MASTER

X-RAY FLUORESCENCE TABLES:
POTASSIUM ACID PHTHALATE (KAP) CRYSTAL

W. P. Amsbury
W. W. Lee
J. H. Rowan
G. E. Walden

Y-12 PLANT
Oak Ridge, Tennessee

UNION
CARBIDE

UNION CARBIDE CORPORATION
NUCLEAR DIVISION

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Nuclear Division

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W. P. Amsbury
W. W. Lee
J. H. Rowan
G. E. Walden

Oak Ridge, Tennessee
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ABSTRACT

A critical compilation of standard reference tables of X-ray fluorescence lines has been published in convenient form for experimental use. This section of the report contains tables calculated for a potassium acid pthalate (KAP) crystal.

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INTRODUCTION

Standard X-ray fluorescence tables contain rounding errors and a few disjointed entries. Furthermore, their format is not the most convenient one in some experimental situations, leaving to the experimenter the task of hunting and comparing before coming to a definite conclusion about the composition of his sample. For a specific analyzing crystal, the experimenter needs a table that is arranged according to element, order, and line; and an angular tabulation. This section of the report provides these tables for the potassium acid phthalate (KAP) crystal.

Wavelength data from three authors: Müller,⁽¹⁾ Powers,⁽²⁾ and Liebhafsky,⁽³⁾ were punched into cards, compared, sorted, and sifted with a computer, and a "best" value determined from the acceptable values. Goniometer angles were generated for specific analyzing crystals and the resulting angles were printed in two tables. One of the tables is arranged by element, order, and line and the other by angle magnitude. Tables may be generated for any crystal with known spacing.

The tables have been compiled for all emissions having 2θ reflections less than 150 degrees. Reflections above $150^\circ 2\theta$ are not considered as practical since the reflection efficiency becomes increasingly poorer with increasing angles. Few instruments are capable of even operating in this range. The logical approach when the desired emission falls at these high angles would be the selection of an analyzing crystal with more appropriate d-spacing. Orders from 1 through 5 for elements from sodium (11) through californium (98) have been included in the tables. Data where available for the more prominent M spectra have also been included.

Relative intensity data have not been included as a part of this report since such data are readily available to those who desire it; however, in some cases there are large variations in the relative values that are assigned to a given energy level. It is felt that the data of Powers⁽²⁾ are satisfactory for most uses so to include such data in this report would only consume unnecessary space.

This report is being published in several sections. Each section contains both tables for a specific analyzing crystal. The first section⁽⁴⁾ lists and explains the operation of the computer programs which have generated the tables. The reader is invited to refer to this section of the report for further information.

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SUMMARY

Tables arranged by element, order, and line, and also angular tabulations for a specific analyzing crystal, were derived from a critical amalgamation of three standard reference tables of X-ray fluorescence lines. The format of these tables was designed to increase the efficiency of the experimenter by decreasing the time spent in table searches. This section of the report contains both tables for a potassium acid phthalate (KAP) crystal.

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REFERENCES

- (1) Müller, Dr. Phil. E. A. W., Wellenlängen - und Winkeltafeln zur Röntgenspektralanalyse, Siemens and Halske Aktiengesellschaft, Karlsruhe, West Germany (1960).
- (2) Powers, Maurice C., X-Ray Fluorescent Spectrometer Conversion Tables for Topaz, LiF, NaCl, EDDT, and ADP Crystals, Phillips Electronics, Inc, Instruments Division, Mount Vernon, New York (1957).
- (3) Liebhafsky, H. A., Pfeiffer, H. A., Winslow, E. W., Zeman, P. D., X-Ray Absorption and Emission in Analytical Chemistry, John Wiley and Sons, Inc, New York (1960).
- (4) Amsbury, W. P., Lee, W. W., Rowan, J. H., Walden, G. E., X-Ray Fluorescence Tables: Program Description, Y-1470-A, Union Carbide Corporation, Nuclear Division, Y-12 Plant, Oak Ridge, Tennessee (to be issued).

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TABLE 1
GONIOMETER ANGLES ARRANGED BY ELEMENT, LINE, AND ORDER

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11 NA		KAP CRYSTAL, D#13.200 ANGSTRCMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	53.63	53.63	52.21							
2	128.90	128.90	123.30							
3										
4										
5										
1	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
2										
3										
4										
5										
1	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
2										
3										
4										
5										
1	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
2										
3										
4										
5										
12 MG										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	44.00	44.00	42.45							
2	97.04	97.04	92.79							
3										
4										
5										
1	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
2										
3										
4										
5										
1	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
2										
3										
4										
5										
1	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
2										
3										
4										
5										

15 P		KAP CRYSTAL, D#13.200 ANGSTRCMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	26.96	26.96	25.40							
2	55.59	55.59	52.17							
3	88.76	88.76	82.53							
4	137.68	137.68	123.14							
5										
1	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
2										
3										
4										
5										
1	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
2										
3										
4										
5										
1	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
2										
3										
4										
5										
16 S										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	23.48	23.49	21.98							
2	48.03	48.06	44.82							
3	75.24	75.29	69.75							
4	108.97	109.05	99.36							
5			144.74							
1	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
2										
3										
4										
5										
1	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
2										
3										
4										
5										
1	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
2										
3										
4										
5										

17 CL		KAP CRYSTAL, D#13.200 ANGSTRCMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	20.63	20.64	19.20							
2	41.98	42.00	38.97							
3	65.00	65.03	60.05							
4	91.51	91.56	83.69							
5	127.13	127.23	113.00							
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
18 A										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	18.27	18.29	16.92							
2	37.03	37.06	34.22							
3	56.90	56.94	52.38							
4	78.86	78.93	72.10							
5	105.11	105.22	94.72							
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

KAP CRYSTAL, D#13.200 ANGSTRMS										
19	K									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	16.29	16.31	15.04				14.98			
2	32.93	32.96	30.34				30.22			
3	50.32	50.37	46.22				46.04			
4	69.06	69.14	63.11				62.85			
5	97.23	97.35	81.71				81.34			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KBJ	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
20	CA									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	14.62	14.63	13.44				13.37			
2	29.48	29.51	27.08				26.92			
3	44.86	44.92	41.11				40.89			
4	61.17	61.25	55.83				55.52			
5	78.99	79.10	71.64				71.21			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KBJ	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

23 V KAP CRYSTAL, D#13.200 ANGSTRCMS										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LBI
1	15.88	17.93	9.93		9.93		9.86			
2	21.86	21.90	19.93		19.93		19.80			
3	33.05	33.13	30.09		30.09		29.88			
4	44.57	44.65	40.49		40.49		40.22			
5	56.60	56.69	51.26		51.26		50.90			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB1	LB15	LB17	LB17	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
24 CR										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LBI
1	9.95	9.97	9.86		9.86		9.00			
2	19.98	20.02	18.18		18.18		18.05			
3	30.17	30.22	27.41		27.41		27.22			
4	40.60	40.68	36.83		36.83		36.58			
5	51.41	51.50	46.52		46.52		46.19			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB	LB15	LB17	LB17	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

27 CO		KAP CRYSTAL, D#13.203 ANGSTRCMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	7.77	7.79	7.04				6.99			
2	15.58	15.61	14.11				14.00			
3	23.46	23.51	21.23				21.07			
4	31.45	31.53	28.44				28.22			
5	39.61	39.73	35.76				35.48			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
28 NI										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	7.20	7.22	6.51	6.47			6.47			
2	14.43	14.47	13.05	12.95			12.95			
3	21.72	21.77	19.63	19.48			19.48			
4	29.10	29.17	26.27	26.08			26.08			
5	36.60	36.69	33.01	32.76			32.76			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

31 GA KAP CRYSTAL, D#13.200 ANGSTRCMS										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	5.82	5.84	5.25	5.19	5.25		5.20	50.75		49.46
2	11.65	11.69	10.50	10.40	10.50		10.41	117.97		113.60
3	17.52	17.57	15.78	15.62	15.78		15.64			
4	23.43	23.50	21.09	20.88	21.09		20.90			
5	29.40	29.49	26.45	26.18	26.45		26.21			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
32 GE										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	5.45	5.46	4.90	4.85	4.90		4.86	46.66	46.66	45.43
2	10.90	10.94	9.81	9.71	9.81		9.73	104.77	104.77	101.12
3	16.39	16.44	14.74	14.58	14.74		14.61			
4	21.91	21.98	19.70	19.49	19.70		19.52			
5	27.48	27.57	24.69	24.43	24.69		24.47			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1										
2										
3										
4										
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1					52.17	53.80				
2					123.14	129.61				
3										
4										
5										
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

