This is the supplementary material for

- N. Ito, S. Kim, M. Kojima, A. Takeda, and K.-C. Toh, "Equivalences and Differences in Conic Relaxations of Combinatorial Quadratic Optimization Problems".

A Detailed Numerical Results

The following Table 4 shows the approximate optimal value $\hat{\zeta}$, computation time τ, and iteration count of BP and SDPNAL+ applied to the COPs for each instances addressed in Section 7. The parameter $\lambda \in \{10^{3+(5/7)\gamma} \mid \gamma = 0, 1, 2, 3, 4, 5, 6, 7\}$ used for BP was also described.

Table 4: Approximate optimal value $\hat{\zeta}$ (computation time τ , iteration count) of the COPs for each instance. The parameter λ used for BP was also described.

Set 1 of small size QAP instances

tai10a

		$L_{\rm Z}$	$L_{\rm C}$
BP	$L_{\rm E1sum}$	134969.9 (1.60e1, 31) [λ =1.00e2]	135028.0 (3.25e0, 39) [λ =1.93e7]
SDPNAL+	$L_{\rm E1sum}$	135027.9 (2.27e1, 3703)	134972.8 (3.69e1, 8194)
	$L_{\rm E1}$	135022.7 (1.13e1, 1631)	134955.1 (3.31e1, 7258)
	$L_{\rm E2}$	135028.0 (1.50e2, 622)	135024.8 (7.77e1, 541)
	$L_{\rm E3}$	135028.0 (1.00e1, 1113)	135028.0 (5.87e0, 1015)

		$L'_{\rm Z}$	$L'_{\rm C}$
BP	$L'_{\rm E1sum}$	N/A	135028.0 (3.02e0, 39) [λ =3.73e6]
SDPNAL+	$L'_{\rm E1sum}$	135028.0 (2.32e1, 3651)	134996.0 (1.45e1, 3259)
	$L'_{\rm E1}$	135027.7 (1.07e1, 1277)	134994.0 (1.76e1, 2732)
	$L'_{\rm E2}$	135023.4 (2.39e2, 753)	135022.9 (1.94e2, 983)
	$L''_{\rm E3}$	135028.0 (9.55e0, 805)	135024.1 (7.17e0, 825)

tai10b

		$L_{\rm Z}$	$L_{\rm C}$
BP	$L_{\rm E1sum}$	1181355.0 (1.25e1, 36) [λ =1.00e8]	1183756.4 (2.97e0, 36) [λ =1.93e7]
SDPNAL+	$L_{\rm E1sum}$	1183642.0 (3.13e1, 5266)	1183264.5 (5.59e1, 14485)
	$L_{\rm E1}$	1183776.9 (2.26e1, 4058)	1183256.9 (7.00e1, 14209)
	$L_{\rm E2}$	1183754.1 (2.85e2, 633)	1183632.7 (9.20e1, 890)
	$L_{\rm E3}$	1183759.8 (1.48e1, 1738)	1183914.8 (7.80e0, 1376)

		$L'_{\rm Z}$	$L'_{\rm C}$
BP	$L'_{\rm E1sum}$	N/A	1183757.9 (2.68e0, 37) [λ =1.93e7]
SDPNAL+	$L'_{\rm E1sum}$	1183767.3 (2.08e1, 3605)	1183475.6 (3.59e1, 8975)
	$L'_{\rm E1}$	1183767.7 (2.80e1, 3565)	1183483.9 (1.63e1, 2444)
	$L'_{\rm E2}$	1183759.8 (2.24e2, 933)	1183673.4 (2.90e2, 1196)
	$L''_{\rm E3}$	1183727.5 (3.27e1, 4289)	1183660.7 (1.35e1, 1859)

chr12a

		$L_{\rm Z}$	$L_{\rm C}$
BP	$L_{\rm E1sum}$	9458.2 (1.96e1, 35) [λ =1.00e3]	9551.9 (7.44e0, 34) [λ =3.73e6]
SDPNAL+	$L_{\rm E1sum}$	9551.4 (1.74e1, 1739)	9544.5 (5.35e1, 11852)
	$L_{\rm E1}$	9551.6 (1.71e1, 1880)	9542.9 (7.47e1, 13237)
	$L_{\rm E2}$	9552.0 (7.38e2, 1243)	9552.0 (6.50e2, 1081)
	$L_{\rm E3}$	9552.0 (1.62e1, 1733)	9550.4 (1.52e1, 2284)

