Fermi ($b = 0.05, \epsilon = 10^{-4}$)		**Naïve (f-s.)**	**QADP ($\delta = 10^{-2}$)**		**QADP ($\delta = 10^{-3}$)**		**QADP ($\delta = 10^{-4}$)**		**QADP ($\delta = 10^{-5}$)**		**QADP ($\delta = 10^{-6}$)**	
Grid size	N ($\lvert\Xi_\omega\rvert$)	CPU$_t$ (s)	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}
50×50	8 (12)	1.66	0.46	6.36e-02	0.35	5.96e-03	0.36	6.49e-04	0.41	6.33e-05	0.52	5.84e-06
	16 (48)	5.40	1.24	5.80e-02	1.03	5.96e-03	1.06	5.92e-04	1.17	5.71e-05	1.50	5.99e-06
	24 (108)	11.59	2.42	5.77e-02	2.13	6.17e-03	2.15	6.33e-04	2.36	5.82e-05	2.88	5.88e-06
	32 (192)	20.24	3.99	5.42e-02	3.55	5.66e-03	3.58	5.89e-04	3.93	6.23e-05	4.77	5.54e-06
$m = 1\,725$	40 (300)	31.13	5.92	5.76e-02	5.40	5.80e-03	5.42	6.04e-04	5.95	5.48e-05	7.38	6.07e-06
75×75	16 (48)	18.53	5.02	6.17e-02	2.96	6.18e-03	2.51	6.10e-04	2.77	6.34e-05	3.40	6.29e-06
	24 (108)	38.02	8.56	6.20e-02	6.18	6.10e-03	5.10	6.22e-04	5.54	6.20e-05	6.75	6.13e-06
	32 (192)	65.87	12.83	6.26e-02	10.45	6.33e-03	8.78	6.50e-04	9.51	5.99e-05	11.40	5.95e-06
	40 (300)	99.72	17.99	6.34e-02	15.75	6.27e-03	13.66	6.18e-04	14.71	6.34e-05	17.26	6.42e-06
$m = 4\,396$	48 (432)	140.98	24.55	6.14e-02	23.48	5.82e-03	21.14	6.01e-04	22.89	6.57e-05	25.91	5.78e-06
100×100	48 (432)	65.09	18.27	6.47e-02	17.46	6.65e-03	15.36	6.32e-04	15.54	6.70e-05	15.63	6.18e-06
	56 (588)	87.72	23.69	6.21e-02	23.35	6.19e-03	23.20	6.31e-04	23.88	6.31e-05	23.91	6.50e-06
	64 (768)	114.31	29.88	6.26e-02	29.78	6.19e-03	30.36	5.97e-04	31.62	5.89e-05	31.63	6.32e-06
	72 (972)	143.97	35.92	6.46e-02	35.41	6.21e-03	36.21	6.27e-04	38.17	6.36e-05	38.39	6.20e-06
$m = 6\,630$	80 (1200)	173.24	41.04	6.41e-02	40.94	6.50e-03	41.81	6.16e-04	44.23	6.11e-05	44.89	6.06e-06
125×125	64 (768)	546.27	85.44	6.74e-02	84.95	6.45e-03	86.34	6.48e-04	90.16	6.29e-05	90.99	6.30e-06
	72 (972)	682.69	102.84	6.43e-02	102.79	6.37e-03	104.19	6.51e-04	108.85	6.18e-05	109.91	6.23e-06
	80 (1200)	838.08	121.16	7.11e-02	121.10	6.42e-03	123.01	6.45e-04	128.47	6.21e-05	129.95	6.24e-06
	88 (1452)	1000.20	141.40	6.50e-02	141.26	6.58e-03	143.23	6.47e-04	149.80	6.40e-05	151.61	6.54e-06
$m = 10\,293$	96 (1728)	1183.65	162.52	6.96e-02	162.65	6.49e-03	165.31	6.44e-04	173.18	6.40e-05	174.69	6.16e-06
150×150	80 (1200)	851.57	152.17	6.49e-02	152.25	6.48e-03	154.07	7.11e-04	159.13	6.62e-05	160.28	6.59e-06
	88 (1452)	1027.58	174.44	6.52e-02	174.99	6.38e-03	176.72	6.59e-04	182.89	6.58e-05	184.58	6.54e-06
	96 (1728)	1202.86	197.99	6.64e-02	198.10	6.53e-03	200.60	6.44e-04	208.30	6.59e-05	209.84	6.42e-06
	104 (2028)	1420.14	226.56	6.53e-02	227.04	6.39e-03	229.91	6.42e-04	238.15	6.46e-05	239.99	6.62e-06
$m = 19\,244$	112 (2352)	1631.76	253.48	6.33e-02	253.73	6.63e-03	256.95	6.60e-04	266.37	6.52e-05	269.03	6.37e-06
175×175	120 (2700)	5195.96	692.09	6.43e-02	691.86	6.64e-03	696.37	6.45e-04	702.28	6.56e-05	705.99	6.43e-06
	128 (3072)	5664.89	699.07	6.70e-02	699.88	6.48e-03	700.64	6.45e-04	706.82	6.53e-05	707.99	6.89e-06
	136 (3468)	6308.09	761.76	6.38e-02	766.24	6.70e-03	770.59	6.45e-04	774.74	6.59e-05	769.88	6.67e-06
	144 (3888)	7055.11	827.18	6.42e-02	821.01	6.63e-03	827.81	6.77e-04	835.63	6.54e-05	837.83	6.52e-06
$m = 23\,954$	152 (4332)	7970.03	946.23	6.47e-02	941.67	6.65e-03	946.08	6.41e-04	956.98	6.67e-05	961.12	6.53e-06
200×200	208 (8112)	4738.73	770.94	6.74e-02	772.25	6.51e-03	776.57	6.60e-04	788.12	6.52e-05	787.60	6.46e-06
