TABLE 1 : Molecules in this 2mm line survey of IRC+10216

Molecule	Isotopomer or v-state	Number of Observed Transitions	Table	Previous IRAM data[1]
SiS	SiS	2	4	this work
	^{29}SiS	2	4	Kahane et al 1988,1992
	^{30}SiS	2	4	Kahane et al 1988,1992
	Si^{34}S	2	4	Kahane et al 1988,1992
	Si^{33}S	2	4	Kahane et al 1988,1992
	^{29}Si^{34}S	2	4	this work
	^{30}Si^{34}S	1	4	this work
	SiS v=1	2	4	this work
	SiS v=2	2	4	this work
	SiS v=3	1	4	this work
SiO	SiO	1	4	this work
	^{29}SiO	1	4	Kahane et al 1988,1992
	^{30}SiO	1	4	Kahane et al 1988,1992
SiC	SiC	3	4	Cernicharo et al 1989
SiN	SiN	5	4	this work
SiC_2	SiC_2	12	5	this work
	SiC_2 ν_3=1	2	5	this work
	$^{29}SiC_2$	11	5	Cernicharo et al 1986c
	$^{30}SiC_2$	8	5	Cernicharo et al 1986c
	Si^{13}CC	16	5	Cernicharo et al 1991a
SiC_3	SiC_3	5	5	this work
ClNa	ClNa	4	6	Cernicharo & Guélin 1987
	^{37}ClNa	2	6	Cernicharo & Guélin 1987
ClK	ClK	4	6	Cernicharo & Guélin 1987
	^{37}ClK	2	6	this work
ClAl	ClAl	2	6	Cernicharo & Guélin 1987
	^{37}ClAl	3	6	this work
AlF	AlF	2	6	Cernicharo & Guélin 1987
MgNC	MgNC	6	6	Guélin et al. 1986
	^{26}MgNC	2	6	Guélin et al 1995
	^{25}MgNC	1	6	Guélin et al 1995
NaCN	NaCN	26	6	this work
C_3H	C_3H	8	7	this work
	C_3H $\nu_4 = 1$	4	7	this work
c-C_3H	c-C_3H	8	7	this work
C_3H_2	C_3H_2	4	7	this work
	C^{13}CCH$_2$	1	7	this work
H_2C_4	H_2C_4	12	7	Cernicharo et al. 1991b
C_4H	C_4H	10	7	this work
	C_4H ν_7=1	20	7	Guélin et al 1987b
	C_4H ν_7=2	17	7	Guélin et al 1987b
	^{13}CCCCH	1	7	this work
	C^{13}CCCH	3	7	this work
	CC^{13}CCH	2	7	this work
	CCC^{13}CH	6	7	this work
C_5H	C_5H	4	7	Cernicharo et al. 1986ab, 1987a
C_6H	C_6H	18	7	Guélin et al 1987a
C_6H	C_6H	18	7	& Cernicharo et al. 1987b
HCCN	HCCN	4	8	Guélin & Cernicharo 1991
CH_3CN	CH_3CN	5	8	this work
HC_3N	HC_3N	4	8	this work
	HC_3N ν_7=1	5	8	this work
	H^{13}CCCN	4	8	this work
	HC^{13}CCN	4	8	this work
	HCC^{13}CN	4	8	this work
HC_5N	HC_5N	5	8	this work
C_3N	C_3N	8	8	this work
	^{13}CCCN	4	8	this work
	C^{13}CCN	4	8	this work
	CC^{13}CN	2	8	this work

TABLE 1 : Molecules in this 2mm line survey of IRC+10216

Molecule	Isotopomer or v-state	Number of Observed Transitions	Table	Previous IRAM data[1]
CP	CP	4	9	Guélin et al. 1990
PN	PN	1	9	this work
CS	CS	1	9	this work
	CS v=1	1	9	this work
	^{13}CS	1	9	Kahane et al 1988
	C^{34}S	1	9	Kahane et al 1988
	C^{33}S	1	9	Kahane et al 1988
	^{13}C^{34}S	1	9	Kahane et al 1988
C_2S	C_2S	8	9	Cernicharo et al. 1987c
C_3S	C_3S	5	9	Cernicharo et al. 1987c
	$C_3^{34}S$	1	9	This work
H_2S	H_2S	1	9	This work

(1) Reference to previous publications of partial data from this line survey

Other Species in IRC+10216 not in this 2mm survey :

NH_3	SiH_4					
CN	CO	HCN	HNC	HCO^+	CH_4	MgCN
C_2	C_2H	HCCH	H_2CCH_2			
C_3	H_2C_3					
C_4Si						
C_5	C_5N					
H_2C_6						
C_7H	HC_7N					
C_8H						
HC_9N						

TABLE 2 : Observed Line Parameters in IRC+10216 between 129 and 172.5 GHz

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
NaCN	8(1,7)-7(1,6)	129081.8(3)	129081.144	2.73(23)	14.5	+
$Si^{13}CC$	6(1,6)-5(1,5)	129248.0(2)	128247.680	1.13(11)	14.5	+
CCS	10(10)-9(9)	129548.6(2)	129548.445	1.59(11)	14.5	+
c-C_3H	4(1,4)-4(1,3) 9/2-9/2 4-4	129723.6(2)	129723.893	0.16(6)	14.5	+%
$C_3{}^{34}S$	J=23-22	129727.0(9)	129726.576	0.20(7)	14.5	+%
c-C_3H	4(1,4)-4(1,3) 9/2-9/2 5-5		129727.426		14.5	+%
U129733		129733.0(8)	....	0.27(08)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=93/2-91/2 a	129770.5(9)	129769.409	0.48(08)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=93/2-91/2 b	129836.2(9)	129834.794	0.49(08)	14.5	+
ClNa	J=10-9	130223.9(2)	130223.632	2.66(15)	12.0(5)	
SiO	J=3-2	130268.6(1)	130268.646	173.34(25)	13.6(1)	
HC_5N	J=49-48	130457.7(2)	130456.440	0.94(7)	14.5	+
ClK	J=17-16	130649.3(7)	130650.404	0.45(6)	13.5(20)	
SiN	N=3-2 a F_{low}=5/2	130707.3(9)	130707.103	0.88(8)	14.5	+$&
SiN	N=3-2 a F_{low}=3/2	130713.3(8)	130713.184	0.66(9)	14.5	+$&
SiN	N=3-2 a F_{low}=1/2	130716.7(3)	130716.825	0.31(7)	14.5	+$
U130765		130765.5(3)	....	0.44(6)	14.5	+
CCS	11(10)-10(9)	131551.9(1)	131551.969	5.81(26)	15.3(3)	
AlF	J=4-3 $<+>$	131899.4(5)	131899.277	3.05(28)	17.3(7)	*
HCCN	6(5)-5(4)	131956.0(4)	131956.196	0.71(12)	14.1(3)	
C_5H	$^2\Pi_{3/2}$ 55/2-53/2 a	132158.9(10)	132158.892	0.25(4)	14.5	+
C_5H	$^2\Pi_{3/2}$ 55/2-53/2 b	132163.1(10)	132163.350	0.28(5)	14.5	+
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=27/2-25/2 a	132179.1(1)	132179.132	8.49(30)	14.5(1)	
$H^{13}CCCN$	J=15-14	132246.6(2)	132246.383	5.04(32)	13.6(2)	
$C^{13}CCCH$	N=14-13 a	132540.5(9)	....	0.49(10)	14.5	+
C_4H	ν_7=2 l=2 $^2\Delta_{3/2}$ J=27/2-25/2 a	132546.6(3)	132546.668	1.42(10)	14.3(3)	$
C_6H	$^2\Pi_{1/2}$ J=95/2-93/2 a	132558.9(9)	132558.465	0.34(12)	14.5	+$
$C^{13}CCCH$	N=14-13 b	132579.0(15)	....	0.43(12)	14.5	+
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=27/2-25/2 b	132587.3(1)	132587.136	8.94(10)	14.3(2)	
C_6H	$^2\Pi_{1/2}$ J=95/2-93/2 b	132626.6(2)	132625.266	0.54(10)	13.9(2)	
U132691	MgNC $\nu_2 = 1$ J=11-10 a ?	132691.2(4)	(132692.502)	0.21(3)	14.6(4)	
$CC^{13}CCH$	N=14-13 a	132743.5(3)	....	0.85(20)	14.5	+
$CC^{13}CCH$	N=14-13 b	132782.0(10)	....	2.00(33)	14.5	+
U132782		132782.0(10)	....	2.00(33)	14.5	+#
C_3S	J=23-22	132947.3(2)	132946.120	2.85(33)	16.0(7)	
c-C_3H	3(1,3)-2(1,2) 7/2-5/2 4-3	132994.1(8)	132993.970	1.47(17)	14.5	+
c-C_3H	3(1,3)-2(1,2) 7/2-5/2 3-2		132994.620			
HC_5N	J=50-49	133118.0(9)	133118.221	0.72(17)	14.5	+
c-C_3H	3(1,3)-2(1,2) 5/2-3/2 2-1	133187.2(3)	133186.490	1.27(19)	14.5	+
c-C_3H	3(1,3)-2(1,2) 5/2-3/2 3-2		133187.750			
C_4H	N=14-13 a	133213.5(1)	133213.650	24.31(11)	14.3(1)	
C_4H	N=14-13 b	133252.1(1)	133252.132	25.36(11)	14.3(1)	
$^{30}SiC_2$	6(0,6)-5(0,5)	133672.4(6)	133672.815	2.75(16)	14.5(2)	
$Si^{13}CC$	6(0,6)-5(0,5)	133813.9(3)	133813.444	1.81(16)	14.5	+
C_4H	ν_7=2 l=0 $^2\Sigma$ N=14-13 a	133863.3(2)	133862.374	4.39(16)	15.9(5)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=14-13 b	133918.8(4)	133918.917	4.91(10)	15.0(2)	
H_2C_4	15(3,12)-14(3,11)	133931.3(8)	133931.291	0.83(7)	14.5	+
H_2C_4	15(3,13)-14(3,12)		133931.291			
H_2C_4	15(2,14)-14(2,13)	133952.6(8)	133952.922	0.26(5)	14.5	+*
H_2C_4	15(2,13)-14(2,12)	133961.0(10)	133961.141	0.27(7)	14.5	+*
H_2C_4	15(0,15)-14(0,14)	133963.5(8)	133963.234	0.25(5)	14.5	+*
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=29/2-27/2 a	134023.4(2)	134023.552	7.58(21)	14.6(1)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=29/2-27/2 b	134415.8(1)	134415.716	6.89(13)	14.5(1)	
C_6H	$^2\Pi_{3/2}$ J=97/2-95/2 a	134440.0(3)	134440.118	0.64(12)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=97/2-95/2 b	134499.0(3)	134499.391	0.69(12)	14.5	+
H_2C_4	15(1,14)-14(1,13)	134525.3(2)	134525.203	0.66(12)	14.5	+
C_3H	ν_4=1 N=6-5 a $<>$	134602.8(2)	134603.070	1.40(12)	13.7(2)	*#
C_3H	ν_4=1 N=6-5 b $<>$	134628.2(2)	134628.090	1.83(13)	14.3(3)	*#
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=29/2-27/2	134920.4(2)	134921.070	1.59(33)	14.5	+
U135238		135237.8(7)	....	0.28(18)	14.5	+

