Table 2. Maxima and minima of SO/CS integrated intensity ratios

Source	Max position		Max	Min position		Min
	$\Delta\alpha('')$	$\Delta\delta('')$	Ratio	$\Delta\alpha('')$	$\Delta\delta('')$	Ratio
DR 21(OH)	−80	160	0.53	−80	40	0.13
G 34.3+0.2	−80	−80	0.62	−80	0	0.20
IRAS 21391+5802	60	120	1.17	90	30	0.25
Mon R2	0	0	0.25	0	−40	0.11
NGC 1333	120	−160	1.30	−40	40	0.20
NGC 1333 isotopomers	160	−120	1.69	0	0	0.08
NGC 2024	40	120	0.53	−40	40	0.18
NGC 2068	120	−80	1.26	−40	−40	0.09
NGC 2071	−160	120	1.58	0	40	0.26
Residual NGC 2071	−200	160	1.79	0	0	0.20
NGC 2264IR	0	80	0.77	0	−120	0.26
NGC 7538	40	0	0.65	−40	−160	0.23
OMC–2	0	40	0.30	−40	0	0.10
OMC–3	0	40	0.76	80	−80	0.27
S 140	80	−80	0.68	80	−40	0.13
W3(IRS4)	−80	80	0.73	20	20	0.19
W3(OH)	80	0	0.50	20	60	0.18
W 49N	0	0	0.76	−80	0	0.15
W 51N	120	40	0.69	120	−80	0.20
NGC 2023	−80	−40	0.89	0	0	0.22
Orion A	0	0	3.31	40	120	0.09
Residual Orion A	40	−40	0.34	−40	80	0.03

Table 3. Integrated intensity ratios (A–E) and estimated abundance ratios (F) at certain positions