	216 (8748)	5078.27	808.64	6.69e-02	811.83	6.58e-03	815.33	7.04e-04	828.19	7.15e-05	826.84	6.75e-06
	224 (9408)	5439.96	859.24	6.99e-02	859.85	6.66e-03	864.98	6.56e-04	876.58	6.52e-05	876.40	6.56e-06
	232 (10092)	5929.19	919.99	7.05e-02	920.66	6.56e-03	927.59	6.69e-04	940.79	6.53e-05	938.57	6.45e-06
$m = 32\,612$	240 (10800)	6265.75	968.17	6.66e-02	971.65	6.49e-03	977.28	6.54e-04	990.13	6.61e-05	989.50	6.39e-06

Table 1: Comparisons between naïve (without QADP) and enhanced (with QADP) from-scratch methods to perform 1 000 network evaluations consisting of N randomly distributed sonobuoys. The different evaluations are carried out on the same network, to ensure a fair comparison. Here using **Fermi** function (transition curve) with $\mathbf{b = 0.05}$, $\epsilon = \mathbf{10^{-4}}$ and for different sampling levels (δ). For QADP methods, CPU times include the pre-processing procedure used to construct the look-up table. err_{max} corresponds to the maximum error encountered in terms of probability points on all the CPDs of a network and over all the evaluations (worst-case scenario approach).

Fermi ($b = 0.1, \epsilon = 10^{-4}$)		**Naïve (f-s.)**	**QADP ($\delta = 10^{-2}$)**		**QADP ($\delta = 10^{-3}$)**		**QADP ($\delta = 10^{-4}$)**		**QADP ($\delta = 10^{-5}$)**		**QADP ($\delta = 10^{-6}$)**	
Grid size	N ($\lvert\Xi_\omega\rvert$)	CPU$_t$ (s)	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}
50×50	8 (12)	1.72	0.42	3.22e-02	0.35	3.07e-03	0.36	3.16e-04	0.42	3.23e-05	0.66	3.15e-06
	16 (48)	5.99	1.28	3.12e-02	1.08	2.95e-03	1.10	3.21e-04	1.24	3.18e-05	1.91	3.14e-06
	24 (108)	12.31	2.51	2.87e-02	2.15	2.87e-03	2.20	3.01e-04	2.45	2.93e-05	3.52	3.25e-06
	32 (192)	20.88	4.10	3.29e-02	3.62	2.84e-03	3.66	2.95e-04	4.05	2.93e-05	5.64	2.95e-06
$m = 1\,725$	40 (300)	31.60	6.19	2.93e-02	5.58	2.76e-03	5.56	2.89e-04	6.19	3.08e-05	8.71	3.15e-06
75×75	16 (48)	18.61	5.07	3.21e-02	3.01	3.34e-03	2.57	3.20e-04	2.92	3.20e-05	4.17	3.15e-06
	24 (108)	38.04	8.64	3.17e-02	6.23	3.23e-03	5.20	3.23e-04	5.82	3.07e-05	8.27	3.24e-06
	32 (192)	65.36	12.92	3.29e-02	10.50	3.04e-03	8.91	3.14e-04	9.94	3.04e-05	13.76	3.26e-06
	40 (300)	101.52	19.19	3.31e-02	17.82	3.33e-03	16.40	3.37e-04	18.35	3.73e-05	24.01	3.02e-06
$m = 4\,396$	48 (432)	147.64	27.31	3.01e-02	26.71	3.12e-03	25.65	3.20e-04	28.08	3.09e-05	35.69	3.14e-06
100×100	48 (432)	66.99	19.33	3.19e-02	19.11	3.18e-03	18.91	3.23e-04	19.89	3.22e-05	20.04	3.14e-06
	56 (588)	89.83	24.60	3.30e-02	24.46	3.19e-03	24.73	3.27e-04	26.38	3.55e-05	26.83	3.16e-06
	64 (768)	113.03	30.14	3.36e-02	30.01	3.24e-03	30.56	3.19e-04	32.79	3.23e-05	33.35	3.22e-06
	72 (972)	140.66	35.69	3.25e-02	35.56	3.14e-03	36.40	3.25e-04	39.14	3.20e-05	39.90	3.26e-06
$m = 6\,630$	80 (1200)	173.25	42.47	3.32e-02	42.34	3.23e-03	43.09	3.19e-04	46.45	3.25e-05	47.78	3.11e-06
125×125	64 (768)	540.68	85.19	3.29e-02	85.29	3.34e-03	87.76	3.19e-04	91.17	3.32e-05	91.97	3.30e-06
	72 (972)	678.88	102.59	3.28e-02	104.28	3.32e-03	105.17	3.27e-04	109.91	3.28e-05	111.35	3.30e-06
	80 (1200)	831.49	121.35	3.37e-02	121.30	3.16e-03	123.86	3.37e-04	128.98	3.19e-05	131.36	3.28e-06
	88 (1452)	988.97	140.99	3.40e-02	140.88	3.22e-03	143.58	3.34e-04	149.75	3.14e-05	152.71	3.21e-06
$m = 10\,293$	96 (1728)	1157.43	161.16	3.20e-02	161.18	3.17e-03	164.46	3.24e-04	172.04	3.19e-05	175.68	3.52e-06