35	BR	KAP CRYSTAL, D#13.200 ANGSTRCMS									
	ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
	1	4.52	4.53	4.05	4.00	4.05		4.02	36.99	36.99	35.85
	2	9.04	9.07	8.11	8.00	8.11		8.04	78.76	78.76	75.98
	3	13.57	13.63	12.17	12.02	12.17		12.07	144.24	144.24	134.83
	4	18.13	18.23	16.25	16.04	16.25		16.11			
	5	22.72	22.81	20.36	20.09	20.36		20.18			
		LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
	1										
	2										
	3										
	4										
	5										
		LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
	1					41.04	42.57				
	2					89.02	93.10				
	3										
	4										
	5										
		KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
	1										
	2										
	3										
	4										
	5										
36	KR										
	ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
	1	4.25	4.27	3.81	3.76	3.82	3.76	3.78	34.42	34.42	33.32
	2	8.52	8.55	7.63	7.52	7.64	7.52	7.57	72.56	72.56	69.97
	3	12.79	12.84	11.45	11.30	11.47	11.30	11.36	125.15	125.15	118.63
	4	17.08	17.15	15.29	15.08	15.31	15.08	15.17			
	5	21.39	21.48	19.14	18.88	19.17	18.88	18.99			
		LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
	1										
	2										
	3										
	4										
	5										
		LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
	1										
	2										
	3										
	4										
	5										
		KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
	1										
	2										
	3										
	4										
	5										

[illegible]

39 Y KAP CRYSTAL, D#13.200 ANGSTRCMS										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	3.63	3.62	3.22	3.16	3.22	3.16	3.19	28.28	28.31	27.22
2	7.25	7.24	6.44	6.33	6.44	6.31	6.38	58.49	58.56	56.15
3	10.81	10.86	9.66	9.50	9.66	9.48	9.57	94.25	94.38	89.81
4	14.43	14.50	12.89	12.68	12.89	12.65	12.77			140.51
5	18.07	18.15	16.14	15.87	16.14	15.83	15.98			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1		26.20	26.35		26.69					23.09
2		53.91	54.25		54.99					47.18
3		85.67	86.29		87.66					73.79
4		130.06	131.52		134.84					106.35
5										
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	23.09		25.72		30.93	32.36				
2	47.18		52.86		64.46	67.73				
3	73.79		83.77		106.26	113.42				
4	106.35		125.78							
5										
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
40 ZR										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	3.41	3.43	3.05	3.00	3.05		3.02	26.59	26.62	25.54
2	6.83	6.86	6.10	5.99	6.10		6.04	54.75	54.83	52.48
3	10.25	10.30	9.15	8.99	9.15		9.07	87.22	87.37	83.09
4	13.68	13.75	12.21	12.00	12.21		12.11	133.76	134.12	124.32
5	17.12	17.21	15.28	15.02	15.28		15.15			
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	24.43	24.64	24.80		24.98				23.53	21.63
2	50.07	50.52	50.86		51.26				48.14	44.08
3	78.81	79.60	80.20		80.91				75.44	68.51
4	115.64	117.19	118.36		119.80				109.32	97.26
5										139.46
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	21.63		24.04		28.99	30.38				
2	44.08		49.22		60.07	63.21				
3	68.51		77.31		97.32	103.65				
4	97.26		12.79							
5	139.46									
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

41	NB	KAP CRYSTAL, D#13.200 ANGSTRMS									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	3.24	3.26	2.89	2.84	2.89		2.87	25.04	25.08	24.01	
2	6.48	6.51	5.78	5.68	5.78		5.73	51.40	51.47	49.17	
3	9.73	9.78	8.68	8.52	8.68		8.60	81.15	81.29	77.23	
4	12.98	13.05	11.58	11.37	11.58		11.48	120.29	120.57	112.63	
5	16.24	16.33	14.49	14.23	14.49		14.36				
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2	
1	22.89	23.21	23.36		23.43				21.99	20.31	
2	46.76	47.44	47.77		47.92				44.86	41.29	
3	73.56	74.23	74.80		75.06				69.82	63.86	
4	105.05	107.13	108.16		108.64				99.46	89.68	
5									145.03	123.63	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	27.31		22.50		27.21	28.58					
2	41.29		45.94		56.14	59.17					
3	63.86		71.65		89.79	95.56					
4	89.68		102.60		140.46						
5	123.63										
	KB7	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											
42	MO										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	3.17	3.17	2.74	2.70	2.75	2.69	2.72	23.63	23.67	22.62	
2	6.16	6.19	5.49	5.39	5.50	5.38	5.45	48.35	48.43	46.18	
3	9.24	9.29	8.24	8.09	8.25	8.08	8.17	75.80	75.94	72.07	
4	12.33	12.40	10.99	10.80	11.01	10.78	10.90	109.99	110.23	103.33	
5	15.43	15.52	13.75	13.51	13.77	13.49	13.64				
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2	
1	21.49	21.89	22.05		22.05				20.62	19.10	
2	43.80	44.64	44.98		44.98				41.96	38.76	
3	68.13	69.45	70.02		70.02				64.97	59.70	
4	96.47	98.85	99.81		99.81				91.46	83.16	
5	137.62	143.40	145.98		145.98				127.04	112.10	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	19.11		21.11		25.59	26.94					
2	38.76		42.99		52.59	55.54					
3	59.70		66.69		83.28	88.67					
4	83.16		94.26		124.73	137.44					
5	112.10		132.72								
	KB7	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											

43 TC		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	2.92	2.93	2.61	2.56	2.61	2.56		22.34	22.38	21.32
2	5.84	5.87	5.23	5.12	5.22	5.12		45.59	45.67	43.43
3	8.77	8.81	7.85	7.69	7.83	7.69		71.06	71.21	67.42
4	11.71	11.76	10.47	10.26	10.45	10.26		101.58	101.83	95.46
5	14.65	14.71	13.09	12.83	13.07	12.83				135.34
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	20.23								19.36	
2	41.12								39.31	
3	63.58								60.60	
4	89.24								84.56	
5	122.81								114.47	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
44 RU										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	2.79	2.81	2.48	2.44	2.49		2.47	21.15	21.19	20.16
2	5.58	5.62	4.97	4.88	4.98		4.93	43.08	43.14	40.97
3	8.38	8.43	7.45	7.32	7.47		7.40	66.83	66.94	63.34
4	11.18	11.25	9.94	9.77	9.96		9.87	94.49	94.67	88.85
5	13.99	14.08	12.44	12.22	12.46		12.35	133.21	133.60	122.09
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	19.06	19.57	9.73		19.57				18.23	16.98
2	38.68	39.74	19.08		39.74				36.94	34.34
3	59.58	61.31	31.86		61.31				56.75	52.57
4	82.97	85.66	46.52		85.66				78.64	72.38
5	111.79	116.38	77.88		116.38				104.75	95.13
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	16.98		8.69		22.74	24.06				
2	34.34		37.90		46.45	49.28				
3	52.57		58.31		72.52	77.41				
4	72.38		81.01		104.12	112.98				
5	95.13		108.57							
	KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