TABLE 2 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
U135298		135297.7(8)	(135298.094)	0.72(19)	14.5	+*
NaCN	9(1,9)-8(1,8)	135302.6(5)	135303.136	1.16(17)	14.5	+*
U135308		135307.7(8)	....	0.62(17)	14.5	+*
C_6H	$^2\Pi_{1/2}$ J=97/2-95/2 a	135350.0(20)	135347.413	0.69(15)	14.5	+
$^{29}SiC_2$	6(0,6)-5(0,5)	135371.2(1)	135371.261	3.92(12)	14.2(2)	
C_6H	$^2\Pi_{1/2}$ J=97/2-95/2 b	135419.0(20)	135415.642	0.80(25)	14.5	+
$HC^{13}CCN$	J=15-14	135885.4(1)	135885.516	3.68(25)	14.6(2)	$
$HCC^{13}CN$	J=15-14	135898.8(1)	135898.631	3.28(25)	14.4(3)	$
C_5H	$^2\Pi_{1/2}$ 57/2-55/2 a	136054.7(3)	136051.195	0.88(14)	16.3(8)	#
	$^2\Pi_{1/2}$ 57/2-55/2 b		136059.693			
U136347	(SiS v=1 in ISB ?)	136346.7(8)	....	0.49(14)	14.5	+
$^{13}C^{34}S$	J=3-2	136387.0(4)	136386.999	0.63(15)	14.5	+
HC_3N	J=15-14	136464.4(2)	136404.405	131.89(23)	14.0(1)	
HC_3N	ν_7=1 J=15-14 l	136800.5(4)	136799.404	1.16(16)	15.9(8)	
U136918		136917.7(20)	....	0.72(22)	14.5	+$
HC_3N	ν_7=1 J=15-14 u	136995.7(3)	136995.652	1.65(15)	14.5	+$
C_5H	$^2\Pi_{3/2}$ J=57/2-55/2 <>	136966.7(9)	136965.578	0.65(13)	14.5	+#
$^{30}SiC_2$	6(2,5)-5(2,4)	137015.9(9)	137016.196	2.15(15)	14.5	+$
SiC_2	6(0,6)-5(0,5)	137180.9(1)	137180.767	76.00(35)	14.6(1)	
$Si^{13}CC$	6(2,5)-5(2,4)	137637.1(5)	137636.756	1.26(14)	14.2(4)	
$^{30}SiC_2$	6(4,3)-5(4,2)	137741.1(9)	137739.634	1.78(18)	16.9(5)	#
$^{30}SiC_2$	6(4,2)-5(4,1)		137742.651			
$C^{13}CCN$	N=14-13 a	137763.2(3)	....	1.17(15)	14.5	+
$C^{13}CCN$	N=14-13 b	137778.3(5)	....	0.55(14)	14.5	+
$^{13}CCCCH$	N=15-14 a	137809.9(5)	....	0.70(13)	13.0(9)	
$^{13}CCCCH$	N=15-14 b	137847.9(5)	....	0.40(20)	14.5	+
U137935		137935.7(8)	....	0.75(16)	27.2(9)	#
$CC^{13}CN$	N=14-13 a	137996.2(2)	....	1.30(12)	14.5	+
$CC^{13}CN$	N=14-13 b	138014.7(3)	....	1.17(12)	14.5	+
$^{26}MgNC$	N=12-11 a	138023.5(20)	138022.981	0.42(6)	14.5	+#
$^{30}Si^{33}S$	J=8-7		138021.867		14.5	+#
$^{26}MgNC$	N=12-11 b	138038.0(20)	138037.651	0.31(6)		
C_6H	$^2\Pi_{1/2}$ J=99/2-97/2 a	138137.6(5)	138136.254	0.23(04)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=99/2-97/2 b	138206.2(15)	138205.919	0.15(05)	14.5	+$
$Si^{13}CC$	6(5,2)-5(5,1)	138220.1(5)	138220.169	0.87(13)	14.5	+#
$Si^{13}CC$	6(5,1)-5(5,0)		138220.198			
$CCC^{13}CH$	N=15-14 a	138419.8(3)	....	0.67(08)	14.5	+
HC_5N	J=52-51	138442.7(4)	138441.672	0.41(13)	14.5	+
$CCC^{13}CH$	N=15-14 b	138459.0(20)	....	0.38(13)	14.5	+
$Si^{13}CC$	6(4,3)-5(4,2)	138508.8(30)	138508.866	0.65(20)	14.5	+$
$Si^{13}CC$	6(4,2)-5(4,1)	138513.1++	138513.131			
C_3N	N=14-13 a	138515.7(2)	138515.735	26.27(05)	14.6(3)	
C_3N	N=14-13 b	138534.6(2)	138534.483	27.89(05)	14.6(3)	
$^{29}Si^{34}S$	J=8-7	138581.8(3)	138581.447	0.78(08)	14.7(5)	
NaCN	9(0,9)-8(0,8)	138651.8(1)	138651.893	1.80(10)	13.2(3)	
C_3S	J=24-23	138725.5(2)	138725.260	2.65(09)	14.5	+
^{13}CS	J=3-2	138739.2(1)	138739.336	17.83(09)	14.3(4)	
$Si^{13}CC$	6(3,4)-5(3,3)	138812.9(4)	138812.418	1.21(10)	14.9(3)	
$^{29}SiC_2$	6(2,5)-5(2,4)	138902.3(5)	138901.813	3.27(19)	15.0(5)	
U139372		139371.7(3)		1.52(26)	14.5	+
$^{29}SiC_2$	6(4,3)-5(4,2)	139679.0(11)	139676.443	1.90(32)	16.8(3)	#
$^{29}SiC_2$	6(4,2)-5(4,1)		139679.847			
C_6H	$^2\Pi_{3/2}$ J=101/2-99/2 a	139983.5(8)	139983.239	0.45(10)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=101/2-99/2 b	140047.2(6)	140046.790	0.65(8)	14.5	+
^{30}SiS	J=8-7	140074.1(2)	140073.921	11.65(30)	14.5	+
NaCN	9(7,3)-8(7,2)+9(7,2)-8(7,1)	140100.9(15)	140100.415	1.39(30)	14.5	+
U140134		140133.6(10)	....	0.23(5)	14.5	+
U140147		140147.4(10)	....	0.21(5)	14.5	+
$^{37}ClNa$	J=11-10	140174.5(5)	140174.796	0.84(8)	14.5	+#
CCS	10(11)-9(10)	140179.9(9)	140180.734	2.12(30)	14.5	+#

TABLE 2 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
U140212		140211.8(10)	....	0.24(4)	14.5	+
NaCN	9(6,4)-8(6,3)+9(6,3)-8(6,2)	140300.0(4)	140299.506	0.66(9)	13.4(5)	
NaCN	9(2,8)-8(2,7)	140347.4(2)	140347.121	1.73(9)	13.3(2)	
SiC_3	12(4,9)-11(4,8)	140413.3(5)	140412.988	0.28(4)	14.5	+
SiC_3	12(4,8)-11(4,7)	140430.7(5)	140429.962	0.35(4)	14.5	+#
SiC_2	ν_3=1 14(2,12)-14(2,13)		140430.615		14.5	+#
$C^{13}CCH_2$	3(1,2)-2(2,1)	140433.8(9)	140432.891	0.15(3)	14.5	+$
NaCN	9(5,5)-8(5,4)+9(5,4)-8(5,3)	140484.0(20)	140483.782	0.61(5)	13.5(8)	*
U140486		140486.0(20)	....	0.44(5)	14.5	+$
$^{25}MgNC$	N=12-11 <>	140501.6(20)	140501.138	0.48(5)	25.0(20)	
NaCN	9(4,6)-8(4,5)	140665.4(15)	140666.270	1.47(15)	14.5	+$
NaCN	9(4,5)-8(4,4)	140668.5(15)	140667.481	1.50(15)	14.5	+$
NaCN	9(3,7)-8(3,6)	140854.8(20)	140853.858	0.50(20)	14.5	+
SiC_2	6(2,5)-5(2,4)	140920.2(1)	140920.138	59.84(22)	14.8(2)	
NaCN	9(3,6)-8(3,5)	140936.8(20)	140937.428	1.40(22)	14.5	+$
$^{30}SiC_2$	6(2,4)-5(2,3)	140955.4(4)	140955.918	2.38(24)	14.5	+$
PN	J=3-2	140966.8(9)	140967.692	1.21(26)	14.5	+$
$H^{13}CCCN$	J=16-15	141062.1(2)	141061.795	3.94(21)	15.4(5)	
HC_5N	J=53-52	141102.8(10)	141103.342	0.50(24)	14.5	+%
$Si^{34}S$	J=8-7	141250.3(2)	141250.227	20.03(28)	14.7(6)	
C_3H	$^2\Pi_{1/2}$ J=13/2-11/2 a <>	141636.0(1)	141636.105	13.91(11)	14.3(2)	
C_3H	$^2\Pi_{1/2}$ J=13/2-11/2 b <>	141709.0(1)	141709.127	12.27(11)	14.6(2)	
SiC_2	6(4,3)-5(4,2)	141751.1(4)	141751.518	26.80(30)	14.5	+$
SiC_2	6(4,2)-5(4,1)	141755.1(4)	141755.385	26.80(30)	14.5	+$
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=29/2-27/2 a	141783.9(2)	141783.821	5.58(20)	14.4(3)	
$Si^{13}CC$	6(2,4)-5(2,3)	142139.3(8)	142138.468	1.85(19)	14.5	+
C_4H	l=2 ν_7=2 $^2\Delta_{3/2}$ J=29/2-27/2	142214.0(9)	142214.349	0.93(19)	14.5	+$
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=29/2-27/2 b	142223.9(3)	142223.696	6.69(19)	14.4(5)	
$^{37}ClAl$	J=10-9	142322.6(10)	142321.692	1.36(18)	11.5(20)	
NaCN	9(2,7)-8(2,6)	142411.3(3)	142410.245	1.33(6)	13.5(3)	
CCS	11(11)-10(10)	142502.8(2)	142501.688	1.50(6)	14.3(2)	
^{29}SiS	J=8-7	142558.8(3)	142558.762	21.77(10)	14.3(4)	
U142611		142611.3(20)	....	0.30(7)	14.5	+$
U142622		142621.9(20)	....	0.16(6)	14.5	+$
U142677		142676.8(8)	....	0.38(13)	14.5	+$
U142688		142688.4(8)	....	0.65(16)	14.5	+$
U142698		142697.6(15)	....	0.20(7)	14.5	+$
C_4H	N=15-14 a	142728.7(1)	142728.789	23.41(10)	14.3(1)	
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 a	142754.0(10)	142754.781	0.50(5)	14.5	+$%
C_4H	N=15-14 b	142767.3(1)	142767.260	25.80(10)	14.8(2)	
H_2C_4	16(4,13)-15(4,12)	142811.6(6)	142811.609	0.25(6)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 b	142820.8(20)	142820.569	0.43(5)	14.5	+%
U142831		142831.1(10)	....	0.22(7)	14.5	+$
H_2C_4	16(3,14)-15(3,13)	142859.8(2)	142859.141	0.68(5)	14.3(4)	+
H_2C_4	16(3,13)-15(3,12)	142859.156				
CP	N,J,F=3-2 5/2-3/2 3-2	142878.0(20)	142878.641	0.30(7)	14.5	+%
CP	N,J,F=3-2 5/2-3/2 2-1	142892.5(10)	142891.968	0.40(15)	14.5	+%
H_2C_4	16(0,16)-15(0,15)	142892.5(10)	142891.797	0.40(15)	14.5	+%
H_2C_4	16(2,14)-15(2,13)		142891.828			
$^{29}SiC_2$	6(2,4)-5(2,3)	143061.6(3)	143061.376	3.37(18)	14.3(2)	
$^{13}CCCN$	N=15-14 a	143104.0(20)	....	0.71(25)	14.5	+%
$^{13}CCCN$	N=15-14 b	143124.0(20)	....	0.92(25)	14.5	+%
MgNC	N=12-11 a	143168.8(10)	143168.699	2.01(19)	14.5	+$
$Si^{33}S$	J=8-7	143175.8(10)	143175.348	3.50(19)	14.5	+$
MgNC	N=12-11 b	143183.7(10)	143183.919	2.42(20)	14.5	+$
ClNa	J=11-10	143237.2(4)	143237.363	2.43(17)	12.4(5)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=15-14 a	143424.4(3)	143424.474	5.33(21)	14.3(2)	
CP	N,J,F=3-2 7/2-5/2 4-3	143430.0(20)	143429.958	1.16(35)	14.5	+$#%
CP	N,J,F=3-2 7/2-5/2 3-2		143431.758			
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=31/2-29/2 a	143446.3(3)	143446.480	7.68(20)	14.3(2)	

