- Produce plan-relative outputs (including adherence-based fidelity/readiness where applicable)

If NO plan is available (adherence disabled)

Field IQ can still:

- Ingest telemetry and enforce monotonic timestamps
- Compute data-quality metrics (missing samples %, temporal jitter, continuity)
- Produce confidence based on telemetry quality
- Detect/characterize motion states such as drift/dwell
- Display actual tracks and derived motion metrics

Critical boundary: Without planned route geometry, Field IQ **does not** evaluate route adherence and **does not** produce plan-relative fidelity or readiness outputs.

“Can I Trust It?” — Determinism, Explainability, Defensibility

Deterministic outputs (repeatable)

Same data in → same results out. Every time. Identical inputs produce identical evaluation results and consistent exported artifacts and rendering. This supports consistent review across evaluators and across time.

Explainable findings (evidence-linked)

Findings are tied to telemetry evidence windows/segments, so a reviewer can answer: what happened, where, and why it was flagged.

Traceability & doctrine binding (defensible later)

Plain English: You can show what doctrine governed the output and what telemetry evidence supports it.

Technical: Outputs embed doctrine/config identity and integrity markers (e.g., doctrine signature/hashes) along with versioning (doctrine/config versions and export schema version). This binds outputs to the governing doctrine without exposing proprietary internal parameters.

Deployment & Data Boundary

Local processing inside the customer environment

- Processed locally within the customer environment (customer machine, enclave, or customer-controlled compute)
- Does not require outbound network access at the application level to perform evaluation. Any external connectivity, if present, is determined by customer hosting/monitoring configuration, not by the Field IQ evaluation pipeline.

Retention default

- Default pilot behavior is ephemeral processing
- Retention is defined by customer agreement / deployment policy; long-term retention is not required

Pilot Wedge

A safe evaluation starts with:

1. One CSV telemetry export (`timestamp` in milliseconds + latitude + longitude),

2. One mission context definition (what “good” means), and
3. **If adherence/fidelity/readiness are desired:** the planned route geometry used for planned-vs-actual evaluation.

Pilot shape:

- One mission profile (e.g., harbor approach training, patrol box, SAR pattern, USV test route)
- One dataset source (exports already collected)
- One output package: tracks + drift/dwell + confidence; plus adherence/readiness when plan exists
- One evaluator review loop (SME validation)
- One determinism check (rerun same input → consistent results)

Example success criteria (pick 3):

- Reduced manual stitching time / faster time-to-insight
- Increased evaluator consistency and defensibility of findings
- Evidence-linked findings suitable for debrief
- Demonstrated determinism on repeat runs
- Confidence reflects telemetry quality under imperfect data (graceful degradation)

Bottom Line: Field IQ operates deterministically on available telemetry, degrades gracefully under imperfect data, and explicitly reflects data quality in confidence scoring while preserving human authority.