47 AG KAP CRYSTAL, D#13.200 ANGSTROMS										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	2.43	2.45	2.16	2.11	2.16		2.14	18.11	18.15	17.14
2	4.85	4.90	4.32	4.23	4.32		4.28	36.69	36.77	34.68
3	7.28	7.35	6.48	6.34	6.49		6.42	56.33	56.47	53.11
4	9.72	9.80	8.64	8.46	8.65		8.57	78.01	78.21	73.18
5	12.15	12.26	10.80	10.58	10.82		10.72	103.76	104.08	96.33
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	16.13	16.70	15.86		16.59		15.70	15.72	15.34	14.39
2	32.58	33.76	34.10		33.53		31.70	31.75	30.96	29.01
3	49.77	51.64	52.18		51.28		48.37	48.45	47.20	44.13
4	68.26	71.01	71.80		70.48		66.22	66.34	64.52	60.12
5	89.07	93.10	94.27		92.31		86.12	86.30	83.71	77.53
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	14.39		15.75		19.27	20.54				
2	29.01		31.80		39.11	41.78				
3	44.13		48.52		60.27	64.67				
4	59.12		65.44		84.04	90.99				
5	77.53		85.45		113.60	126.12				
	KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
48 CD										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	2.32	2.34	2.06	2.02	2.07			17.24	17.28	16.28
2	4.65	4.68	4.12	4.04	4.13			34.88	34.96	32.90
3	6.97	7.02	6.19	6.06	6.20			53.43	53.56	50.27
4	9.30	9.37	8.25	8.08	8.27			73.65	73.85	68.99
5	11.63	11.72	10.32	10.10	10.34			97.05	97.34	90.14
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	15.30	15.87	16.03		15.74		14.93	14.96	14.52	13.65
2	30.88	32.06	32.39		31.78		30.12	30.19	29.28	27.50
3	47.07	48.94	49.47		48.50		45.88	45.98	44.55	41.78
4	64.34	67.05	67.82		66.40		62.62	62.77	60.72	56.78
5	83.45	87.31	88.43		86.39		81.03	81.23	78.37	72.93
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	13.65		14.91		18.28	19.54				
2	27.50		30.08		37.04	39.68				
3	41.77		45.81		56.91	61.21				
4	56.76		62.52		78.88	85.50				
5	72.90		80.88		105.15	116.09				
	KB5	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

49 IN

KAP CRYSTAL, D#13.200 ANGSTROMS

ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	2.22	2.24	1.98	1.93	1.98		1.96	16.43	16.47	15.48
2	4.45	4.49	3.95	3.86	3.95		3.92	33.21	33.29	31.25
3	6.67	6.74	5.93	5.80	5.93		5.88	50.76	50.89	47.65
4	8.90	8.99	7.91	7.73	7.91		7.84	69.71	69.90	65.18
5	11.13	11.24	9.89	9.67	9.89		9.80	91.19	91.47	84.64
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	14.53	15.11	15.27		14.96		14.22	14.25	13.76	12.96
2	29.30	30.48	30.81		30.18		28.67	28.72	27.72	26.09
3	44.58	46.45	46.97		45.97		43.60	43.68	42.12	39.59
4	60.76	63.44	64.20		62.75		59.36	59.48	57.25	53.68
5	78.42	82.17	83.24		81.20		76.48	76.64	73.58	68.72
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	12.96	12.73	14.14		17.35	18.61				
2	26.09	25.61	28.50		35.12	37.74				
3	39.59	38.84	43.33		53.82	58.04				
4	53.68	52.63	58.98		74.24	80.60				
5	68.72	67.31	75.95		97.94	107.90				
	KB7	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

50 SN

ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	2.13	2.15	1.89	1.85	1.89		1.88	15.67	15.71	14.73
2	4.26	4.30	3.78	3.70	3.79		3.75	31.65	31.73	29.72
3	6.40	6.45	5.67	5.55	5.68		5.63	48.30	48.42	45.25
4	8.53	8.60	7.56	7.40	7.58		7.51	66.11	66.30	61.71
5	10.67	10.76	9.45	9.26	9.47		9.39	85.97	86.24	79.75
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	13.81	14.39	14.55		14.23	13.73	13.55	13.58	13.05	12.32
2	27.84	29.01	29.34		28.68	27.66	27.30	27.35	26.28	24.79
3	42.30	44.13	44.65		43.61	42.02	41.46	41.55	39.88	37.56
4	57.51	60.12	60.86		59.38	57.11	56.32	56.44	54.09	50.84
5	73.93	77.53	78.56		76.51	73.39	72.31	72.47	69.27	64.90
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	12.96	12.73	14.14		17.35	18.61				
2	26.09	25.61	28.50		35.12	37.74				
3	39.59	38.84	43.33		53.82	58.04				
4	53.68	52.63	58.98		74.24	80.60				
5	68.72	67.31	75.95		97.94	107.90				
	KB7	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

51	SB	KAP CRYSTAL, D#13.200 ANGSTROMS									
	ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LBI
	1	2.04	2.06	1.81	1.77	1.81		1.80	14.97	15.01	14.04
	2	4.08	4.12	3.62	3.54	3.63		3.59	30.20	30.26	28.29
	3	6.12	6.19	5.43	5.31	5.45		5.39	46.01	46.14	43.01
	4	8.17	8.25	7.24	7.09	7.26		7.19	62.81	62.99	58.52
	5	10.21	10.32	9.36	8.86	9.08		8.99	81.28	81.54	75.32
		LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
	1	13.15	13.71	13.88		13.55	13.07	12.93	12.96	12.40	11.72
	2	26.48	27.63	27.97		27.30	26.32	26.02	26.09	24.95	23.56
	3	40.18	41.98	42.51		41.46	39.93	39.48	39.57	37.81	35.67
	4	54.52	57.05	57.81		56.32	54.17	53.53	53.66	51.19	48.20
	5	69.85	73.31	74.34		72.31	69.38	68.51	68.69	65.36	61.38
		LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
	1	11.72	11.47	12.75		15.71	16.94				
	2	23.56	23.17	25.67		31.73	34.26				
	3	35.67	34.90	38.92		48.41	52.44				
	4	48.20	47.14	52.75		66.28	72.19				
	5	61.38	59.97	57.46		86.21	94.85				
		KB6	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
	1										
	2										
	3										
	4										
	5										
52	TE										
	ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LBI
	1	1.96	1.98	1.74	1.70	1.74			14.31	14.35	13.39
	2	3.92	3.96	3.47	3.39	3.48			28.86	28.94	26.96
	3	5.88	5.94	5.21	5.09	5.22			43.89	44.02	40.93
	4	7.84	7.92	6.95	6.79	6.97			59.78	59.96	55.58
	5	9.80	9.91	8.69	8.49	8.71			77.06	77.31	71.29
		LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
	1	12.53	13.09	13.25		12.92	12.45	12.35	12.38	11.79	11.16
	2	25.22	26.35	26.68		26.01	25.05	24.84	24.91	23.71	22.43
	3	38.23	39.99	40.50		39.46	37.97	37.64	37.75	35.90	33.92
	4	51.78	54.25	54.97		53.51	51.42	50.95	51.11	48.52	45.78
	5	66.16	69.48	70.46		68.48	65.67	65.05	65.26	61.81	58.18
		LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
	1	11.16	10.92	12.13		14.97	16.19				
	2	22.43	21.93	24.40		30.19	32.71				
	3	33.92	33.16	36.97		45.99	49.97				
	4	45.78	44.72	50.01		62.79	68.55				
	5	58.18	56.79	63.80		81.25	89.49				
		KB6	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
	1										
	2										
	3										
	4										
	5										

[illegible]

55	CS	KAP CRYSTAL, D#13.200 ANGSTRCMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LBI
1	1.74	1.76	1.54	1.55	1.54			12.58	12.62	11.67
2	3.47	3.52	3.37	3.33	3.38			25.31	25.40	23.46
3	5.21	5.28	4.61	4.51	4.62			38.37	38.51	35.50
4	6.95	7.04	6.15	6.01	6.17			51.98	52.17	47.97
5	8.69	8.83	7.69	7.51	7.71			66.42	66.68	61.08
	LB2	LB3	LB4	LB5	LB6	LB7	LB8	LB10	LY1	LY2
1	10.92	11.43	11.59		11.27	10.80	10.77	10.83	10.21	9.72
2	21.93	22.97	23.30		22.66	21.70	21.64	21.76	20.49	19.51
3	33.16	34.75	35.27		34.27	32.81	32.71	32.90	30.95	29.45
4	44.72	46.93	47.65		46.27	44.24	44.10	44.37	41.68	39.62
5	56.79	59.71	61.65		58.83	56.15	55.98	56.32	52.81	50.13
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	9.75	9.45	10.51		13.02	14.22				
2	19.48	18.96	21.10		26.21	28.66				
3	29.43	28.61	31.88		39.77	43.59				
4	39.55	38.46	42.96		53.93	59.34				
5	50.04	48.63	54.49		69.06	76.45				
	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
56	BA									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LBI
1	1.67	1.69	1.48	1.45	1.48			12.07	12.11	11.16
2	3.34	3.39	2.96	2.89	2.96			24.27	24.36	22.43
3	5.01	5.08	4.44	4.34	4.44			36.76	36.90	33.92
4	6.69	6.78	5.92	5.78	5.92			49.73	49.92	45.78
5	8.36	8.47	7.41	7.23	7.41			63.41	63.67	58.18
	LB2	LB3	LB4	LB5	LB6	LB7	LB8	LB10	LY1	LY2
1	10.45	10.94	11.11		10.79		10.33	10.38	9.74	9.29
2	21.95	21.98	22.32		21.68		20.74	20.84	19.55	18.64
3	31.71	33.23	33.76		32.76		31.33	31.48	29.51	28.12
4	42.72	44.82	45.55		44.18		42.20	42.41	39.70	37.80
5	54.17	56.92	57.88		56.08		53.49	53.75	50.23	47.77
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	9.27	9.02	10.03		12.45	13.64				
2	18.61	18.09	20.14		25.04	27.48				
3	28.07	27.28	30.41		37.96	41.74				
4	37.73	36.65	40.94		51.40	56.72				
5	47.68	46.28	51.84		65.65	72.85				
	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