TABLE 2 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
C_4H	ν_7=2 l=0 $^2\Sigma$ N=15-14 b	143480.5(3)	143480.851	5.22(21)	14.4(3)	
H_2C_4	16(1,15)-15(1,14)	143491.4(10)	143492.141	0.98(30)	14.5	+$
U143575		143575.8(15)	....	0.20(6)	14.5 +	
U143606		143606.1(15)	....	0.25(6)	14.5 +	
SiC_3	12(0,12)-11(0,11)	143645.1(10)	143643.498	0.38(6)	14.5 +	
C_6H	$^2\Pi_{1/2}$ J=103/2-101/2 b	143715.3(15)	143713.605	0.22(6)	14.5 +	
HC_5N	J=54-53	143765.2(5)	143764.973	0.54(7)	14.4(2)	
C_6H	$^2\Pi_{1/2}$ J=103/2-101/2 a	143788.0(8)	143786.170	0.27(6)	14.5 +	
SiS	v=2 J=8-7	143812.9(5)	143813.579	0.34(05)	6.2(4)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=31/2-29/2 b	143870.5(3)	143870.250	7.40(25)	14.3(4)	
U144007		144007.0(5)	....	0.75(20)	14.9(8)	
U144032		144031.6(10)	....	0.70(25)	12.3(15)	
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=31/2-29/2	144376.4(10)	144375.867	0.72(25)	13.0(20)	
U144456		144456.1(10)	....	0.59(25)	14.5(8)	
C_3S	J=25-24	144504.7(10)	144504.255	1.59(12)	14.4(8)	
SiS	v=1 J=8-7	144520.5(8)	144520.331	1.64(19)	9.5(5)	
$C^{34}S$	J=3-2	144617.3(2)	144617.089	31.89(81)	14.9(3)	
U144897		144896.6(10)	....	1.42(20)	14.5	+
$HC^{13}CCN$	J=16-15	144943.3(5)	144943.472	2.86(20)	14.5	+$
$HCC^{13}CN$	J=16-15	144957.5(5)	144957.467	2.66(20)	14.5	+$
U144968		144968.0(10)	....	1.35(20)	14.5	+$
NaCN	9(1,8)-8(1,7)	145074.4(10)	145075.352	1.50(24)	14.5	+$
C_3H_2	3(1,2)-2(2,1) Ortho	145089.8(4)	145089.625	4.21(24)	14.5	+$
$Si^{13}CC$	6(1,5)-5(1,4)	145135.8(4)	145136.675	1.43(15)	14.4(4)	
SiS	J=8-7	145227.1(3)	145226.999	328.73(70)	13.6(3)	
SiC_2	6(2,4)-5(2,3)	145325.6(3)	145325.798	66.22(21)	14.3(3)	
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 a	145523.0(20)	145526.311	0.40(20)	14.5	+%
HC_3N	J=16-15	145560.7(3)	145560.954	121.18(23)	14.3(3)	
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 b	145595.0(10)	145594.359	0.65(20)	14.5	+%
ClAl	J=10-9	145744.8(5)	145744.540	4.41(24)	14.4(5)	
$C^{33}S$	J=3-2	145756.0(5)	145755.635	7.20(25)	14.1(5)	*
CS	v=1 J=3-2	145903.8(2)	145904.145	1.57(09)	4.5(5)	
HC_3N	ν_7=1 J=16-15 l	145918.9(3)	145918.204	1.28(09)	14.4(4)	
ClK	J=19-18	146002.9(8)	146003.208	0.59(09)	10.0(5)	
HC_3N	ν_7=1 J=16-15 u	146127.7(4)	145127.551	1.29(09)	14.3(4)	
SiC_3	13(0,13)-12(0,12)	146300.7(8)	146298.582	0.91(09)	10.6(6)	
U146428		146428.4(5)	....	0.62(15)	11.2(15)	
U146436		146435.6(5)	....	0.65(12)	11.0(15)	
U146506		146506.1(10)	....	0.65(14)	10.0(10)	
CS	J=3-2	146969.4(2)	146969.055	336.70(89)	14.4(6)	
CH_3CN	J_K=8(0)-7(0)	147174.0(10)	147174.594	4.64(38)	14.5	+$
CH_3CN	J_K=8(1)-7(1)	147171.2(10)	147171.750	3.25(38)	14.5	+$
U147562		147561.7(5)	....	0.37(10)	14.5	+
$C^{13}CCN$	N=15-14 a	147602.2(5)	....	0.45(10)	14.5	+
$C^{13}CCN$	N=15-14 b	147617.6(5)	....	0.38(10)	14.5	+
$CCC^{13}CH$	N=16-15 a	147646.8(5)	....	0.39(10)	14.5	+
$CCC^{13}CH$	N=16-15 b	147684.6(5)	....	0.47(10)	14.5	+
C_3N	N=15-14 a	148409.1(2)	148409.075	26.37(29)	14.6(3)	
C_3N	N=15-14 b	148427.8(2)	148427.823	27.97(29)	14.5(4)	
C_3H	$^2\Pi_{3/2}$ J=13/2-11/2 a	149106.8(2)	149106.903	4.68(24)	13.6(4)	
C_3H	$^2\Pi_{3/2}$ J=13/2-11/2 b	149212.2(3)	149212.571	6.13(27)	15.1(3)	
^{37}ClK	J=20-19	149310.2(10)	149311.840	0.25(7)	9.9(15)	
U149524		149524.0(10)	....	0.30(7)	12.8(12)	
$H^{13}CCCN$	J=17-16	149876.6(6)	149877.011	1.76(28)	14.5	+
C_3H_2	4(0,4)-3(1,3) Para	150820.8(3)	150820.672	1.88(19)	14.6(3)	
C_3H_2	4(1,4)-3(0,3) Ortho	150851.9(3)	150851.891	6.51(18)	14.3(2)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=31/2-29/2 a	151736.1(3)	151375.891	4.47(35)	14.0(3)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=31/2-29/2 b	151846.9(3)	151847.316	6.41(38)	14.3(3)	
U152201		152200.9(10)	....	2.20(75)	14.5	+
C_4H	N=16-15 a	152243.9(3)	152243.618	22.12(59)	14.1(4)	

TABLE 2 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
C_4H	N=16-15 b	152282.4(3)	152282.078	24.96(48)	14.5(4)	
U152381		152380.6(10)	....	3.51(58)	18.9(20)	
$^{13}CCCN$	N=16-15 a	152640.0(10)	....	0.62(23)	12.3(10)	
$^{13}CCCN$	N=16-15 b	152659.7(6)	....	1.26(23)	14.3(9)	
U152681		152681.6(6)	....	0.82(22)	14.8(6)	
U152842		152841.6(15)	....	0.87(28)	14.5	+
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=33/2-31/2 a	152880.4(3)	152879.859	4.90(22)	14.4(2)	
$^{37}ClNa$	J=12-11	152907.0(15)	152908.075	0.72(18)	12.0(20)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=16-15 a	152986.8(3)	152986.249	3.55(15)	14.0(2)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=16-15 b	153042.6(3)	153042.449	4.13(19)	14.2(3)	
$^{30}Si^{34}S$	J=9-8	153105.0(20)	153105.151	0.87(30)	13.0(19)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=33/2-31/2 b	153335.5(2)	153334.942	5.33(19)	14.2(3)	
CCS	11(12)-10(11)	153449.3(5)	153449.766	1.22(19)	16.5(13)	
NaCN	10(0,10)-9(0,9)	153556.8(5)	153557.651	1.77(14)	15.5(5)	
ClK	J=20-19	153677.0(10)	153677.420	0.67(28)	12.0(18)	
HCCN	8(7)-7(6)	153747.6(9)	153746.203	0.59(18)	14.5	+%$
U153783		153782.5(12)	....	0.55(19)	14.5	+$
HCCN	7(7)-6(6)	153803.7(12)	153804.016	0.67(20)	14.5	+%
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=33/2-31/2	153841.2(5)	153841.493	1.27(15)	14.5	+
HCCN	6(7)-5(6)	153895.0(8)	153894.109	0.71(21)	14.5	+%
$HC^{13}CCN$	J=17-16	154001.6(8)	154001.220	1.36(16)	16.5(13) $	
$HCC^{13}CN$	J=17-16	154015.3(10)	154016.094	0.90(27)	17.1(18) $	
U154077		154076.5(10)	....	0.78(25)	14.5	+$
U154088		154088.2(10)	....	0.63(25)	14.5	+$
U154149		154149.2(8)	....	1.33(19)	13.1(11)	
U154222		154222.3(9)	....	0.79(23)	7.0(5)	[]
HC_3N	J=17-16	154656.9(3)	154657.295	74.96(24)	14.2(3)	
HC_3N	ν_7=1 J=17-16 l	155036.6(10)	155036.780	0.88(16)	14.5	+%
MgNC	N=13-12 a	155094.8(10)	155094.573	1.15(16)	14.5	+$
MgNC	N=13-12 b	155110.1(3)	155109.792	1.06(16)	14.5	+$
U155233		155233.3(12)	....	0.73(18)	14.5	+
CCS	12(11)-11(11)	155454.4(3)	155454.484	0.90(17)	18.0(20)	
C_3H_2	3(2,2)-2(1,1) Para	155518.6(5)	155518.313	1.72(19)	14.4(7)	
NaCN	10(2,9)-9(2,8)	155835.7(12)	155837.580	1.65(19)	15.0(8)	
$^{29}Si^{34}S$	J=9-8	155899.1(8)	155900.786	2.17(19)	14.8(4)	
C_3S	J=27-26	156062.0(8)	156061.790	1.44(19)	14.5	+
ClNa	J=12-11	156248.1(6)	156248.628	3.38(18)	13.0(4)	
NaCN	10(4,7)-9(4,6)	156324.6(6)	156322.749	2.32(21)	16.8(8)	
NaCN	10(4,6)-9(4,5)		156325.344			
$^{29}SiC_2$	7(0,7)-6(0,6)	156455.7(3)	156456.489	3.90(18)	14.1(3)	
NaCN	10(3,8)-9(3,7)	156540.4(15)	156541.106	1.02(29)	14.5+$	
$^{37}ClAl$	J=11-10	156546.5(15)	156547.257	2.49(32)	14.5+$	
U156560		156559.8(15)	....	0.85(23)	14.5	+
NaCN	10(3,7)-9(3,6)	156684.3(10)	156683.901	1.28(16)	11.1(7)	[]
CCS	13(12)-12(11)	156982.0(4)	156981.656	2.56(21)	14.8(5)	
SiC_3	14(0,14)-13(0,13)	157007.1(8)	157005.554	0.98(21)	14.3(10)	
C_3H	ν_4=1 N=7-6 a <>	157039.8(6)	157038.926	1.46(21)	14.9(8)	
C_3H	ν_4=1 N=7-6 b <>	157061.5(4)	157061.171	1.54(22)	14.4(7)	
U157388		157388.3(8)	....	0.60(17)	14.5	+
SiC	$^3\Pi_2$ J=4-3	157494.4(3)	157494.101	5.62(16)	14.3(3)	
^{30}SiS	J=9-8	157580.3(4)	157579.747	18.28(16)	14.1(4)	
U157935		157935.2(6)	....	0.91(11)	12.7(13)	
U157960		157960.0(8)	....	1.42(24)	14.5	+$
U157981		157980.7(8)	....	0.74(25)	14.5	+$
C_3N	N=16-15 a	158302.3(2)	158302.143	22.47(13)	14.4(3)	
C_3N	N=16-15 b	158321.1(2)	158320.891	24.00(13)	14.3(3)	
SiC_2	7(0,7)-6(0,6)	158499.5(3)	158499.232	69.56(18)	14.2(4)	
NaCN	10(2,8)-9(2,7)	158617.8(5)	158616.423	1.66(23)	14.9(5)	
$H^{13}CCCN$	J=18-17	158692.5(5)	158692.019	1.62(23)	14.3(5)	