Source	Offset ($''$,$''$)	Ratio A SO/^{34}SO	Ratio B CS/C^{34}S	Ratio C SO/CS	Ratio D ^{34}SO/C^{34}S	Ratio E Adopted	Ratio F [SO]/[CS]
DR 21(OH)	(−40,0)		8.2(0.3)	0.42(0.02)		0.16(0.01)^b	0.6
DR 21(OH)	(0,−40)		6.3(0.1)	0.43(0.01)		0.12(0.00)^b	0.5
DR 21(OH)	(0,−160)	24.3(5.0)	7.9(0.2)	0.27(0.02)	0.09(0.02)	0.09(0.02)^a	0.4
DR 21(OH)	(0,0)	20.5(0.9)	6.7(0.1)	0.47(0.01)	0.15(0.01)	0.15(0.01)^a	0.6
DR 21(OH)	(0,40)		7.4(0.3)	0.49(0.02)		0.17(0.01)^b	0.7
DR 21(OH)	(40,0)		10.9(0.8)	0.27(0.02)		0.13(0.02)^b	0.5
G 34.3+0.2	(−40,0)		5.2(0.4)	0.39(0.02)		0.09(0.01)^b	0.4
G 34.3+0.2	(0,−40)		5.7(0.5)	0.33(0.02)		0.08(0.01)^b	0.3
G 34.3+0.2	(0,0)	18.1(1.0)	4.8(0.1)	0.40(0.01)	0.11(0.01)	0.11(0.01)^a	0.4
G 34.3+0.2	(0,40)		4.7(0.3)	0.38(0.03)		0.08(0.01)^b	0.3
G 34.3+0.2	(40,0)		5.3(0.4)	0.51(0.04)		0.12(0.01)^b	0.5
IRAS 21391+5802	(0,0)	20.6(4.9)	15.6(1.1)	0.41(0.02)	0.31(0.08)	0.31(0.08)^a	1.3
Mon R2	(0,0)		7.7(0.3)	0.25(0.01)		0.09(0.00)^b	0.4
Mon R2	(0,40)		9.7(0.6)	0.18(0.01)		0.08(0.01)^b	0.3
NGC 1333	(0,0)		11.5(1.1)	0.23(0.01)		0.12(0.01)^b	0.5
NGC 1333	(40,−40)	23.4(5.4)	17.2(5.8)	0.72(0.02)	0.53(0.21)	0.53(0.21)^a	2.2
NGC 1333	(40,−160)	18.2(7.6)	9.6(0.9)	0.61(0.04)	0.32(0.14)	0.32(0.14)^a	1.3
NGC 1333	(80,−40)	10.9(1.1)	8.1(0.7)	0.93(0.03)	0.70(0.09)	0.70(0.09)^a	2.9
NGC 1333	(80,−80)	14.2(2.3)	12.5(2.9)	1.11(0.04)	0.97(0.28)	0.97(0.28)^a	4.0
NGC 1333	(80,−120)	11.8(2.0)	5.9(0.4)	0.84(0.03)	0.42(0.08)	0.42(0.08)^a	1.7
NGC 1333	(80,−160)	10.9(1.2)	11.2(0.8)	0.80(0.03)	0.83(0.11)	0.83(0.11)^a	3.3
NGC 1333	(80,0)	14.2(2.1)	9.5(0.7)	0.78(0.02)	0.53(0.09)	0.53(0.09)^a	2.2
NGC 1333	(80,40)	11.1(2.8)	22.0(7.7)	0.85(0.05)	1.68(0.72)	1.68(0.42)^c	6.9
NGC 1333	(120,−200)	6.1(0.8)	8.6(0.9)	0.76(0.05)	1.08(0.17)	1.08(0.17)^a	4.4
NGC 1333	(120,−40)	10.8(1.9)	13.4(2.4)	1.03(0.05)	1.27(0.31)	1.27(0.31)^a	5.2
NGC 1333	(120,−80)	10.0(3.7)	14.6(3.8)	0.82(0.06)	1.19(0.54)	1.19(0.54)^a	4.8
NGC 1333	(120,−120)	12.6(2.1)	7.6(1.0)	0.90(0.03)	0.54(0.11)	0.54(0.11)^a	2.2
NGC 1333	(120,−160)	5.5(0.5)	6.6(0.8)	1.30(0.04)	1.56(0.23)	1.56(0.23)^a	6.4
NGC 1333	(120,0)	11.8(3.4)	16.1(3.8)	0.72(0.05)	0.98(0.36)	0.98(0.36)^a	4.0
NGC 1333	(120,40)		10.7(2.1)	0.66(0.06)		0.32(0.07)^b	1.3
NGC 1333	(160,−120)	6.0(1.3)	16.6(5.9)	0.61(0.05)	1.69(0.70)	1.69(0.70)^a	6.9
NGC 1333	(160,−160)	9.6(1.6)	7.8(1.1)	1.05(0.06)	0.85(0.18)	0.85(0.18)^a	3.5
NGC 2023	(0,0)			0.22(0.03)		0.22(0.03)^d	0.9
NGC 2024	(−40,0)		9.9(1.2)	0.23(0.02)		0.10(0.01)^b	0.4
NGC 2024	(0,−40)	18.8(2.8)	8.3(0.4)	0.27(0.01)	0.12(0.02)	0.12(0.02)^a	0.5
NGC 2024	(0,0)		7.2(0.2)	0.31(0.01)		0.10(0.00)^b	0.4
NGC 2024	(0,40)	14.9(2.6)	7.7(0.4)	0.25(0.01)	0.13(0.02)	0.13(0.02)^a	0.5
NGC 2024	(40,0)		6.0(0.6)	0.46(0.04)		0.13(0.01)^b	0.5
NGC 2068	(0,0)		11.0(1.9)	0.25(0.03)		0.14(0.03)^b	0.6
NGC 2068	(120,−80)	16.0(4.8)		1.26(0.26)		1.26(0.26)^d	5.1
NGC 2071	(0,0)		5.9(0.3)	0.20(0.02)		0.05(0.01)^b	0.2
NGC 2264IR	(−40,0)		10.6(0.6)	0.30(0.01)		0.14(0.01)^b	0.6
NGC 2264IR	(0,−40)		8.3(0.4)	0.36(0.01)		0.14(0.01)^b	0.6
NGC 2264IR	(0,0)	17.6(1.2)	9.8(0.3)	0.56(0.01)	0.31(0.02)	0.31(0.02)^a	1.3
NGC 2264IR	(0,40)		6.8(0.4)	0.67(0.02)		0.21(0.02)^b	0.8
NGC 2264IR	(40,0)		8.3(0.5)	0.59(0.02)		0.22(0.02)^b	0.9