		$L'_{\rm Z}$	$L'_{\rm C}$
BP	$L'_{\rm E1sum}$	N/A	9552.0 (5.12e0, 37) [λ =3.73e6]
SDPNAL+	$L'_{\rm E1sum}$	9552.0 (1.37e1, 1565)	9546.7 (5.95e1, 9843)
	$L'_{\rm E1}$	9548.6 (1.78e1, 1470)	9542.3 (4.57e1, 3626)

	L'_{E2}	9552.0 (8.38e2, 1192)	9552.0 (1.52e3, 2204)
	L''_{E3}	9552.0 (2.82e1, 1731)	9548.5 (2.89e1, 2340)

chr12b

		L_{Z}	L_{C}
BP	L_{E1sum}	9608.6 (1.34e1, 30) [λ =1.00e3]	9741.9 (7.87e0, 35) [λ =7.20e5]
SDPNAL+	L_{E1sum}	9741.7 (3.26e1, 3416)	9737.5 (9.14e1, 15024)
	L_{E1}	9739.9 (3.48e1, 2919)	9732.7 (6.49e1, 11110)
	L_{E2}	9742.0 (8.59e2, 1233)	9741.4 (6.58e2, 1152)
	L_{E3}	9741.7 (1.74e1, 1764)	9742.0 (1.46e1, 2366)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	9741.7 (5.88e0, 39) [λ =1.93e7]
SDPNAL+	L'_{E1sum}	9742.0 (1.46e1, 1723)	9739.0 (8.73e1, 15598)
	L'_{E1}	9741.5 (2.32e1, 1864)	9736.6 (6.52e1, 5881)
	L'_{E2}	9742.0 (1.14e3, 1083)	9739.0 (1.57e3, 2450)
	L''_{E3}	9742.0 (2.81e1, 1863)	9739.8 (3.78e1, 3092)

chr12c

		L_{Z}	L_{C}
BP	L_{E1sum}	11048.8 (1.76e1, 34) [λ =1.00e3]	11156.0 (7.41e0, 33) [λ =3.73e6]
SDPNAL+	L_{E1sum}	11155.9 (2.64e1, 2835)	11147.9 (8.48e1, 15595)
	L_{E1}	11156.0 (2.88e1, 3163)	11147.2 (6.57e1, 11958)
	L_{E2}	11156.0 (8.20e2, 935)	11152.1 (6.18e2, 962)
	L_{E3}	11155.9 (3.77e1, 4058)	11152.5 (1.96e1, 2164)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	11156.0 (5.37e0, 36) [λ =3.73e6]
SDPNAL+	L'_{E1sum}	11155.4 (2.31e1, 2377)	11153.4 (5.92e1, 9788)
	L'_{E1}	11152.7 (4.04e1, 2057)	11151.2 (8.90e1, 6692)
	L'_{E2}	11156.0 (1.19e3, 1242)	11152.2 (9.85e2, 1402)
	L''_{E3}	11155.9 (4.56e1, 2736)	11152.3 (3.10e1, 2123)