TABLE 2 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
$Si^{34}S$	J=9-8	158903.5(3)	158903.034	25.82(20)	14.2(3)	
$^{30}SiC_2$	7(2,6)-6(2,5)	159552.7(3)	159552.495	1.99(24)	14.0(5)	
$Si^{13}CC$	7(2,6)-6(2,5)	160229.8(9)	160229.627	1.30(33)	14.6(3)	
ClAl	J=11-10	160312.3(3)	160312.069	6.12(34)	13.9(3)	
^{29}SiS	J=9-8	160375.7(4)	160375.071	30.00(45)	13.8(5)	
$^{30}SiC_2$	7(4,4)-6(4,3)	160815.0(5)	160815.517	1.16(18)	14.5	+$
$^{30}SiC_2$	7(4,3)-6(4,2)	160825.1(5)	160825.560	1.85(19)	14.5	+$
$C^{13}CCCH$	N=17-16 a	160941.3(9)	....	0.87(11)	14.5	+$
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=33/2-31/2 a	160956.6(3)	160957.143	8.85(11)	14.2(5)	
$C^{13}CCCH$	N=17-16 b	160977.6(9)	....	0.42(13)	14.5	+
SiS	v=3 J=9-8 ?	160991.2(5)	160991.418	0.33(11)	2.8(7) %	
NaCN	10(1,9)-9(1,8)	161015.0(8)	161014.515	1.35(11)	14.6(8)	
$Si^{33}S$	J=9-8	161068.4(5)	161068.699	4.75(11)	14.1(6)	
U161276		161276.0(4)	....	1.19(25)	11.0(8)	[]
$Si^{13}CC$	7(5,3)-6(5,2)	161343.3(20)	161344.997	0.83(25)	14.5	+$
	7(5,2)-6(5,1)		161345.152			
ClK	J=21-20	161349.0(15)	161350.068	1.06(25)	14.5	+$
U161452		161451.8(8)	....	1.18(24)	14.5	+$
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=33/2-31/2 b	161459.5(3)	161459.820	8.67(24)	14.4(4)	
C_4H	ν_7=2 l=2 $^2\Delta_{3/2}$ J=33/2-31/2	161509.8(20)	161512.127	1.53(35)	14.5	+
C_4H	N=17-16 a	161758.3(3)	161758.116	29.37(47)	14.4(3)	
SiS	v=2 J=9-8	161786.5(10)	161786.606	1.63(31)	4.3(9)	
C_4H	N=17-16 b	161797.0(3)	161796.564	35.15(53)	14.4(3)	
C_3S	J=28-27	161839.8(15)	161840.317	1.85(37)	14.5	+%
SiC	$^3\Pi_1$ J=4-3 e	161979.3(15)	161977.174	1.53(37)	14.5	+
SiC	$^3\Pi_1$ J=4-3 f	162121.0(10)	162121.421	1.63(33)	14.5	+
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=35/2-33/2 a	162321.6(4)	161322.102	8.47(22)	14.0(3)	
$^{29}SiC_2$	7(6,2)-6(6,1) + 7(6,1)-6(6,0)	162371.8(4)	162372.163	1.45(25)	14.5	+
C_4H	ν_7=2 l=0 $^2\Sigma$ N=17-16a	162547.5(4)	162547.676	3.89(18)	14.1(3)	
SiS	v=1 J=9-8	162581.0(8)	162581.702	1.74(18)	9.9(12)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=17-16b	162603.1(4)	162603.687	3.50(18)	14.5(3)	
$Si^{13}CC$	7(3,4)-6(3,3)	162640.6(15)	162640.609	0.65(19)	14.5	+
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=35/2-33/2 b	162808.7(2)	162808.231	8.33(22)	14.4(2)	
$HC^{13}CCN$	J=18-17	163057.9(10)	163508.746	1.08(11)	14.5	+$
$HCC^{13}CN$	J=18-17	163073.3(10)	163704.502	1.39(21)	14.5	+$
$^{29}SiC_2$	7(4,4)-6(4,3)	163082.4(10)	163081.901	2.07(43)	14.5	+$
$^{29}SiC_2$	7(4,3)-6(4,2)	163093.6(10)	163093.230	1.09(16)	14.5	+$
U163120		163120.4(10)	....	0.75(32)	14.5	+$
U163179		163178.8(15)	....	0.27(11)	14.5	+$
U163203		163202.7(15)	....	0.33(11)	14.5	+$
U163264		163264.4(15)	....	0.33(11)	14.5	+$
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=35/2-33/2	163316.3(6)	163316.540	0.76(18)	14.4(4)	
SiS	J=9-8	163376.4(3)	163376.704	282.84(53)	13.8(2)	
C_3H	$^2\Pi_{1/2}$ J=15/2-13/2 a <>	163490.9(2)	163491.295	4.83(24)	14.7(3)	
C_3H	$^2\Pi_{1/2}$ J=15/2-13/2 b <>	163597.2(2)	163597.611	5.12(24)	15.0(2)	
HC_3N	J=18-17	163753.0(2)	163753.415	67.00(22)	14.4(1)	
SiC_2	7(2,6)-6(2,5)	164068.8(3)	164069.060	54.14(14)	14.1(2)	
SiC_2	4(2,3)-4(0,4) ?	164498.2(3)	164498.458	1.86(26)	14.5	+
SiC_2	7(6,2)-6(6,1) + 7(6,1)-6(6,0)	164770.0(3)	164770.496	23.60(32)	14.5(2)	
AlF	J=5-4 <+>	164867.6(6)	164868.011	4.76(28)	14.0(3)	
NaCN	11(1,11)-10(1,10)	165084.5(15)	165082.991	1.27(30)	14.5	+
SiC_2	7(4,4)-6(4,3)	165510.8(1)	165510.960	26.33(81)	14.0(1)	
SiC_2	7(4,3)-6(4,2)	165523.7(1)	165523.833	27.27(81)	14.2(1)	
CH_3CN	J_K=9(3)-8(3)	165540.4++	165540.391	3.98(40)	14.5	+$
CH_3CN	J_K=9(1)-8(1)	165565.7(5)	165565.891	2.20(80)	14.5	+$
CH_3CN	J_K=9(0)-8(0)	165568.8(5)	165569.099	4.55(80)	14.5	+$
U165835		165835.0(8)	....	0.89(16)	14.4(8)	
U165861		165861.3(8)	....	1.12(16)	14.7(6)	
$CCC^{13}CH$	N=18-17 a	166101.1(2)	....	0.92(13)	14.9(2)	
$CCC^{13}CH$	N=18-17 b	166138.2(2)	....	0.83(12)	14.2(3)	

TABLE 2 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
U166838		166837.9(8)	....	1.58(43)	14.4(8)	
MgNC	N=14-13 a	167018.0(20)	167019.134	1.30(30)	14.5	+$
$Si^{13}CC$	7(2,5)-6(2,4)	167024.0(20)	167024.800	1.35(30)	14.5	+$
MgNC	N=14-13 b	167034.0(20)	167034.354	1.45(30)	14.5	+$
$^{29}SiC_2$	7(2,5)-6(2,4)	168050.0(8)	168051.567	2.80(42)	14.4(8)	
C_3N	N=17-16 a	168194.4(3)	168194.921	10.08(42)	14.4(3)	
C_3N	N=17-16 b	168213.1(3)	168213.671	10.90(42)	14.4(3)	
CCS	13(13)-12(12)	168406.9(8)	168406.781	1.40(40)	14.5	+%
$Si^{13}CC$	7(1,6)-6(1,5)	168657.1(5)	168657.424	1.36(34)	14.4(4)	
H_2S	1(1,0)-1(0,1)	168762.5(9)	168762.781	1.44(29)	16.5(10)	
U168968		168967.7(10)	....	0.56(12)	8.0(9)	
U169155		169155.0(12)	....	1.53(45)	14.5	+
ClNa	J=13-12	169257.7(6)	169257.203	2.80(35)	14.0(15)	
^{30}SiO	J=4-3	169486.9(4)	169486.585	10.21(47)	14.0(2)	
U169742		169742.3(8)	....	1.05(49)	14.3(8)	
U170025		170025.1(20)	....	1.96(41)	15.5(8)	
U170144		170144.3(10)	....	1.74(31)	14.5	+$
U170161		170161.4(10)	....	1.54(31)	14.5	+$
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=35/2-33/2 a	170528.7(2)	170529.093	2.82(18)	13.7(3)	
SiC_2	7(2,5)-6(2,4)	170741.0(4)	170740.845	39.86(24)	13.9(3)	
$^{37}ClAl$	J=12-11	170771.2(6)	170770.936	1.16(19)	14.0(5)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=35/2-33/2 b	171062.5(3)	171062.750	4.83(23)	14.3(2)	
C_4H	N=18-17 a	171271.5(2)	171272.263	25.27(21)	14.3(2)	
C_4H	N=18-17 b	171309.9(2)	171310.697	29.81(21)	14.2(2)	
NaCN	11(6,6)-10(6,5)	171488.0(20)	171489.730	0.86(27)	14.5	+$
NaCN	11(6,5)-10(6,4)		171489.730			
^{29}SiO	J=4-3	171513.0(3)	171512.637	14.24(25)	14.0(3)	
NaCN	11(5,7)-10(5,6)	171733.5(20)	171732.691	1.08(27)	14.5	+
NaCN	11(5,6)-10(5,5)		171732.747			
^{37}ClK	J=23-22	171673.0(8)	171672.110	0.46(17)	7.8(25)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=37/2-35/2 a	171772.0(3)	171771.867	4.66(23)	15.3(4)	
C_3H	$^2\Pi_{3/2}$ J=15/2-13/2 a	171958.6(3)	171958.595	3.52(68)	14.8(5)	
C_3H	$^2\Pi_{3/2}$ J=15/2-13/2 b	172094.6(4)	172094.702	3.43(43)	14.5 +$	
C_4H	ν_7=2 l=0 $^2\Sigma$ 18-17 a	172108.5(2)	172108.733	10.01(47)	14.5 +#	
$HC^{15}N$	J=2-1		172108.125			
C_4H	ν_7=2 l=0 $^2\Sigma$ 18-17 b	172164.4(3)	172164.544	3.75(58)	14.6(4)	
SiC_2	ν_3=1 8(1,8)-7(1,7)	172265.6(10)	172266.208	1.51(30)	9.6(15)	[]
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=37/2-35/2 b	172288.7(2)	172288.800	6.16(57)	14.8(3)	
$c\text{-}C_3H$	4(1,4)-3(1,3) 9/2-7/2 5-4	172463.2(4)	172463.355	2.89(50)	15.3(6)	
$c\text{-}C_3H$	4(1,4)-3(1,3) 9/2-7/2 4-3		172463.718			

