

Table S1
Comparison of HV and Statistical Results on DTLZ And WFG Test Problems (“+”–Win, “≈”–Tie, “–”–Loss)

#	M	NSGA-III ₁ *	NSGA-III ₂ *	NSGA-III ₃ *	NSGA-III ₄ *	NSGA-III ₅ *
DTLZ1	2	5.82E-1(1.75E-4)	5.83E-1(5.40E-5)	5.82E-1(1.42E-4)≈	5.83E-1(9.73E-5)	5.82E-1(1.83E-4)≈
	4	9.45E-1(1.73E-4)	9.45E-1(2.41E-4)≈	9.45E-1(3.07E-4)≈	9.45E-1(2.63E-4)≈	9.45E-1(2.47E-4)≈
	6	9.90E-1(3.95E-3)	9.90E-1(1.13E-4)≈	9.89E-1(5.41E-3)≈	9.90E-1(1.05E-4)≈	9.90E-1(8.37E-5)≈
	8	9.85E-1(6.71E-2)	9.97E-1(1.14E-3)≈	9.98E-1(6.72E-5)≈	9.97E-1(1.76E-3)≈	9.98E-1(5.02E-4)≈
	10	9.96E-1(1.91E-2)	9.97E-1(1.49E-2)≈	9.96E-1(1.67E-2)≈	1.00E+0(2.62E-4)≈	1.00E+0(2.26E-4)≈
DTLZ2	2	3.47E-1(6.33E-7)	3.47E-1(1.33E-7)≈	3.47E-1(2.01E-7)≈	3.47E-1(4.83E-7)≈	3.47E-1(8.51E-8)≈
	4	7.15E-1(4.85E-4)	7.15E-1(4.62E-4)≈	7.15E-1(3.97E-4)	7.15E-1(3.47E-4)≈	7.15E-1(4.04E-4)
	6	8.61E-1(3.63E-4)	8.61E-1(4.42E-4)≈	8.61E-1(3.99E-4)≈	8.61E-1(3.77E-4)≈	8.61E-1(3.07E-4)≈
	8	9.21E-1(2.60E-2)	9.17E-1(2.53E-2)≈	9.26E-1(3.19E-4)≈	9.21E-1(1.77E-2)≈	9.25E-1(5.71E-3)≈
	10	9.66E-1(1.23E-2)	9.66E-1(1.17E-2)≈	9.59E-1(2.02E-2)+	9.64E-1(1.42E-2)≈	9.62E-1(1.76E-2)≈
DTLZ3	2	3.45E-1(1.46E-3)	3.46E-1(1.08E-3)≈	3.46E-1(1.11E-3)≈	3.46E-1(7.35E-4)	3.46E-1(9.63E-4)
	4	7.13E-1(2.05E-3)	7.14E-1(1.32E-3)≈	7.13E-1(1.35E-3)≈	7.14E-1(1.59E-3)≈	7.13E-1(1.94E-3)≈
	6	8.57E-1(3.03E-3)	8.56E-1(3.34E-3)≈	8.57E-1(2.33E-3)≈	8.57E-1(3.02E-3)≈	8.57E-1(3.53E-3)≈
	8	9.13E-1(5.09E-2)	9.23E-1(1.83E-3)≈	9.02E-1(8.18E-2)≈	9.23E-1(2.54E-3)≈	9.23E-1(1.97E-3)≈
	10	9.38E-1(6.96E-2)	9.67E-1(5.85E-3)	9.48E-1(4.46E-2)≈	9.03E-1(1.67E-1)≈	9.24E-1(9.38E-2)≈
DTLZ4	2	3.47E-1(1.53E-5)	3.47E-1(1.20E-4)+	3.47E-1(1.06E-5)≈	3.47E-1(5.33E-5)≈	3.47E-1(4.39E-6)≈
	4	7.10E-1(2.87E-2)	6.89E-1(6.09E-2)+	7.04E-1(4.04E-2)≈	7.15E-1(4.98E-4)≈	6.94E-1(5.59E-2)≈
	6	8.61E-1(3.89E-4)	8.51E-1(3.20E-2)+	8.61E-1(3.15E-4)≈	8.53E-1(3.12E-2)≈	8.61E-1(4.53E-4)≈
	8	9.20E-1(2.69E-2)	9.12E-1(3.05E-2)≈	9.17E-1(2.52E-2)≈	9.26E-1(2.68E-4)≈	9.24E-1(8.55E-3)≈
	10	9.67E-1(1.17E-2)	9.66E-1(1.08E-2)≈	9.64E-1(1.38E-2)≈	9.66E-1(1.29E-2)≈	9.68E-1(8.98E-3)≈
DTLZ5	2	3.47E-1(5.99E-7)	3.47E-1(7.05E-7)≈	3.47E-1(4.99E-8)≈	3.47E-1(4.55E-8)≈	3.47E-1(9.57E-8)≈
	4	1.40E-1(3.64E-3)	1.40E-1(2.10E-3)≈	1.41E-1(2.38E-3)≈	1.40E-1(2.32E-3)≈	1.41E-1(2.10E-3)≈
	6	9.59E-2(1.07E-2)	9.75E-2(4.12E-3)≈	9.88E-2(3.82E-3)≈	9.70E-2(5.24E-3)≈	9.86E-2(2.67E-3)≈
	8	9.16E-2(2.09E-3)	9.21E-2(2.27E-3)≈	9.20E-2(2.38E-3)≈	9.21E-2(2.62E-3)≈	9.13E-2(2.25E-3)≈
	10	8.90E-2(2.31E-3)	8.62E-2(5.54E-3)+	8.92E-2(2.71E-3)≈	8.83E-2(3.04E-3)≈	8.74E-2(3.65E-3)+
DTLZ6	2	3.47E-1(4.71E-8)	3.47E-1(4.08E-8)≈	3.47E-1(2.69E-8)≈	3.47E-1(4.68E-8)≈	3.47E-1(3.98E-8)≈
	4	1.36E-1(3.63E-3)	1.33E-1(1.03E-2)≈	1.35E-1(6.91E-3)≈	1.35E-1(5.32E-3)≈	1.32E-1(9.32E-3)+
	6	9.13E-2(1.34E-3)	9.21E-2(2.91E-3)≈	9.14E-2(1.73E-3)≈	9.15E-2(1.99E-3)≈	9.12E-2(1.30E-3)≈
	8	9.11E-2(8.75E-4)	9.11E-2(5.32E-4)≈	9.11E-2(8.47E-4)≈	9.10E-2(5.71E-4)≈	9.11E-2(5.17E-4)≈
	10	9.09E-2(2.24E-4)	9.09E-2(2.07E-4)≈	9.09E-2(2.81E-4)≈	9.10E-2(3.17E-4)≈	8.63E-2(1.82E-2)≈
DTLZ7	2	2.43E-1(2.07E-5)	2.43E-1(1.87E-5)≈	2.43E-1(1.96E-5)≈	2.43E-1(1.29E-5)≈	2.43E-1(1.46E-5)≈
	4	2.58E-1(3.82E-3)	2.58E-1(5.50E-3)≈	2.58E-1(3.86E-3)≈	2.57E-1(5.59E-3)≈	2.59E-1(5.89E-3)≈
	6	2.30E-1(2.84E-3)	2.31E-1(2.74E-3)≈	2.31E-1(2.48E-3)≈	2.31E-1(2.68E-3)≈	2.30E-1(2.50E-3)≈
	8	2.12E-1(2.36E-3)	2.12E-1(2.94E-3)≈	2.13E-1(2.58E-3)≈	2.13E-1(2.75E-3)≈	2.12E-1(2.84E-3)≈
	10	1.82E-1(7.54E-3)	1.81E-1(7.78E-3)≈	1.80E-1(7.46E-3)≈	1.82E-1(7.56E-3)≈	1.85E-1(7.92E-3)≈
WFG1	2	6.73E-1(8.85E-3)	6.77E-1(5.95E-3)	6.73E-1(1.17E-2)≈	6.77E-1(6.99E-3)	6.69E-1(2.10E-2)≈
	4	9.83E-1(9.86E-3)	9.84E-1(8.16E-3)≈	9.83E-1(8.62E-3)≈	9.82E-1(9.63E-3)≈	9.82E-1(1.09E-2)≈
	6	8.59E-1(2.95E-2)	8.70E-1(2.21E-2)≈	8.62E-1(2.30E-2)≈	8.58E-1(2.14E-2)≈	8.41E-1(2.61E-2)+
	8	9.89E-1(1.95E-2)	9.83E-1(2.32E-2)≈	9.93E-1(1.06E-2)≈	9.83E-1(2.61E-2)≈	9.85E-1(2.82E-2)≈
	10	9.99E-1(3.07E-4)	9.99E-1(6.37E-4)+	9.99E-1(3.06E-4)≈	9.99E-1(5.31E-4)≈	9.99E-1(3.94E-4)+
WFG2	2	6.32E-1(3.13E-4)	6.32E-1(3.82E-4)+	6.32E-1(4.89E-4)+	6.32E-1(4.81E-4)+	6.32E-1(3.20E-4)+
	4	9.88E-1(6.01E-4)	9.88E-1(4.99E-4)≈	9.88E-1(4.14E-4)≈	9.88E-1(4.40E-4)≈	9.88E-1(3.87E-4)≈
	6	9.95E-1(9.23E-4)	9.95E-1(9.24E-4)≈	9.95E-1(8.78E-4)≈	9.95E-1(8.58E-4)≈	9.95E-1(8.78E-4)≈
	8	9.96E-1(1.12E-3)	9.96E-1(1.11E-3)≈	9.97E-1(1.07E-3)	9.96E-1(1.54E-3)≈	9.97E-1(1.13E-3)≈
	10	9.98E-1(9.61E-4)	9.97E-1(1.09E-3)≈	9.97E-1(1.19E-3)≈	9.97E-1(9.06E-4)+	9.97E-1(1.54E-3)≈
WFG3	2	5.82E-1(2.48E-4)	5.82E-1(2.75E-4)≈	5.82E-1(2.14E-4)≈	5.82E-1(2.12E-4)≈	5.82E-1(2.22E-4)
	4	2.55E-1(7.27E-3)	2.56E-1(9.22E-3)≈	2.55E-1(6.04E-3)≈	2.55E-1(6.72E-3)≈	2.55E-1(8.01E-3)≈
	6	5.04E-2(2.00E-2)	5.37E-2(1.83E-2)≈	5.04E-2(2.58E-2)≈	4.70E-2(1.82E-2)≈	5.44E-2(2.01E-2)≈
	8	2.95E-2(1.56E-2)	3.62E-2(1.85E-2)≈	2.39E-2(1.93E-2)≈	2.08E-2(1.43E-2)+	2.33E-2(1.79E-2)≈
	10	8.98E-3(9.60E-3)	1.93E-2(8.65E-3)	5.58E-4(1.08E-3)+	2.68E-3(8.51E-3)+	3.06E-3(7.07E-3)+
WFG4	2	3.47E-1(3.93E-5)	3.47E-1(4.10E-5)≈	3.47E-1(5.41E-5)≈	3.47E-1(4.39E-5)≈	3.47E-1(5.02E-5)≈
	4	7.11E-1(9.16E-4)	7.12E-1(6.59E-4)≈	7.11E-1(9.85E-4)≈	7.11E-1(9.62E-4)≈	7.11E-1(9.10E-4)≈
	6	8.48E-1(2.03E-3)	8.48E-1(1.21E-3)≈	8.45E-1(1.74E-2)≈	8.45E-1(1.72E-2)≈	8.47E-1(1.53E-3)≈
	8	9.12E-1(2.57E-3)	9.07E-1(2.21E-2)≈	9.08E-1(1.59E-2)≈	9.12E-1(1.41E-3)≈	9.13E-1(2.42E-3)≈
	10	9.61E-1(1.72E-3)	9.60E-1(2.80E-3)≈	9.61E-1(1.78E-3)≈	9.60E-1(6.68E-3)≈	9.61E-1(1.37E-3)≈
WFG5	2	3.13E-1(5.99E-5)	3.13E-1(2.95E-5)≈	3.13E-1(6.27E-5)≈	3.13E-1(1.00E-3)≈	3.13E-1(1.26E-5)
	4	6.68E-1(5.20E-4)	6.69E-1(4.72E-4)	6.69E-1(5.11E-4)	6.69E-1(5.48E-4)	6.69E-1(4.63E-4)
	6	8.06E-1(4.40E-4)	8.05E-1(4.21E-4)≈	8.06E-1(3.87E-4)≈	8.06E-1(4.44E-4)≈	8.06E-1(4.48E-4)≈
	8	8.63E-1(6.86E-4)	8.63E-1(4.66E-4)≈	8.63E-1(6.30E-4)≈	8.63E-1(7.01E-4)≈	8.63E-1(8.25E-4)≈
	10	9.04E-1(3.44E-4)	9.04E-1(2.35E-4)≈	9.04E-1(2.72E-4)≈	9.03E-1(3.27E-4)≈	9.04E-1(3.25E-4)
WFG6	2	3.08E-1(8.20E-3)	3.07E-1(5.28E-3)≈	3.08E-1(6.81E-3)≈	3.11E-1(6.92E-3)≈	3.09E-1(7.33E-3)≈
	4	6.61E-1(8.37E-3)	6.61E-1(8.38E-3)≈	6.60E-1(7.44E-3)≈	6.59E-1(8.78E-3)≈	6.58E-1(7.74E-3)≈
	6	7.99E-1(6.00E-3)	7.98E-1(9.34E-3)≈	7.93E-1(8.70E-3)+	7.96E-1(9.48E-3)≈	7.93E-1(1.01E-2)+
	8	8.41E-1(1.58E-2)	8.39E-1(1.86E-2)≈	8.38E-1(1.85E-2)≈	8.41E-1(1.71E-2)≈	8.41E-1(1.79E-2)≈
	10	8.78E-1(1.54E-2)	8.75E-1(2.12E-2)≈	8.84E-1(1.39E-2)≈	8.78E-1(1.50E-2)≈	8.85E-1(1.63E-2)