had12

		L_{Z}	L_{C}
BP	L_{E1sum}	1651.9 (8.72e0, 13) [λ =3.73e6]	1652.0 (2.00e1, 13) [λ =7.20e5]
SDPNAL+	L_{E1sum}	1652.0 (3.10e1, 2946)	1651.4 (8.95e1, 14222)
	L_{E1}	1651.9 (2.59e1, 2093)	1651.3 (1.45e2, 19452)
	L_{E2}	1652.0 (8.92e2, 822)	1652.0 (4.50e2, 634)
	L_{E3}	1652.0 (1.95e1, 1999)	1652.0 (1.75e1, 1918)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	1652.0 (1.51e1, 15) [λ =7.20e5]
SDPNAL+	L'_{E1sum}	1652.0 (2.33e1, 1639)	1651.8 (1.72e1, 2107)
	L'_{E1}	1651.9 (3.06e1, 1473)	1651.8 (2.58e1, 1877)
	L'_{E2}	1652.0 (1.18e3, 1000)	1652.0 (1.26e3, 776)
	L''_{E3}	1651.9 (2.77e1, 1946)	1652.0 (1.33e1, 1312)

nug12

		L_{Z}	L_{C}
BP	L_{E1sum}	567.9 (2.13e1, 15) [λ =1.39e5]	567.9 (2.60e1, 15) [λ =3.73e6]
SDPNAL+	L_{E1sum}	568.0 (1.49e1, 1320)	567.6 (1.69e1, 1695)
	L_{E1}	567.9 (1.39e1, 1232)	567.6 (1.69e1, 1616)
	L_{E2}	568.0 (4.65e2, 542)	568.0 (6.05e2, 720)
	L_{E3}	567.9 (1.10e1, 1031)	568.0 (1.55e1, 1400)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	567.9 (7.90e0, 13) [λ =2.68e4]
SDPNAL+	L'_{E1sum}	568.0 (2.45e1, 2204)	567.9 (1.46e1, 1335)
	L'_{E1}	568.0 (1.80e1, 1103)	567.9 (2.73e1, 1616)
	L'_{E2}	568.0 (6.29e2, 530)	568.0 (1.00e3, 635)
	L''_{E3}	567.9 (2.31e1, 1100)	568.0 (1.79e1, 1193)

rou12

		L_{Z}	L_{C}

BP	L_{E1sum}	235527.8 (2.50e1, 21) [λ =3.73e6]	235527.8 (2.15e1, 21) [λ =3.73e6]
SDPNAL+	L_{E1sum}	235527.6 (5.35e1, 5759)	235443.2 (1.20e2, 17390)
	L_{E1}	235525.4 (4.88e1, 5443)	235443.7 (1.39e2, 16624)
	L_{E2}	235528.0 (1.76e3, 1754)	235527.6 (1.32e3, 687)
	L_{E3}	235522.5 (4.76e1, 5113)	235528.0 (5.40e1, 6071)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	235524.0 (7.65e0, 22) [λ =3.73e6]
SDPNAL+	L'_{E1sum}	235527.6 (4.83e1, 4996)	235504.1 (4.88e1, 6673)
	L'_{E1}	235518.1 (6.12e1, 4943)	235502.3 (1.22e2, 8914)
	L'_{E2}	235525.6 (1.54e3, 1592)	235522.8 (1.74e3, 940)
	L''_{E3}	235524.3 (6.89e1, 4473)	235518.3 (8.56e1, 6409)

scr12

		L_{Z}	L_{C}
BP	L_{E1sum}	31407.1 (2.41e1, 14) [λ =7.20e5]	31407.6 (2.55e1, 14) [λ =7.20e5]
SDPNAL+	L_{E1sum}	31409.4 (4.17e1, 3332)	31373.6 (1.56e1, 1655)
	L_{E1}	31408.3 (4.06e1, 3615)	31378.3 (1.61e1, 1703)
	L_{E2}	31409.8 (3.51e2, 278)	31409.5 (3.11e2, 200)
	L_{E3}	31409.4 (1.01e1, 673)	31409.5 (6.67e0, 551)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	31408.7 (2.06e1, 14) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	31409.4 (1.98e1, 1759)	31389.2 (8.46e0, 1039)
	L'_{E1}	31409.6 (9.16e0, 536)	31391.8 (1.76e1, 1100)
	L'_{E2}	31410.0 (3.78e2, 315)	31408.3 (3.46e2, 172)
	L''_{E3}	31409.1 (1.82e1, 662)	31409.8 (1.17e1, 616)