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of $K\,km^{-1}$.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components

+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
∗ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216

TABLE 3 : U-Lines

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
U129733		129733.0(8)	....	0.27(08)	14.5	+
U130765		130765.5(3)	....	0.44(6)	14.5	+
U132691	MgNC $\nu_2 = 1$ J=11-10 a ?	132691.2(4)	(132692.502)	0.21(3)	14.6(4)	
U132782		132782.0(10)	....	2.00(33)	14.5	+#
U135298	H_2CS 4(1,4)-3(1,3) ?	135297.7(8)	(135298.094)	0.72(19)	14.5	+*
U135238		135237.8(7)	....	0.28(18)	14.5	+
U135308		135307.7(8)	....	0.62(17)	14.5	+*
U136347	(SiS v=1 in ISB ?)	136346.7(8)	....	0.49(14)	14.5	+
U136918		136917.7(20)	....	0.72(22)	14.5	+$
U137935		137935.7(8)	....	0.75(16)	27.2(9)	#
U139372		139371.7(3)		1.52(26)	14.5	+
U140134		140133.6(10)	....	0.23(5)	14.5	+
U140147		140147.4(10)	....	0.21(5)	14.5	+
U140212		140211.8(10)	....	0.24(4)	14.5	+
U140486		140486.0(20)	....	0.44(5)	14.5	+$
U142611		142611.3(20)	....	0.30(7)	14.5	+$
U142622		142621.9(20)	....	0.16(6)	14.5	+$
U142677		142676.8(8)	....	0.38(13)	14.5	+$
U142688		142688.4(8)	....	0.65(16)	14.5	+$
U142698		142697.6(15)	....	0.20(7)	14.5	+$
U142831		142831.1(10)	....	0.22(7)	14.5	+$
U143575		143575.8(15)	....	0.20(6)	14.5 +	
U143606		143606.1(15)	....	0.25(6)	14.5 +	
U144007		144007.0(5)	....	0.75(20)	14.9(8)	
U144032		144031.6(10)	....	0.70(25)	12.3(15)	
U144456		144456.1(10)	....	0.59(25)	14.5(8)	
U144897		144896.6(10)	....	1.42(20)	14.5	+
U144968		144968.0(10)	....	1.35(20)	14.5	+$
U146428		146428.4(5)	....	0.62(15)	11.2(15)	
U146436		146435.6(5)	....	0.65(12)	11.0(15)	
U146506		146506.1(10)	....	0.65(14)	10.0(10)	
U147562		147561.7(5)	....	0.37(10)	14.5	+
U149524		149524.0(10)	....	0.30(7)	12.8(12)	
U152201		152200.9(10)	....	2.20(75)	14.5	+
U152381		152380.6(10)	....	3.51(58)	18.9(20)	
U152681		152681.6(6)	....	0.82(22)	14.8(6)	
U152842		152841.6(15)	....	0.87(28)	14.5	+
U153783		153782.5(12)	....	0.55(19)	14.5	+$
U154077		154076.5(10)	....	0.78(25)	14.5	+$
U154088		154088.2(10)	....	0.63(25)	14.5	+$
U154149		154149.2(8)	....	1.33(19)	13.1(11)	
U154222		154222.3(9)	....	0.79(23)	7.0(5)	[]
U155233		155233.3(12)	....	0.73(18)	14.5	+
U156560		156559.8(15)	....	0.85(23)	14.5	+
U157388		157388.3(8)	....	0.60(17)	14.5	+
U157935		157935.2(6)	....	0.91(11)	12.7(13)	
U157960		157960.0(8)	....	1.42(24)	14.5	+$
U157981		157980.7(8)	....	0.74(25)	14.5	+$
U161276		161276.0(4)	....	1.19(25)	11.0(8)	[]
U161452		161451.8(8)	....	1.18(24)	14.5	+$
U163120		163120.4(10)	....	0.75(32)	14.5	+$
U163179		163178.8(15)	....	0.27(11)	14.5	+$
U163203		163202.7(15)	....	0.33(11)	14.5	+$
U163264		163264.4(15)	....	0.33(11)	14.5	+$
U165835		165835.0(8)	....	0.89(16)	14.4(8)	
U165861		165861.3(8)	....	1.12(16)	14.7(6)	
U166838		166837.9(8)	....	1.58(43)	14.4(8)	
U168968		168967.7(10)	....	0.56(12)	8.0(9)	
U169155		169155.0(12)	....	1.53(45)	14.5	+

TABLE 3 : U-Lines -Cont-

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
U169742		169742.3(8)	....	1.05(49)	14.3(8)	
U170025		170025.1(20)	....	1.96(41)	15.5(8)	
U170144		170144.3(10)	....	1.74(31)	14.5	+$
U170161		170161.4(10)	....	1.54(31)	14.5	+$

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The main beam brightness temperature is in units of $K\,km^{-1}$.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components
+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
$*$ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216

TABLE 4 : Observed Line Parameters for SiS, SiO, SiC and SiN

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
SiS	J=8-7	145227.1(3)	145226.999	328.73(70)	13.6(3)	
SiS	J=9-8	163376.4(3)	163376.704	282.84(53)	13.8(2)	
^{29}SiS	J=8-7	142558.8(3)	142558.762	21.77(10)	14.3(4)	
^{29}SiS	J=9-8	160375.7(4)	160375.071	30.00(45)	13.8(5)	
^{30}SiS	J=8-7	140074.1(2)	140073.921	11.65(30)	14.5	+
^{30}SiS	J=9-8	157580.3(4)	157579.747	18.28(16)	14.1(4)	
Si^{34}S	J=8-7	141250.3(2)	141250.227	20.03(28)	14.7(6)	
Si^{34}S	J=9-8	158903.5(3)	158903.034	25.82(20)	14.2(3)	
Si^{33}S	J=8-7	143175.8(10)	143175.348	3.50(19)	14.5	+$
Si^{33}S	J=9-8	161068.4(5)	161068.699	4.75(11)	14.1(6)	
^{29}Si^{34}S	J=8-7	138581.8(3)	138581.447	0.78(08)	14.7(5)	
^{29}Si^{34}S	J=9-8	155899.1(8)	155900.786	2.17(19)	14.8(4)	
^{30}Si^{34}S	J=9-8	153105.0(20)	153105.151	0.87(30)	13.0(19)	
SiS	v=2 J=8-7	143812.9(5)	143813.579	0.34(05)	6.2(4)	
SiS	v=1 J=8-7	144520.5(8)	144520.331	1.64(19)	9.5(5)	
SiS	v=3 J=9-8 ?	160991.2(5)	160991.418	0.33(11)	2.8(7)	%
SiS	v=2 J=9-8	161786.5(10)	161786.606	1.63(31)	4.3(9)	
SiS	v=1 J=9-8	162581.0(8)	162581.702	1.74(18)	9.9(12)	
SiO	J=3-2	130268.6(1)	130268.646	173.34(25)	13.6(1)	
^{29}SiO	J=4-3	171513.0(3)	171512.637	14.24(25)	14.0(3)	
^{30}SiO	J=4-3	169486.9(4)	169486.585	10.21(47)	14.0(2)	
SiC	$^3\Pi_2$ J=4-3	157494.4(3)	157494.101	5.62(16)	14.3(3)	
SiC	$^3\Pi_1$ J=4-3 e	161979.3(15)	161977.174	1.53(37)	14.5	+
SiC	$^3\Pi_1$ J=4-3 f	162121.0(10)	162121.421	1.63(33)	14.5	+
SiN	N=3-2 a F_{low}=5/2	130707.3(9)	130707.103	0.88(9)	14.5	+$&
SiN	N=3-2 a F_{low}=3/2	130713.3(8)	130713.184	0.66(9)	14.5	+$&
SiN	N=3-2 a F_{low}=1/2	130716.7(3)	130716.825	0.31(7)	14.5	+$

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of K km^{-1}.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components
+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
∗ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216

