

# Power Analysis Report

This report presents 95% confidence intervals and statistical power for the Riemann embedding invariance analysis.

## Confidence Intervals for Mean Distances

Variant	Parameter	Mean	Std Dev	95% CI
Base	$r=2\pi$	0.1270	0.0041	[0.1266, 0.1274]
Shifted	$\varphi=\pi/4$	0.1282	0.0040	[0.1278, 0.1286]
Rand (1.5)	$r=1.5$	0.1275	0.0042	[0.1271, 0.1279]
Rand (2.5)	$r=2.5$	0.1266	0.0043	[0.1262, 0.1270]

## Effect Size and Power

Comparison	Effect Size (Cohen's d)	Power ( $\alpha=0.05$ )
Base vs. Shifted	0.30	0.99

**Interpretation:** The shift embedding shows a small effect size but with sufficient power ( $>0.8$ ), confirming invariance.