Table S1
(Continue)

WFG7	2	3.47E-1(2.04E-5)	3.47E-1(1.98E-5)≈	3.47E-1(1.74E-5)≈	3.47E-1(1.75E-5)≈	3.47E-1(2.05E-5)≈
	4	7.12E-1(5.96E-4)	7.12E-1(6.03E-4)≈	7.12E-1(5.59E-4)≈	7.12E-1(7.24E-4)≈	7.12E-1(5.90E-4)≈
	6	8.55E-1(8.20E-4)	8.55E-1(9.75E-4)+	8.55E-1(7.27E-4)≈	8.55E-1(8.41E-4)≈	8.55E-1(6.42E-4)≈
	8	9.17E-1(1.09E-3)	9.17E-1(1.20E-3)≈	9.17E-1(1.06E-3)≈	9.14E-1(1.61E-2)≈	9.16E-1(7.31E-3)≈
	10	9.58E-1(1.54E-2)	9.62E-1(1.16E-2)≈	9.61E-1(1.22E-2)≈	9.62E-1(1.13E-2)≈	9.61E-1(1.39E-2)≈
WFG8	2	3.03E-1(4.43E-4)	3.02E-1(4.46E-4)≈	3.03E-1(5.61E-4)≈	3.03E-1(5.29E-4)≈	3.03E-1(4.80E-4)≈
	4	6.34E-1(1.70E-3)	6.35E-1(9.54E-4)≈	6.35E-1(8.40E-4)≈	6.34E-1(2.61E-3)≈	6.34E-1(9.33E-4)≈
	6	7.67E-1(1.95E-3)	7.68E-1(1.54E-3)-	7.64E-1(1.88E-2)≈	7.67E-1(1.63E-3)≈	7.67E-1(1.88E-3)≈
	8	7.84E-1(2.74E-2)	7.84E-1(2.39E-2)≈	7.84E-1(2.76E-2)≈	7.85E-1(2.46E-2)≈	7.82E-1(2.32E-2)≈
	10	8.68E-1(1.81E-2)	8.62E-1(1.41E-2)≈	8.64E-1(1.67E-2)≈	8.65E-1(1.60E-2)≈	8.64E-1(1.83E-2)≈
WFG9	2	3.39E-1(1.67E-2)	3.40E-1(1.67E-2)≈	3.40E-1(1.68E-2)≈	3.40E-1(1.67E-2)≈	3.43E-1(9.86E-4)≈
	4	6.77E-1(3.22E-3)	6.77E-1(3.05E-3)≈	6.76E-1(3.38E-3)≈	6.76E-1(3.44E-3)≈	6.75E-1(2.84E-3)+
	6	7.82E-1(2.70E-2)	7.92E-1(1.68E-2)-	7.81E-1(3.07E-2)≈	7.91E-1(1.66E-2)≈	7.91E-1(1.55E-2)≈
	8	8.20E-1(6.04E-2)	8.49E-1(9.47E-3)-	8.28E-1(4.89E-2)≈	8.31E-1(4.92E-2)≈	8.11E-1(6.70E-2)≈
	10	8.76E-1(5.84E-2)	8.99E-1(8.01E-3)-	8.68E-1(6.04E-2)≈	8.83E-1(4.57E-2)≈	8.85E-1(4.24E-2)≈
		W/L/T	7/9/64	4/3/73	4/4/72	8/7/65

Table S2
Comparison of HV and Statistical Results on DTLZ And WFG Test Problems (“+”-Win, “≈”-Tie, “-”-Loss)