150×150	80 (1200)	836.87	149.17	3.46e-02	149.03	3.34e-03	152.80	3.34e-04	158.56	3.30e-05	163.27	3.30e-06
	88 (1452)	986.87	170.87	3.40e-02	170.99	3.49e-03	175.15	3.35e-04	182.11	3.40e-05	188.08	3.31e-06
	96 (1728)	1172.00	196.54	3.39e-02	196.42	3.29e-03	201.01	3.35e-04	211.46	3.46e-05	217.67	3.38e-06
	104 (2028)	1392.84	224.72	3.24e-02	224.61	3.21e-03	229.51	3.28e-04	239.74	3.24e-05	249.16	3.28e-06
$m = 19\,244$	112 (2352)	1587.29	250.31	3.28e-02	250.31	3.39e-03	256.17	3.27e-04	267.50	3.37e-05	278.20	3.32e-06
175×175	120 (2700)	5071.28	668.72	3.34e-02	668.26	3.31e-03	676.13	3.49e-04	681.18	3.55e-05	684.94	3.26e-06
	128 (3072)	5723.41	730.72	3.30e-02	731.56	3.55e-03	737.09	3.34e-04	743.62	3.51e-05	750.04	3.34e-06
	136 (3468)	6364.73	824.26	3.45e-02	824.85	3.33e-03	831.93	3.30e-04	840.55	3.35e-05	847.80	3.47e-06
	144 (3888)	7166.17	910.95	3.32e-02	907.74	3.52e-03	913.04	3.39e-04	920.39	3.35e-05	926.56	3.23e-06
$m = 23\,954$	152 (4332)	7995.13	980.63	3.31e-02	965.31	3.53e-03	969.72	3.61e-04	980.59	3.27e-05	997.69	3.37e-06
200×200	208 (8112)	4696.04	758.69	3.69e-02	760.19	3.40e-03	770.96	3.33e-04	782.67	3.23e-05	778.88	3.37e-06
	216 (8748)	5020.97	803.33	3.30e-02	805.74	3.35e-03	814.00	3.33e-04	828.82	3.32e-05	824.69	3.44e-06
	224 (9408)	5403.42	855.07	3.44e-02	856.84	3.30e-03	866.62	3.34e-04	880.46	3.30e-05	877.07	3.31e-06
	232 (10092)	5738.42	907.06	3.29e-02	908.51	3.36e-03	919.06	3.32e-04	934.79	3.64e-05	931.15	3.33e-06
$m = 32\,612$	240 (10800)	6345.78	1055.38	3.45e-02	1055.54	3.63e-03	1067.66	3.27e-04	1079.27	3.28e-05	1098.49	3.36e-06

Table 2: Comparisons between naïve (without QADP) and enhanced (with QADP) from-scratch methods to perform 1 000 network evaluations consisting of N randomly distributed sonobuoys. The different evaluations are carried out on the same network, to ensure a fair comparison. Here using **Fermi** function (transition curve) with $\mathbf{b = 0.1}$, $\epsilon = \mathbf{10^{-4}}$ and for different sampling levels (δ). For QADP methods, CPU times include the pre-processing procedure used to construct the look-up table. err_{max} corresponds to the maximum error encountered in terms of probability points on all the CPDs of a network and over all the evaluations (worst-case scenario approach).

Fermi ($b = 0.2, \epsilon = 10^{-4}$)		**Naïve (f-s.)**	**QADP ($\delta = 10^{-2}$)**		**QADP ($\delta = 10^{-3}$)**		**QADP ($\delta = 10^{-4}$)**		**QADP ($\delta = 10^{-5}$)**		**QADP ($\delta = 10^{-6}$)**	
Grid size	N ($\lvert\Xi_\omega\rvert$)	CPU$_t$ (s)	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}
50×50	8 (12)	1.88	0.44	1.57e-02	0.35	1.65e-03	0.38	1.55e-04	0.47	1.57e-05	3.56	1.63e-06
	16 (48)	5.94	1.32	1.60e-02	1.11	1.60e-03	1.14	1.61e-04	1.32	1.58e-05	4.82	1.61e-06
	24 (108)	12.42	2.62	1.64e-02	2.25	1.49e-03	2.29	1.47e-04	2.63	1.54e-05	6.46	1.61e-06
	32 (192)	21.20	4.32	1.47e-02	3.80	1.50e-03	3.84	1.50e-04	4.38	1.41e-05	8.67	1.55e-06
$m = 1\,725$	40 (300)	31.79	6.49	1.48e-02	5.81	1.55e-03	5.82	1.39e-04	6.65	1.38e-05	11.74	1.51e-06
75×75	16 (48)	19.42	5.31	1.66e-02	3.08	1.82e-03	2.88	1.64e-04	3.75	1.65e-05	4.97	1.70e-06
	24 (108)	40.06	9.33	1.61e-02	6.86	1.63e-03	6.05	1.58e-04	7.55	1.65e-05	10.14	1.68e-06
	32 (192)	68.36	14.18	1.67e-02	12.67	1.60e-03	11.12	1.67e-04	13.14	1.58e-05	17.40	1.64e-06
	40 (300)	103.57	20.28	1.59e-02	19.60	1.59e-03	18.26	1.63e-04	20.71	1.60e-05	27.36	1.58e-06