57		KAP CRYSTAL, D#13.200 ANGSTRMS									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	1.61	1.63	1.42	1.39	1.43		1.42	11.59	11.63	10.68	
2	3.22	3.26	2.85	2.78	2.86		2.83	23.30	23.38	21.46	
3	4.83	4.88	4.27	4.17	4.29		4.25	35.26	35.38	32.44	
4	6.44	6.51	5.70	5.56	5.71		5.66	47.63	47.80	43.73	
5	8.06	8.15	7.12	6.95	7.14		7.08	60.63	60.85	55.49	
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2	
1	10.01	10.48	10.65		10.34	9.89	9.92	9.95	9.31	8.89	
2	20.10	21.14	21.38		20.77	19.85	19.91	19.98	18.68	17.83	
3	30.34	31.79	32.32		31.37	29.96	30.06	30.17	28.18	26.89	
4	40.84	42.83	43.56		42.26	40.33	40.46	40.60	37.88	36.12	
5	51.72	54.32	55.27		53.56	51.05	51.21	51.41	47.87	45.60	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	8.87	8.62	9.58		11.91	13.08					
2	17.79	17.28	19.23		23.96	26.33					
3	26.82	26.05	29.02		36.28	39.95					
4	36.33	34.97	39.03		49.06	54.19					
5	45.48	44.12	49.37		62.52	69.41					
	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											
58		CE									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	1.55	1.57	1.37	1.34	1.37			11.13	11.17	10.24	
2	3.10	3.14	2.74	2.67	2.74			22.37	22.45	20.56	
3	4.65	4.72	4.12	4.01	4.12			33.84	33.96	31.06	
4	6.20	6.29	5.49	5.35	5.49			45.66	45.83	41.83	
5	7.75	7.86	6.86	6.69	6.86			58.03	58.25	53.00	
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2	
1	9.60	10.04	10.21		9.91	9.47	9.51	9.54	8.90	8.52	
2	19.27	20.17	20.50		19.90	19.01	19.08	19.14	17.85	17.08	
3	29.38	30.45	30.96		30.05	28.69	28.79	28.89	26.92	25.74	
4	39.11	40.99	41.70		40.44	38.57	38.72	38.85	36.15	34.55	
5	49.46	51.91	52.83		51.19	48.77	48.96	49.13	45.65	43.58	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	8.49	8.25	9.17		11.39	12.58					
2	17.03	16.54	18.40		22.90	25.31					
3	25.67	24.92	27.75		34.64	38.37					
4	34.46	33.44	37.29		46.78	51.98					
5	43.46	42.16	47.11		59.50	66.42					
	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											

59 PR		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	1.49	1.51	1.32	1.29	1.32			10.71	10.75	9.81
2	2.99	3.03	2.64	2.58	2.65			21.51	21.62	19.70
3	4.48	4.55	3.96	3.87	3.97			32.51	32.64	29.74
4	5.98	6.06	5.28	5.16	5.30			43.82	44.01	40.01
5	7.47	7.58	6.60	6.45	6.62			55.61	55.86	50.64
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	9.21	9.63	9.80		9.52	9.59	9.12	9.16	8.52	8.16
2	18.48	19.34	19.67		19.10	18.23	18.31	18.37	17.09	16.37
3	27.87	29.18	29.70		28.82	27.49	27.61	27.71	25.75	24.66
4	37.45	39.26	39.96		38.76	36.94	37.11	37.23	34.57	33.08
5	47.32	49.65	50.57		49.01	46.66	46.87	47.04	43.60	41.69
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	8.14	7.90	8.78		10.92	12.11				
2	16.32	15.84	17.61		21.94	24.35				
3	24.59	23.86	26.54		33.17	36.89				
4	32.99	32.00	35.64		44.74	49.90				
5	41.58	40.30	44.99		56.82	63.64				
	KB0	LB15	LB17	LB17	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
60 ND										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	1.44	1.46	1.27	1.24	1.28			10.30	10.34	9.42
2	2.88	2.92	2.54	2.48	2.55			20.69	20.77	18.90
3	4.32	4.38	3.82	3.72	3.83			31.25	31.33	28.51
4	5.77	5.84	5.09	4.97	5.11			42.09	42.27	38.34
5	7.21	7.30	6.36	6.21	6.38			53.34	53.53	48.46
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	8.85	9.24	9.42		9.14	8.73	8.76	8.79	8.15	7.82
2	17.75	18.54	18.90		18.34	17.51	17.57	17.63	16.35	15.68
3	26.75	27.96	28.51		27.67	26.39	26.49	26.58	24.64	23.62
4	35.94	37.58	38.34		37.18	35.44	35.57	35.70	33.06	31.67
5	45.36	47.49	48.46		46.97	44.73	44.89	45.06	41.67	39.89
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	7.80	7.58	8.41		10.47	11.64				
2	15.64	15.18	16.86		21.03	23.39				
3	23.55	22.86	25.40		31.78	35.41				
4	31.58	30.64	34.10		42.82	47.84				
5	39.77	38.57	43.00		54.29	60.90				
	KB0	LB15	LB17	LB17	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

63 EU		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	1.30	1.32	1.15	1.12	1.15			9.22	9.26	8.34
2	2.60	2.63	2.29	2.23	2.29			18.49	18.59	16.73
3	3.89	3.95	3.44	3.35	3.44			27.89	28.04	25.20
4	5.19	5.26	4.58	4.46	4.58			37.49	37.69	33.82
5	6.49	6.58	5.73	5.58	5.73			47.37	47.63	42.65
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	7.87	8.20	8.37		8.14	7.77	7.78	7.82	7.20	6.94
2	15.78	16.44	16.78		16.32	15.57	15.60	15.67	14.43	13.90
3	23.77	24.76	25.28		24.59	23.45	23.50	23.61	21.72	20.91
4	31.87	33.23	33.93		32.99	31.44	31.51	31.65	29.13	28.01
5	40.14	41.88	42.79		41.58	39.59	39.68	39.86	36.60	35.21
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	6.91	6.71	7.42		9.26	10.41	49.03			
2	13.85	13.43	14.87		18.56	20.91	112.17			
3	20.83	20.21	22.38		28.03	31.59				
4	27.90	27.06	30.00		37.67	42.55				
5	35.07	34.01	37.75		47.61	53.95				
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
64 GD										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	1.25	1.27	1.10	1.08	1.11			8.89	8.94	8.02
2	2.50	2.54	2.21	2.15	2.21			17.83	17.93	16.08
3	3.75	3.82	3.31	3.23	3.32			26.89	27.04	24.22
4	5.00	5.09	4.41	4.31	4.43			36.12	36.32	32.48
5	6.25	6.36	5.51	5.38	5.54			45.60	45.86	40.93
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	7.58	7.88	8.05		7.85	7.48	7.49	7.52	6.91	6.66
2	15.19	15.81	16.14		15.74	15.00	15.01	15.07	13.85	13.35
3	22.87	23.81	24.31		23.70	22.58	22.60	22.69	20.85	20.08
4	30.66	31.92	32.61		31.78	30.27	30.28	30.41	27.92	26.88
5	38.60	40.21	41.39		40.03	38.09	38.11	38.28	35.10	33.78
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	ME	MY
1	6.64	6.45	7.13		8.90	10.05				
2	13.30	12.92	14.28		17.86	20.17				
3	20.01	19.43	21.49		26.93	30.46				
4	26.79	26.01	28.79		36.17	41.01				
5	33.67	32.67	36.21		45.67	51.94				
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