TABLE 5 : Observed Line Parameters for SiC_2 and SiC_3

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
SiC_2	6(0,6)-5(0,5)	137180.9(1)	137180.767	76.00(35)	14.6(1)	
SiC_2	6(2,5)-5(2,4)	140920.2(1)	140920.138	59.84(22)	14.8(2)	
SiC_2	6(4,3)-5(4,2)	141751.1(4)	141751.518	26.80(30)	14.5	+$
SiC_2	6(4,2)-5(4,1)	141755.1(4)	141755.385	26.80(30)	14.5	+$
SiC_2	6(2,4)-5(2,3)	145325.6(3)	145325.798	66.22(21)	14.3(3)	
SiC_2	7(0,7)-6(0,6)	158499.5(3)	158499.232	69.56(18)	14.2(4)	
SiC_2	7(2,6)-6(2,5)	164068.8(3)	164069.060	54.14(14)	14.1(2)	
SiC_2	4(2,3)-4(0,4) ?	164498.2(3)	164498.458	1.86(26)	14.5	+
SiC_2	7(6,2)-6(6,1) + 7(6,1)-6(6,0)	164770.0(3)	164770.496	23.60(32)	14.5(2)	
SiC_2	7(4,4)-6(4,3)	165510.8(1)	165510.960	26.33(81)	14.0(1)	
SiC_2	7(4,3)-6(4,2)	165523.7(1)	165523.833	27.27(81)	14.2(1)	
SiC_2	7(2,5)-6(2,4)	170741.0(4)	170740.845	39.86(24)	13.9(3)	
SiC_2	ν_3=1 14(2,12)-14(2,13)	140431.5(7)	140340.615	0.51(10)	16.3(9)	#
SiC_2	ν_3=1 8(1,8)-7(1,7)	172265.6(10)	172266.208	1.51(30)	9.6(15)	[]
$^{29}SiC_2$	6(0,6)-5(0,5)	135371.2(1)	135371.261	3.92(12)	14.2(2)	
$^{29}SiC_2$	6(2,5)-5(2,4)	138902.3(5)	138901.813	3.27(19)	15.0(5)	
$^{29}SiC_2$	6(4,3)-5(4,2)	139679.0(11)	139676.443	1.90(32)	16.8(3)	#
$^{29}SiC_2$	6(4,2)-5(4,1)		139679.847			
$^{29}SiC_2$	6(2,4)-5(2,3)	143061.6(3)	143061.376	3.37(18)	14.3(2)	
$^{29}SiC_2$	7(0,7)-6(0,6)	156455.7(3)	156456.489	3.90(18)	14.1(3)	
$^{29}SiC_2$	7(6,2)-6(6,1) + 7(6,1)-6(6,0)	162371.8(4)	162372.163	1.45(25)	14.5	+
$^{29}SiC_2$	7(4,4)-6(4,3)	163082.4(10)	163081.901	2.07(43)	14.5	+$
$^{29}SiC_2$	7(4,3)-6(4,2)	163093.6(10)	163093.230	1.09(16)	14.5	+$
$^{29}SiC_2$	7(2,5)-6(2,4)	168050.0(8)	168051.567	2.80(42)	14.4(8)	
$^{30}SiC_2$	6(0,6)-5(0,5)	133672.4(6)	133672.815	2.75(16)	14.5(2)	
$^{30}SiC_2$	6(2,5)-5(2,4)	137015.9(9)	137016.196	2.15(15)	14.5	+$
$^{30}SiC_2$	6(4,3)-5(4,2)	137741.1(9)	137739.634	1.78(18)	16.9(5)	#
$^{30}SiC_2$	6(4,2)-5(4,1)		137742.651			
$^{30}SiC_2$	6(2,4)-5(2,3)	140955.4(4)	140955.918	2.38(24)	14.5	+$
$^{30}SiC_2$	7(2,6)-6(2,5)	159552.7(3)	159552.495	1.99(24)	14.0(5)	
$^{30}SiC_2$	7(4,4)-6(4,3)	160815.0(5)	160815.517	1.16(18)	14.5	+$
$^{30}SiC_2$	7(4,3)-6(4,2)	160825.1(5)	160825.560	1.85(19)	14.5	+$
$Si^{13}CC$	6(1,6)-5(1,5)	129248.0(2)	128247.680	1.13(11)	14.5	+
$Si^{13}CC$	6(0,6)-5(0,5)	133813.9(3)	133813.444	1.81(16)	14.5	+
$Si^{13}CC$	6(2,5)-5(2,4)	137637.1(5)	137636.756	1.26(14)	14.2(4)	
$Si^{13}CC$	6(5,2)-5(5,1)	138220.1(5)	138220.169	0.87(13)	14.5	+#
$Si^{13}CC$	6(5,1)-5(5,0)		138220.198			
$Si^{13}CC$	6(4,3)-5(4,2)	138508.8(30)	138508.866	0.65(20)	14.5	+$
$Si^{13}CC$	6(4,2)-5(4,1)	138513.1++	138513.131			
$Si^{13}CC$	6(3,4)-5(3,3)	138812.9(4)	138812.418	1.21(10)	14.9(3)	
$Si^{13}CC$	6(2,4)-5(2,3)	142139.3(8)	142138.468	1.85(19)	14.5	+
$Si^{13}CC$	6(1,5)-5(1,4)	145135.8(4)	145136.675	1.43(15)	14.4(4)	
$Si^{13}CC$	7(2,6)-6(2,5)	160229.8(9)	160229.627	1.30(33)	14.6(3)	
$Si^{13}CC$	7(5,3)-6(5,2)	161343.3(20)	161344.997	0.83(25)	14.5	+$
	7(5,2)-6(5,1)		161345.152			
$Si^{13}CC$	7(3,4)-6(3,3)	162640.6(15)	162640.609	0.65(19)	14.5	+
$Si^{13}CC$	7(2,5)-6(2,4)	167024.0(20)	167024.800	1.35(30)	14.5	+$
$Si^{13}CC$	7(1,6)-6(1,5)	168657.1(5)	168657.424	1.36(34)	14.4(4)	
SiC_3	12(4,9)-11(4,8)	140413.3(5)	140412.988	0.28(4)	14.5	+
SiC_3	12(4,8)-11(4,7)	140430.7(5)	140429.962	0.35(4)	14.5	+#
SiC_3	12(0,12)-11(0,11)	143645.1(10)	143643.498	0.38(6)	14.5	+
SiC_3	13(0,13)-12(0,12)	146300.7(8)	146298.582	0.91(09)	10.6(6)	
SiC_3	14(0,14)-13(0,13)	157007.1(8)	157005.554	0.98(21)	14.3(10)	

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of $\mathrm{K\,km}^{-1}$.
+ Assumed width at half power of 14.5 km/s.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted

TABLE 6 : Observed Line Parameters for metal-bearing species

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
ClNa	J=10-9	130223.9(2)	130223.632	2.66(15)	12.0(5)	
ClNa	J=11-10	143237.2(4)	143237.363	2.43(17)	12.4(5)	
ClNa	J=12-11	156248.1(6)	156248.628	3.38(18)	13.0(4)	
ClNa	J=13-12	169257.7(6)	169257.203	2.80(35)	14.0(15)	
^{37}ClNa	J=11-10	140174.5(5)	140174.796	0.84(8)	14.5	+#
^{37}ClNa	J=12-11	152907.0(15)	152908.075	0.72(18)	12.0(20)	
ClK	J=17-16	130649.3(7)	130650.404	0.45(6)	13.5(20)	
ClK	J=19-18	146002.9(8)	146003.208	0.59(09)	10.0(5)	
ClK	J=20-19	153677.0(10)	153677.420	0.67(28)	12.0(18)	
ClK	J=21-20	161349.0(15)	161350.068	1.06(25)	14.5	+$
^{37}ClK	J=20-19	149310.2(10)	149311.840	0.25(7)	9.9(15)	
^{37}ClK	J=23-22	171673.0(8)	171672.110	0.46(17)	7.8(25)	
ClAl	J=10-9	145744.8(5)	145744.540	4.41(24)	14.4(5)	
ClAl	J=11-10	160312.3(3)	160312.069	6.12(34)	13.9(3)	
^{37}ClAl	J=10-9	142322.6(10)	142321.692	1.36(18)	11.5(20)	
^{37}ClAl	J=11-10	156546.5(15)	156547.257	2.49(32)	14.5+$	
^{37}ClAl	J=12-11	170771.2(6)	170770.936	1.16(19)	14.0(5)	
AlF	J=4-3 <+>	131899.4(5)	131899.277	3.05(28)	17.3(7)	*
AlF	J=5-4 <+>	164867.6(6)	164868.011	4.76(28)	14.0(3)	
MgNC	N=12-11 a	143168.8(10)	143168.699	2.01(19)	14.5	+$
MgNC	N=12-11 b	143183.7(10)	143183.919	2.42(20)	14.5	+$
MgNC	N=13-12 a	155094.8(10)	155094.573	1.15(16)	14.5	+$
MgNC	N=13-12 b	155110.1(3)	155109.792	1.06(16)	14.5	+$
MgNC	N=14-13 a	167018.0(20)	167019.134	1.30(30)	14.5	+$
MgNC	N=14-13 b	167034.0(20)	167034.354	1.45(30)	14.5	+$
^{26}MgNC	N=12-11 a	138023.5(20)	138022.981	0.42(6)	14.5	+#
^{26}MgNC	N=12-11 b	138038.0(20)	138037.651	0.31(6)		
^{25}MgNC	N=12-11 <>	140501.6(20)	140501.138	0.48(5)	25.0(20)	
NaCN	8(1,7)-7(1,6)	129081.8(3)	129081.144	2.73(23)	14.5	+
NaCN	9(1,9)-8(1,8)	135302.6(5)	135303.136	1.16(17)	14.5	+*
NaCN	9(0,9)-8(0,8)	138651.8(1)	138651.893	1.80(10)	13.2(3)	
NaCN	9(7,3)-8(7,2)+9(7,2)-8(7,1)	140100.9(15)	140100.415	1.39(30)	14.5	+
NaCN	9(6,4)-8(6,3)+9(6,3)-8(6,2)	140300.0(4)	140299.506	0.66(9)	13.4(5)	
NaCN	9(2,8)-8(2,7)	140347.4(2)	140347.121	1.73(9)	13.3(2)	
NaCN	9(5,5)-8(5,4)+9(5,4)-8(5,3)	140484.0(20)	140483.782	0.61(5)	13.5(8)	*
NaCN	9(4,6)-8(4,5)	140665.4(15)	140666.270	1.47(15)	14.5	+$
NaCN	9(4,5)-8(4,4)	140668.5(15)	140667.481	1.50(15)	14.5	+$
NaCN	9(3,7)-8(3,6)	140854.8(20)	140853.858	0.50(20)	14.5	+
NaCN	9(3,6)-8(3,5)	140936.8(20)	140937.428	1.40(22)	14.5	+$
NaCN	9(2,7)-8(2,6)	142411.3(3)	142410.245	1.33(6)	13.5(3)	
NaCN	9(1,8)-8(1,7)	145074.4(10)	145075.352	1.50(24)	14.5	+$
NaCN	10(0,10)-9(0,9)	153556.8(5)	153557.651	1.77(14)	15.5(5)	
NaCN	10(2,9)-9(2,8)	155835.7(12)	155837.580	1.65(19)	15.0(8)	
NaCN	10(4,7)-9(4,6)	156324.6(6)	156322.749	2.32(21)	16.8(8)	
NaCN	10(4,6)-9(4,5)		156325.344			
NaCN	10(3,8)-9(3,7)	156540.4(15)	156541.106	1.02(29)	14.5+$	
NaCN	10(3,7)-9(3,6)	156684.3(10)	156683.901	1.28(16)	11.1(7)	[]
NaCN	10(2,8)-9(2,7)	158617.8(5)	158616.423	1.66(23)	14.9(5)	
NaCN	10(1,9)-9(1,8)	161015.0(8)	161014.515	1.35(11)	14.6(8)	
NaCN	11(1,11)-10(1,10)	165084.5(15)	165082.991	1.27(30)	14.5	+
NaCN	11(6,6)-10(6,5)	171488.0(20)	171489.730	0.86(27)	14.5	+$
NaCN	11(6,5)-10(6,4)		171489.730			
NaCN	11(5,7)-10(5,6)	171733.5(20)	171732.691	1.08(27)	14.5	+
NaCN	11(5,6)-10(5,5)		171732.747			

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of K km^{-1}.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components
+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
$*$ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216