$m = 4\,396$	48 (432)	147.00	27.33	1.62e-02	26.86	1.53e-03	26.21	1.60e-04	29.81	1.52e-05	39.44	1.62e-06
100×100	48 (432)	66.92	19.63	1.71e-02	19.47	1.70e-03	19.68	1.69e-04	21.23	1.64e-05	23.04	1.61e-06
	56 (588)	95.07	28.72	1.62e-02	28.24	1.65e-03	28.36	1.68e-04	31.02	1.70e-05	33.79	1.65e-06
	64 (768)	123.34	39.15	1.65e-02	38.52	1.59e-03	38.77	1.75e-04	42.22	1.63e-05	45.82	1.66e-06
	72 (972)	149.59	44.67	1.65e-02	44.01	1.57e-03	44.34	1.73e-04	48.34	1.72e-05	53.48	1.58e-06
$m = 6\,630$	80 (1200)	181.09	51.11	1.64e-02	50.39	1.59e-03	50.70	1.61e-04	55.57	1.62e-05	62.16	1.64e-06
125×125	64 (768)	529.69	85.49	1.69e-02	85.52	1.61e-03	87.99	1.62e-04	94.18	1.65e-05	95.00	1.77e-06
	72 (972)	666.37	103.82	1.68e-02	103.55	1.64e-03	106.13	1.60e-04	113.80	1.62e-05	114.99	1.68e-06
	80 (1200)	813.77	121.87	1.64e-02	121.85	1.60e-03	125.41	1.74e-04	134.73	1.64e-05	136.86	1.63e-06
	88 (1452)	978.41	143.06	1.68e-02	143.32	1.68e-03	146.93	1.66e-04	157.53	1.61e-05	160.03	1.64e-06
$m = 10\,293$	96 (1728)	1153.00	164.22	1.62e-02	164.32	1.60e-03	168.52	1.62e-04	180.46	1.65e-05	184.36	1.62e-06
150×150	80 (1200)	817.05	148.99	1.68e-02	149.19	1.72e-03	154.43	1.69e-04	162.69	1.65e-05	163.65	1.68e-06
	88 (1452)	994.35	173.48	1.67e-02	173.45	1.74e-03	180.00	1.67e-04	189.76	1.67e-05	191.28	1.65e-06
	96 (1728)	1176.76	199.51	1.65e-02	199.50	1.70e-03	206.71	1.65e-04	218.16	1.64e-05	220.70	1.67e-06
	104 (2028)	1377.63	225.84	1.67e-02	226.56	1.64e-03	234.28	1.65e-04	247.14	1.76e-05	250.85	1.68e-06
$m = 19\,244$	112 (2352)	1597.93	255.60	1.65e-02	256.16	1.61e-03	264.96	1.67e-04	278.85	1.80e-05	283.87	1.73e-06
175×175	120 (2700)	4983.97	644.86	1.72e-02	639.85	1.68e-03	643.97	1.68e-04	661.26	1.74e-05	664.64	1.72e-06
	128 (3072)	5689.98	744.46	1.69e-02	741.78	1.70e-03	746.11	1.68e-04	760.82	1.65e-05	765.99	1.69e-06
	136 (3468)	6436.77	839.09	1.64e-02	838.12	1.67e-03	841.68	1.72e-04	858.33	1.67e-05	862.42	1.68e-06
	144 (3888)	7190.31	915.26	1.64e-02	916.29	1.76e-03	920.36	1.69e-04	937.45	1.76e-05	939.78	1.77e-06
$m = 23\,954$	152 (4332)	8008.07	984.99	1.72e-02	983.20	1.70e-03	988.73	1.64e-04	1007.22	1.65e-05	1014.53	1.67e-06
200×200	208 (8112)	4767.85	839.94	1.70e-02	839.68	1.69e-03	853.84	1.75e-04	864.93	1.65e-05	875.10	1.76e-06
	216 (8748)	5160.37	893.65	1.75e-02	893.05	1.76e-03	908.23	1.83e-04	919.69	1.70e-05	927.06	1.66e-06
	224 (9408)	5529.09	933.93	1.70e-02	924.72	1.71e-03	938.75	1.69e-04	960.60	1.67e-05	971.40	1.67e-06
	232 (10092)	5928.55	977.21	1.68e-02	961.99	1.69e-03	977.20	1.72e-04	992.45	1.69e-05	1024.99	1.66e-06
$m = 32\,612$	240 (10800)	6196.43	1004.18	1.75e-02	1001.88	1.65e-03	1009.35	1.74e-04	1027.95	1.83e-05	1062.37	1.69e-06

Table 3: Comparisons between naïve (without QADP) and enhanced (with QADP) from-scratch methods to perform 1 000 network evaluations consisting of N randomly distributed sonobuoys. The different evaluations are carried out on the same network, to ensure a fair comparison. Here using **Fermi** function (transition curve) with $\mathbf{b = 0.2}$, $\epsilon = \mathbf{10^{-4}}$ and for different sampling levels (δ). For QADP methods, CPU times include the pre-processing procedure used to construct the look-up table. err_{max} corresponds to the maximum error encountered in terms of probability points on all the CPDs of a network and over all the evaluations (worst-case scenario approach).