65 TB		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	1.21	1.23	1.07	1.04	1.07			8.58	8.63	7.71
2	2.42	2.46	2.14	2.08	2.14			17.21	17.31	15.46
3	3.63	3.69	3.20	3.13	3.20			25.94	26.09	23.29
4	4.85	4.92	4.27	4.17	4.27			34.82	35.02	31.22
5	6.36	6.14	5.34	5.21	5.34			43.93	44.19	39.31
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	7.31	7.58	7.75	6.85	7.56	7.21		7.24	6.64	6.41
2	14.64	15.21	15.54	13.72	15.16	14.44		14.51	13.31	12.85
3	22.04	22.89	23.41	20.65	22.82	21.73		21.84	20.03	19.32
4	29.53	30.68	31.38	27.65	30.59	29.12		29.26	26.81	25.86
5	37.15	38.62	39.52	34.76	38.51	36.63		36.81	33.69	32.49
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	6.39	6.21	6.85		8.57	9.71	44.63	44.63		
2	12.81	12.41	13.72		17.19	19.49	98.81	98.81		
3	19.25	18.66	20.65		25.91	29.41				
4	25.76	24.97	27.65		34.79	39.57				
5	32.35	31.36	34.76		43.88	50.06				
	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
66 DY										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	1.17	1.19	1.03	1.01	1.03			8.29	8.34	7.43
2	2.34	2.38	2.06	2.01	2.07			16.63	16.73	14.89
3	3.52	3.57	3.09	3.02	3.10			25.06	25.20	22.41
4	4.69	4.76	4.12	4.03	4.13			33.63	33.82	30.03
5	5.86	5.95	5.15	5.04	5.17			42.39	42.65	37.79
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	7.05	7.30	7.47		7.30	6.94		6.98	6.40	6.18
2	14.13	14.63	14.97		14.63	13.92		13.99	12.81	12.38
3	21.26	22.02	22.54		22.02	20.94		21.04	19.27	18.61
4	28.47	29.51	30.21		29.51	28.04		28.18	25.79	24.90
5	35.80	37.13	38.02		37.13	35.26		35.44	32.40	31.27
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	6.15	5.97	6.59		8.24	9.38				
2	12.32	11.95	13.21		16.53	18.82				
3	18.53	17.97	19.87		24.90	28.39				
4	24.80	24.53	26.59		33.41	38.17				
5	31.13	30.17	33.42		42.11	48.25				
	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

67	HO	KAP CRYSTAL, D#13.200 ANGSTRCMS									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	1.13	1.15	1.00	0.97				8.01	8.06	7.15	
2	2.27	2.31	2.00	1.94				16.07	16.17	14.34	
3	3.40	3.46	3.00	2.92				24.20	24.35	21.57	
4	4.53	4.62	3.99	3.89				32.47	32.67	28.90	
5	5.67	5.78	4.99	4.86				40.91	41.16	36.35	
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2	
1	6.81	7.53	7.21		7.04			6.73	6.15	5.95	
2	13.64	14.49	14.44		14.12			13.48	12.32	11.91	
3	20.51	21.20	21.73		21.24			20.28	18.53	17.91	
4	27.47	28.40	29.12		28.45			27.15	24.60	23.96	
5	34.53	35.71	36.63		35.78			34.12	31.13	30.08	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	5.92	5.74	6.35		7.93	9.06					
2	11.86	11.50	12.72		15.90	18.19					
3	17.83	17.28	19.13		23.95	27.42					
4	23.85	23.11	25.60		32.12	36.85					
5	29.94	29.00	32.15		40.47	46.54					
	KB7	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											
68	ER										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	1.09	1.12	0.97	0.94	0.97			7.75	7.80	6.89	
2	2.19	2.23	1.94	1.88	1.94			15.53	15.64	13.81	
3	3.28	3.35	2.90	2.83	2.90			23.39	23.55	20.78	
4	4.38	4.46	3.87	3.77	3.87			31.36	31.58	27.83	
5	5.47	5.58	4.84	4.71	4.84			39.50	39.77	34.98	
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2	
1	6.58	6.78	6.95		6.81	6.49	6.45	6.49	5.92	5.74	
2	13.17	13.58	13.93		13.64	13.00	12.92	13.00	11.86	11.49	
3	19.81	20.44	20.96		20.51	19.55	19.43	19.55	17.83	17.27	
4	26.52	27.36	28.08		27.47	26.17	26.01	26.17	23.85	23.09	
5	33.33	34.39	35.30		34.53	32.87	32.67	32.87	29.94	28.98	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	5.71	5.54	6.11		7.63	8.77					
2	11.43	11.09	12.23		15.29	17.60					
3	17.19	16.67	18.39		23.02	26.53					
4	22.99	22.29	24.60		30.86	35.63					
5	28.84	27.97	30.89		38.85	44.96					
	KB7	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											

71 LU KAP CRYSTAL, D#13.200 ANGSTRCMS										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	3.99	1.32	3.88	0.86	0.88			7.03	7.08	6.18
2	1.99	2.03	1.75	1.71	1.76			14.09	14.19	12.39
3	2.98	3.05	2.63	2.57	2.64			21.20	21.35	18.62
4	3.98	4.06	3.51	3.42	3.53			28.40	28.60	24.92
5	4.97	5.08	4.39	4.28	4.41			35.71	35.96	31.29
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	5.95	6.38	6.25	5.83	6.16	5.86	5.80	5.83	5.31	5.15
2	11.91	12.19	12.53	11.67	12.34	11.73	11.62	11.68	10.62	10.30
3	17.91	18.32	18.84	17.54	18.56	17.64	17.46	17.56	15.96	15.48
4	23.96	24.51	25.20	23.46	24.83	23.59	23.36	23.48	21.34	20.69
5	30.08	30.77	31.65	29.45	31.18	29.61	29.31	29.47	26.76	25.94
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	5.12	4.96	5.47	5.20	6.42	7.98	34.55			
2	10.25	9.94	10.95	10.41	12.85	15.99	72.87			
3	15.40	14.93	16.46	15.65	19.34	24.08	125.98			
4	20.58	19.95	22.01	20.92	25.83	32.30				
5	25.81	25.03	27.61	26.23	32.51	40.70				
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
72 HF										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	3.96	0.99	0.85	0.83	0.85			6.81	6.36	5.97
2	1.93	1.97	1.70	1.66	1.70			13.65	13.75	11.95
3	2.89	2.96	2.55	2.49	2.55			20.54	20.69	17.97
4	3.86	3.94	3.40	3.32	3.40			27.50	27.70	24.03
5	4.82	4.93	4.25	4.15	4.25			34.57	34.82	30.17
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	5.76	5.88	6.04	5.64	5.97	5.67	5.60	5.64	5.12	4.97
2	11.53	11.77	12.11	11.29	11.95	11.36	11.22	11.29	10.25	9.94
3	17.33	17.69	18.20	16.96	17.97	17.07	16.86	16.96	15.40	14.94
4	23.18	23.66	24.35	22.68	24.03	22.83	22.54	22.68	20.58	19.96
5	29.09	29.70	30.57	28.46	30.17	28.64	28.28	28.46	25.81	25.03
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	4.94	4.79	5.28	5.01	6.61	7.74	33.19	33.22		
2	9.89	9.59	10.56	10.04	13.25	15.51	69.66	69.73		
3	14.86	14.40	15.87	15.08	19.93	23.35	117.90	118.07		
4	19.86	19.24	21.22	20.16	26.68	31.31				
5	24.89	24.12	26.61	25.27	33.53	39.43				
	KB0	LB15	LB17	LBP7	LY3	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

