EELINK Evidence-grade IoT Hardware

Cold-Chain ODM Pre-Qualification Checklist

7 questions to ask before the first hardware supplier conversation

Designed for:

- IoT platform brands evaluating white-label cold-chain hardware
- Pre-RFI supplier screening and technical first calls
- North America / Europe food cold-chain transport programs

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Why This Checklist Exists

A rapid pre-qualification filter for mid-market IoT platform brands before a full ODM evaluation.

Pre-qualification is not due diligence

It is the five-minute conversation that decides whether a sixty-minute technical meeting is worth scheduling. The goal is not to select the supplier; it is to decide whether the supplier belongs on the shortlist.

Buyer journey position

Use it to screen for:

- Temperature accuracy proof beyond datasheet claims
- Battery testing under refrigerated or frozen duty cycles
- Cargo-level evidence, not just location pings
- Traceability-ready data structure and event logs
- Transport durability, certification path, and pilot flexibility

Do not use it as:

- A final supplier selection framework
- A substitute for factory audits or certification records
- A product endorsement
- A compliance guarantee for FSMA 204, GDP, or EN 12830
- A replacement for pilot testing in real routes

The 7-Question Pre-Qualification Scorecard

Score each supplier quickly from 0 to 3. A weak answer in any one critical category should trigger deeper verification before the RFI.

0 — No evidence
Generic claim or no answer

1 — Basic answer
Datasheet-only or sales-level response

2 — Documented
Process, report, or architecture exists

3 — Production proven
Batch data, field proof, and repeatable process

Supplier screening table

#	Question	Evidence to request	Red flag	Score
Q1	Temperature accuracy beyond the datasheet	Calibration method; traceability; batch consistency	Datasheet only	0 1 2 3
Q2	Battery life under real cold-chain duty cycles	-20 / 0 / 25 deg C profiles; reporting interval	Single life number	0 1 2 3
Q3	Cargo-level evidence, not just location pings	Event logs; timestamps; offline retention	Lat/lon + temp only	0 1 2 3
Q4	Payload supports traceability workflows	Shipment ID; lot/batch; handoff event fields	Fixed JSON only	0 1 2 3
Q5	Hardware survives transport handling	Vibration; drop; thermal cycling; condensation	IP rating only	0 1 2 3
Q6	Multi-market certification and regional deployment	FCC/CE/PTCRB path; bands; SIM/eSIM plan	Cannot explain timeline	0 1 2 3
Q7	Scale without rigid product lock-in	Pilot MOQ; firmware scope; white label; dual site	High MOQ, no pilot	0 1 2 3

Q1 Can the Supplier Prove Temperature Accuracy Beyond the Datasheet?

50-word direct answer

Any temperature sensor has a datasheet specification. The pre-qualification question is whether the supplier can prove accuracy across production batches - not just engineering samples.

Quick score focus

Traceable calibration and repeatability across batches are more important than a single accuracy number.

Why it matters

Cold-chain claims depend on temperature evidence. Sensor drift, PCB thermal effects, sampling logic, enclosure design, and batch variation can all shift the readings a customer later depends on.

Evidence to request

- Production calibration method
- Reference standard traceability
- Batch consistency records
- Per-device certificate availability
- Recalibration interval policy

Good answer

Shows calibration process, batch data, and a clear approach to field recalibration.

Red flag

Only repeats a sensor datasheet value with no production validation or calibration method.

Score this question:

- ☐ 0 No evidence
- ☐ 1 Generic answer
- ☐ 2 Documented process
- ☐ 3 Production proof

Q2 Has Battery Life Been Tested Under Real Cold-Chain Duty Cycles?

50-word direct answer

Battery life in cold-chain hardware depends on temperature, reporting interval, GNSS behavior, cellular signal quality, BLE scans, and firmware power management - not just nominal capacity.

Quick score focus

Ask for the conditions behind the number. The number alone is not a specification.

Why it matters

A tracker that looks acceptable at 25 deg C may fail early at frozen temperatures or during weak-signal roaming. Buyers need test curves that match the route, temperature range, and reporting pattern.

Evidence to request

- Battery profiles at -20, 0, and 25 deg C
- Reporting interval assumptions
- GNSS cold-start / warm-start behavior
- Cellular attach and roaming profile
- Low-voltage behavior and alert thresholds

Good answer

Provides battery-life curves by temperature and explains firmware power policy.