Fermi ($b = 0.4, \epsilon = 10^{-4}$)		**Naïve (f-s.)**	**QADP ($\delta = 10^{-2}$)**		**QADP ($\delta = 10^{-3}$)**		**QADP ($\delta = 10^{-4}$)**		**QADP ($\delta = 10^{-5}$)**		**QADP ($\delta = 10^{-6}$)**	
Grid size	N ($\lvert\Xi_\omega\rvert$)	CPU$_t$ (s)	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}
50×50	8 (12)	2.02	0.48	8.20e-03	0.38	8.27e-04	0.41	8.20e-05	0.51	8.13e-06	0.74	8.04e-07
	16 (48)	5.92	1.39	7.89e-03	1.18	7.83e-04	1.25	7.60e-05	1.45	7.90e-06	2.20	7.95e-07
	24 (108)	12.66	2.81	7.08e-03	2.40	7.44e-04	2.46	7.69e-05	2.90	8.06e-06	4.32	7.69e-07
	32 (192)	21.81	4.69	7.53e-03	4.06	7.74e-04	4.15	7.76e-05	4.93	7.84e-06	7.29	7.81e-07
$m = 1\,725$	40 (300)	32.03	6.93	6.82e-03	6.18	7.19e-04	6.25	6.91e-05	7.43	7.32e-06	10.90	7.32e-07
75×75	16 (48)	19.64	5.58	8.14e-03	3.32	8.21e-04	3.16	8.38e-05	4.68	8.12e-06	6.52	8.44e-07
	24 (108)	40.08	9.85	8.34e-03	7.55	8.11e-04	6.79	8.06e-05	9.30	8.24e-06	13.42	8.41e-07
	32 (192)	69.00	15.10	8.01e-03	13.61	8.09e-04	12.47	7.94e-05	16.15	8.09e-06	23.69	8.17e-07
	40 (300)	100.94	20.63	7.81e-03	19.27	7.56e-04	17.59	7.73e-05	21.92	7.59e-06	34.09	8.23e-07
$m = 4\,396$	48 (432)	143.15	27.98	8.10e-03	27.31	7.72e-04	26.18	7.61e-05	31.81	7.87e-06	48.70	7.54e-07
100×100	48 (432)	73.52	25.75	8.56e-03	24.91	8.35e-04	24.45	8.43e-05	27.65	8.66e-06	33.68	8.24e-07
	56 (588)	94.68	31.78	8.32e-03	31.07	8.05e-04	31.47	8.27e-05	35.90	8.59e-06	43.00	8.30e-07
	64 (768)	119.60	38.66	8.36e-03	37.89	8.08e-04	38.78	8.34e-05	44.52	8.32e-06	53.15	8.16e-07
	72 (972)	146.27	44.99	8.10e-03	44.21	8.03e-04	45.20	8.20e-05	52.16	8.28e-06	62.53	8.09e-07
$m = 6\,630$	80 (1200)	178.57	52.78	8.26e-03	51.81	8.12e-04	53.16	7.99e-05	61.45	8.61e-06	73.93	8.54e-07
125×125	64 (768)	523.87	87.35	8.42e-03	87.37	8.14e-04	90.43	8.31e-05	98.07	8.20e-06	110.03	8.85e-07
	72 (972)	660.03	105.96	8.31e-03	106.29	8.21e-04	110.26	8.25e-05	120.37	8.49e-06	134.97	8.52e-07
	80 (1200)	810.00	125.99	8.01e-03	126.29	8.09e-04	130.90	8.55e-05	143.25	7.97e-06	161.11	8.27e-07
	88 (1452)	971.57	147.37	8.14e-03	148.00	8.29e-04	152.91	8.21e-05	166.61	8.29e-06	188.02	7.91e-07
$m = 10\,293$	96 (1728)	1147.49	169.79	8.27e-03	170.37	8.09e-04	176.26	7.75e-05	191.48	8.01e-06	217.20	8.28e-07
150×150	80 (1200)	825.10	153.90	8.71e-03	153.69	8.63e-04	160.27	8.42e-05	174.88	8.28e-06	179.02	8.51e-07
	88 (1452)	996.33	180.13	8.28e-03	180.03	8.16e-04	187.67	8.65e-05	204.35	8.68e-06	211.35	8.23e-07
	96 (1728)	1176.00	206.43	8.45e-03	206.47	8.62e-04	214.66	8.20e-05	234.03	8.77e-06	243.64	8.31e-07
	104 (2028)	1372.96	234.48	8.47e-03	234.75	8.22e-04	243.88	8.29e-05	263.51	8.31e-06	276.75	8.43e-07
$m = 19\,244$	112 (2352)	1601.25	265.65	8.22e-03	266.40	8.29e-04	276.52	8.18e-05	297.17	8.20e-06	314.55	8.30e-07
175×175	120 (2700)	4904.38	618.58	8.31e-03	621.03	8.90e-04	639.69	8.44e-05	656.65	8.56e-06	675.53	8.43e-07
	128 (3072)	5684.68	765.20	8.61e-03	766.18	8.33e-04	779.31	8.56e-05	789.84	8.44e-06	804.21	8.54e-07
	136 (3468)	6407.87	852.93	8.72e-03	853.21	8.57e-04	867.69	8.54e-05	877.27	8.51e-06	894.51	8.55e-07
	144 (3888)	7163.17	928.16	8.81e-03	927.95	8.53e-04	945.16	8.50e-05	953.85	8.98e-06	976.91	8.29e-07
$m = 23\,954$	152 (4332)	8000.25	1011.61	8.86e-03	1008.74	8.38e-04	1022.64	8.27e-05	1027.95	8.52e-06	1062.79	8.44e-07
200×200	208 (8112)	4699.57	843.50	8.83e-03	847.38	8.73e-04	867.77	8.61e-05	879.55	8.84e-06	929.55	8.64e-07