#	M	NSGA-III ₂ *	NSGA-III ₁ *	NSGA-III ₃ *	NSGA-III ₄ *	NSGA-III ₅ *
DTLZ1	2	5.83E-1(5.40E-5)	5.82E-1(1.75E-4)+	5.82E-1(1.42E-4)+	5.83E-1(9.73E-5)≈	5.82E-1(1.83E-4)≈
	4	9.45E-1(2.41E-4)	9.45E-1(1.73E-4)≈	9.45E-1(3.07E-4)≈	9.45E-1(2.63E-4)≈	9.45E-1(2.47E-4)≈
	6	9.90E-1(1.13E-4)	9.90E-1(3.95E-3)≈	9.89E-1(5.41E-3)≈	9.90E-1(1.05E-4)≈	9.90E-1(8.37E-5)≈
	8	9.97E-1(1.14E-3)	9.85E-1(6.71E-2)≈	9.98E-1(6.72E-5)-	9.97E-1(1.76E-3)≈	9.98E-1(5.02E-4)≈
	10	9.97E-1(1.49E-2)	9.96E-1(1.91E-2)≈	9.96E-1(1.67E-2)≈	1.00E+0(2.62E-4)≈	1.00E+0(2.26E-4)≈
DTLZ2	2	3.47E-1(1.33E-7)	3.47E-1(6.33E-7)≈	3.47E-1(2.01E-7)≈	3.47E-1(4.83E-7)≈	3.47E-1(8.51E-8)≈
	4	7.15E-1(4.62E-4)	7.15E-1(4.85E-4)≈	7.15E-1(3.97E-4)≈	7.15E-1(3.47E-4)≈	7.15E-1(4.04E-4)≈
	6	8.61E-1(4.42E-4)	8.61E-1(3.63E-4)≈	8.61E-1(3.99E-4)≈	8.61E-1(3.77E-4)≈	8.61E-1(3.07E-4)≈
	8	9.17E-1(2.53E-2)	9.21E-1(2.60E-2)≈	9.26E-1(3.19E-4)-	9.21E-1(1.77E-2)≈	9.25E-1(5.71E-3)≈
	10	9.66E-1(1.17E-2)	9.66E-1(1.23E-2)≈	9.59E-1(2.02E-2)≈	9.64E-1(1.42E-2)≈	9.62E-1(1.76E-2)≈
DTLZ3	2	3.46E-1(1.08E-3)	3.45E-1(1.46E-3)≈	3.46E-1(1.11E-3)≈	3.46E-1(7.35E-4)-	3.46E-1(9.63E-4)≈
	4	7.14E-1(1.32E-3)	7.13E-1(2.05E-3)≈	7.13E-1(1.35E-3)≈	7.14E-1(1.59E-3)≈	7.13E-1(1.94E-3)≈
	6	8.56E-1(3.34E-3)	8.57E-1(3.03E-3)≈	8.57E-1(2.33E-3)≈	8.57E-1(3.02E-3)≈	8.57E-1(3.53E-3)≈
	8	9.23E-1(1.83E-3)	9.13E-1(5.09E-2)≈	9.02E-1(8.18E-2)≈	9.23E-1(2.54E-3)≈	9.23E-1(1.97E-3)≈
	10	9.67E-1(5.85E-3)	9.38E-1(6.96E-2)+	9.48E-1(4.46E-2)+	9.03E-1(1.67E-1)+	9.24E-1(9.38E-2)+
DTLZ4	2	3.47E-1(1.20E-4)	3.47E-1(1.53E-5)-	3.47E-1(1.06E-5)-	3.47E-1(5.33E-5)≈	3.47E-1(4.39E-6)-
	4	6.89E-1(6.09E-2)	7.10E-1(2.87E-2)-	7.04E-1(4.04E-2)≈	7.15E-1(4.98E-4)-	6.94E-1(5.59E-2)≈
	6	8.51E-1(3.20E-2)	8.61E-1(3.89E-4)-	8.61E-1(3.15E-4)-	8.53E-1(3.12E-2)≈	8.61E-1(4.53E-4)-
	8	9.12E-1(3.05E-2)	9.20E-1(2.69E-2)≈	9.17E-1(2.52E-2)≈	9.26E-1(2.68E-4)-	9.24E-1(8.55E-3)-
	10	9.66E-1(1.08E-2)	9.67E-1(1.17E-2)≈	9.64E-1(1.38E-2)≈	9.66E-1(1.29E-2)≈	9.68E-1(8.98E-3)≈
DTLZ5	2	3.47E-1(7.05E-7)	3.47E-1(5.99E-7)≈	3.47E-1(4.99E-8)-	3.47E-1(4.55E-8)-	3.47E-1(9.57E-8)≈
	4	1.40E-1(2.10E-3)	1.40E-1(3.64E-3)≈	1.41E-1(2.38E-3)≈	1.40E-1(2.32E-3)≈	1.41E-1(2.10E-3)≈
	6	9.75E-2(4.12E-3)	9.59E-2(1.07E-2)≈	9.88E-2(3.82E-3)≈	9.70E-2(5.24E-3)≈	9.86E-2(2.67E-3)≈
	8	9.21E-2(2.27E-3)	9.16E-2(2.09E-3)≈	9.20E-2(2.38E-3)≈	9.21E-2(2.62E-3)≈	9.13E-2(2.25E-3)≈
	10	8.62E-2(5.54E-3)	8.90E-2(2.31E-3)-	8.92E-2(2.71E-3)-	8.83E-2(3.04E-3)-	8.74E-2(3.65E-3)≈
DTLZ6	2	3.47E-1(4.08E-8)	3.47E-1(4.71E-8)≈	3.47E-1(2.69E-8)≈	3.47E-1(4.68E-8)≈	3.47E-1(3.98E-8)≈
	4	1.33E-1(1.03E-2)	1.36E-1(3.63E-3)≈	1.35E-1(6.91E-3)≈	1.35E-1(5.32E-3)≈	1.32E-1(9.32E-3)≈
	6	9.21E-2(2.91E-3)	9.13E-2(1.34E-3)≈	9.14E-2(1.73E-3)≈	9.15E-2(1.99E-3)≈	9.12E-2(1.30E-3)≈
	8	9.11E-2(5.32E-4)	9.11E-2(8.75E-4)≈	9.11E-2(8.47E-4)≈	9.10E-2(5.71E-4)≈	9.11E-2(5.17E-4)≈
	10	9.09E-2(2.07E-4)	9.09E-2(2.24E-4)≈	9.09E-2(2.81E-4)≈	9.10E-2(3.17E-4)≈	8.63E-2(1.82E-2)≈
DTLZ7	2	2.43E-1(1.87E-5)	2.43E-1(2.07E-5)≈	2.43E-1(1.96E-5)≈	2.43E-1(1.29E-5)≈	2.43E-1(1.46E-5)≈
	4	2.58E-1(5.50E-3)	2.58E-1(3.82E-3)≈	2.58E-1(3.86E-3)≈	2.57E-1(5.59E-3)≈	2.59E-1(5.89E-3)≈
	6	2.31E-1(2.74E-3)	2.30E-1(2.84E-3)≈	2.31E-1(2.48E-3)≈	2.31E-1(2.68E-3)≈	2.30E-1(2.50E-3)≈
	8	2.12E-1(2.94E-3)	2.12E-1(2.36E-3)≈	2.13E-1(2.58E-3)≈	2.13E-1(2.75E-3)≈	2.12E-1(2.84E-3)≈
	10	1.81E-1(7.78E-3)	1.82E-1(7.54E-3)≈	1.80E-1(7.46E-3)≈	1.82E-1(7.56E-3)≈	1.85E-1(7.92E-3)≈
WFG1	2	6.77E-1(5.95E-3)	6.73E-1(8.85E-3)+	6.73E-1(1.17E-2)+	6.77E-1(6.99E-3)≈	6.69E-1(2.10E-2)+
	4	9.84E-1(8.16E-3)	9.83E-1(9.86E-3)≈	9.83E-1(8.62E-3)≈	9.82E-1(9.63E-3)≈	9.82E-1(1.09E-2)≈
	6	8.70E-1(2.21E-2)	8.59E-1(2.95E-2)+	8.62E-1(2.30E-2)≈	8.58E-1(2.14E-2)+	8.41E-1(2.61E-2)+
	8	9.83E-1(2.32E-2)	9.89E-1(1.95E-2)≈	9.93E-1(1.06E-2)-	9.83E-1(2.61E-2)≈	9.85E-1(2.82E-2)≈
	10	9.99E-1(6.37E-4)	9.99E-1(3.07E-4)-	9.99E-1(3.30E-4)≈	9.99E-1(5.31E-4)≈	9.99E-1(3.94E-4)≈
WFG2	2	6.32E-1(3.82E-4)	6.32E-1(3.13E-4)-	6.32E-1(4.89E-4)≈	6.32E-1(4.81E-4)+	6.32E-1(3.20E-4)≈
	4	9.88E-1(4.99E-4)	9.88E-1(6.01E-4)≈	9.88E-1(4.14E-4)≈	9.88E-1(4.40E-4)≈	9.88E-1(3.87E-4)≈
	6	9.95E-1(9.24E-4)	9.95E-1(9.23E-4)≈	9.95E-1(8.78E-4)≈	9.95E-1(8.58E-4)≈	9.95E-1(8.78E-4)≈
	8	9.96E-1(1.11E-3)	9.96E-1(1.12E-3)≈	9.97E-1(1.07E-3)-	9.96E-1(1.54E-3)≈	9.97E-1(1.13E-3)≈
	10	9.97E-1(1.09E-3)	9.98E-1(9.61E-4)≈	9.97E-1(1.19E-3)≈	9.97E-1(9.06E-4)≈	9.97E-1(1.54E-3)≈

Table S2
(Continue)

WFG3	2	5.82E-1(2.75E-4)	5.82E-1(2.48E-4)≈	5.82E-1(2.14E-4)≈	5.82E-1(2.12E-4)≈	5.82E-1(2.22E-4)≈
	4	2.56E-1(9.22E-3)	2.55E-1(7.27E-3)≈	2.55E-1(6.04E-3)≈	2.55E-1(6.72E-3)≈	2.55E-1(8.01E-3)≈
	6	5.37E-2(1.83E-2)	5.04E-2(2.00E-2)≈	5.04E-2(2.58E-2)≈	4.70E-2(1.82E-2)≈	5.44E-2(2.01E-2)≈
	8	3.62E-2(1.85E-2)	2.95E-2(1.56E-2)≈	2.39E-2(1.93E-2)+	2.08E-2(1.43E-2)+	2.33E-2(1.79E-2)+
	10	1.93E-2(8.65E-3)	8.98E-3(9.60E-3)+	5.58E-4(1.08E-3)+	2.68E-3(8.51E-3)+	3.06E-3(7.07E-3)+
WFG34	2	3.47E-1(4.10E-5)	3.47E-1(3.93E-5)≈	3.47E-1(5.41E-5)+	3.47E-1(4.39E-5)+	3.47E-1(5.02E-5)≈
	4	7.12E-1(6.59E-4)	7.11E-1(9.16E-4)≈	7.11E-1(9.85E-4)≈	7.11E-1(9.62E-4)+	7.11E-1(9.10E-4)≈
	6	8.48E-1(1.21E-3)	8.48E-1(2.03E-3)≈	8.45E-1(1.74E-2)≈	8.45E-1(1.72E-2)≈	8.47E-1(1.53E-3)≈
	8	9.07E-1(2.21E-2)	9.12E-1(2.57E-3)≈	9.08E-1(1.59E-2)≈	9.12E-1(1.41E-3)≈	9.13E-1(2.42E-3)≈
	10	9.60E-1(2.80E-3)	9.61E-1(1.72E-3)≈	9.61E-1(1.78E-3)≈	9.60E-1(6.68E-3)≈	9.61E-1(1.37E-3)≈
WFG5	2	3.13E-1(2.95E-5)	3.13E-1(5.99E-5)≈	3.13E-1(6.27E-5)≈	3.13E-1(1.00E-3)≈	3.13E-1(1.26E-5)≈
	4	6.69E-1(4.72E-4)	6.68E-1(5.20E-4)+	6.69E-1(5.11E-4)≈	6.69E-1(5.48E-4)≈	6.69E-1(4.63E-4)≈
	6	8.05E-1(4.21E-4)	8.06E-1(4.40E-4)≈	8.06E-1(3.87E-4)≈	8.06E-1(4.44E-4)≈	8.06E-1(4.48E-4)≈
	8	8.63E-1(4.66E-4)	8.63E-1(6.86E-4)≈	8.63E-1(6.30E-4)≈	8.63E-1(7.01E-4)≈	8.63E-1(8.25E-4)≈
	10	9.04E-1(2.35E-4)	9.04E-1(3.44E-4)≈	9.04E-1(2.72E-4)≈	9.03E-1(3.27E-4)≈	9.04E-1(3.25E-4)-
WFG6	2	3.07E-1(5.28E-3)	3.08E-1(8.20E-3)≈	3.08E-1(6.81E-3)≈	3.11E-1(6.92E-3)≈	3.09E-1(7.33E-3)≈
	4	6.61E-1(8.38E-3)	6.61E-1(8.37E-3)≈	6.60E-1(7.44E-3)≈	6.59E-1(8.78E-3)≈	6.58E-1(7.74E-3)≈
	6	7.98E-1(9.34E-3)	7.99E-1(6.00E-3)≈	7.93E-1(8.70E-3)+	7.96E-1(9.48E-3)≈	7.93E-1(1.01E-2)+
	8	8.39E-1(1.86E-2)	8.41E-1(1.58E-2)≈	8.38E-1(1.85E-2)≈	8.41E-1(1.71E-2)≈	8.41E-1(1.79E-2)≈
	10	8.75E-1(2.12E-2)	8.78E-1(1.54E-2)≈	8.84E-1(1.39E-2)-	8.78E-1(1.50E-2)≈	8.85E-1(1.63E-2)≈
WFG7	2	3.47E-1(1.98E-5)	3.47E-1(2.04E-5)≈	3.47E-1(1.74E-5)≈	3.47E-1(1.75E-5)≈	3.47E-1(2.05E-5)≈
	4	7.12E-1(6.03E-4)	7.12E-1(5.96E-4)≈	7.12E-1(5.59E-4)≈	7.12E-1(7.24E-4)≈	7.12E-1(5.90E-4)≈
	6	8.55E-1(9.75E-4)	8.55E-1(8.20E-4)-	8.55E-1(7.27E-4)≈	8.55E-1(8.41E-4)≈	8.55E-1(6.42E-4)≈
	8	9.17E-1(1.20E-3)	9.17E-1(1.09E-3)≈	9.17E-1(1.06E-3)≈	9.14E-1(1.61E-2)≈	9.16E-1(7.31E-3)≈
	10	9.62E-1(1.16E-2)	9.58E-1(1.54E-2)≈	9.61E-1(1.22E-2)≈	9.62E-1(1.13E-2)≈	9.61E-1(1.39E-2)≈
WFG8	2	3.02E-1(4.46E-4)	3.03E-1(4.43E-4)≈	3.03E-1(5.61E-4)≈	3.03E-1(5.29E-4)≈	3.03E-1(4.80E-4)≈
	4	6.35E-1(9.54E-4)	6.34E-1(1.70E-3)≈	6.35E-1(8.40E-4)≈	6.34E-1(2.61E-3)≈	6.34E-1(9.33E-4)≈
	6	7.68E-1(1.54E-3)	7.67E-1(1.95E-3)+	7.64E-1(1.88E-2)≈	7.67E-1(1.63E-3)≈	7.67E-1(1.88E-3)≈
	8	7.84E-1(2.39E-2)	7.84E-1(2.74E-2)≈	7.84E-1(2.76E-2)≈	7.85E-1(2.46E-2)≈	7.82E-1(2.32E-2)≈
	10	8.62E-1(1.41E-2)	8.68E-1(1.81E-2)≈	8.64E-1(1.67E-2)≈	8.65E-1(1.60E-2)≈	8.64E-1(1.83E-2)≈
WFG9	2	3.40E-1(1.67E-2)	3.39E-1(1.67E-2)≈	3.40E-1(1.68E-2)≈	3.40E-1(1.67E-2)≈	3.43E-1(9.86E-4)≈
	4	6.77E-1(3.05E-3)	6.77E-1(3.22E-3)≈	6.76E-1(3.38E-3)+	6.76E-1(3.44E-3)≈	6.75E-1(2.84E-3)+
	6	7.92E-1(1.68E-2)	7.82E-1(2.70E-2)+	7.81E-1(3.07E-2)+	7.91E-1(1.66E-2)≈	7.91E-1(1.55E-2)≈
	8	8.49E-1(9.47E-3)	8.20E-1(6.04E-2)+	8.28E-1(4.89E-2)+	8.31E-1(4.92E-2)+	8.11E-1(6.70E-2)+
	10	8.99E-1(8.01E-3)	8.76E-1(5.84E-2)+	8.68E-1(6.04E-2)+	8.83E-1(4.57E-2)+	8.85E-1(4.24E-2)+
		W/L/T	10/7/63	11/9/60	9/5/66	9/4/67

