

# Architecture Performance Report

Target: HGV\_330 — Run: 20251020T154731Z

Run ID	20251020T154731Z
Target ID	HGV_330
Generated	Test Mode

## Executive Dashboard

- **Active Tracking tracking accuracy:** CEP50 = 0.70 km (target <0.1 km)
- **Active Tracking tracking error:** RMSE = 0.72 km (target <0.5 km)
- **Good >=2x Coverage:**

TRACKING ACCURACY	TRACKING ERROR	COVERAGE
<b>0.70 km</b> CEP50	<b>0.72 km</b> RMSE	<b>100 %</b> ≥2 sats

## Summary Metrics

### Filter Performance

Index	RMSE [km]	Bias [km]	Median [km]	P50  err  [km]	P90  err  [km]	P95  err  [km]
X	0.4194	-0.3589	-0.3538	0.3538	0.6403	0.7291
Y	0.2611	-0.1569	-0.1691	0.1997	0.4203	0.482
Z	0.5302	-0.4918	-0.5007	0.5007	0.7354	0.7996
NORM	0.7247	0.6962	0.6951	0.6951	0.9485	1.0154

### Triangulation Performance

Index	RMSE [km]	Bias [km]	Median [km]	P50  err  [km]	P90  err  [km]	P95  err  [km]
X	0.4687	-0.3578	-0.3511	0.3592	0.7463	0.8691
Y	0.3292	-0.1518	-0.157	0.2315	0.5384	0.6245
Z	0.5676	-0.489	-0.4908	0.4908	0.8537	0.947
NORM	0.8063	0.7624	0.7488	0.7488	1.1335	1.2216

### Geometry & Access Statistics

metric	value
coverage_percent	100.0
gaps_count	0.0
coverage_duration_s	636.0
range_km_mean	26553.881
range_km_min	23209.879
range_km_max	30011.63
n_sats	12.0

## Covariance Statistics

Index	mean [km <sup>2</sup> ]	median [km <sup>2</sup> ]	mean [km <sup>3</sup> ]	median [km <sup>3</sup> ]
P_xx	0.095228	0.092175	-	-
P_yy	0.087783	0.087962	-	-
P_zz	0.082093	0.07925	-	-
ellipsoid_volume	-	-	0.109175	0.105426

## Filter Consistency (NIS/NEES)

metric	mean	std	p_within_95	chi2_95_low	chi2_95_high
NIS	2.522	1.9075	0.9451	0.2158	9.3484