	216 (8748)	5102.83	899.01	8.43e-03	897.35	8.34e-04	923.26	8.22e-05	936.74	8.60e-06	989.00	8.52e-07
	224 (9408)	5522.07	954.41	8.93e-03	955.31	8.86e-04	965.93	8.40e-05	975.31	8.43e-06	1030.11	8.70e-07
	232 (10092)	5833.57	1009.27	8.44e-03	1005.39	8.18e-04	1014.60	8.53e-05	1023.40	8.23e-06	1096.05	9.13e-07
$m = 32\,612$	240 (10800)	6372.73	1069.71	8.60e-03	1066.91	8.37e-04	1078.27	8.71e-05	1082.19	8.66e-06	1146.69	8.05e-07

Table 4: Comparisons between naïve (without QADP) and enhanced (with QADP) from-scratch methods to perform 1 000 network evaluations consisting of N randomly distributed sonobuoys. The different evaluations are carried out on the same network, to ensure a fair comparison. Here using **Fermi** function (transition curve) with $\mathbf{b = 0.4}$, $\epsilon = \mathbf{10^{-4}}$ and for different sampling levels (δ). For QADP methods, CPU times include the pre-processing procedure used to construct the look-up table. err_{max} corresponds to the maximum error encountered in terms of probability points on all the CPDs of a network and over all the evaluations (worst-case scenario approach).

Fermi ($b = 0.8, \epsilon = 10^{-4}$)		**Naïve (f-s.)**	**QADP ($\delta = 10^{-2}$)**		**QADP ($\delta = 10^{-3}$)**		**QADP ($\delta = 10^{-4}$)**		**QADP ($\delta = 10^{-5}$)**		**QADP ($\delta = 10^{-6}$)**	
Grid size	N ($\lvert\Xi_\omega\rvert$)	CPU$_t$ (s)	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}
50×50	8 (12)	1.94	0.49	4.04e-03	0.40	4.13e-04	0.45	4.10e-05	0.60	4.13e-06	1.06	4.14e-07
	16 (48)	6.32	1.54	3.98e-03	1.27	3.97e-04	1.38	3.87e-05	1.72	4.09e-06	3.07	3.83e-07
	24 (108)	13.36	3.11	3.77e-03	2.64	3.58e-04	2.80	3.79e-05	3.48	3.98e-06	5.94	3.70e-07
	32 (192)	22.08	5.03	3.36e-03	4.38	3.42e-04	4.55	3.82e-05	5.70	3.43e-06	9.55	4.04e-07
$m = 1\,725$	40 (300)	33.22	7.51	3.35e-03	6.66	3.05e-04	6.92	3.92e-05	8.83	3.29e-06	14.72	3.68e-07
75×75	16 (48)	19.12	5.77	4.34e-03	3.48	4.13e-04	3.48	4.09e-05	5.72	4.05e-06	8.93	4.21e-07
	24 (108)	39.26	10.13	4.04e-03	7.59	3.97e-04	7.44	4.09e-05	11.53	3.95e-06	18.40	4.02e-07
	32 (192)	67.26	15.76	3.85e-03	14.53	3.65e-04	14.02	3.97e-05	20.07	3.88e-06	31.88	3.80e-07
	40 (300)	103.93	23.06	3.68e-03	22.95	3.53e-04	23.92	3.67e-05	32.53	3.82e-06	50.64	3.60e-07
$m = 4\,396$	48 (432)	146.50	31.38	4.10e-03	31.29	3.65e-04	32.77	3.89e-05	43.39	3.67e-06	70.46	3.55e-07
100×100	48 (432)	73.31	26.69	4.17e-03	25.95	4.14e-04	26.45	4.10e-05	31.74	4.23e-06	36.13	4.15e-07
	56 (588)	95.93	33.49	4.47e-03	32.79	4.08e-04	34.53	4.26e-05	41.55	4.24e-06	48.14	4.08e-07
	64 (768)	118.80	40.37	4.13e-03	39.63	4.09e-04	41.96	4.09e-05	50.51	4.03e-06	59.94	4.04e-07
	72 (972)	146.24	47.37	4.04e-03	46.64	4.03e-04	49.45	3.86e-05	59.48	3.97e-06	72.45	4.04e-07
$m = 6\,630$	80 (1200)	175.41	55.35	4.02e-03	54.51	4.03e-04	57.65	4.13e-05	68.86	4.10e-06	86.17	4.08e-07
125×125	64 (768)	524.77	92.75	4.00e-03	92.97	4.08e-04	98.90	4.03e-05	109.19	4.10e-06	137.45	4.09e-07
	72 (972)	661.64	112.80	4.02e-03	113.34	4.17e-04	120.35	4.10e-05	132.68	4.12e-06	168.86	4.03e-07
	80 (1200)	806.53	133.69	4.00e-03	134.29	3.94e-04	140.86	4.14e-05	153.77	4.01e-06	186.12	3.79e-07
	88 (1452)	966.94	156.54	3.96e-03	157.14	4.13e-04	164.18	4.01e-05	177.94	3.73e-06	209.03	3.86e-07
$m = 10\,293$	96 (1728)	1149.97	182.10	3.90e-03	182.92	3.92e-04	191.00	3.96e-05	205.24	3.99e-06	241.25	4.00e-07
150×150	80 (1200)	819.28	159.69	4.38e-03	160.46	4.20e-04	170.94	4.05e-05	189.79	4.34e-06	206.27	4.14e-07
