Compliance sheet — star-lcc

Everything a supplier qualification, a legal review or an export check usually asks about star-lcc 0.1.0, in one document.

1. Identity

Document	STAR-PKG-STAR-LCC-EN · v2.3 · 2026-11-14
Package	star-lcc
Version	0.1.0
Capability	star.geodesy.lambert-conic
Maturity	Released & Verified (RELEASED)
Python	>=3.9
Source commit	dc09f61d
Source	https://github.com/Andrea07072000/S.T.A.R.-/tree/main/packages/star_lcc

2. Licence and obligations

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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_lcc-0.1.0-
py3-none-any.whl
```

FILE	SHA-256
star_lcc-0.1.0-py3-none-any.whl	f879de3fd25d6083a813332a6d9dd3d543b61bb42ff82cc713a2e010a44136d8
star_lcc.py	b6835973a489dbb88814283e40ed14043c356d8738e24491e03540880ce181e1
star_lcc-0.1.0-source.zip	357677778439e0e702e13603b245b6e190b41d61915c39d2b960000374ae14eb

5. What it does, and its limits

Lambert conformal conic projection, forward, inverse and scale factor, for cones in either hemisphere and the tangent cone; within 8e-7 m per Earth radius of PROJ and 7e-6 m of PyGeodesy on 600 cases; reproduces Snyder's published example and refuses degenerate cones.

No false easting or northing, no scale reduction k0 (the 1SP variant with k0 ≠ 1 is not offered), no named national grids. PyGeodesy was compared on 553 of the 600 cases: on the 47 whose longitude and central meridian lie on opposite sides of the date line its result differs by up to 4.7e7 m while PROJ and this module agree; that is recorded as a candidate observation about a third-party library, not verified further and not reported. For a tangent cone PyGeodesy takes the origin latitude as the parallel, so those cases were generated with lat0 = lat1.

- `lcc_forward` and `lcc_inverse`: Snyder's formulas (USGS PP 1395, 15-1 ... 15-11) with the isometric latitude written without cancellation, cones in either hemisphere, equal parallels for the tangent cone, the central meridian anywhere including across the date line. Reproduce Snyder's numerical example to the printed 0.1 m.
- `lcc_scale`: the point scale factor, exactly 1 on the standard parallels. Reproduces Snyder's k = 0.9970171.
- Measured on 600 cones and points on WGS-84 (60 tangent cones): forward within 8e-7 m per Earth radius of plane distance of PROJ and 7e-6 m of PyGeodesy; inverse within 7e-7 m (PROJ's plane coordinates) and 6e-6 m (PyGeodesy's) of the starting point; scale within 1.2e-9 of PROJ (which differentiates numerically).
- Every function returns finite floats or raises `ValueError`: non-numeric, boolean, NaN or infinite input, latitudes beyond ±89, longitudes beyond ±180, standard parallels on opposite sides of the equator or

within 1e-3 deg of it, an ellipsoid outside the stated ranges, a point at or beyond the apex of the cone.

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_lcc_0_1_0,
  author  = {Cavazzini, Andrea},
  title   = {{star-lcc}: Lambert conformal conic projection},
  version = {0.1.0},
  year    = {2026},
  url     = {https://andrea07072000.github.io/S.T.A.R.-/software/star_lcc/},
  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.

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