Set 2 of medium size QAP instances

chr20a

		L_{Z}	L_{C}
BP	L_{E1sum}	2136.3 (2.06e2, 32) [λ =1.00e3]	2191.9 (1.72e2, 32) [λ =1.39e5]
SDPNAL+	L_{E1sum}	2191.8 (6.98e2, 12673)	2190.5 (1.01e3, 20000)
	L_{E1}	2191.7 (8.27e2, 8055)	2189.3 (7.28e2, 19880)
	L_{E3}	2191.5 (4.15e2, 5853)	2191.5 (4.78e2, 6399)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	2191.9 (1.42e2, 34) [λ =2.68e4]
SDPNAL+	L'_{E1sum}	2191.8 (6.17e2, 5896)	2191.0 (9.18e2, 20000)
	L'_{E1}	2190.6 (7.69e2, 5356)	2189.9 (1.02e3, 11866)
	L''_{E3}	2192.0 (6.72e2, 5816)	2191.8 (7.95e2, 6904)

chr20b

		L_{Z}	L_{C}
BP	L_{E1sum}	2242.4 (2.33e2, 36) [λ =1.00e3]	2298.0 (1.20e2, 40) [λ =3.73e6]
SDPNAL+	L_{E1sum}	2297.7 (4.40e2, 4780)	2295.4 (5.80e2, 15417)
	L_{E1}	2297.7 (3.42e2, 3860)	2295.1 (8.57e2, 15446)
	L_{E3}	2298.0 (3.43e2, 4152)	2296.5 (2.72e2, 3061)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	2298.0 (1.25e2, 40) [λ =1.93e7]
SDPNAL+	L'_{E1sum}	2297.6 (3.49e2, 3657)	2296.2 (3.51e2, 6628)
	L'_{E1}	2297.7 (4.40e2, 3224)	2295.8 (2.62e2, 2188)
	L''_{E3}	2297.9 (6.37e2, 3980)	2296.4 (4.16e2, 3887)

chr20c

		L_{Z}	L_{C}
BP	L_{E1sum}	13499.5 (2.82e2, 31) [λ =1.00e3]	14141.6 (8.31e1, 35) [λ =7.20e5]
SDPNAL+	L_{E1sum}	14134.8 (8.22e2, 10636)	14124.5 (6.18e2, 18584)
	L_{E1}	14137.2 (7.14e2, 7522)	14130.8 (5.72e2, 16116)
	L_{E3}	14137.2 (3.27e2, 5965)	14130.5 (3.75e2, 6686)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	14141.3 (7.75e1, 38) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	14136.5 (6.63e2, 8392)	14124.1 (7.86e2, 20000)

	L'_{E1}	14138.6 (6.39e2, 5722)	14128.9 (1.16e3, 13897)
	L''_{E3}	14137.2 (9.48e2, 5972)	14131.3 (8.71e2, 8230)

had20

		L_{Z}	L_{C}
BP	L_{E1sum}	6921.7 (2.71e2, 16) [λ =7.20e5]	6921.8 (2.10e2, 14) [λ =7.20e5]
SDPNAL+	L_{E1sum}	6921.9 (8.15e2, 7144)	6920.0 (1.19e3, 17371)
	L_{E1}	6921.9 (6.65e2, 5979)	6918.3 (1.16e3, 20000)
	L_{E3}	6921.9 (5.47e2, 5726)	6921.9 (7.13e2, 8948)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	6921.8 (3.39e2, 18) [λ =7.20e5]
SDPNAL+	L'_{E1sum}	6921.9 (1.03e3, 8455)	6921.5 (8.81e2, 13132)
	L'_{E1}	6921.9 (1.21e3, 5389)	6921.4 (1.00e3, 9382)
	L''_{E3}	6921.8 (1.47e3, 6294)	6921.9 (4.34e2, 2773)