Red flag

Gives one battery-life number without temperature, interval, or signal assumptions.

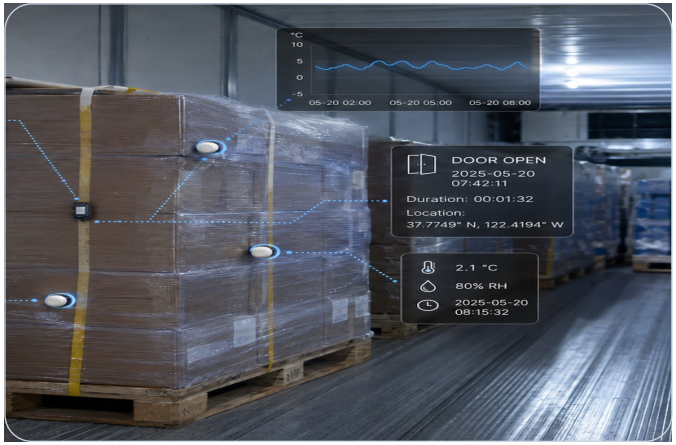
Score this question:

- ☐ 0 No evidence
- ☐ 1 Generic answer
- ☐ 2 Documented process
- ☐ 3 Production proof

Q3 Can the Device Deliver Cargo-Level Evidence, Not Just Location Pings?

50-word direct answer

Location tracking tells where the shipment was. Cargo-level evidence explains what happened to the cargo through timestamps, condition records, event logs, and data continuity.



Why it matters

A GPS dot rarely resolves a rejected load. For food cold-chain operations, claims and audits often depend on a defensible trail of temperature, time, custody, door, and location records.

Evidence to request

- Timestamped event log
- Store-and-forward behavior
- Configurable recording interval
- Door / light / motion triggers where needed
- Data integrity during connectivity gaps

Good answer

Demonstrates event logs and explains how missing connectivity is handled.

Red flag

Streams location and one temperature value with no event structure or offline retention.

Score this question:

- ☐ 0 No evidence
- ☐ 1 Generic answer
- ☐ 2 Documented process
- ☐ 3 Production proof

Q4 Does the Data Payload Support Traceability Workflows?

50-word direct answer

Temperature readings alone do not create traceability. The payload must connect shipment events, lot or batch references, timestamps, and condition records when the platform requires them.

Why it matters

FSMA 204 and customer traceability programs focus on records and handoffs. Hardware does not make a company compliant, but poorly structured hardware data can make compliance workflows harder.

Evidence to request

- Customizable payload fields
- Shipment ID and asset ID mapping
- Lot / batch reference support
- Handoff and event timestamp structure
- API documentation and sample payloads

Quick score focus

Avoid saying hardware provides compliance. It supports the data layer used by compliance workflows.

Good answer

Explains field-level customization and shows payload examples for logistics platforms.

Red flag

A fixed JSON blob with no way to map data to traceability records or events.

Score this question:

A tracker can work perfectly and still fail the buyer if its data cannot be mapped to the platform workflow.

Q5 Can the Hardware Survive Real Transport Handling?

50-word direct answer

IP ratings are not field reliability. Cold-chain hardware must survive loading docks, truck vibration, condensation, freeze-thaw cycles, pallet impacts, and repeated installation handling.

Quick score focus

Durability should be tested against transport, not just against water and dust.

Why it matters

Cold-chain shipments are not laboratory conditions. The enclosure, seal, connector, antenna, and mounting method must continue working after real transport abuse.

Evidence to request

- Random vibration test reports
- Drop test from pallet-height scenarios
- Thermal cycling and condensation tests
- Mounting method validation
- Field failure / RMA history

Good answer

Shows transport-specific tests, not only an IP rating or enclosure material sheet.

Red flag

Uses IP67 as the only durability proof and cannot discuss vibration or freeze-thaw behavior.

Score this question:

- ☐ 0 No evidence
- ☐ 1 Generic answer
- ☐ 2 Documented process
- ☐ 3 Production proof

Q6 Can the ODM Support Multi-Market Certification and Regional Deployment?