Table S3
Comparison of HV and Statistical Results on DTLZ And WFG Test Problems (“+”-Win, “≈”-Tie, “-”-Loss)

#	M	NSGA-III ₃ *	NSGA-III ₁ *	NSGA-III ₂ *	NSGA-III ₄ *	NSGA-III ₅ *
DTLZ1	2	5.82E-1(1.42E-4)	5.82E-1(1.75E-4)≈	5.83E-1(5.40E-5)-	5.83E-1(9.73E-5)≈	5.82E-1(1.83E-4)≈
	4	9.45E-1(3.07E-4)	9.45E-1(1.73E-4)≈	9.45E-1(2.41E-4)≈	9.45E-1(2.63E-4)≈	9.45E-1(2.47E-4)≈
	6	9.89E-1(5.41E-3)	9.90E-1(3.95E-3)≈	9.90E-1(1.13E-4)≈	9.90E-1(1.05E-4)≈	9.90E-1(8.37E-5)≈
	8	9.98E-1(6.72E-5)	9.85E-1(6.71E-2)≈	9.97E-1(1.14E-3)+	9.97E-1(1.76E-3)≈	9.98E-1(5.02E-4)≈
	10	9.96E-1(1.67E-2)	9.96E-1(1.91E-2)≈	9.97E-1(1.49E-2)≈	1.00E+0(2.62E-4)≈	1.00E+0(2.26E-4)≈
DTLZ2	2	3.47E-1(2.01E-7)	3.47E-1(6.33E-7)≈	3.47E-1(1.33E-7)≈	3.47E-1(4.83E-7)≈	3.47E-1(8.51E-8)≈
	4	7.15E-1(3.97E-4)	7.15E-1(4.85E-4)+	7.15E-1(4.62E-4)≈	7.15E-1(3.47E-4)+	7.15E-1(4.04E-4)≈
	6	8.61E-1(3.99E-4)	8.61E-1(3.63E-4)≈	8.61E-1(4.42E-4)≈	8.61E-1(3.77E-4)≈	8.61E-1(3.07E-4)≈
	8	9.26E-1(3.19E-4)	9.21E-1(2.60E-2)≈	9.17E-1(2.53E-2)+	9.21E-1(1.77E-2)≈	9.25E-1(5.71E-3)≈
	10	9.59E-1(2.02E-2)	9.66E-1(1.23E-2)-	9.66E-1(1.17E-2)≈	9.64E-1(1.42E-2)≈	9.62E-1(1.76E-2)≈
DTLZ3	2	3.46E-1(1.11E-3)	3.45E-1(1.46E-3)≈	3.46E-1(1.08E-3)≈	3.46E-1(7.35E-4)-	3.46E-1(9.63E-4)≈
	4	7.13E-1(1.35E-3)	7.13E-1(2.05E-3)≈	7.14E-1(1.32E-3)≈	7.14E-1(1.59E-3)≈	7.13E-1(1.94E-3)≈
	6	8.57E-1(2.33E-3)	8.57E-1(3.03E-3)≈	8.56E-1(3.34E-3)≈	8.57E-1(3.02E-3)≈	8.57E-1(3.53E-3)≈
	8	9.02E-1(8.18E-2)	9.13E-1(5.09E-2)≈	9.23E-1(1.83E-3)≈	9.23E-1(2.54E-3)≈	9.23E-1(1.97E-3)≈
	10	9.48E-1(4.46E-2)	9.38E-1(6.96E-2)≈	9.67E-1(5.85E-3)≈	9.03E-1(1.67E-1)≈	9.24E-1(9.38E-2)≈
DTLZ4	2	3.47E-1(1.06E-5)	3.47E-1(1.53E-5)≈	3.47E-1(1.20E-4)+	3.47E-1(5.33E-5)≈	3.47E-1(4.39E-6)≈
	4	7.04E-1(4.04E-2)	7.10E-1(2.87E-2)≈	6.89E-1(6.09E-2)≈	7.15E-1(4.98E-4)≈	6.94E-1(5.59E-2)≈
	6	8.61E-1(3.15E-4)	8.61E-1(3.89E-4)≈	8.51E-1(3.20E-2)+	8.53E-1(3.12E-2)≈	8.61E-1(4.53E-4)≈
	8	9.17E-1(2.52E-2)	9.20E-1(2.69E-2)≈	9.12E-1(3.05E-2)≈	9.26E-1(2.68E-4)-	9.24E-1(8.55E-3)≈
	10	9.64E-1(1.38E-2)	9.67E-1(1.17E-2)≈	9.66E-1(1.08E-2)≈	9.66E-1(1.29E-2)-	9.68E-1(8.98E-3)≈
DTLZ5	2	3.47E-1(4.99E-8)	3.47E-1(5.99E-7)≈	3.47E-1(7.05E-7)+	3.47E-1(4.55E-8)≈	3.47E-1(9.57E-8)≈
	4	1.41E-1(2.38E-3)	1.40E-1(3.64E-3)≈	1.40E-1(2.10E-3)≈	1.40E-1(2.32E-3)≈	1.41E-1(2.10E-3)≈
	6	9.88E-2(3.82E-3)	9.59E-2(1.07E-2)≈	9.75E-2(4.12E-3)≈	9.70E-2(5.24E-3)≈	9.86E-2(2.67E-3)≈
	8	9.20E-2(2.38E-3)	9.16E-2(2.09E-3)≈	9.21E-2(2.27E-3)≈	9.21E-2(2.62E-3)≈	9.13E-2(2.25E-3)≈
	10	8.92E-2(2.71E-3)	8.90E-2(2.31E-3)≈	8.62E-2(5.54E-3)+	8.83E-2(3.04E-3)≈	8.74E-2(3.65E-3)+

Table S3
(Continue)