lipa20a

		L_{Z}	L_{C}
BP	L_{E1sum}	3683.0 (3.90e1, 17) [λ =1.00e8]	3683.0 (3.40e1, 17) [λ =1.00e8]
SDPNAL+	L_{E1sum}	3683.0 (1.42e2, 1604)	3668.5 (1.31e3, 20000)
	L_{E1}	3683.0 (8.06e1, 1104)	3681.8 (8.41e2, 16536)
	L_{E3}	3683.0 (8.80e1, 956)	3683.1 (1.03e2, 1381)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	3683.0 (1.90e1, 18) [λ =1.93e7]
SDPNAL+	L'_{E1sum}	3682.9 (2.10e2, 2193)	3682.9 (1.80e2, 3214)
	L'_{E1}	3683.0 (4.17e2, 1826)	3682.9 (3.70e2, 3424)
	L''_{E3}	3682.9 (3.01e2, 1502)	3682.8 (3.76e2, 3284)

lipa20b

		L_{Z}	L_{C}
BP	L_{E1sum}	27076.0 (4.70e1, 21) [λ =1.00e8]	27076.0 (2.88e1, 21) [λ =1.00e8]
SDPNAL+	L_{E1sum}	27074.8 (7.24e1, 718)	27064.3 (9.59e2, 13231)
	L_{E1}	27075.6 (3.98e1, 325)	27057.0 (7.56e2, 16308)
	L_{E3}	27075.9 (3.46e1, 315)	27076.4 (4.11e1, 536)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	27076.0 (1.23e1, 21) [λ =1.00e8]
SDPNAL+	L'_{E1sum}	27076.0 (6.71e1, 637)	27072.7 (5.25e2, 11753)
	L'_{E1}	27076.0 (1.10e2, 640)	27071.0 (3.37e2, 3289)
	L''_{E3}	27076.0 (7.99e1, 318)	27074.3 (2.44e2, 2328)

nug20

		L_{Z}	L_{C}
BP	L_{E1sum}	2506.0 (2.20e2, 18) [λ =7.20e5]	2506.1 (2.29e2, 18) [λ =7.20e5]
SDPNAL+	L_{E1sum}	2506.2 (4.36e2, 3973)	2504.7 (2.30e2, 2621)
	L_{E1}	2506.2 (1.37e2, 1586)	2504.4 (1.58e2, 1934)
	L_{E3}	2506.2 (1.25e2, 1151)	2506.2 (2.16e2, 2509)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	2506.2 (2.64e2, 17) [λ =7.20e5]
SDPNAL+	L'_{E1sum}	2506.2 (6.75e2, 6247)	2506.0 (1.35e2, 1750)
	L'_{E1}	2506.2 (7.01e2, 3978)	2506.1 (3.30e2, 2542)
	L''_{E3}	2506.2 (3.06e2, 1301)	2506.2 (2.71e2, 1827)

rou20

		L_{Z}	L_{C}
BP	L_{E1sum}	695153.3 (2.93e2, 26) [λ =1.00e3]	695146.3 (4.87e2, 26) [λ =1.39e5]
SDPNAL+	L_{E1sum}	695149.3 (1.77e2, 1820)	694725.3 (2.37e2, 2356)
	L_{E1}	695145.3 (9.23e1, 970)	694565.1 (1.25e2, 1505)
	L_{E3}	695145.4 (9.06e1, 901)	695147.4 (1.03e2, 1199)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	695166.1 (3.50e2, 26) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	695162.5 (3.89e2, 3156)	695099.5 (1.08e2, 1365)

	L'_{E1}	695156.1 (6.75e2, 4398)	695094.6 (2.55e2, 1874)
	L''_{E3}	695143.2 (1.92e2, 835)	695150.8 (2.00e2, 1395)

