Compliance sheet — star-crosscheck

Everything a supplier qualification, a legal review or an export check usually asks about star-crosscheck 0.1.3, in one document.

1. Identity

Document	STAR-PKG-STAR-CROSSCHECK-EN · v2.3 · 2026-11-14
Package	star-crosscheck
Version	0.1.3
Capability	star.crosscheck.fabric
Maturity	Released & Verified (RELEASED)
Python	>=3.10
Source commit	dc09f61d
Source	https://github.com/Andrea07072000/S.T.A.R.-/tree/main/packages/star_crosscheck

2. Licence and obligations

Apache License 2.0. You may use, copy, modify and distribute it, also commercially, and you receive a patent licence from the contributors. When you redistribute it: keep the LICENSE file and the copyright notices (and a NOTICE file, if a future version adds one), and state in modified files that you changed them. You may not use the S.T.A.R. name to endorse your product.

3. What it needs at run time

Nothing beyond the Python standard library: it works offline.

4. Integrity

SHA-256 fingerprints of the files published on this website. Check a downloaded file with:

```
python -c "import
hashlib,sys;print(hashlib.sha256(open(sys.argv[1],'rb').read()).hexdigest())" star_crosscheck-
0.1.3-py3-none-any.whl
```

FILE	SHA-256
star_crosscheck-0.1.3-py3-none-any.whl	562344f9e5776d35ae1ce36f129439f2 65ead9d7a7261377f783537a90a59016
star_crosscheck-0.1.3-source.zip	d1965f1d8ec6ca36096a9ce533f2f6ed 35900970a6f942c04a7c0218c439b46c

5. What it does, and its limits

Runs engines of declared lineage (each optionally in its own venv) on the same inputs; AGREE only with >= 2 distinct lineages within tolerance, failed engines never count, published references compared; tamper-evident sha256 evidence bundles.

It compares numbers; it does not decide which engine is right when they disagree, and it does not validate any physical model, only agreement within a tolerance the user chooses. Independence is only as good as the declared lineages: an engine described under the wrong lineage (as happened in campaign XC-006, where S.T.A.R.'s own Lambert solver was described as 'universal variables') defeats the independence check, so every lineage is also classified by hand in the registry. Engines that read the same data file are one witness, not two.

- `crosscheck(quantity, inputs, engines, tolerance, ...)` runs every engine (optionally in its own venv via subprocess + JSON) and returns a verdict: AGREE only if at least two DISTINCT lineages agree within the tolerance.
- Engines of the same lineage count as ONE witness (INSUFFICIENT_INDEPENDENCE when fewer than two lineages remain).
- A failed engine never counts as agreement: verdict DEGRADED, with the error recorded.
- Optional published reference: every engine is also compared with it.
- Every result is an evidence bundle with a sha256 over its content (timings excluded) — tamper-evident.

6. Export, use and certification

The package is published and freely available. That usually takes software out of export-control lists, but not every use of it: read the page on space activities and export control before using it in a controlled programme. It is not certified or qualified for flight; the evidence describes what was tested and how.

7. Citation and bill of materials

```
@software{cavazzini_star_crosscheck_0_1_3,
  author  = {Cavazzini, Andrea},
  title   = {{star-crosscheck}: Cross-solver verification fabric (S.T.A.R.)},
  version = {0.1.3},
  year    = {2026},
  url     = {https://andrea07072000.github.io/S.T.A.R.-/software/star_crosscheck/},
  note    = {Apache-2.0. Source: https://github.com/Andrea07072000/S.T.A.R.-, commit dc09f61d}
}
```

CITATION.cff · BibTeX · SBOM CycloneDX 1.5 · SBOM SPDX 2.3

8. Warranty and liability

Provided "as is", without warranties or conditions of any kind (Apache License 2.0, sections 7 and 8), to the extent the law allows. This never excludes liability that the law does not allow to exclude.

Related: space activities and export control · acceptable use · evidence and limits · licence texts