a(b) denotes value(1σ error) where an error of (0.00) means 1σ error < 0.005

Ratio A: SO(3_2-2_1)/^{34}SO(3_2-2_1), Ratio B: CS($2-1$)/C^{34}S($2-1$), Ratio C: SO(3_2-2_1)/CS($2-1$)

Ratio D: ^{34}SO(3_2-2_1)/C^{34}S($2-1$), Ratio E: adopted SO/CS ratio, calculated for optically thin lines, T_{ex} = 20 K (see text). Explanations of the adopted SO/CS ratio: ^{a}: ^{34}SO(3_2-2_1)/C^{34}S($2-1$), ^{b}: SO(3_2-2_1)/(22×C^{34}S($2-1$)), ^{c}: 22×^{34}SO(3_2-2_1)/CS($2-1$), ^{d}: SO(3_2-2_1)/CS($2-1$)

Table 3. continued

Source	Offset ($''$,$''$)	Ratio A $SO/^{34}SO$	Ratio B $CS/C^{34}S$	Ratio C SO/CS	Ratio D $^{34}SO/C^{34}S$	Ratio E Adopted	Ratio F [SO]/[CS]
NGC 7538	(−40,0)		14.1(1.5)	0.32(0.02)		0.21(0.02)^b	0.8
NGC 7538	(0,−40)	20.5(1.8)	8.2(0.3)	0.46(0.01)	0.19(0.02)	0.19(0.02)^a	0.8
NGC 7538	(0,0)	18.5(2.2)	8.4(0.3)	0.28(0.00)	0.13(0.02)	0.13(0.02)^a	0.5
NGC 7538	(0,40)		10.1(1.1)	0.51(0.05)		0.23(0.03)^b	0.9
NGC 7538	(40,0)		5.6(0.3)	0.65(0.02)		0.17(0.01)^b	0.7
OMC–2	(0,0)		14.8(1.3)	0.14(0.01)		0.09(0.01)^b	0.4
OMC–3	(0,0)		10.7(1.0)	0.58(0.03)		0.28(0.02)^b	1.1
Orion A	(−40,0)		6.4(0.3)	0.09(0.01)		0.03(0.00)^b	0.1
Orion A	(0,−40)		10.1(0.6)	0.15(0.01)		0.07(0.01)^b	0.3
Orion A	(0,−80)		5.0(0.2)	0.23(0.01)		0.05(0.00)^b	0.2
Orion A	(0,0)		5.7(0.1)	0.11(0.01)		0.03(0.00)^b	0.1
Orion A	(0,40)		7.4(0.4)	0.18(0.02)		0.05(0.01)^b	0.2
Orion A	(40,0)		7.9(1.0)	0.32(0.02)		0.11(0.02)^b	0.5
S 140	(−40,0)		8.8(0.6)	0.46(0.01)		0.18(0.01)^b	0.7
S 140	(0,−40)		11.1(1.1)	0.27(0.01)		0.14(0.02)^b	0.6
S 140	(0,0)	7.9(0.7)	8.9(0.4)	0.40(0.00)	0.45(0.04)	0.45(0.04)^a	1.9
S 140	(0,40)		8.5(0.5)	0.44(0.01)		0.17(0.01)^b	0.7
S 140	(40,0)		7.4(0.5)	0.30(0.01)		0.10(0.01)^b	0.4
W3(IRS4)	(−40,−40)		10.8(0.6)	0.31(0.02)		0.15(0.01)^b	0.6
W3(IRS4)	(−40,0)		8.0(0.7)	0.43(0.02)		0.16(0.02)^b	0.6
W3(IRS4)	(−40,40)		17.8(5.1)	0.35(0.03)		0.29(0.09)^b	1.1
W3(IRS4)	(0,−40)	19.4(2.3)	7.3(0.2)	0.34(0.01)	0.13(0.02)	0.13(0.02)^a	0.5
