

Multi-Sensor Fusion Integration Reference

Public Technical Reference

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1 Purpose and public scope

This public reference describes how a multi-sensor airspace-awareness project can be framed around complementary evidence, governed interfaces, and documented validation. It is intended for early conversations about protected-site context, existing systems, integration objectives, and technical-plan preparation.

The document does not provide operating instructions, response execution methods, targeting logic, configuration values, signal-control details, or claims of a particular outcome. Any regulated capability, site permission, authority role, spectrum condition, and electromagnetic-compatibility requirement must be addressed in the written project process.

2 Complementary sensor roles

Multi-sensor design is most useful when each source contributes a distinct reviewed input to a common operating picture.

Source	Public project role
Radar	Early track cues and location context within the approved project design.
Acoustic sensing	Passive context and complementary awareness where applicable.
EO / IR	Visual corroboration and reviewed observation support.
RF identification	Project-assessment input through approved interfaces.
Fusion / C2	Correlation, prioritisation, health monitoring, roles, and event records.

3 Governed integration

An integration plan should define which source systems are present, what information is exchanged, who is accountable for review, and how system status and records are retained. Interfaces to radar, acoustic sensing, EO/IR, and a C2 platform are evaluated against the site's policy, existing network boundaries, and approved technical scope.

The governance layer is designed around accountable roles and auditable information handoff. The final project must document authority, permissions, relevant communications and aviation safeguards, electromagnetic compatibility review, and written acceptance criteria.

4 Project discussion fields

The following fields support early technical planning without substituting for a site survey or written design package.

Discussion field	Reference question
Protected-site context	What boundaries, stakeholders, existing systems, and environmental conditions apply?

Sensor estate	Which radar, acoustic, EO / IR, and C2 assets may need planned interfaces?
Placement and infrastructure	What safe-offset locations, mounting, power, network, and maintenance conditions are available?
Governance	Which approvals, responsible roles, record requirements, and review processes apply?
Validation	What written acceptance criteria and lifecycle-support expectations should be recorded?

5 Validation pathway

1. **Site and stakeholder review.** Establish protected-site context, accountable roles, and safe boundary assumptions.
2. **Interface and compatibility assessment.** Review existing sensors, communications, aviation considerations, and electromagnetic-compatibility conditions.
3. **Authorised integration planning.** Define written interface scope, information handling, accountability, and acceptance criteria.
4. **Written validation and support.** Record verification outcomes, event-log governance, maintenance assumptions, and lifecycle support.

6 Contact

For a technical-solution discussion, please share the protected-site type, existing sensors, integration objectives, and relevant approval path.

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