scr20

		L_{Z}	L_{C}
BP	L_{E1sum}	106771.6 (4.76e2, 22) [λ =2.68e4]	106769.6 (4.78e2, 22) [λ =2.68e4]
SDPNAL+	L_{E1sum}	106786.1 (4.38e2, 5306)	106727.1 (1.73e2, 2191)
	L_{E1}	106784.0 (3.20e2, 3675)	106724.0 (1.45e2, 1823)
	L_{E3}	106785.3 (1.95e2, 1844)	106790.0 (2.62e2, 2726)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	106770.9 (3.87e2, 18) [λ =5.18e3]
SDPNAL+	L'_{E1sum}	106790.2 (6.03e2, 5445)	106776.4 (1.98e2, 2672)
	L'_{E1}	106787.1 (3.38e2, 2373)	106777.3 (3.00e2, 2277)
	L''_{E3}	106787.5 (3.25e2, 1642)	106790.6 (3.63e2, 2459)

tai20a

		L_{Z}	L_{C}
BP	L_{E1sum}	671655.4 (2.05e2, 25) [λ =1.00e3]	671644.5 (3.58e2, 26) [λ =1.39e5]
SDPNAL+	L_{E1sum}	671622.2 (1.04e2, 1077)	671228.4 (2.29e2, 2144)
	L_{E1}	671644.1 (9.61e1, 984)	670880.7 (9.22e1, 1040)
	L_{E3}	671638.1 (8.54e1, 862)	671648.9 (9.52e1, 1100)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	671662.3 (2.37e2, 26) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	671651.0 (2.91e2, 2903)	671592.6 (1.03e2, 1275)
	L'_{E1}	671652.0 (2.07e2, 1454)	671594.4 (2.26e2, 1670)
	L''_{E3}	671623.7 (1.23e2, 809)	671653.7 (1.47e2, 1001)

tai20b

		L_{Z}	L_{C}
BP	L_{E1sum}	122455118.0 (8.07e1, 28) [λ =7.20e5]	122454872.0 (5.15e1, 28) [λ =7.20e5]
SDPNAL+	L_{E1sum}	122429547.0 (8.44e2, 12861)	122452764.0 (1.16e3, 20000)
	L_{E1}	122453685.0 (6.27e2, 7471)	122430078.0 (1.04e3, 20000)
	L_{E3}	122461260.0 (4.84e2, 6625)	122421773.0 (3.66e2, 5573)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	122455077.0 (4.14e1, 31) [λ =3.73e6]
SDPNAL+	L'_{E1sum}	122424884.0 (6.97e2, 8495)	122498512.0 (9.62e2, 20000)
	L'_{E1}	122404568.0 (7.18e2, 7142)	122448621.0 (1.37e3, 17478)
	L''_{E3}	122426570.0 (9.93e2, 7251)	122510924.0 (6.83e2, 9161)

Set 3 of medium size QAP instances

bur26a

		L_{Z}	L_{C}
BP	L_{E1sum}	5419724.6 (1.69e3, 39) [λ =1.93e7]	5426259.2 (2.08e3, 41) [λ =1.39e5]
SDPNAL+	L_{E1sum}	5426777.3 (4.47e3, 20000)	5424997.6 (4.52e3, 20000)
	L_{E1}	5426725.6 (6.11e3, 18700)	5425343.2 (5.27e3, 20000)
	L_{E3}	5426728.2 (4.84e3, 11258)	5426725.9 (2.51e3, 5507)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	5426401.7 (2.64e3, 42) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	5426783.6 (5.59e3, 20000)	5426071.5 (4.39e3, 20000)
	L'_{E1}	5426765.2 (1.00e4, 14166)	5426039.0 (9.14e3, 20000)
	L''_{E3}	5426750.8 (1.00e4, 9968)	5426723.2 (7.04e3, 8003)

bur26b

		L_{Z}	L_{C}
BP	L_{E1sum}	3810603.9 (1.62e3, 40) [λ =1.93e7]	3817369.4 (1.88e3, 39) [λ =1.39e5]
SDPNAL+	L_{E1sum}	3817724.9 (4.30e3, 20000)	3816617.4 (4.46e3, 20000)
	L_{E1}	3817700.5 (6.33e3, 15937)	3816845.9 (5.20e3, 20000)
	L_{E3}	3817700.0 (3.77e3, 9365)	3817693.6 (1.48e3, 4905)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	3817413.4 (2.20e3, 42) [λ =1.39e5]