	88 (1452)	991.95	186.37	3.96e-03	187.27	4.31e-04	200.63	4.15e-05	220.31	4.22e-06	240.61	4.21e-07
	96 (1728)	1162.83	213.81	4.04e-03	214.82	4.02e-04	230.23	4.02e-05	252.00	4.20e-06	277.68	4.06e-07
	104 (2028)	1349.25	241.97	3.93e-03	243.27	4.01e-04	260.45	4.07e-05	281.91	3.98e-06	312.80	3.99e-07
$m = 19\,244$	112 (2352)	1590.73	277.83	4.04e-03	278.98	4.03e-04	295.19	3.96e-05	316.37	4.17e-06	357.08	4.03e-07
175×175	120 (2700)	4995.40	703.25	4.25e-03	700.67	4.24e-04	719.81	4.10e-05	717.77	4.12e-06	773.88	4.19e-07
	128 (3072)	5676.93	775.77	4.18e-03	771.11	4.15e-04	787.78	4.14e-05	793.57	4.18e-06	863.23	4.16e-07
	136 (3468)	6335.87	857.61	4.36e-03	859.34	4.29e-04	873.69	4.15e-05	879.85	4.21e-06	940.86	4.09e-07
	144 (3888)	7085.61	938.32	4.16e-03	939.56	3.99e-04	956.30	4.14e-05	962.64	4.07e-06	1027.18	4.13e-07
$m = 23\,954$	152 (4332)	7975.74	1042.11	4.10e-03	1040.38	4.20e-04	1059.01	4.15e-05	1070.99	4.01e-06	1147.82	4.09e-07
200×200	208 (8112)	4749.35	883.11	4.15e-03	887.03	4.14e-04	922.49	4.12e-05	936.89	4.32e-06	1002.30	4.38e-07
	216 (8748)	5102.79	943.43	4.19e-03	945.22	4.32e-04	982.26	4.11e-05	998.20	4.15e-06	1064.63	4.14e-07
	224 (9408)	5452.51	987.88	4.04e-03	990.86	4.06e-04	1031.73	4.24e-05	1054.43	4.22e-06	1123.59	4.15e-07
	232 (10092)	5678.67	967.94	4.17e-03	971.69	4.13e-04	1026.61	4.08e-05	1079.82	4.33e-06	1160.11	4.18e-07
$m = 32\,612$	240 (10800)	6144.29	1044.65	4.43e-03	1046.90	4.26e-04	1104.25	4.35e-05	1155.72	4.10e-06	1236.10	4.18e-07

Table 5: Comparisons between naïve (without QADP) and enhanced (with QADP) from-scratch methods to perform 1 000 network evaluations consisting of N randomly distributed sonobuoys. The different evaluations are carried out on the same network, to ensure a fair comparison. Here using **Fermi** function (transition curve) with $\mathbf{b = 0.8}$, $\epsilon = \mathbf{10^{-4}}$ and for different sampling levels (δ). For QADP methods, CPU times include the pre-processing procedure used to construct the look-up table. err_{max} corresponds to the maximum error encountered in terms of probability points on all the CPDs of a network and over all the evaluations (worst-case scenario approach).

Exponential ($\epsilon = 10^{-4}$)		**Naïve (f-s.)**	**QADP ($\delta = 10^{-2}$)**		**QADP ($\delta = 10^{-3}$)**		**QADP ($\delta = 10^{-4}$)**		**QADP ($\delta = 10^{-5}$)**		**QADP ($\delta = 10^{-6}$)**	
Grid size	N ($\lvert\Xi_\omega\rvert$)	CPU$_t$ (s)	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}	CPU$_t$ (s)	err_{max}
50×50	8 (12)	1.95	0.52	3.12e-03	0.43	3.40e-04	0.53	3.32e-05	0.91	3.35e-06	1.90	3.34e-07
	16 (48)	6.84	1.79	3.29e-03	1.41	3.06e-04	1.73	2.84e-05	3.09	3.02e-06	4.59	3.13e-07
	24 (108)	12.92	3.23	2.87e-03	2.74	2.06e-04	3.18	2.66e-05	4.97	2.47e-06	8.19	2.67e-07
	32 (192)	21.66	5.26	2.24e-03	4.56	2.71e-04	5.24	3.19e-05	8.20	1.88e-06	13.16	2.82e-07
$m = 1\,725$	40 (300)	33.44	8.41	1.74e-03	7.31	1.90e-04	8.60	1.19e-05	14.72	2.63e-06	20.89	1.18e-07
75×75	16 (48)	21.75	8.89	3.37e-03	5.11	3.01e-04	4.93	3.16e-05	10.24	3.38e-06	15.08	3.26e-07
	24 (108)	44.64	15.85	2.69e-03	14.26	3.41e-04	12.80	3.20e-05	20.89	3.38e-06	34.03	3.31e-07
	32 (192)	75.04	23.89	2.37e-03	23.24	2.73e-04	24.39	2.80e-05	36.50	2.81e-06	58.73	2.71e-07
	40 (300)	111.49	32.84	2.70e-03	32.59	2.20e-04	35.82	3.30e-05	52.23	2.74e-06	88.86	3.19e-07