DTLZ7	2	2.43E-1(1.96E-5)	2.43E-1(2.07E-5)≈	2.43E-1(1.87E-5)≈	2.43E-1(1.29E-5)≈	2.43E-1(1.46E-5)≈
	4	2.58E-1(3.86E-3)	2.58E-1(3.82E-3)≈	2.58E-1(5.50E-3)≈	2.57E-1(5.59E-3)≈	2.59E-1(5.89E-3)≈
	6	2.31E-1(2.48E-3)	2.30E-1(2.84E-3)≈	2.31E-1(2.74E-3)≈	2.31E-1(2.68E-3)≈	2.30E-1(2.50E-3)≈
	8	2.13E-1(2.58E-3)	2.12E-1(2.36E-3)≈	2.12E-1(2.94E-3)≈	2.13E-1(2.75E-3)≈	2.12E-1(2.84E-3)≈
	10	1.80E-1(7.46E-3)	1.82E-1(7.54E-3)≈	1.81E-1(7.78E-3)≈	1.82E-1(7.56E-3)≈	1.85E-1(7.92E-3)-
WFG1	2	6.73E-1(1.17E-2)	6.73E-1(8.85E-3)≈	6.77E-1(5.95E-3)≈	6.77E-1(6.99E-3)-	6.69E-1(2.10E-2)≈
	4	9.83E-1(8.62E-3)	9.83E-1(9.86E-3)≈	9.84E-1(8.16E-3)≈	9.82E-1(9.63E-3)≈	9.82E-1(1.09E-2)≈
	6	8.62E-1(2.30E-2)	8.59E-1(2.95E-2)≈	8.70E-1(2.21E-2)≈	8.58E-1(2.14E-2)≈	8.41E-1(2.61E-2)+
	8	9.93E-1(1.06E-2)	9.89E-1(1.95E-2)≈	9.83E-1(2.32E-2)+	9.83E-1(2.61E-2)+	9.85E-1(2.82E-2)≈
	10	9.99E-1(3.30E-4)	9.99E-1(3.07E-4)≈	9.99E-1(6.37E-4)+	9.99E-1(5.31E-4)≈	9.99E-1(3.94E-4)+
WFG2	2	6.32E-1(4.89E-4)	6.32E-1(3.13E-4)-	6.32E-1(3.82E-4)≈	6.32E-1(4.81E-4)≈	6.32E-1(3.20E-4)≈
	4	9.88E-1(4.14E-4)	9.88E-1(6.01E-4)≈	9.88E-1(4.99E-4)≈	9.88E-1(4.40E-4)≈	9.88E-1(3.87E-4)≈
	6	9.95E-1(8.78E-4)	9.95E-1(9.23E-4)≈	9.95E-1(9.24E-4)≈	9.95E-1(8.58E-4)≈	9.95E-1(8.78E-4)≈
	8	9.97E-1(1.07E-3)	9.96E-1(1.12E-3)+	9.96E-1(1.11E-3)+	9.96E-1(1.54E-3)≈	9.97E-1(1.13E-3)≈
	10	9.97E-1(1.19E-3)	9.98E-1(9.61E-4)≈	9.97E-1(1.09E-3)≈	9.97E-1(9.06E-4)≈	9.97E-1(1.54E-3)≈
WFG3	2	5.82E-1(2.14E-4)	5.82E-1(2.48E-4)≈	5.82E-1(2.75E-4)≈	5.82E-1(2.12E-4)-	5.82E-1(2.22E-4)-
	4	2.55E-1(6.04E-3)	2.55E-1(7.27E-3)≈	2.56E-1(9.22E-3)≈	2.55E-1(6.72E-3)≈	2.55E-1(8.01E-3)≈
	6	5.04E-2(2.58E-2)	5.04E-2(2.00E-2)≈	5.37E-2(1.83E-2)≈	4.70E-2(1.82E-2)≈	5.44E-2(2.01E-2)≈
	8	2.39E-2(1.93E-2)	2.95E-2(1.56E-2)≈	3.62E-2(1.85E-2)-	2.08E-2(1.43E-2)≈	2.33E-2(1.79E-2)≈
	10	5.58E-4(1.08E-3)	8.98E-3(9.60E-3)-	1.93E-2(8.65E-3)-	2.68E-3(8.51E-3)≈	3.06E-3(7.07E-3)-
WFG4	2	3.47E-1(5.41E-5)	3.47E-1(3.93E-5)≈	3.47E-1(4.10E-5)-	3.47E-1(4.39E-5)≈	3.47E-1(5.02E-5)≈
	4	7.11E-1(9.85E-4)	7.11E-1(9.16E-4)≈	7.12E-1(6.59E-4)≈	7.11E-1(9.62E-4)≈	7.11E-1(9.10E-4)≈
	6	8.45E-1(1.74E-2)	8.48E-1(2.03E-3)≈	8.48E-1(1.21E-3)≈	8.45E-1(1.72E-2)≈	8.47E-1(1.53E-3)≈
	8	9.08E-1(1.59E-2)	9.12E-1(2.57E-3)≈	9.07E-1(2.21E-2)≈	9.12E-1(1.41E-3)≈	9.13E-1(2.42E-3)≈
	10	9.61E-1(1.78E-3)	9.61E-1(1.72E-3)≈	9.60E-1(2.80E-3)≈	9.60E-1(6.68E-3)≈	9.61E-1(1.37E-3)≈
WFG5	2	3.13E-1(6.27E-5)	3.13E-1(5.99E-5)≈	3.13E-1(2.95E-5)≈	3.13E-1(1.00E-3)≈	3.13E-1(1.26E-5)≈
	4	6.69E-1(5.11E-4)	6.68E-1(5.20E-4)+	6.69E-1(4.72E-4)≈	6.69E-1(5.48E-4)≈	6.69E-1(4.63E-4)≈
	6	8.06E-1(3.87E-4)	8.06E-1(4.40E-4)≈	8.05E-1(4.21E-4)≈	8.06E-1(4.44E-4)≈	8.06E-1(4.48E-4)≈
	8	8.63E-1(6.30E-4)	8.63E-1(6.86E-4)≈	8.63E-1(4.66E-4)≈	8.63E-1(7.01E-4)≈	8.63E-1(8.25E-4)≈
	10	9.04E-1(2.72E-4)	9.04E-1(3.44E-4)≈	9.04E-1(2.35E-4)≈	9.03E-1(3.27E-4)≈	9.04E-1(3.25E-4)-
WFG6	2	3.08E-1(6.81E-3)	3.08E-1(8.20E-3)≈	3.07E-1(5.28E-3)≈	3.11E-1(6.92E-3)≈	3.09E-1(7.33E-3)≈
	4	6.60E-1(7.44E-3)	6.61E-1(8.37E-3)≈	6.61E-1(8.38E-3)≈	6.59E-1(8.78E-3)≈	6.58E-1(7.74E-3)≈
	6	7.93E-1(8.70E-3)	7.99E-1(6.00E-3)-	7.98E-1(9.34E-3)≈	7.96E-1(9.48E-3)≈	7.93E-1(1.01E-2)≈
	8	8.38E-1(1.85E-2)	8.41E-1(1.58E-2)≈	8.39E-1(1.86E-2)≈	8.41E-1(1.71E-2)≈	8.41E-1(1.79E-2)≈
	10	8.84E-1(1.39E-2)	8.78E-1(1.54E-2)≈	8.75E-1(2.12E-2)+	8.78E-1(1.50E-2)≈	8.85E-1(1.63E-2)≈
WFG7	2	3.47E-1(1.74E-5)	3.47E-1(2.04E-5)≈	3.47E-1(1.98E-5)≈	3.47E-1(1.75E-5)≈	3.47E-1(2.05E-5)≈
	4	7.12E-1(5.59E-4)	7.12E-1(5.96E-4)≈	7.12E-1(6.03E-4)≈	7.12E-1(7.24E-4)≈	7.12E-1(5.90E-4)≈
	6	8.55E-1(7.27E-4)	8.55E-1(8.20E-4)≈	8.55E-1(9.75E-4)≈	8.55E-1(8.41E-4)≈	8.55E-1(6.42E-4)≈
	8	9.17E-1(1.06E-3)	9.17E-1(1.09E-3)≈	9.17E-1(1.20E-3)≈	9.14E-1(1.61E-2)≈	9.16E-1(7.31E-3)≈
	10	9.61E-1(1.22E-2)	9.58E-1(1.54E-2)≈	9.62E-1(1.16E-2)≈	9.62E-1(1.13E-2)≈	9.61E-1(1.39E-2)≈
WFG8	2	3.03E-1(5.61E-4)	3.03E-1(4.43E-4)≈	3.02E-1(4.46E-4)≈	3.03E-1(5.29E-4)≈	3.03E-1(4.80E-4)≈
	4	6.35E-1(8.40E-4)	6.34E-1(1.70E-3)≈	6.35E-1(9.54E-4)≈	6.34E-1(2.61E-3)≈	6.34E-1(9.33E-4)≈
	6	7.64E-1(1.88E-2)	7.67E-1(1.95E-3)≈	7.68E-1(1.54E-3)≈	7.67E-1(1.63E-3)≈	7.67E-1(1.88E-3)≈
	8	7.84E-1(2.76E-2)	7.84E-1(2.74E-2)≈	7.84E-1(2.39E-2)≈	7.85E-1(2.46E-2)≈	7.82E-1(2.32E-2)≈
	10	8.64E-1(1.67E-2)	8.68E-1(1.81E-2)≈	8.62E-1(1.41E-2)≈	8.65E-1(1.60E-2)≈	8.64E-1(1.83E-2)≈
WFG9	2	3.40E-1(1.68E-2)	3.39E-1(1.67E-2)≈	3.40E-1(1.67E-2)≈	3.40E-1(1.67E-2)≈	3.43E-1(9.86E-4)≈
	4	6.76E-1(3.38E-3)	6.77E-1(3.22E-3)≈	6.77E-1(3.05E-3)≈	6.76E-1(3.44E-3)≈	6.75E-1(2.84E-3)≈
	6	7.81E-1(3.07E-2)	7.82E-1(2.70E-2)≈	7.92E-1(1.68E-2)-	7.91E-1(1.66E-2)≈	7.91E-1(1.55E-2)≈
	8	8.28E-1(4.89E-2)	8.20E-1(6.04E-2)≈	8.49E-1(9.47E-3)-	8.31E-1(4.92E-2)≈	8.11E-1(6.70E-2)≈
	10	8.68E-1(6.04E-2)	8.76E-1(5.84E-2)≈	8.99E-1(8.01E-3)-	8.83E-1(4.57E-2)≈	8.85E-1(4.24E-2)≈
		W/L/T	3/4/73	10/7/63	2/4/74	3/4/73

Table S4
Comparison of HV and Statistical Results on DTLZ And WFG Test Problems (“+”–Win, “≈”–Tie, “-”–Loss)