W3(IRS4)	(0,0)		6.6(0.1)	0.29(0.00)		0.09(0.00)^b	0.4
W3(IRS4)	(0,40)		8.2(0.9)	0.23(0.02)		0.08(0.01)^b	0.3
W3(IRS4)	(40,−40)		11.6(0.8)	0.45(0.01)		0.24(0.02)^b	0.9
W3(IRS4)	(40,0)		12.8(1.0)	0.36(0.01)		0.21(0.02)^b	0.8
W3(IRS4)	(40,40)		20.3(5.1)	0.20(0.03)		0.18(0.05)^b	0.7
W3(OH)	(−40,0)		7.1(0.4)	0.46(0.02)		0.15(0.01)^b	0.6
W3(OH)	(0,−40)		15.0(1.4)	0.31(0.01)		0.21(0.02)^b	0.8
W3(OH)	(0,0)	23.4(2.4)	7.4(0.2)	0.49(0.01)	0.15(0.02)	0.15(0.02)^a	0.6
W3(OH)	(0,40)		12.8(1.1)	0.23(0.01)		0.13(0.01)^b	0.5
W3(OH)	(40,0)		11.0(0.6)	0.30(0.02)		0.15(0.01)^b	0.6
W 49N	(−40,0)		6.1(0.2)	0.38(0.01)		0.10(0.00)^b	0.4
W 49N	(0,−40)		9.3(0.5)	0.41(0.02)		0.17(0.01)^b	0.7
W 49N	(0,0)	10.8(0.2)	7.6(0.1)	0.76(0.00)	0.54(0.01)	0.54(0.01)^a	2.2
W 49N	(0,40)		6.7(0.2)	0.34(0.01)		0.10(0.01)^b	0.4
W 49N	(40,0)		7.7(0.2)	0.43(0.01)		0.15(0.01)^b	0.6
W 51N	(−40,−40)		6.5(0.1)	0.36(0.01)		0.11(0.00)^b	0.4
W 51N	(−40,0)		7.0(0.2)	0.38(0.01)		0.12(0.00)^b	0.5
W 51N	(−40,40)		12.0(0.6)	0.28(0.01)		0.15(0.01)^b	0.6
W 51N	(0,−40)		6.1(0.1)	0.27(0.01)		0.08(0.00)^b	0.3
W 51N	(0,0)	20.2(1.2)	6.1(0.1)	0.36(0.01)	0.11(0.01)	0.11(0.01)^a	0.4
W 51N	(0,40)		9.5(0.5)	0.23(0.01)		0.10(0.01)^b	0.4
W 51N	(40,−40)	17.4(0.6)	4.9(0.1)	0.37(0.00)	0.10(0.00)	0.10(0.00)^a	0.4
W 51N	(40,0)		5.7(0.1)	0.33(0.01)		0.09(0.00)^b	0.4
W 51N	(40,40)		7.5(0.4)	0.27(0.01)		0.09(0.01)^b	0.4

a(b) denotes value(1σ error) where an error of (0.00) means 1σ error < 0.005

Ratio A: $SO(3_2-2_1)/^{34}SO(3_2-2_1)$, Ratio B: $CS(2-1)/C^{34}S(2-1)$, Ratio C: $SO(3_2-2_1)/CS(2-1)$
Ratio D: $^{34}SO(3_2-2_1)/C^{34}S(2-1)$, Ratio E: adopted SO/CS ratio, calculated for optically thin lines, $T_{ex} = 20$ K (see text). Explanations of the adopted SO/CS ratio: ^{a}: $^{34}SO(3_2-2_1)/C^{34}S(2-1)$, ^{b}: $SO(3_2-2_1)/(22\times C^{34}S(2-1))$, ^{c}: $22\times{}^{34}SO(3_2-2_1)/CS(2-1)$, ^{d}: $SO(3_2-2_1)/CS(2-1)$