TABLE 7 : Observed Line Parameters for C_3H, C_3H_2, C_4H, H_2C_4, C_5H and C_6H

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
C_3H	$^2\Pi_{1/2}$ J=13/2-11/2 a <>	141636.0(1)	141636.105	13.91(11)	14.3(2)	
C_3H	$^2\Pi_{1/2}$ J=13/2-11/2 b <>	141709.0(1)	141709.127	12.27(11)	14.6(2)	
C_3H	$^2\Pi_{3/2}$ J=13/2-11/2 a	149106.8(2)	149106.903	4.68(24)	13.6(4)	
C_3H	$^2\Pi_{3/2}$ J=13/2-11/2 b	149212.2(3)	149212.571	6.13(27)	15.1(3)	
C_3H	$^2\Pi_{1/2}$ J=15/2-13/2 a <>	163490.9(2)	163491.295	4.83(24)	14.7(3)	
C_3H	$^2\Pi_{1/2}$ J=15/2-13/2 b <>	163597.2(2)	163597.611	5.12(24)	15.0(2)	
C_3H	$^2\Pi_{3/2}$ J=15/2-13/2 a	171958.6(3)	171958.595	3.52(68)	14.8(5)	
C_3H	$^2\Pi_{3/2}$ J=15/2-13/2 b	172094.6(4)	172094.702	3.43(43)	14.5 +\$	
C_3H	ν_4=1 N=6-5 a <>	134602.8(2)	134603.070	1.40(12)	13.7(2)	*#
C_3H	ν_4=1 N=6-5 b <>	134628.2(2)	134628.090	1.83(13)	14.3(3)	*#
C_3H	ν_4=1 N=7-6 a <>	157039.8(6)	157038.926	1.46(21)	14.9(8)	
C_3H	ν_4=1 N=7-6 b <>	157061.5(4)	157061.171	1.54(22)	14.4(7)	
c-C_3H	3(1,3)-2(1,2) 7/2-5/2 4-3	132994.1(8)	132993.970	1.47(17)	14.5	+
c-C_3H	3(1,3)-2(1,2) 7/2-5/2 3-2		132994.620			
c-C_3H	3(1,3)-2(1,2) 5/2-3/2 2-1	133187.2(3)	133186.490	1.27(19)	14.5	+
c-C_3H	3(1,3)-2(1,2) 5/2-3/2 3-2		133187.750			
c-C_3H	4(1,4)-4(1,3) 9/2-9/2 4-4	129723.6(2)	129723.893	0.16(6)	14.5	+%
c-C_3H	4(1,4)-4(1,3) 9/2-9/2 5-5		129727.426		14.5	+%
c-C_3H	4(1,4)-3(1,3) 9/2-7/2 5-4	172463.2(4)	172463.355	2.89(50)	15.3(6)	
c-C_3H	4(1,4)-3(1,3) 9/2-7/2 4-3		172463.718			
C_3H_2	3(1,2)-2(2,1) Ortho	145089.8(4)	145089.625	4.21(24)	14.5	+\$
C_3H_2	4(0,4)-3(1,3) Para	150820.8(3)	150820.672	1.88(19)	14.6(3)	
C_3H_2	4(1,4)-3(0,3) Ortho	150851.9(3)	150851.891	6.51(18)	14.3(2)	
C_3H_2	3(2,2)-2(1,1) Para	155518.6(5)	155518.313	1.72(19)	14.4(7)	
$C^{13}CCH_2$	3(1,2)-2(2,1)	140433.8(9)	140342.891	0.15(3)	14.5	+\$
C_4H	N=14-13 a	133213.5(1)	133213.650	24.31(11)	14.3(1)	
C_4H	N=14-13 b	133252.1(1)	133252.132	25.36(11)	14.3(1)	
C_4H	N=15-14 a	142728.7(1)	142728.789	23.41(10)	14.3(1)	
C_4H	N=15-14 b	142767.3(1)	142767.260	25.80(10)	14.8(2)	
C_4H	N=16-15 a	152243.9(3)	152243.618	22.12(59)	14.1(4)	
C_4H	N=16-15 b	152282.4(3)	152282.078	24.96(48)	14.5(4)	
C_4H	N=17-16 a	161758.3(3)	161758.116	29.37(47)	14.4(3)	
C_4H	N=17-16 b	161797.0(3)	161796.564	35.15(53)	14.4(3)	
C_4H	N=18-17 a	171271.5(2)	171272.263	25.27(21)	14.3(2)	
C_4H	N=18-17 b	171309.9(2)	171310.697	29.81(21)	14.2(2)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=27/2-25/2 a	132179.1(1)	132179.132	8.49(30)	14.5(1)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=27/2-25/2 b	132587.3(1)	132587.136	8.94(10)	14.3(2)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=29/2-27/2 a	134023.4(2)	134023.552	7.58(21)	14.6(1)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=29/2-27/2 b	134415.8(1)	134415.716	6.89(13)	14.5(1)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=29/2-27/2 a	141783.9(2)	141783.821	5.58(20)	14.4(3)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=29/2-27/2 b	142223.9(3)	142223.696	6.69(19)	14.4(5)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=31/2-29/2 a	143446.3(3)	143446.480	7.68(20)	14.3(2)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=31/2-29/2 b	143870.5(3)	143870.250	7.40(25)	14.3(4)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=31/2-29/2 a	151736.1(3)	151375.891	4.47(35)	14.0(3)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=31/2-29/2 b	151846.9(3)	151847.316	6.41(38)	14.3(3)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=33/2-31/2 a	152880.4(3)	152879.859	4.90(22)	14.4(2)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=33/2-31/2 b	153335.5(2)	153334.942	5.33(19)	14.2(3)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=33/2-31/2 a	160956.6(3)	160957.143	8.85(11)	14.2(5)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=33/2-31/2 b	161459.5(3)	161459.820	8.67(24)	14.4(4)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=35/2-33/2 a	162321.6(4)	161322.102	8.47(22)	14.0(3)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=35/2-33/2 b	162808.7(2)	162808.231	8.33(22)	14.4(2)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=35/2-33/2 a	170528.7(2)	170529.093	2.82(18)	13.7(3)	
C_4H	ν_7=1 $^2\Pi_{1/2}$ J=35/2-33/2 b	171062.5(3)	171062.750	4.83(23)	14.3(2)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=37/2-35/2 a	171772.0(3)	171771.867	4.66(23)	15.3(4)	
C_4H	ν_7=1 $^2\Pi_{3/2}$ J=37/2-35/2 b	172288.7(2)	172288.800	6.16(57)	14.8(3)	
C_4H	ν_7=2 l=2 $^2\Delta_{3/2}$ J=27/2-25/2 a	132546.6(3)	132546.668	1.42(10)	14.3(3)	\$
C_4H	ν_7=2 l=0 $^2\Sigma$ N=14-13 a	133863.3(2)	133862.374	4.39(16)	15.9(5)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=14-13 b	133918.8(4)	133918.917	4.91(10)	15.0(2)	
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=29/2-27/2	134920.4(2)	134921.070	1.59(33)	14.5	+

TABLE 7 : Cont.

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
C_4H	ν_7=2 l=2 $^2\Delta_{3/2}$ J=29/2-27/2	142214.0(9)	142214.349	0.93(19)	14.5	+$
C_4H	ν_7=2 l=0 $^2\Sigma$ N=15-14 a	143424.4(3)	143424.474	5.33(21)	14.3(2)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=15-14 b	143480.5(3)	143480.851	5.22(21)	14.4(3)	
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=31/2-29/2	144376.4(10)	144375.867	0.72(25)	13.0(20)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=16-15 a	152986.8(3)	152986.249	3.55(15)	14.0(2)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=16-15 b	153042.6(3)	153042.449	4.13(19)	14.2(3)	
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=33/2-31/2	153841.2(5)	153841.493	1.27(15)	14.5	+
C_4H	ν_7=2 l=2 $^2\Delta_{3/2}$ J=33/2-31/2	161509.8(20)	161512.127	1.53(35)	14.5	+
C_4H	ν_7=2 l=0 $^2\Sigma$ N=17-16a	162547.5(4)	162547.676	3.89(18)	14.1(3)	
C_4H	ν_7=2 l=0 $^2\Sigma$ N=17-16b	162603.1(4)	162603.687	3.50(18)	14.5(3)	
C_4H	ν_7=2 l=2 $^2\Delta_{5/2}$ J=35/2-33/2	163316.3(6)	163316.540	0.76(18)	14.4(4)	
C_4H	ν_7=2 l=0 $^2\Sigma$ 18-17 a	172108.5(2)	172108.733	10.01(47)	14.5	+#
C_4H	ν_7=2 l=0 $^2\Sigma$ 18-17 b	172164.4(3)	172164.544	3.75(58)	14.6(4)	
^{13}CCCCH	N=15-14 a	137809.9(5)	....	0.70(13)	13.0(9)	
^{13}CCCCH	N=15-14 b	137847.9(5)	....	0.40(20)	14.5	+
C^{13}CCCH	N=14-13 b	132579.0(15)	....	0.43(12)	14.5	+
C^{13}CCCH	N=17-16 a	160941.3(9)	....	0.87(11)	14.5	+$
C^{13}CCCH	N=17-16 b	160977.6(9)	....	0.42(13)	14.5	+
CC^{13}CCH	N=14-13 a	132743.5(3)	....	0.85(20)	14.5	+
CC^{13}CCH	N=14-13 b	132782.0(10)	....	2.00(33)	14.5	+
CCC^{13}CH	N=15-14 a	138419.8(3)	....	0.67(08)	14.5	+
CCC^{13}CH	N=15-14 b	138459.0(20)	....	0.38(13)	14.5	+
CCC^{13}CH	N=16-15 a	147646.8(5)	....	0.39(10)	14.5	+
CCC^{13}CH	N=16-15 b	147684.6(5)	....	0.47(10)	14.5	+
CCC^{13}CH	N=18-17 a	166101.1(2)	....	0.92(13)	14.9(2)	
CCC^{13}CH	N=18-17 b	166138.2(2)	....	0.83(12)	14.2(3)	
H_2C_4	15(3,12)-14(3,11)	133931.3(8)	133931.291	0.83(7)	14.5	+
H_2C_4	15(3,13)-14(3,12)		133931.291			
H_2C_4	15(2,14)-14(2,13)	133952.6(8)	133952.922	0.26(5)	14.5	+*
H_2C_4	15(2,13)-14(2,12)	133961.0(10)	133961.141	0.27(7)	14.5	+*
H_2C_4	15(0,15)-14(0,14)	133963.5(8)	133963.234	0.25(5)	14.5	+*
H_2C_4	15(1,14)-14(1,13)	134525.3(2)	134525.203	0.66(12)	14.5	+
H_2C_4	16(4,13)-15(4,12)	142811.6(6)	142811.609	0.25(6)	14.5	+
H_2C_4	16(3,14)-15(3,13)	142859.8(2)	142859.141	0.68(5)	14.3(4)	+
H_2C_4	16(3,13)-15(3,12)		142859.156			
H_2C_4	16(0,16)-15(0,15)	142892.5(10)	142891.797	0.40(15)	14.5	+%
H_2C_4	16(2,14)-15(2,13)		142891.828			
H_2C_4	16(1,15)-15(1,14)	143491.4(10)	143492.141	0.98(30)	14.5	+$
C_5H	$^2\Pi_{1/2}$ J=57/2-55/2 a	136054.7(3)	136051.195	0.88(14)	16.3(8)	#
C_5H	$^2\Pi_{3/2}$ 55/2-53/2 a	132158.9(10)	132158.892	0.25(4)	14.5	+
C_5H	$^2\Pi_{3/2}$ 55/2-53/2 b	132163.1(10)	132163.350	0.28(5)	14.5	+
C_5H	$^2\Pi_{3/2}$ J=57/2-55/2 <>	136966.7(9)	136965.578	0.65(13)	14.5	+#
C_6H	$^2\Pi_{1/2}$ J=93/2-91/2 a	129770.5(9)	129769.409	0.48(08)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=93/2-91/2 b	129836.2(9)	129834.794	0.49(08)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=95/2-93/2 a	132558.9(9)	132558.465	0.34(12)	14.5	+$
C_6H	$^2\Pi_{1/2}$ J=95/2-93/2 b	132626.6(2)	132625.266	0.54(10)	13.9(2)	
C_6H	$^2\Pi_{3/2}$ J=97/2-95/2 a	134440.0(3)	134440.118	0.64(12)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=97/2-95/2 b	134499.0(3)	134499.391	0.69(12)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=97/2-95/2 a	135350.0(20)	135347.413	0.69(15)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=97/2-95/2 b	135419.0(20)	135415.642	0.80(25)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=99/2-97/2a	138137.6(5)	138136.254	0.23(04)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=99/2-97/2b	138206.2(15)	138205.919	0.15(05)	14.5	+$
C_6H	$^2\Pi_{3/2}$ J=101/2-99/2 a	139983.5(8)	139983.239	0.45(10)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=101/2-99/2 b	140047.2(6)	140046.790	0.65(8)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 a	142754.0(10)	142754.781	0.50(5)	14.5	+$%
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 b	142820.8(20)	142820.569	0.43(5)	14.5	+%
C_6H	$^2\Pi_{1/2}$ J=103/2-101/2 b	143715.3(15)	143713.605	0.22(6)	14.5	+
C_6H	$^2\Pi_{1/2}$ J=103/2-101/2 a	143788.0(8)	143786.170	0.27(6)	14.5	+
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 a	145523.0(20)	145526.311	0.40(20)	14.5	+%
C_6H	$^2\Pi_{3/2}$ J=103/2-101/2 b	145595.0(10)	145594.359	0.65(20)	14.5	+%