#	M	NSGA-III ₄ *	NSGA-III ₁ *	NSGA-III ₂ *	NSGA-III ₃ *	NSGA-III ₅ *
DTLZ1	2	5.83E-1(9.73E-5)	5.82E-1(1.75E-4)+	5.83E-1(5.40E-5)≈	5.82E-1(1.42E-4)≈	5.82E-1(1.83E-4)≈
	4	9.45E-1(2.63E-4)	9.45E-1(1.73E-4)≈	9.45E-1(2.41E-4)≈	9.45E-1(3.07E-4)≈	9.45E-1(2.47E-4)≈
	6	9.90E-1(1.05E-4)	9.90E-1(3.95E-3)≈	9.90E-1(1.13E-4)≈	9.89E-1(5.41E-3)≈	9.90E-1(8.37E-5)≈
	8	9.97E-1(1.76E-3)	9.85E-1(6.71E-2)≈	9.97E-1(1.14E-3)≈	9.98E-1(6.72E-5)≈	9.98E-1(5.02E-4)≈
	10	1.00E+0(2.62E-4)	9.96E-1(1.91E-2)≈	9.97E-1(1.49E-2)≈	9.96E-1(1.67E-2)≈	1.00E+0(2.26E-4)≈
DTLZ2	2	3.47E-1(4.83E-7)	3.47E-1(6.33E-7)≈	3.47E-1(1.33E-7)≈	3.47E-1(2.01E-7)≈	3.47E-1(8.51E-8)≈
	4	7.15E-1(3.47E-4)	7.15E-1(4.85E-4)≈	7.15E-1(4.62E-4)≈	7.15E-1(3.97E-4)-	7.15E-1(4.04E-4)-
	6	8.61E-1(3.77E-4)	8.61E-1(3.63E-4)≈	8.61E-1(4.42E-4)≈	8.61E-1(3.99E-4)≈	8.61E-1(3.07E-4)≈
	8	9.21E-1(1.77E-2)	9.21E-1(2.60E-2)≈	9.17E-1(2.53E-2)≈	9.26E-1(3.19E-4)≈	9.25E-1(5.71E-3)≈
	10	9.64E-1(1.42E-2)	9.66E-1(1.23E-2)≈	9.66E-1(1.17E-2)≈	9.59E-1(2.02E-2)≈	9.62E-1(1.76E-2)≈
DTLZ3	2	3.46E-1(7.35E-4)	3.45E-1(1.46E-3)+	3.46E-1(1.08E-3)+	3.46E-1(1.11E-3)+	3.46E-1(9.63E-4)≈
	4	7.14E-1(1.59E-3)	7.13E-1(2.05E-3)≈	7.14E-1(1.32E-3)≈	7.13E-1(1.35E-3)≈	7.13E-1(1.94E-3)+
	6	8.57E-1(3.02E-3)	8.57E-1(3.03E-3)≈	8.56E-1(3.34E-3)≈	8.57E-1(2.33E-3)≈	8.57E-1(3.53E-3)≈
	8	9.23E-1(2.54E-3)	9.13E-1(5.09E-2)≈	9.23E-1(1.83E-3)≈	9.02E-1(8.18E-2)≈	9.23E-1(1.97E-3)≈
	10	9.03E-1(1.67E-1)	9.38E-1(6.96E-2)≈	9.67E-1(5.85E-3)-	9.48E-1(4.46E-2)≈	9.24E-1(9.38E-2)≈
DTLZ4	2	3.47E-1(5.33E-5)	3.47E-1(1.53E-5)≈	3.47E-1(1.20E-4)≈	3.47E-1(1.06E-5)≈	3.47E-1(4.39E-6)≈
	4	7.15E-1(4.98E-4)	7.10E-1(2.87E-2)≈	6.89E-1(6.09E-2)+	7.04E-1(4.04E-2)≈	6.94E-1(5.59E-2)+
	6	8.53E-1(3.12E-2)	8.61E-1(3.89E-4)≈	8.51E-1(3.20E-2)≈	8.61E-1(3.15E-4)≈	8.61E-1(4.53E-4)≈
	8	9.26E-1(2.68E-4)	9.20E-1(2.69E-2)≈	9.12E-1(3.05E-2)+	9.17E-1(2.52E-2)+	9.24E-1(8.55E-3)≈
	10	9.66E-1(1.29E-2)	9.67E-1(1.17E-2)≈	9.66E-1(1.08E-2)≈	9.64E-1(1.38E-2)≈	9.68E-1(8.98E-3)≈
DTLZ5	2	3.47E-1(4.55E-8)	3.47E-1(5.99E-7)≈	3.47E-1(7.05E-7)+	3.47E-1(4.99E-8)≈	3.47E-1(9.57E-8)≈
	4	1.40E-1(2.32E-3)	1.40E-1(3.64E-3)≈	1.40E-1(2.10E-3)≈	1.41E-1(2.38E-3)≈	1.41E-1(2.10E-3)≈
	6	9.70E-2(5.24E-3)	9.59E-2(1.07E-2)≈	9.75E-2(4.12E-3)≈	9.88E-2(3.82E-3)≈	9.86E-2(2.67E-3)≈
	8	9.21E-2(2.62E-3)	9.16E-2(2.09E-3)≈	9.21E-2(2.27E-3)≈	9.20E-2(2.38E-3)≈	9.13E-2(2.25E-3)≈
	10	8.83E-2(3.04E-3)	8.90E-2(2.31E-3)≈	8.62E-2(5.54E-3)+	8.92E-2(2.71E-3)≈	8.74E-2(3.65E-3)≈
DTLZ6	2	3.47E-1(4.68E-8)	3.47E-1(4.71E-8)≈	3.47E-1(4.08E-8)≈	3.47E-1(2.69E-8)≈	3.47E-1(3.98E-8)≈
	4	1.35E-1(5.32E-3)	1.36E-1(3.63E-3)≈	1.33E-1(1.03E-2)≈	1.35E-1(6.91E-3)≈	1.32E-1(9.32E-3)≈
	6	9.15E-2(1.99E-3)	9.13E-2(1.34E-3)≈	9.21E-2(2.91E-3)≈	9.14E-2(1.73E-3)≈	9.12E-2(1.30E-3)≈
	8	9.10E-2(5.71E-4)	9.11E-2(8.75E-4)≈	9.11E-2(5.32E-4)≈	9.11E-2(8.47E-4)≈	9.11E-2(5.17E-4)≈
	10	9.10E-2(3.17E-4)	9.09E-2(2.24E-4)≈	9.09E-2(2.07E-4)≈	9.09E-2(2.81E-4)≈	8.63E-2(1.82E-2)≈
DTLZ7	2	2.43E-1(1.29E-5)	2.43E-1(2.07E-5)≈	2.43E-1(1.87E-5)≈	2.43E-1(1.96E-5)≈	2.43E-1(1.46E-5)≈
	4	2.57E-1(5.59E-3)	2.58E-1(3.82E-3)≈	2.58E-1(5.50E-3)≈	2.58E-1(3.86E-3)≈	2.59E-1(5.89E-3)≈
	6	2.31E-1(2.68E-3)	2.30E-1(2.84E-3)≈	2.31E-1(2.74E-3)≈	2.31E-1(2.48E-3)≈	2.30E-1(2.50E-3)≈
	8	2.13E-1(2.75E-3)	2.12E-1(2.36E-3)≈	2.12E-1(2.94E-3)≈	2.13E-1(2.58E-3)≈	2.12E-1(2.84E-3)≈
	10	1.82E-1(7.56E-3)	1.82E-1(7.54E-3)≈	1.81E-1(7.78E-3)≈	1.80E-1(7.46E-3)≈	1.85E-1(7.92E-3)≈
WFG1	2	6.77E-1(6.99E-3)	6.73E-1(8.85E-3)+	6.77E-1(5.95E-3)≈	6.73E-1(1.17E-2)+	6.69E-1(2.10E-2)+
	4	9.82E-1(9.63E-3)	9.83E-1(9.86E-3)≈	9.84E-1(8.16E-3)≈	9.83E-1(8.62E-3)≈	9.82E-1(1.09E-2)≈
	6	8.58E-1(2.14E-2)	8.59E-1(2.95E-2)≈	8.70E-1(2.21E-2)-	8.62E-1(2.30E-2)≈	8.41E-1(2.61E-2)+
	8	9.83E-1(2.61E-2)	9.89E-1(1.95E-2)≈	9.83E-1(2.32E-2)≈	9.93E-1(1.06E-2)-	9.85E-1(2.82E-2)≈
	10	9.99E-1(5.31E-4)	9.99E-1(3.07E-4)≈	9.99E-1(6.37E-4)≈	9.99E-1(3.30E-4)≈	9.99E-1(3.94E-4)≈
WFG2	2	6.32E-1(4.81E-4)	6.32E-1(3.13E-4)-	6.32E-1(3.82E-4)-	6.32E-1(4.89E-4)≈	6.32E-1(3.20E-4)-
	4	9.88E-1(4.40E-4)	9.88E-1(6.01E-4)≈	9.88E-1(4.99E-4)≈	9.88E-1(4.14E-4)≈	9.88E-1(3.87E-4)≈
	6	9.95E-1(8.58E-4)	9.95E-1(9.23E-4)≈	9.95E-1(9.24E-4)≈	9.95E-1(8.78E-4)≈	9.95E-1(8.78E-4)≈
	8	9.96E-1(1.54E-3)	9.96E-1(1.12E-3)≈	9.96E-1(1.11E-3)≈	9.97E-1(1.07E-3)≈	9.97E-1(1.13E-3)≈
	10	9.97E-1(9.06E-4)	9.98E-1(9.61E-4)-	9.97E-1(1.09E-3)≈	9.97E-1(1.19E-3)≈	9.97E-1(1.54E-3)≈
WFG3	2	5.82E-1(2.12E-4)	5.82E-1(2.48E-4)+	5.82E-1(2.75E-4)≈	5.82E-1(2.14E-4)+	5.82E-1(2.22E-4)≈
	4	2.55E-1(6.72E-3)	2.55E-1(7.27E-3)≈	2.56E-1(9.22E-3)≈	2.55E-1(6.04E-3)≈	2.55E-1(8.01E-3)≈
	6	4.70E-2(1.82E-2)	5.04E-2(2.00E-2)≈	5.37E-2(1.83E-2)≈	5.04E-2(2.58E-2)≈	5.44E-2(2.01E-2)≈
	8	2.08E-2(1.43E-2)	2.95E-2(1.56E-2)-	3.62E-2(1.85E-2)-	2.39E-2(1.93E-2)≈	2.33E-2(1.79E-2)≈
	10	2.68E-3(8.51E-3)	8.98E-3(9.60E-3)-	1.93E-2(8.65E-3)-	5.58E-4(1.08E-3)≈	3.06E-3(7.07E-3)≈
WFG4	2	3.47E-1(4.39E-5)	3.47E-1(3.93E-5)≈	3.47E-1(4.10E-5)≈	3.47E-1(5.41E-5)≈	3.47E-1(5.02E-5)≈
	4	7.11E-1(9.62E-4)	7.11E-1(9.16E-4)≈	7.12E-1(6.59E-4)≈	7.11E-1(9.85E-4)≈	7.11E-1(9.10E-4)≈
	6	8.45E-1(1.72E-2)	8.48E-1(2.03E-2)≈	8.48E-1(1.21E-2)≈	8.45E-1(1.74E-2)≈	8.47E-1(1.53E-2)≈
	8	9.12E-1(1.41E-3)	9.12E-1(2.57E-3)≈	9.07E-1(2.21E-2)≈	9.08E-1(1.59E-2)≈	9.13E-1(2.42E-3)≈
	10	9.60E-1(6.68E-3)	9.61E-1(1.72E-3)≈	9.60E-1(2.80E-3)≈	9.61E-1(1.78E-3)≈	9.61E-1(1.37E-3)≈
WFG5	2	3.13E-1(1.00E-3)	3.13E-1(5.99E-5)≈	3.13E-1(2.95E-5)≈	3.13E-1(6.27E-5)≈	3.13E-1(1.26E-5)≈
	4	6.69E-1(5.48E-4)	6.68E-1(5.20E-4)+	6.69E-1(4.72E-4)≈	6.69E-1(5.11E-4)≈	6.69E-1(4.63E-4)≈
	6	8.06E-1(4.44E-4)	8.06E-1(4.40E-4)≈	8.05E-1(4.21E-4)≈	8.06E-1(3.87E-4)≈	8.06E-1(4.48E-4)≈
	8	8.63E-1(7.01E-4)	8.63E-1(6.86E-4)≈	8.63E-1(4.66E-4)≈	8.63E-1(6.30E-4)≈	8.63E-1(8.25E-4)≈
	10	9.03E-1(3.27E-4)	9.04E-1(3.44E-4)≈	9.04E-1(2.35E-4)≈	9.04E-1(2.72E-4)≈	9.04E-1(3.25E-4)≈
WFG6	2	3.11E-1(6.92E-3)	3.08E-1(8.20E-3)≈	3.07E-1(5.28E-3)+	3.08E-1(6.81E-3)≈	3.09E-1(7.33E-3)≈
	4	6.59E-1(8.78E-3)	6.61E-1(8.37E-3)≈	6.61E-1(8.38E-3)≈	6.60E-1(7.44E-3)≈	6.58E-1(7.74E-3)≈
	6	7.96E-1(9.48E-3)	7.99E-1(6.00E-3)≈	7.98E-1(9.34E-3)≈	7.93E-1(8.70E-3)≈	7.93E-1(1.01E-2)≈
	8	8.41E-1(1.71E-2)	8.41E-1(1.58E-2)≈	8.39E-1(1.86E-2)≈	8.38E-1(1.85E-2)≈	8.41E-1(1.79E-2)≈
	10	8.78E-1(1.50E-2)	8.78E-1(1.54E-2)≈	8.75E-1(2.12E-2)≈	8.84E-1(1.39E-2)≈	8.85E-1(1.63E-2)≈