75 RE

KAP CRYSTAL, D#13.200 ANGSTROMS

ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.88	0.90	0.78	0.76	0.78			6.22	6.27	5.38
2	1.76	1.81	1.55	1.51	1.55			12.46	12.56	10.77
3	2.64	2.71	2.33	2.27	2.33			18.74	18.89	16.19
4	3.53	3.61	3.11	3.02	3.11			25.08	25.28	21.64
5	4.41	4.52	3.89	3.78	3.89			31.50	31.74	27.14
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	5.24	5.30	5.47	5.11	5.43	5.15	5.06	5.09	4.61	4.48
2	10.49	10.61	10.95	10.23	10.88	10.31	10.13	10.19	9.22	8.97
3	15.77	15.94	16.45	15.37	16.35	15.49	15.22	15.31	13.85	13.47
4	21.07	21.30	21.99	20.55	21.85	20.70	20.33	20.46	18.50	17.99
5	26.43	26.72	27.59	25.76	27.41	25.96	25.49	25.65	23.18	22.54
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	4.45	4.31	4.75	4.50	5.96	7.08	28.63			
2	8.92	8.62	9.51	9.01	11.94	14.19	59.28			
3	13.39	12.95	14.28	13.54	17.95	21.35	95.77			
4	17.89	17.29	19.08	18.08	24.01	28.60				
5	22.41	21.66	23.92	22.65	30.14	35.96				
	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

76 OS

ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.86	0.88	0.76	0.73	0.76			6.04	6.09	5.20
2	1.71	1.75	1.51	1.47	1.51			12.10	12.19	10.41
3	2.57	2.63	2.27	2.20	2.27			18.19	18.33	15.64
4	3.42	3.51	3.02	2.93	3.02			24.33	24.52	20.90
5	4.28	4.39	3.78	3.67	3.78			30.55	30.80	26.21
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	5.08	5.12	5.29	4.95	5.27	4.99	4.89	4.92	4.45	4.33
2	10.17	10.26	10.59	9.91	10.55	9.99	9.79	9.85	8.91	8.67
3	15.28	15.41	15.91	14.89	15.85	15.00	14.70	14.79	13.38	13.02
4	20.42	20.60	21.27	19.89	21.18	20.05	19.65	19.77	17.87	17.39
5	25.60	25.83	26.67	24.94	26.56	25.14	24.63	24.78	22.39	21.79
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	4.31	4.16	4.59	4.35	5.77	6.88	28.46	28.46		
2	8.62	8.33	9.19	8.70	11.55	13.79	58.90	58.90		
3	12.95	12.51	13.80	13.06	17.36	20.75	95.04	95.04		
4	17.29	16.71	18.43	17.45	23.22	27.79				
5	21.66	20.93	23.10	21.86	29.13	34.94				
	KB1	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

79 AU		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.78	0.83	0.69	0.67	0.69	0.67	0.69	5.54	5.59	4.71
2	1.56	1.61	1.38	1.35	1.39	1.34	1.37	11.09	11.20	9.42
3	2.34	2.41	2.07	2.02	2.08	2.01	2.06	16.67	16.83	14.15
4	3.13	3.21	2.76	2.69	2.78	2.67	2.74	22.29	22.51	18.91
5	3.91	4.02	3.45	3.36	3.47	3.34	3.43	27.97	28.24	23.69
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	4.65	4.64	4.81	4.52	4.82	4.56	4.43	4.46	4.02	3.92
2	9.30	9.28	9.62	9.04	9.66	9.12	8.87	8.93	8.05	7.85
3	13.97	13.94	14.45	13.57	14.51	13.71	13.33	13.42	12.09	11.79
4	18.66	18.62	19.31	18.13	19.38	18.31	17.80	17.92	16.15	15.75
5	23.38	23.34	24.20	22.72	24.29	22.94	22.30	22.45	20.22	19.72
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	3.90		4.15	3.92	5.22	6.34	25.56	25.62		
2	7.80		8.31	7.85	10.46	12.70	52.52	52.65		
3	11.71		12.47	11.78	15.71	19.10	83.16	83.40		
4	15.64		16.66	15.73	21.00	25.56	124.47	124.99		
5	19.58		20.86	19.69	26.34	32.10				
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
80 HG										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.76	0.78	0.67	0.65	0.67			5.39	5.44	4.55
2	1.52	1.56	1.34	1.30	1.35			10.79	10.89	9.12
3	2.28	2.34	2.01	1.95	2.02			16.21	16.37	13.69
4	3.04	3.13	2.67	2.60	2.69			21.68	21.85	18.29
5	3.80	3.91	3.34	3.26	3.36			27.19	27.46	22.92
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	4.52	4.49	4.65	4.39	4.69	4.42	4.28	4.32	3.89	3.80
2	9.04	8.99	9.32	8.78	9.39	8.85	8.57	8.65	7.79	7.60
3	13.57	13.50	13.99	13.18	14.10	13.30	12.87	13.00	11.70	11.41
4	18.13	18.03	18.70	17.61	18.84	17.76	17.18	17.36	15.62	15.24
5	22.72	22.59	23.43	22.06	23.61	22.25	21.53	21.75	19.56	19.08
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	3.77	3.64	4.01	3.79	5.05	6.18	24.79	24.79		
2	7.55	7.29	8.03	7.58	10.12	12.37	50.84	50.84		
3	11.33	10.94	12.05	11.39	15.20	18.60	80.16	80.16		
4	15.13	14.61	16.10	15.20	20.32	24.88	118.29	118.29		
5	18.95	18.29	20.16	19.03	25.47	31.25				
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

81 TL		KAP CRYSTAL, D#13.200 ANGSTROMS									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	0.74	0.76	0.65	0.63	0.66			5.24	5.29	4.41	
2	1.48	1.52	1.30	1.27	1.31			10.49	10.60	8.82	
3	2.21	2.28	1.95	1.90	1.97			15.77	15.92	13.25	
4	2.95	3.04	2.60	2.54	2.62			21.07	21.29	17.69	
5	3.69	3.80	3.26	3.17	3.28			26.43	26.70	22.17	
	LB2	LB3	LB4	LB5	LB6	LB7	LB8	LB10	LY1	LY2	
1	4.39	4.35	4.51	4.26	4.56	4.30	4.15	4.19	3.77	3.68	
2	8.78	8.70	9.03	8.52	9.12	8.60	8.32	8.38	7.54	7.37	
3	13.18	13.06	13.56	12.80	13.71	12.92	12.49	12.58	11.32	11.06	
4	17.61	17.45	18.11	17.10	18.31	17.25	16.67	16.80	15.11	14.76	
5	22.06	21.86	22.70	21.42	22.94	21.61	20.89	21.04	18.92	18.48	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	3.65	3.53	3.89	3.66	4.90	6.01	23.88	23.93			
2	7.31	7.05	7.78	7.33	9.80	12.05	48.82	48.98			
3	10.97	10.59	11.67	11.01	14.73	18.11	76.72	76.90			
4	14.64	14.13	15.59	14.69	19.68	24.23	111.67	112.01			
5	18.33	17.69	19.52	18.40	24.67	30.41					
	KBJ	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											
82 PB											
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1	
1	0.72	0.74	0.63	0.62	0.64	0.61	0.63	5.10	5.15	4.26	
2	1.43	1.48	1.27	1.23	1.28	1.22	1.26	10.21	10.31	8.53	
3	2.15	2.21	1.90	1.85	1.91	1.84	1.89	15.35	15.49	12.81	
4	2.87	2.95	2.54	2.47	2.55	2.45	2.52	20.51	20.70	17.11	
5	3.58	3.69	3.17	3.08	3.19	3.06	3.15	25.72	25.96	21.44	
	LB2	LB3	LB4	LB5	LB6	LB7	LB8	LB10	LY1	LY2	
1	4.27	4.21	4.37	4.14	4.43	4.18	4.02	4.05	3.65	3.56	
2	8.54	8.42	8.75	8.28	8.87	8.36	8.05	8.12	7.30	7.13	
3	12.83	12.64	13.14	12.43	13.33	12.55	12.09	12.19	10.95	10.71	
4	17.13	16.89	17.55	16.60	17.80	16.76	16.15	16.27	14.62	14.29	
5	21.46	21.15	21.99	20.80	22.30	21.00	20.22	20.38	18.31	17.89	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY	
1	3.54	3.41	3.76	3.55	4.74	5.86	23.10	23.16			
2	7.08	6.83	7.52	7.10	9.49	11.74	47.20	47.34			
3	10.63	10.25	11.30	10.65	14.26	17.65	73.82	74.05			
4	14.19	13.68	15.08	14.22	19.05	23.61	106.41	106.81			
5	17.76	17.12	18.88	17.80	23.87	29.63					
	KBJ	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT	
1											
2											
3											
4											
5											