50-word direct answer

Cold-chain devices deployed across North America and Europe require RF, safety, and cellular certification planning, plus realistic SIM, roaming, band, and carrier approval strategy.

Why it matters

Certification is not a one-time label. Hardware revisions, regional bands, SIM strategy, and radio modules can affect schedule, cost, and recertification risk.

Evidence to request

- FCC / CE / IC / PTCRB experience
- Certification timeline and lab partners
- Band and modem options
- SIM / eSIM / multi-IMSI approach
- EN 12830 design expectations where relevant

Quick score focus

Ask for the route to certification, not only a logo list.

Good answer

Explains certification path, revision impact, and regional cellular deployment choices.

Red flag

Has certificates for one old design but cannot explain the process for a new program.

Score this question:

- ☐ 0 No evidence
- ☐ 1 Generic answer
- ☐ 2 Documented process
- ☐ 3 Production proof

Q7 Can the Supplier Scale Without Locking the Buyer Into a Rigid Product?

50-word direct answer

A useful ODM partner supports pilot quantities, white-label options, firmware changes, API alignment, and production scale without forcing the buyer into an inflexible standard product.

Why it matters

Mid-market IoT platform brands often need a 100-500 unit pilot before committing to volume. The supplier should support iteration without forcing a full custom hardware program too early.

Evidence to request

- Pilot MOQ and sample policy
- Firmware customization scope
- White-label packaging and labeling
- API and payload flexibility
- Multi-site production or contingency plan

Quick score focus

Flexibility at pilot stage predicts flexibility at scale.

Good answer

Offers a structured pilot path, clear customization boundaries, and scale-up pricing tiers.

Red flag

Requires high MOQ before validation or only permits cosmetic labeling changes.

Score this question:

- ☐ 0 No evidence
- ☐ 1 Generic answer
- ☐ 2 Documented process
- ☐ 3 Production proof

One-Page RFI Template for the First ODM Call

Use this worksheet before asking for a full proposal. It keeps the conversation anchored in cold-chain evidence, not generic tracker features.

Minimum information to send the supplier

- [ ] Target cargo type and temperature range
- [ ] Route type: reefer trailer, container, pallet, RTI, or mixed
- [ ] Required reporting interval and total trip duration
- [ ] Sensor requirements: temperature, humidity, light, shock, motion, door
- [ ] Target markets: North America, EU, Australia, or other regions
- [ ] Battery-life expectation and charging/reuse model
- [ ] Expected pilot volume and estimated annual volume
- [ ] Platform/API requirements and payload constraints

Supplier comparison grid

Question	Supplier A	Supplier B	Supplier C
Q1 Accuracy	0-3	0-3	0-3
Q2 Battery	0-3	0-3	0-3
Q3 Evidence	0-3	0-3	0-3
Q4 Payload	0-3	0-3	0-3
Q5 Durability	0-3	0-3	0-3
Q6 Regional	0-3	0-3	0-3
Q7 Scale	0-3	0-3	0-3
Total	0-3	0-3	0-3

Recommended threshold

Treat scores below 14/21 as high-risk unless a weak area is non-critical for the application.

How Eelink Supports Cold-Chain Hardware Programs

Use the checklist above for any supplier, including Eelink. The right first conversation should verify fit before committing to a full RFI.

Eelink ODM discussion areas

- Cold-chain GPS/cellular tracking hardware design and manufacturing
- White-label and firmware customization for IoT platform brands
- North America / Europe certification planning and carrier approval support
- China + Vietnam manufacturing footprint for supply-chain resilience
- API, data payload, and platform integration discussion before pilot

Download / share this checklist

Use it as a pre-call worksheet with engineering, sourcing, and platform integration teams before supplier selection.

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Source notes

MarketsandMarkets:	Cold Chain Monitoring Market projection cited in article
U.S. FDA:	FSMA 204 Food Traceability Rule and compliance date
NIST / ISO/IEC 17025:	Calibration traceability and laboratory accreditation context
IEC 60529:	IP rating context for enclosure protection
FCC / CE RED / PTCRB / 3GPP:	Regional radio, cellular and certification references

Disclaimer: This document is an educational pre-qualification tool. It is not a product endorsement, compliance guarantee, certification claim, or substitute for factory audits, pilot testing, or legal review.