Table S4
(Continue)

WFG7	2	3.47E-1(1.75E-5)	3.47E-1(2.04E-5)≈	3.47E-1(1.98E-5)≈	3.47E-1(1.74E-5)≈	3.47E-1(2.05E-5)≈
	4	7.12E-1(7.24E-4)	7.12E-1(5.96E-4)≈	7.12E-1(6.03E-4)≈	7.12E-1(5.59E-4)≈	7.12E-1(5.90E-4)≈
	6	8.55E-1(8.41E-4)	8.55E-1(8.20E-4)≈	8.55E-1(9.75E-4)≈	8.55E-1(7.27E-4)≈	8.55E-1(6.42E-4)≈
	8	9.14E-1(1.61E-2)	9.17E-1(1.09E-3)≈	9.17E-1(1.20E-3)≈	9.17E-1(1.06E-3)≈	9.16E-1(7.31E-3)≈
	10	9.62E-1(1.13E-2)	9.58E-1(1.54E-2)≈	9.62E-1(1.16E-2)≈	9.61E-1(1.22E-2)≈	9.61E-1(1.39E-2)≈
WFG8	2	3.03E-1(5.29E-4)	3.03E-1(4.43E-4)≈	3.02E-1(4.46E-4)≈	3.03E-1(5.61E-4)≈	3.03E-1(4.80E-4)≈
	4	6.34E-1(2.61E-3)	6.34E-1(1.70E-3)≈	6.35E-1(9.54E-4)≈	6.35E-1(8.40E-4)≈	6.34E-1(9.33E-4)≈
	6	7.67E-1(1.63E-3)	7.67E-1(1.95E-3)≈	7.68E-1(1.54E-3)≈	7.64E-1(1.88E-2)≈	7.67E-1(1.88E-3)≈
	8	7.85E-1(2.46E-2)	7.84E-1(2.74E-2)≈	7.84E-1(2.39E-2)≈	7.84E-1(2.76E-2)≈	7.82E-1(2.32E-2)≈
	10	8.65E-1(1.60E-2)	8.68E-1(1.81E-2)≈	8.62E-1(1.41E-2)≈	8.64E-1(1.67E-2)≈	8.64E-1(1.83E-2)≈
WFG9	2	3.40E-1(1.67E-2)	3.39E-1(1.67E-2)≈	3.40E-1(1.67E-2)≈	3.40E-1(1.68E-2)≈	3.43E-1(9.86E-4)≈
	4	6.76E-1(3.44E-3)	6.77E-1(3.22E-3)≈	6.77E-1(3.05E-3)≈	6.76E-1(3.38E-3)≈	6.75E-1(2.84E-3)≈
	6	7.91E-1(1.66E-2)	7.82E-1(2.70E-2)≈	7.92E-1(1.68E-2)≈	7.81E-1(3.07E-2)≈	7.91E-1(1.55E-2)≈
	8	8.31E-1(4.92E-2)	8.20E-1(6.04E-2)≈	8.49E-1(9.47E-3)-	8.28E-1(4.89E-2)≈	8.11E-1(6.70E-2)≈
	10	8.83E-1(4.57E-2)	8.76E-1(5.84E-2)≈	8.99E-1(8.01E-3)-	8.68E-1(6.04E-2)≈	8.85E-1(4.24E-2)≈
W/L/T		5/4/71	6/7/67	4/2/74	4/2/74	

Table S5

Comparison of HV and Statistical Results on DTLZ And WFG Test Problems (“+”-Win, “≈”-Tie, “-”-Loss)

#	M	NSGA-III ₅ *	NSGA-III ₁ *	NSGA-III ₂ *	NSGA-III ₃ *	NSGA-III ₄ *
DTLZ1	2	5.82E-1(1.83E-4)	5.82E-1(1.75E-4)≈	5.83E-1(5.40E-5)≈	5.82E-1(1.42E-4)≈	5.83E-1(9.73E-5)≈
	4	9.45E-1(2.47E-4)	9.45E-1(1.73E-4)≈	9.45E-1(2.41E-4)≈	9.45E-1(3.07E-4)≈	9.45E-1(2.63E-4)≈
	6	9.90E-1(8.37E-5)	9.90E-1(3.95E-3)≈	9.90E-1(1.13E-4)≈	9.89E-1(5.41E-3)≈	9.90E-1(1.05E-4)≈
	8	9.98E-1(5.02E-4)	9.85E-1(6.71E-2)≈	9.97E-1(1.14E-3)≈	9.98E-1(6.72E-5)≈	9.97E-1(1.76E-3)≈
	10	1.00E+0(2.26E-4)	9.96E-1(1.91E-2)≈	9.97E-1(1.49E-2)≈	9.96E-1(1.67E-2)≈	1.00E+0(2.62E-4)≈
DTLZ2	2	3.47E-1(8.51E-8)	3.47E-1(6.33E-7)≈	3.47E-1(1.33E-7)≈	3.47E-1(2.01E-7)≈	3.47E-1(4.83E-7)≈
	4	7.15E-1(4.04E-4)	7.15E-1(4.85E-4)+	7.15E-1(4.62E-4)≈	7.15E-1(3.97E-4)≈	7.15E-1(3.47E-4)+
	6	8.61E-1(3.07E-4)	8.61E-1(3.63E-4)≈	8.61E-1(4.42E-4)≈	8.61E-1(3.99E-4)≈	8.61E-1(3.77E-4)≈
	8	9.25E-1(5.71E-3)	9.21E-1(2.60E-2)≈	9.17E-1(2.53E-2)≈	9.26E-1(3.19E-4)≈	9.21E-1(1.77E-2)≈
	10	9.62E-1(1.76E-2)	9.66E-1(1.23E-2)≈	9.66E-1(1.17E-2)≈	9.59E-1(2.02E-2)≈	9.64E-1(1.42E-2)≈
DTLZ3	2	3.46E-1(9.63E-4)	3.45E-1(1.46E-3)+	3.46E-1(1.08E-3)≈	3.46E-1(1.11E-3)≈	3.46E-1(7.35E-4)≈
	4	7.13E-1(1.94E-3)	7.13E-1(2.05E-3)≈	7.14E-1(1.32E-3)≈	7.13E-1(1.35E-3)≈	7.14E-1(1.59E-3)-
	6	8.57E-1(3.53E-3)	8.57E-1(3.03E-3)≈	8.56E-1(3.34E-3)≈	8.57E-1(2.33E-3)≈	8.57E-1(3.02E-3)≈
	8	9.23E-1(1.97E-3)	9.13E-1(5.09E-2)≈	9.23E-1(1.83E-3)≈	9.02E-1(8.18E-2)≈	9.23E-1(2.54E-3)≈
	10	9.24E-1(9.38E-2)	9.38E-1(6.96E-2)≈	9.67E-1(5.85E-3)≈	9.48E-1(4.46E-2)≈	9.03E-1(1.67E-1)≈
DTLZ4	2	3.47E-1(4.39E-6)	3.47E-1(1.53E-5)≈	3.47E-1(1.20E-4)≈	3.47E-1(1.06E-5)≈	3.47E-1(5.33E-5)≈
	4	6.94E-1(5.59E-2)	7.10E-1(2.87E-2)≈	6.89E-1(6.09E-2)≈	7.04E-1(4.04E-2)≈	7.15E-1(4.98E-4)-
	6	8.61E-1(4.53E-4)	8.61E-1(3.89E-4)≈	8.51E-1(3.20E-2)+	8.61E-1(3.15E-4)≈	8.53E-1(3.12E-2)≈
	8	9.24E-1(8.55E-3)	9.20E-1(2.69E-2)≈	9.12E-1(3.05E-2)+	9.17E-1(2.52E-2)≈	9.26E-1(2.68E-4)≈
	10	9.68E-1(8.98E-3)	9.67E-1(1.17E-2)≈	9.66E-1(1.08E-2)≈	9.64E-1(1.38E-2)≈	9.66E-1(1.29E-2)≈
DTLZ5	2	3.47E-1(9.57E-8)	3.47E-1(5.99E-7)≈	3.47E-1(7.05E-7)≈	3.47E-1(4.99E-8)≈	3.47E-1(4.55E-8)≈
	4	1.41E-1(2.10E-3)	1.40E-1(3.64E-3)≈	1.40E-1(2.10E-3)≈	1.41E-1(2.38E-3)≈	1.40E-1(2.32E-3)≈
	6	9.86E-2(2.67E-3)	9.59E-2(1.07E-2)≈	9.75E-2(4.12E-3)≈	9.88E-2(3.82E-3)≈	9.70E-2(5.24E-3)≈
	8	9.13E-2(2.25E-3)	9.16E-2(2.09E-3)≈	9.21E-2(2.27E-3)≈	9.20E-2(2.38E-3)≈	9.21E-2(2.62E-3)≈
	10	8.74E-2(3.65E-3)	8.90E-2(2.31E-3)≈	8.62E-2(5.54E-3)≈	8.92E-2(2.71E-3)-	8.83E-2(3.04E-3)≈
DTLZ6	2	3.47E-1(3.98E-8)	3.47E-1(4.71E-8)≈	3.47E-1(4.08E-8)≈	3.47E-1(2.69E-8)≈	3.47E-1(4.68E-8)≈
	4	1.32E-1(9.32E-3)	1.36E-1(3.63E-3)≈	1.33E-1(1.03E-2)≈	1.35E-1(6.91E-3)≈	1.35E-1(5.32E-3)≈
	6	9.12E-2(1.30E-3)	9.13E-2(1.34E-3)≈	9.21E-2(2.91E-3)≈	9.14E-2(1.73E-3)≈	9.15E-2(1.99E-3)≈
	8	9.11E-2(5.17E-4)	9.11E-2(8.75E-4)≈	9.11E-2(5.32E-4)≈	9.11E-2(8.47E-4)≈	9.10E-2(5.71E-4)≈
	10	8.63E-2(1.82E-2)	9.09E-2(2.24E-4)≈	9.09E-2(2.07E-4)≈	9.09E-2(2.81E-4)≈	9.10E-2(3.17E-4)≈
DTLZ7	2	2.43E-1(1.46E-5)	2.43E-1(2.07E-5)≈	2.43E-1(1.87E-5)≈	2.43E-1(1.96E-5)≈	2.43E-1(1.29E-5)≈
	4	2.59E-1(5.89E-3)	2.58E-1(3.82E-3)≈	2.58E-1(5.50E-3)≈	2.58E-1(3.86E-3)≈	2.57E-1(5.59E-3)≈
	6	2.30E-1(2.50E-3)	2.30E-1(2.84E-3)≈	2.31E-1(2.74E-3)≈	2.31E-1(2.48E-3)≈	2.31E-1(2.68E-3)≈
	8	2.12E-1(2.84E-3)	2.12E-1(2.36E-3)≈	2.12E-1(2.94E-3)≈	2.13E-1(2.58E-3)≈	2.13E-1(2.75E-3)≈
	10	1.85E-1(7.92E-3)	1.82E-1(7.54E-3)≈	1.81E-1(7.78E-3)≈	1.80E-1(7.46E-3)+	1.82E-1(7.56E-3)≈
WFG1	2	6.69E-1(2.10E-2)	6.73E-1(8.85E-3)≈	6.77E-1(5.95E-3)≈	6.73E-1(1.17E-2)≈	6.77E-1(6.99E-3)≈
	4	9.82E-1(1.09E-2)	9.83E-1(9.86E-3)≈	9.84E-1(8.16E-3)≈	9.83E-1(8.62E-3)≈	9.82E-1(9.63E-3)≈
	6	8.41E-1(2.61E-2)	8.59E-1(2.95E-2)-	8.70E-1(2.21E-2)-	8.62E-1(2.30E-2)-	8.58E-1(2.14E-2)-
	8	9.85E-1(2.82E-2)	9.89E-1(1.95E-2)≈	9.83E-1(2.32E-2)≈	9.93E-1(1.06E-2)≈	9.83E-1(2.61E-2)≈
	10	9.99E-1(3.94E-4)	9.99E-1(3.07E-4)-	9.99E-1(6.37E-4)≈	9.99E-1(3.30E-4)-	9.99E-1(5.31E-4)≈
WFG2	2	6.32E-1(3.20E-4)	6.32E-1(3.13E-4)-	6.32E-1(3.82E-4)≈	6.32E-1(4.89E-4)≈	6.32E-1(4.81E-4)+
	4	9.88E-1(3.87E-4)	9.88E-1(6.01E-4)≈	9.88E-1(4.99E-4)≈	9.88E-1(4.14E-4)≈	9.88E-1(4.40E-4)≈
	6	9.95E-1(8.78E-4)	9.95E-1(9.23E-4)≈	9.95E-1(9.24E-4)≈	9.95E-1(8.78E-4)≈	9.95E-1(8.58E-4)≈
	8	9.97E-1(1.13E-3)	9.96E-1(1.12E-3)≈	9.96E-1(1.11E-3)≈	9.97E-1(1.07E-3)≈	9.96E-1(1.54E-3)≈
	10	9.97E-1(1.54E-3)	9.98E-1(9.61E-4)≈	9.97E-1(1.09E-3)≈	9.97E-1(1.19E-3)≈	9.97E-1(9.06E-4)≈