83 BI		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.72	3.72	0.62	0.60	0.62			4.97	5.01	4.13
2	1.40	1.44	1.23	1.20	1.24			9.94	10.04	8.27
3	2.10	2.16	1.85	1.80	1.86			14.94	15.03	12.42
4	2.83	2.88	2.47	2.40	2.48			19.96	20.15	16.59
5	3.49	3.63	3.08	3.00	3.10			25.03	25.27	20.77
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	4.15	4.78	4.24	4.02	4.31	4.06	3.90	3.93	3.53	3.46
2	8.30	8.16	8.49	8.55	8.63	8.12	7.80	7.86	7.06	6.91
3	12.46	12.25	12.75	12.98	12.96	12.20	11.71	11.81	10.60	10.38
4	16.64	16.36	17.03	16.13	17.31	16.29	15.64	15.76	14.15	13.85
5	20.84	20.49	21.33	20.20	21.68	20.40	19.58	19.74	17.71	17.34
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	3.43	3.30	3.64	3.43	4.60	5.71	22.36	22.41		
2	6.85	6.61	7.29	6.86	9.20	11.44	45.63	45.73		
3	10.29	9.92	10.94	10.30	13.82	17.20	71.13	71.30		
4	13.73	13.24	14.61	13.75	18.47	23.00	101.69	102.00		
5	17.19	16.57	18.29	17.21	23.14	28.87				
	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
84 PO										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.68	2.70	0.60	2.58				4.84	4.89	4.00
2	1.35	1.40	1.20	1.16				9.68	9.79	8.01
3	2.03	2.10	1.80	1.74				14.55	14.70	12.03
4	2.71	2.80	2.40	2.33				19.43	19.65	16.06
5	3.39	3.49	3.00	2.91				24.36	24.63	20.11
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	4.03	3.95	4.11	3.90	4.20				3.42	
2	8.07	7.90	8.23	7.81	8.40				6.84	
3	12.12	11.86	12.36	11.73	12.62				10.26	
4	16.18	15.83	16.50	15.66	16.85				13.70	
5	20.27	19.83	20.66	19.61	21.11				17.14	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	3.32			3.32						
2	6.64			6.64						
3	9.96			9.96						
4	13.29			13.29						
5	16.64			16.64						
	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

87	FR	KAP CRYSTAL, D#13.200 ANGSTRCMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.63	3.65	0.55	0.54				4.47	4.52	3.65
2	1.25	1.29	1.10	1.08				8.95	9.05	7.30
3	1.88	1.94	1.65	1.61				13.44	13.60	10.95
4	2.50	2.59	2.21	2.15				17.96	18.17	14.62
5	3.13	3.23	2.76	2.69				22.50	22.75	18.31
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	3.72								3.11	
2	7.45								6.22	
3	11.19								9.33	
4	14.94								12.46	
5	18.70								15.59	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
88	RA									
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.61	0.63	0.54	0.52				4.36	4.41	3.53
2	1.22	1.26	1.08	1.04				8.73	8.83	7.07
3	1.82	1.89	1.61	1.56				13.12	13.26	10.61
4	2.43	2.52	2.15	2.08				17.52	17.71	14.17
5	3.04	3.15	2.69	2.60				21.95	22.19	17.74
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	3.62	3.49	3.65	3.50	3.78	3.54	3.34	3.36	3.02	2.96
2	7.25	6.98	7.31	7.00	7.57	7.09	6.68	6.73	6.04	5.92
3	10.89	10.47	10.97	10.51	11.36	10.64	10.03	10.10	9.06	8.89
4	14.54	13.98	14.64	14.03	15.17	14.20	13.38	13.49	12.09	11.86
5	18.20	17.50	18.33	17.56	18.99	17.78	16.75	16.88	15.13	14.84
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1	2.93	2.82	3.11	2.92	3.94	5.07				
2	5.86	5.64	6.23	5.84	7.88	10.14				
3	8.80	8.46	9.35	8.77	11.83	15.24				
4	11.74	11.29	12.47	11.71	15.80	20.37				
5	14.69	14.12	15.61	14.65	19.73	25.54				
	KB3	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

91 PA KAP CRYSTAL, D#13.200 ANGSTROMS										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.56	0.58	0.49	0.48				4.05	4.10	3.22
2	1.12	1.16	0.99	0.96				8.11	8.21	6.44
3	1.68	1.74	1.48	1.45				12.17	12.33	9.67
4	2.24	2.33	1.98	1.93				16.25	16.46	12.91
5	2.80	2.91	2.47	2.41				20.36	20.62	16.16
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	3.36	3.18	3.34	3.23	3.51	3.28	3.04	3.07	2.75	2.71
2	6.72	6.36	6.69	6.47	7.02	6.56	6.09	6.15	5.51	5.42
3	10.09	9.54	10.04	9.71	10.54	9.84	9.14	9.23	8.26	8.13
4	13.47	12.74	13.40	12.96	14.06	13.14	12.19	12.32	11.02	10.85
5	16.86	15.94	16.77	16.22	17.61	16.44	15.26	15.41	13.79	13.57
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	NB	MY
1	2.68	2.58	2.84	2.66	3.60	4.74	17.53	17.58		
2	5.36	5.16	5.69	5.32	7.20	9.48	35.48	35.60		
3	8.03	7.74	8.54	7.99	10.81	14.24	54.39	54.58		
4	10.73	10.33	11.39	10.66	14.43	19.03	75.09	75.38		
5	13.42	12.92	14.25	13.33	18.07	23.85	99.24	99.67		
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
92 U										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.55	0.57	0.48	0.47	0.49			3.96	4.00	3.13
2	1.09	1.14	0.96	0.95	0.97			7.91	8.01	6.25
3	1.64	1.71	1.45	1.42	1.46			11.88	12.03	9.39
4	2.19	2.27	1.93	1.89	1.94			15.87	16.06	12.53
5	2.73	2.84	2.41	2.37	2.43			19.87	20.11	15.67
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	3.28	3.08	3.25	3.15	3.42	3.20	2.96	2.98	2.67	2.63
2	6.56	6.17	6.50	6.31	6.84	6.39	5.91	5.97	5.34	5.25
3	9.84	9.26	9.75	9.46	10.27	9.60	8.88	8.96	8.01	7.88
4	13.14	12.35	13.02	12.63	13.71	12.81	11.84	11.95	10.69	10.52
5	16.44	15.46	16.29	15.81	17.17	16.03	14.82	14.95	13.38	13.16
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	NB	MY
1	2.60		2.76	2.58	3.49	4.63	17.03	17.10		
2	5.19		5.51	5.17	6.99	9.27	34.46	34.59		
3	7.79		8.28	7.75	10.50	13.93	52.76	52.96		
4	10.40		11.04	10.34	14.01	18.61	72.66	72.96		
5	13.01		13.81	12.94	17.54	23.32	95.55	96.01		
	KB0	LB15	LB17	LBP7	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

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95 AM		KAP CRYSTAL, D#13.200 ANGSTROMS								
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.51	0.53	0.45	0.43				3.68	3.73	2.86
2	1.02	1.06	0.89	0.87				7.37	7.47	5.71
3	1.52	1.59	1.34	1.30				11.06	11.22	8.58
4	2.03	2.12	1.79	1.74				14.76	14.97	11.44
5	2.54	2.65	2.24	2.17				18.48	18.75	14.32
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	3.04								2.44	
2	6.09								4.88	
3	9.14								7.32	
4	12.19								9.77	
5	15.26								12.22	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB0	LB15	LB17	LB17	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										
96 CM										
ORDER	KA1	KA2	KB1	KB2	KB3	KB4	KB5	LA1	LA2	LB1
1	0.49	0.52	0.44	0.43				3.60	3.65	2.77
2	0.99	1.03	0.88	0.85				7.20	7.31	5.55
3	1.48	1.55	1.32	1.28				10.81	10.97	8.33
4	1.98	2.07	1.75	1.70				14.43	14.64	11.11
5	2.47	2.58	2.19	2.13				18.07	18.33	13.90
	LB2	LB3	LB4	LB5	LB6	LB7	LB9	LB10	LY1	LY2
1	2.97								2.37	
2	5.95								4.74	
3	8.93								7.11	
4	11.91								9.49	
5	14.91								11.87	
	LY3	LY4	LY5	LY6	LN	LL	MA1	MA2	MB	MY
1										
2										
3										
4										
5										
	KB0	LB15	LB17	LB17	LY8	LY13	LYP4	LYP8	LS	LT
1										
2										
3										
4										
5										