SDPNAL+	L'_{E1sum}	3817718.6 (5.76e3, 20000)	3817103.5 (4.41e3, 20000)
	L'_{E1}	3817728.5 (1.00e4, 14422)	3817122.1 (9.66e3, 20000)
	L''_{E3}	3817708.6 (1.00e4, 8302)	3817704.5 (5.90e3, 6650)

bur26c

		L_{Z}	L_{C}
BP	L_{E1sum}	5411781.1 (1.88e3, 38) [λ =1.93e7]	5426454.2 (2.84e3, 42) [λ =1.39e5]
SDPNAL+	L_{E1sum}	5427271.2 (5.01e3, 20000)	5425685.6 (4.52e3, 20000)
	L_{E1}	5427137.8 (6.50e3, 20000)	5425816.0 (5.43e3, 20000)
	L_{E3}	5427116.5 (9.04e3, 20000)	5427111.1 (5.82e3, 9801)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	5426484.3 (2.25e3, 42) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	5427388.4 (5.62e3, 20000)	5426611.9 (4.38e3, 20000)
	L'_{E1}	5427170.9 (1.00e4, 15415)	5426784.8 (9.20e3, 20000)
	L''_{E3}	5427322.5 (1.00e4, 9559)	5427121.5 (1.00e4, 12823)

bur26d

		L_{Z}	L_{C}
BP	L_{E1sum}	3813431.3 (1.75e3, 39) [λ =1.93e7]	3820543.1 (3.16e3, 42) [λ =1.39e5]
SDPNAL+	L_{E1sum}	3820975.2 (4.95e3, 20000)	3819885.8 (4.53e3, 20000)
	L_{E1}	3821016.1 (4.84e3, 10876)	3820085.1 (5.15e3, 20000)
	L_{E3}	3821014.2 (4.44e3, 12816)	3821016.2 (2.57e3, 6829)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	3820557.5 (2.47e3, 42) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	3821087.5 (5.52e3, 20000)	3820679.1 (4.44e3, 20000)
	L'_{E1}	3821017.8 (9.61e3, 16612)	3820583.9 (9.79e3, 20000)
	L''_{E3}	3821020.3 (1.00e4, 9641)	3821016.8 (7.42e3, 8174)

bur26e

		L_{Z}	L_{C}
BP	L_{E1sum}	5381736.2 (1.58e3, 39) [λ =1.93e7]	5386709.3 (1.25e3, 41) [λ =1.39e5]
SDPNAL+	L_{E1sum}	5387626.3 (4.32e3, 20000)	5385829.8 (4.50e3, 20000)
	L_{E1}	5387212.0 (7.54e3, 19250)	5385929.3 (5.40e3, 20000)
	L_{E3}	5387176.0 (4.01e3, 11540)	5387210.4 (2.99e3, 7276)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	5386772.3 (1.07e3, 40) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	5387572.3 (5.77e3, 20000)	5386731.8 (4.37e3, 20000)
	L'_{E1}	5387292.7 (1.00e4, 11678)	5386910.9 (9.19e3, 20000)
	L''_{E3}	5387575.8 (1.00e4, 11714)	5387278.0 (9.90e3, 17184)

bur26f

		L_{Z}	L_{C}
BP	L_{E1sum}	3777708.5 (1.56e3, 42) [λ =1.93e7]	3781944.1 (1.42e3, 38) [λ =1.39e5]
SDPNAL+	L_{E1sum}	3782581.0 (4.47e3, 20000)	3781257.1 (4.52e3, 20000)
	L_{E1}	3782199.7 (6.16e3, 16878)	3781441.7 (5.11e3, 20000)
	L_{E3}	3782203.5 (3.28e3, 10009)	3782204.0 (1.93e3, 5193)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	3781966.5 (1.12e3, 42) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	3782281.0 (5.61e3, 20000)	3781949.0 (4.21e3, 20000)
	L'_{E1}	3782209.1 (1.00e4, 11236)	3782080.4 (9.76e3, 20000)
	L''_{E3}	3782497.2 (1.00e4, 8741)	3782198.1 (1.00e4, 12805)