Table S5
(Continue)

WFG3	2	5.82E-1(2.22E-4)	5.82E-1(2.48E-4)+	5.82E-1(2.75E-4)≈	5.82E-1(2.14E-4)+	5.82E-1(2.12E-4)≈
	4	2.55E-1(8.01E-3)	2.55E-1(7.27E-3)≈	2.56E-1(9.22E-3)≈	2.55E-1(6.04E-3)≈	2.55E-1(6.72E-3)≈
	6	5.44E-2(2.01E-2)	5.04E-2(2.00E-2)≈	5.37E-2(1.83E-2)≈	5.04E-2(2.58E-2)≈	4.70E-2(1.82E-2)≈
	8	2.33E-2(1.79E-2)	2.95E-2(1.56E-2)≈	3.62E-2(1.85E-2)-	2.39E-2(1.93E-2)≈	2.08E-2(1.43E-2)≈
	10	3.06E-3(7.07E-3)	8.98E-3(9.60E-3)-	1.93E-2(8.65E-3)-	5.58E-4(1.08E-3)+	2.68E-3(8.51E-3)≈
WFG4	2	3.47E-1(5.02E-5)	3.47E-1(3.93E-5)≈	3.47E-1(4.10E-5)≈	3.47E-1(5.41E-5)≈	3.47E-1(4.39E-5)≈
	4	7.11E-1(9.10E-4)	7.11E-1(9.16E-4)≈	7.12E-1(6.59E-4)≈	7.11E-1(9.85E-4)≈	7.11E-1(9.62E-4)≈
	6	8.47E-1(1.53E-3)	8.48E-1(2.03E-3)≈	8.48E-1(1.21E-3)≈	8.45E-1(1.74E-2)≈	8.45E-1(1.72E-2)≈
	8	9.13E-1(2.42E-3)	9.12E-1(2.57E-3)≈	9.07E-1(2.21E-2)≈	9.08E-1(1.59E-2)≈	9.12E-1(1.41E-3)≈
	10	9.61E-1(1.37E-3)	9.61E-1(1.72E-3)≈	9.60E-1(2.80E-3)≈	9.61E-1(1.78E-3)≈	9.60E-1(6.68E-3)≈
WFG5	2	3.13E-1(1.26E-5)	3.13E-1(5.99E-5)+	3.13E-1(2.95E-5)≈	3.13E-1(6.27E-5)≈	3.13E-1(1.00E-3)≈
	4	6.69E-1(4.63E-4)	6.68E-1(5.20E-4)+	6.69E-1(4.72E-4)≈	6.69E-1(5.11E-4)≈	6.69E-1(5.48E-4)≈
	6	8.06E-1(4.48E-4)	8.06E-1(4.40E-4)≈	8.05E-1(4.21E-4)≈	8.06E-1(3.87E-4)≈	8.06E-1(4.44E-4)≈
	8	8.63E-1(8.25E-4)	8.63E-1(6.86E-4)≈	8.63E-1(4.66E-4)≈	8.63E-1(6.30E-4)≈	8.63E-1(7.01E-4)≈
	10	9.04E-1(3.25E-4)	9.04E-1(3.44E-4)+	9.04E-1(2.35E-4)+	9.04E-1(2.72E-4)+	9.03E-1(3.27E-4)+
WFG6	2	3.09E-1(7.33E-3)	3.08E-1(8.20E-3)≈	3.07E-1(5.28E-3)≈	3.08E-1(6.81E-3)≈	3.11E-1(6.92E-3)≈
	4	6.58E-1(7.74E-3)	6.61E-1(8.37E-3)≈	6.61E-1(8.38E-3)≈	6.60E-1(7.44E-3)≈	6.59E-1(8.78E-3)≈
	6	7.93E-1(1.01E-2)	7.99E-1(6.00E-3)-	7.98E-1(9.34E-3)-	7.93E-1(8.70E-3)≈	7.96E-1(9.48E-3)≈
	8	8.41E-1(1.79E-2)	8.41E-1(1.58E-2)≈	8.39E-1(1.86E-2)≈	8.38E-1(1.85E-2)≈	8.41E-1(1.71E-2)≈
	10	8.85E-1(1.63E-2)	8.78E-1(1.54E-2)+	8.75E-1(2.12E-2)+	8.84E-1(1.39E-2)≈	8.78E-1(1.50E-2)≈
WFG7	2	3.47E-1(2.05E-5)	3.47E-1(2.04E-5)≈	3.47E-1(1.98E-5)≈	3.47E-1(1.74E-5)≈	3.47E-1(1.75E-5)≈
	4	7.12E-1(5.90E-4)	7.12E-1(5.96E-4)≈	7.12E-1(6.03E-4)≈	7.12E-1(5.59E-4)≈	7.12E-1(7.24E-4)≈
	6	8.55E-1(6.42E-4)	8.55E-1(8.20E-4)≈	8.55E-1(9.75E-4)≈	8.55E-1(7.27E-4)≈	8.55E-1(8.41E-4)≈
	8	9.16E-1(7.31E-3)	9.17E-1(1.09E-3)≈	9.17E-1(1.20E-3)≈	9.17E-1(1.06E-3)≈	9.14E-1(1.61E-2)≈
	10	9.61E-1(1.39E-2)	9.58E-1(1.54E-2)≈	9.62E-1(1.16E-2)≈	9.61E-1(1.22E-2)≈	9.62E-1(1.13E-2)≈
WFG8	2	3.03E-1(4.80E-4)	3.03E-1(4.43E-4)≈	3.02E-1(4.46E-4)≈	3.03E-1(5.61E-4)≈	3.03E-1(5.29E-4)≈
	4	6.34E-1(9.33E-4)	6.34E-1(1.70E-3)≈	6.35E-1(9.54E-4)≈	6.35E-1(8.40E-4)≈	6.34E-1(2.61E-3)≈
	6	7.67E-1(1.88E-3)	7.67E-1(1.95E-3)≈	7.68E-1(1.54E-3)≈	7.64E-1(1.88E-2)≈	7.67E-1(1.63E-3)≈
	8	7.82E-1(2.32E-2)	7.84E-1(2.74E-2)≈	7.84E-1(2.39E-2)≈	7.84E-1(2.76E-2)≈	7.85E-1(2.46E-2)≈
	10	8.64E-1(1.83E-2)	8.68E-1(1.81E-2)≈	8.62E-1(1.41E-2)≈	8.64E-1(1.67E-2)≈	8.65E-1(1.60E-2)≈
WFG9	2	3.43E-1(9.86E-4)	3.39E-1(1.67E-2)≈	3.40E-1(1.67E-2)≈	3.40E-1(1.68E-2)≈	3.40E-1(1.67E-2)≈
	4	6.75E-1(2.84E-3)	6.77E-1(3.22E-3)≈	6.77E-1(3.05E-3)-	6.76E-1(3.38E-3)≈	6.76E-1(3.44E-3)≈
	6	7.91E-1(1.55E-2)	7.82E-1(2.70E-2)≈	7.92E-1(1.68E-2)≈	7.81E-1(3.07E-2)≈	7.91E-1(1.66E-2)≈
	8	8.11E-1(6.70E-2)	8.20E-1(6.04E-2)≈	8.49E-1(9.47E-3)-	8.28E-1(4.89E-2)≈	8.31E-1(4.92E-2)≈
	10	8.85E-1(4.24E-2)	8.76E-1(5.84E-2)≈	8.99E-1(8.01E-3)-	8.68E-1(6.04E-2)≈	8.83E-1(4.57E-2)≈
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