

Table 1 – Computational performance and accuracy: normalized computational time, average number of iterations and functions evaluation per frame, mean constraint violations per frame

	Benchmark Case	Time [ms/frame]	N. Iterations	N. Func Evals	$\ \Phi\ $
Cartesian Coordinates (AMD Ryzen 9 5900HX 3.30 GHz up to 4.60GHz)	1	73.07±2.43	7.48±5.79	9.09±6.51	8.30×10^{-14}
	2	63.51±2.23	6.26±5.00	8.07±6.35	2.58×10^{-13}
	3	85.00±2.34	7.86±7.65	10.28±10.05	3.67×10^{-14}
	4	70.00±3.32	6.32±5.83	8.75±6.97	4.02×10^{-14}
	5	72.37±2.40	5.58±2.29	8.35±2.95	2.13×10^{-13}
FCC-GRB (Intel i7-13620H 2.40 GHz up to 4.90GHz)	1	12.79±0.40	6.93±5.27	8.64±5.91	1.74×10^{-15}
	2	12.84±0.40	6.14±4.90	7.88±6.19	1.91×10^{-15}
	3	14.33±0.30	7.94±7.51	9.89±9.72	2.22×10^{-15}
	4	13.18±0.45	5.95±6.01	8.06±7.36	2.25×10^{-15}
	5	15.57±0.35	5.60±2.22	7.21±2.57	1.34×10^{-15}