bur26g

		L_{Z}	L_{C}
BP	L_{E1sum}	10107806.8 (1.57e3, 38) [λ =1.93e7]	10116848.7 (9.36e2, 40) [λ =1.39e5]
SDPNAL+	L_{E1sum}	10118653.0 (4.34e3, 20000)	10115665.7 (4.32e3, 20000)
	L_{E1}	10118054.4 (6.01e3, 20000)	10115845.7 (5.43e3, 20000)
	L_{E3}	10117757.1 (2.48e3, 9468)	10117411.2 (1.41e3, 4952)

		L'_{Z}	L'_{C}

BP	L'_{E1sum}	N/A	10116940.7 (5.22e2, 42) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	10118400.6 (5.30e3, 20000)	10117447.0 (4.30e3, 20000)
	L'_{E1}	10117420.8 (8.41e3, 12370)	10117590.4 (1.00e4, 17949)
	L''_{E3}	10118245.6 (1.00e4, 10940)	10117298.7 (8.83e3, 14450)

bur26h

		L_{Z}	L_{C}
BP	L_{E1sum}	7091870.8 (1.66e3, 39) [λ =1.93e7]	7098446.9 (1.03e3, 32) [λ =1.39e5]
SDPNAL+	L_{E1sum}	7099649.6 (4.28e3, 20000)	7097156.0 (4.27e3, 20000)
	L_{E1}	7099226.3 (4.74e3, 20000)	7097511.4 (5.16e3, 20000)
	L_{E3}	7098971.5 (2.26e3, 9706)	7098537.7 (1.44e3, 5182)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	7098525.5 (4.01e2, 42) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	7099481.3 (5.28e3, 20000)	7098445.4 (4.24e3, 20000)
	L'_{E1}	7098816.9 (8.71e3, 13564)	7098910.7 (1.00e4, 17802)
	L''_{E3}	7099613.4 (1.00e4, 8447)	7099077.5 (1.00e4, 13846)

nug25

		L_{Z}	L_{C}
BP	L_{E1sum}	3625.5 (7.84e2, 19) [λ =1.39e5]	3625.4 (5.69e2, 19) [λ =1.39e5]
SDPNAL+	L_{E1sum}	3625.6 (2.34e3, 9941)	3623.8 (7.79e2, 3120)
	L_{E1}	3625.6 (8.07e2, 2549)	3622.8 (4.47e2, 2000)
	L_{E3}	3625.6 (9.91e2, 3164)	3625.7 (1.16e3, 4077)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	3625.6 (8.84e2, 16) [λ =7.20e5]
SDPNAL+	L'_{E1sum}	3625.6 (2.64e3, 8207)	3625.2 (4.78e2, 2267)
	L'_{E1}	3625.6 (3.52e3, 6597)	3625.4 (1.42e3, 2835)
	L''_{E3}	3625.5 (1.72e3, 1850)	3625.7 (1.89e3, 2651)

chr25a

		L_{Z}	L_{C}
BP	L_{E1sum}	3648.6 (8.17e2, 36) [λ =1.00e3]	3795.9 (4.25e2, 41) [λ =1.39e5]
SDPNAL+	L_{E1sum}	3795.7 (1.98e3, 10490)	3792.0 (2.29e3, 15568)
	L_{E1}	3795.6 (1.56e3, 5621)	3790.7 (2.56e3, 13878)
	L_{E3}	3795.9 (1.32e3, 5496)	3793.1 (1.18e3, 4368)

		L'_{Z}	L'_{C}
BP	L'_{E1sum}	N/A	3795.9 (3.61e2, 38) [λ =1.39e5]
SDPNAL+	L'_{E1sum}	3794.5 (1.47e3, 5601)	3792.5 (1.31e3, 7567)
	L'_{E1}	3795.9 (1.46e3, 4350)	3788.9 (1.15e3, 2459)
	L''_{E3}	3795.7 (3.84e3, 3935)	3792.0 (1.44e3, 2080)