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of $K\,km^{-1}$.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components
+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
$*$ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216

TABLE 8 : Observed Line Parameters for HCCN, CH_3CN, HC_3N, C_3N and HC_5N

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB} dv$	Vexp	Notes
HCCN	8(7)-7(6)	153747.6(9)	153746.203	0.59(18)	14.5	+%$
HCCN	7(7)-6(6)	153803.7(12)	153804.016	0.67(20)	14.5	+%
HCCN	6(7)-5(6)	153895.0(8)	153894.109	0.71(21)	14.5	+%
HCCN	6(5)-5(4)	131956.0(4)	131956.196	0.71(12)	14.1(3)	
CH_3CN	J_K=8(0)-7(0)	147174.0(10)	147174.594	4.64(38)	14.5	+$
CH_3CN	J_K=8(1)-7(1)	147171.2(10)	147171.750	3.25(38)	14.5	+$
CH_3CN	J_K=9(3)-8(3)	165540.4++	165540.391	3.98(40)	14.5	+$
CH_3CN	J_K=9(1)-8(1)	165565.7(5)	165565.891	2.20(80)	14.5	+$
CH_3CN	J_K=9(0)-8(0)	165568.8(5)	165569.099	4.55(80)	14.5	+$
HC_3N	J=15-14	136464.4(2)	136404.405	131.89(23)	14.0(1)	
HC_3N	J=16-15	145560.7(3)	145560.954	121.18(23)	14.3(3)	
HC_3N	J=17-16	154656.9(3)	154657.295	74.96(24)	14.2(3)	
HC_3N	J=18-17	163753.0(2)	163753.415	67.00(22)	14.4(1)	
HC_3N	ν_7=1 J=15-14 l	136800.5(4)	136799.404	1.16(16)	15.9(8)	
HC_3N	ν_7=1 J=15-14 u	136995.7(3)	136995.652	1.65(15)	14.5	+$
HC_3N	ν_7=1 J=16-15 l	145918.9(3)	145918.204	1.28(09)	14.4(4)	
HC_3N	ν_7=1 J=16-15 u	146127.7(4)	145127.551	1.29(09)	14.3(4)	
HC_3N	ν_7=1 J=17-16 l	155036.6(10)	155036.780	0.88(16)	14.5	+%
$H^{13}CCCN$	J=15-14	132246.6(2)	132246.383	5.04(32)	13.6(2)	
$H^{13}CCCN$	J=16-15	141062.1(2)	141061.795	3.94(21)	15.4(5)	
$H^{13}CCCN$	J=17-16	149876.6(6)	149877.011	1.76(28)	14.5	+
$H^{13}CCCN$	J=18-17	158692.5(5)	158692.019	1.62(23)	14.3(5)	
$HC^{13}CCN$	J=15-14	135885.4(1)	135885.516	3.68(25)	14.6(2)	$
$HC^{13}CCN$	J=16-15	144943.3(5)	144943.472	2.86(20)	14.5	+$
$HC^{13}CCN$	J=17-16	154001.6(8)	154001.220	1.36(16)	16.5(13)	$
$HC^{13}CCN$	J=18-17	163057.9(10)	163508.746	1.08(11)	14.5	+$
$HCC^{13}CN$	J=15-14	135898.8(1)	135898.631	3.28(25)	14.4(3)	$
$HCC^{13}CN$	J=16-15	144957.5(5)	144957.467	2.66(20)	14.5	+$
$HCC^{13}CN$	J=17-16	154015.3(10)	154016.094	0.90(27)	17.1(18)	$
$HCC^{13}CN$	J=18-17	163073.3(10)	163704.502	1.39(21)	14.5	+$
C_3N	N=14-13 a	138515.7(2)	138515.735	26.27(05)	14.6(3)	
C_3N	N=14-13 b	138534.6(2)	138534.483	27.89(05)	14.6(3)	
C_3N	N=15-14 a	148409.1(2)	148409.075	26.37(29)	14.6(3)	
C_3N	N=15-14 b	148427.8(2)	148427.823	27.97(29)	14.5(4)	
C_3N	N=16-15 a	158302.3(2)	158302.143	22.47(13)	14.4(3)	
C_3N	N=16-15 b	158321.1(2)	158320.891	24.00(13)	14.3(3)	
C_3N	N=17-16 a	168194.4(3)	168194.921	10.08(42)	14.4(3)	
C_3N	N=17-16 b	168213.1(3)	168213.671	10.90(42)	14.4(3)	
$^{13}CCCN$	N=15-14 a	143104.0(20)	....	0.71(25)	14.5	+%
$^{13}CCCN$	N=15-14 b	143124.0(20)	....	0.92(25)	14.5	+%
$^{13}CCCN$	N=16-15 a	152640.0(10)	....	0.62(23)	12.3(10)	
$^{13}CCCN$	N=16-15 b	152659.7(6)	....	1.26(23)	14.3(9)	
$C^{13}CCN$	N=14-13 a	137763.2(3)	....	1.17(15)	14.5	+
$C^{13}CCN$	N=14-13 b	137778.3(5)	....	0.55(14)	14.5	+
$C^{13}CCN$	N=15-14 a	147602.2(5)	....	0.45(10)	14.5	+
$C^{13}CCN$	N=15-14 b	147617.6(5)	....	0.38(10)	14.5	+
$CC^{13}CN$	N=14-13 a	137996.2(2)	....	1.30(12)	14.5	+
$CC^{13}CN$	N=14-13 b	138014.7(3)	....	1.17(12)	14.5	+
HC_5N	J=49-48	130457.7(2)	130456.440	0.94(7)	14.5	+
HC_5N	J=50-49	133118.0(9)	133118.221	0.72(17)	14.5	+
HC_5N	J=52-51	138442.7(4)	138441.672	0.41(13)	14.5	+
HC_5N	J=53-52	141102.8(10)	141103.342	0.50(24)	14.5	+%
HC_5N	J=54-53	143765.2(5)	143764.973	0.54(7)	14.4(2)	

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of K km^{-1}.
+ Assumed width at half power of 14.5 km/s.
$ blended with another line. Line separation allows an individual fit for each line.
% Marginal detection and assignement

TABLE 9 : Observed Line Parameters for CP, PN, CS, C_2S and C_3S

MOLECULE	TRANSITION	ν_{obs}	ν_{rest}	$\int T_{MB}dv$	Vexp	Notes
CP	N,J,F=3-2 5/2-3/2 3-2	142878.0(20)	142878.641	0.30(7)	14.5	+%
CP	N,J,F=3-2 5/2-3/2 2-1	142892.5(10)	142891.968	0.40(15)	14.5	+%
CP	N,J,F=3-2 7/2-5/2 4-3	143430.0(20)	143429.958	1.16(35)	14.5	+$#%
CP	N,J,F=3-2 7/2-5/2 3-2		143431.758			
PN	J=3-2	140966.8(9)	140967.692	1.21(26)	14.5	+$
CS	J=3-2	146969.4(2)	146969.055	336.70(89)	14.4(6)	
CS	v=1 J=3-2	145903.8(2)	145904.145	1.57(09)	4.5(5)	
^{13}CS	J=3-2	138739.2(1)	138739.336	17.83(09)	14.3(4)	
$C^{34}S$	J=3-2	144617.3(2)	144617.089	31.89(81)	14.9(3)	
$C^{33}S$	J=3-2	145756.0(5)	145755.635	7.20(25)	14.1(5)	*
$^{13}C^{34}S$	J=3-2	136387.0(4)	136386.999	0.63(15)	14.5	+
CCS	10(10)-9(9)	129548.6(2)	129548.445	1.59(11)	14.5	+
CCS	11(10)-10(9)	131551.9(1)	131551.969	5.81(26)	15.3(3)	
CCS	10(11)-9(10)	140179.9(9)	140180.734	2.12(30)	14.5	+#
CCS	11(11)-10(10)	142502.8(2)	142501.688	1.50(6)	14.3(2)	
CCS	11(12)-10(11)	153449.3(5)	153449.766	1.22(19)	16.5(13)	
CCS	12(11)-11(11)	155454.4(3)	155454.484	0.90(17)	18.0(20)	
CCS	13(12)-12(11)	156982.0(4)	156981.656	2.56(21)	14.8(5)	
CCS	13(13)-12(12)	168406.9(8)	168406.781	1.40(40)	14.5	+%
C_3S	J=23-22	132947.3(2)	132946.120	2.85(33)	16.0(7)	
C_3S	J=24-23	138725.5(2)	138725.260	2.65(09)	14.5	+
C_3S	J=25-24	144504.7(10)	144504.255	1.59(12)	14.4(8)	
C_3S	J=27-26	156062.0(8)	156061.790	1.44(19)	14.5	+
C_3S	J=28-27	161839.8(15)	161840.317	1.85(37)	14.5	+%
$C_3^{34}S$	J=23-22	129727.0(9)	129726.576	0.20(7)	14.5	+%
H_2S	1(1,0)-1(0,1)	168762.5(9)	168762.781	1.44(29)	16.5(10)	

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of $K\,km^{-1}$.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components
+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
∗ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216

TABLE 10: Molecular column densities

Molecule	T_{rot} kelvin	Col. Dens.[t] cm^{-2}	Frac. abund. $N(X)/N(H_2)$
C_2H	20	$5.0\ 10^{15}$	$7.1\ 10^{-6}$
l-C_3H	20	$7.0\ 10^{13}$	$1.0\ 10^{-8}$
C_4H	35	$3.0\ 10^{15}$	$4.3\ 10^{-6}$
C_5H	25	$4.4\ 10^{13}$	$6.3\ 10^{-8}$
C_6H	35	$5.5\ 10^{13}$	$7.8\ 10^{-8}$
C_7H	35	$2.2\ 10^{12}$	$3.1\ 10^{-9}$
C_8H	52	$1.0\ 10^{13}$	$1.4\ 10^{-8}$
C_3N	20	$2.5\ 10^{14}$	$3.5\ 10^{-7}$
C_5N	35[a]	$6.3\ 10^{12}$	$9.0\ 10^{-9}$

[a] assumed;
[t] total column density across the source,
i.e. *twice* the radial column density.

TABLE 11: Elemental isotopic abundance ratios

Isotopic ratio	average value	solar value	comments
$^{29}Si/^{30}Si$	1.45 (0.13)	1.52	
$^{28}Si/^{29}Si$	15.4 (1.1)	19.6	opacity
$^{28}Si/^{30}Si$	20.3 (2.0)	29.8	opacity
$^{33}S/^{34}S$	0.18 (0.1)	0.18	
$32S/^{34}S$	21.8 (2.6)	22.5	
$32S/^{33}S$	62 (8)	125	opacity
$^{12}C/^{13}C$	45 (3)	89	

Notes: All the frequencies are in MHz. The expansion velocity is in km^{-1}.
The main beam brightness temperature is in units of $K\,km^{-1}$.
<+> frequency corresponds to the that of the strongest hyperfine component
<> calculated frequency corresponds to the average of the different hyperfine components
+ Assumed width at half power of 14.5 km/s.
++ Frequency has been fixed to the calculated value.
$*$ blend of hyperfine lines or K-doublets of the same molecule.
$ blended with another line. Line separation allows an individual fit for each line.
# blend of two of more lines. Only a line is fitted
& Average of two of more hyperfine lines.
% Marginal detection and assignement
[] Line too narrow for the expected width of normal lines in IRC+10216