$m = 4\,396$	48 (432)	156.19	43.53	3.09e-03	43.56	2.84e-04	48.83	3.05e-05	68.96	3.26e-06	124.35	2.44e-07
100×100	48 (432)	73.30	29.80	3.22e-03	29.26	3.33e-04	33.79	3.36e-05	47.39	3.32e-06	58.25	3.34e-07
	56 (588)	94.74	37.04	3.19e-03	36.53	3.34e-04	43.19	3.36e-05	60.07	3.36e-06	76.41	3.32e-07
	64 (768)	118.84	44.72	3.23e-03	44.17	3.33e-04	52.53	3.36e-05	72.31	3.38e-06	96.56	3.28e-07
	72 (972)	146.15	52.90	3.13e-03	52.51	3.35e-04	62.50	3.24e-05	84.98	3.38e-06	118.63	3.37e-07
$m = 6\,630$	80 (1200)	176.13	61.88	2.94e-03	61.39	3.02e-04	73.12	3.21e-05	98.04	3.25e-06	142.74	3.24e-07
125×125	64 (768)	521.77	111.78	2.91e-03	112.87	3.18e-04	127.25	3.03e-05	141.73	3.19e-06	213.31	3.20e-07
	72 (972)	652.60	136.21	2.87e-03	137.18	3.03e-04	153.95	2.98e-05	170.28	3.28e-06	262.22	3.27e-07
	80 (1200)	796.40	162.39	3.01e-03	163.92	3.42e-04	183.30	3.26e-05	201.10	3.39e-06	314.56	3.32e-07
	88 (1452)	968.85	192.63	2.88e-03	194.74	3.31e-04	216.93	3.21e-05	236.35	3.26e-06	373.82	3.33e-07
$m = 10\,293$	96 (1728)	1143.01	223.69	2.32e-03	225.06	2.51e-04	250.21	2.38e-05	272.95	2.45e-06	436.49	2.31e-07
150×150	80 (1200)	809.95	185.87	3.19e-03	187.56	3.24e-04	212.65	3.07e-05	228.53	3.36e-06	333.61	3.38e-07
	88 (1452)	983.27	219.33	3.19e-03	221.11	3.28e-04	248.78	3.33e-05	265.99	3.25e-06	394.60	3.27e-07
	96 (1728)	1155.93	252.58	3.25e-03	254.46	3.29e-04	284.87	3.18e-05	305.21	3.21e-06	456.22	3.27e-07
	104 (2028)	1361.17	290.55	3.19e-03	293.46	3.22e-04	327.72	3.41e-05	348.55	3.31e-06	527.33	3.28e-07
$m = 19\,244$	112 (2352)	1558.96	327.42	3.06e-03	329.97	3.19e-04	367.06	3.16e-05	390.48	3.17e-06	595.02	3.04e-07
175×175	120 (2700)	4880.53	786.63	2.95e-03	789.68	2.99e-04	845.16	3.14e-05	871.30	3.18e-06	1113.01	3.01e-07
	128 (3072)	5564.89	885.14	3.06e-03	888.24	3.15e-04	947.97	3.25e-05	978.72	3.16e-06	1266.60	3.26e-07
	136 (3468)	6292.81	981.67	2.79e-03	985.67	3.01e-04	1046.43	2.97e-05	1088.45	3.27e-06	1423.20	3.17e-07
	144 (3888)	7071.06	1078.80	3.13e-03	1082.21	3.35e-04	1148.47	3.08e-05	1187.42	3.39e-06	1574.34	3.19e-07
$m = 23\,954$	152 (4332)	7838.33	1185.92	3.07e-03	1189.74	2.81e-04	1264.91	3.07e-05	1300.40	2.52e-06	1693.04	2.57e-07
200×200	208 (8112)	4736.91	1033.00	3.27e-03	1044.42	3.29e-04	1124.18	3.39e-05	1156.70	3.42e-06	1491.37	3.37e-07
	216 (8748)	4973.77	1015.24	3.28e-03	1029.75	3.29e-04	1131.80	3.37e-05	1158.57	3.40e-06	1782.79	3.35e-07
	224 (9408)	5264.91	1076.58	3.28e-03	1092.36	3.30e-04	1191.45	3.39e-05	1224.50	3.39e-06	1896.37	3.37e-07
	232 (10092)	5821.18	1232.26	3.28e-03	1245.85	3.26e-04	1336.76	3.35e-05	1379.96	3.40e-06	1843.46	3.36e-07
$m = 32\,612$	240 (10800)	6162.39	1291.22	3.29e-03	1294.57	3.30e-04	1369.10	3.37e-05	1456.08	3.31e-06	2001.35	3.38e-07

Table 6: Comparisons between naïve (without QADP) and enhanced (with QADP) from-scratch methods to perform 1 000 network evaluations consisting of N randomly distributed sonobuoys. The different evaluations are carried out on the same network, to ensure a fair comparison. Here using the **exponential** function (transition curve) with $\epsilon = \mathbf{10^{-4}}$ and for different sampling levels (δ). For QADP methods, CPU times include the pre-processing procedure used to construct the look-up table. err_{max} corresponds to the maximum error encountered in terms of probability points on all the CPDs of a network and over all the evaluations (worst-case scenario approach).