[illegible]

TABLE 2
GONIOMETER ANGLES ARRANGED BY ANGLE MAGNITUDE

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KAB CRYSTAL, D#13.200 ANGSTROMS						0.40 TO 0.59					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
0.40	98 CF	KB2	I	0.093	I	0.51	89 AC	KB2	I	0.117	I
0.41	97 BK	KB2	I	0.095	I	0.51	95 AM	KA1	I	0.117	I
0.42	98 CF	KB1	I	0.097	I	0.51	90 TH	KB3	I	0.118	1,2
0.42	96 CM	KB2	I	0.093	I	0.52	96 CM	KA2	I	0.119	I
0.42	97 BK	KB1	I	0.093	I	0.52	88 RA	KB2	I	0.120	I
0.43	95 AM	KB2	I	0.100	I	0.52	94 PU	KA1	I	0.120	I
0.44	96 CM	KB1	I	0.101	I	0.52	89 AC	KB1	I	0.121	I
0.45	94 PU	KB2	I	0.103	I	0.53	95 AM	KA2	I	0.122	I
0.45	95 AM	KB1	I	0.103	I	0.53	93 NP	KA1	I	0.123	I
0.46	93 NP	KB2	I	0.105	I	0.54	88 RA	KB1	I	0.124	I
0.46	94 PU	KB1	I	0.105	I	0.54	87 FR	KB2	I	0.124	I
0.47	98 CF	KA1	I	0.108	I	0.54	94 PU	KA2	I	0.125	I
0.47	93 NP	KB1	I	0.109	I	0.55	92 U	KA1	I	0.126	1,2,3
0.47	92 U	KB2	I	0.109	1,2,3	0.55	86 RN	KB2	I	0.127	I
0.48	97 BK	KA1	I	0.111	I	0.55	87 FR	KB1	I	0.127	I
0.48	92 U	KB1	I	0.111	1,2,3	0.56	93 NP	KA2	I	0.128	I
0.48	91 PA	KB2	I	0.111	I	0.56	91 PA	KA1	I	0.129	I
0.49	92 U	KB3	I	0.112	1,2	0.57	85 AT	KB2	I	0.131	I
0.49	98 CF	KA2	I	0.113	I	0.57	86 RN	KB1	I	0.131	I
0.49	96 CM	KA1	I	0.114	I	0.57	92 U	KA2	I	0.131	1,2,3
0.49	91 PA	KB1	I	0.114	I	0.58	90 TH	KA1	I	0.133	1,2,3
0.49	90 TH	KB2	I	0.114	1,3	0.58	84 PC	KB2	I	0.134	I
0.50	90 TH	KB5	I	0.116	1,2	0.58	85 AT	KB1	I	0.134	I
0.50	97 BK	KA2	I	0.116	I	0.58	91 PA	KA2	I	0.134	I
0.51	90 TH	KB1	I	0.117	1,2,3	0.59	89 AC	KA1	I	0.136	I

KAP CRYSTAL, D#13.200 ANGSTROMS							0.60 TO 0.75						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
0.60	90 TH	KA2	I	0.138	1,2,3		0.67	79 AU	KB2	I	0.155	1,3	
0.60	83 BI	KB2	I	0.138	1,3		0.68	84 PC	KA1	I	0.156	I	
0.60	84 PC	KB1	I	0.138	I		0.68	85 AT	KA2	I	0.157	I	
0.61	88 RA	KA1	I	0.140	I		0.69	79 AU	KB5	I	0.158	I	
0.61	82 PB	KB4	I	0.141	1,2		0.69	79 AU	KB1	I	0.159	1,2,3	
0.61	89 AC	KA2	I	0.141	I		0.69	78 PT	KB2	I	0.159	1,3	
0.62	82 PE	KB2	I	0.142	1,3		0.69	78 PT	KB4	I	0.159	1,2	
0.62	85 BI	KB1	I	0.142	1,2,3		0.69	79 AU	KB3	I	0.160	1,2	
0.62	83 BI	KB3	I	0.143	1,2		0.70	84 PC	KA2	I	0.161	I	
0.63	87 FR	KA1	I	0.144	I		0.70	83 BI	KA1	I	0.161	1,2,3	
0.63	88 RA	KA2	I	0.145	I		0.71	77 IR	KB4	I	0.163	1,2	
0.63	82 PE	KB5	I	0.145	I		0.71	78 PT	KB5	I	0.163	I	
0.63	81 TL	KB2	I	0.146	I		0.71	78 PT	KB3	I	0.164	1,2	
0.63	82 PB	KB1	I	0.146	1,2,3		0.71	77 IR	KB2	I	0.164	1,3	
0.64	82 PB	KB3	I	0.147	I		0.71	78 PT	KB1	I	0.164	1,2,3	
0.64	86 RN	KA1	I	0.148	I		0.72	82 PB	KA1	I	0.165	1,2,3	
0.65	87 FR	KA2	I	0.149	I		0.72	83 BI	KA2	I	0.166	1,2,3	
0.65	81 TL	KB1	I	0.150	1,2,3		0.72	77 IR	KB5	I	0.167	I	
0.65	80 HG	KB2	I	0.150	I		0.73	77 IR	KB1	I	0.169	1,2,3	
0.65	81 TL	KB3	I	0.151	1,2		0.73	76 OS	KB2	I	0.169	1,3	
0.66	85 AT	KA1	I	0.152	I		0.73	77 IR	KB3	I	0.169	1,2	
0.66	86 RN	KA2	I	0.153	I		0.74	81 TL	KA1	I	0.170	1,2,3	
0.67	80 HG	KB1	I	0.154	I		0.74	82 PB	KA2	I	0.170	1,2,3	
0.67	79 AU	KB4	I	0.154	1,2		0.75	75 RE	KB2	I	0.174	1,3	
0.67	80 HG	KB3	I	0.155	I		0.75	76 OS	KB1	I	0.174	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							0.75 TO 0.93						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
0.75	76 OS	KB3	1	0.174	1,2		0.85	72 HF	KB3	1	0.196	1,2	
0.76	83 HG	KA1	1	0.175	1		0.85	97 BK	KB1	2	0.098	1	
0.76	81 TL	KA2	1	0.175	1,2,3		0.85	77 IR	KA2	1	0.196	1,2,3	
0.78	74 W	KB4	1	0.179	1		0.85	96 CM	KB2	2	0.098	1	
0.78	74 W	KB2	1	0.179	1,2,3		0.85	72 HF	KB1	1	0.196	1,2,3	
0.78	75 RE	KB3	1	0.179	1,2		0.85	76 OS	KA1	1	0.197	1,2,3	
0.78	75 RE	KB1	1	0.179	1,2,3		0.85	71 LU	KB2	1	0.197	1,2,3	
0.78	80 HG	KA2	1	0.180	1		0.87	95 AM	KB2	2	0.100	1	
0.78	79 AU	KA1	1	0.180	1,2,3		0.88	76 OS	KA2	1	0.202	1,2,3	
0.79	74 W	KB5	1	0.183	1		0.88	96 CM	KB1	2	0.101	1	
0.80	74 W	KB1	1	0.184	1,2,3		0.88	71 LU	KB1	1	0.202	1,2,3	
0.80	73 TA	KB4	1	0.184	1		0.88	75 RE	KA1	1	0.203	1,2,3	
0.80	73 TA	KB2	1	0.185	1,2,3		0.88	71 LU	KB3	1	0.203	1,2	
0.80	74 W	KB3	1	0.185	1,2		0.88	70 YB	KB2	1	0.204	1,2,3	
0.80	79 AU	KA2	1	0.185	1,2,3		0.89	95 AM	KB1	2	0.103	1	
0.81	98 CF	KB2	2	0.093	1		0.89	94 PU	KB2	2	0.103	1	
0.81	78 PT	KA1	1	0.186	1,2,3		0.90	75 RE	KA2	1	0.208	1,2,3	
0.82	73 TA	KB5	1	0.189	1		0.91	74 W	KA1	1	0.209	1,2,3	
0.82	78 PT	KA2	1	0.190	1,2,3		0.91	70 YB	KB1	1	0.209	1,2,3	
0.82	97 BK	KB2	2	0.095	1		0.91	70 YB	KB3	1	0.209	1,2	
0.82	73 TA	KB1	1	0.190	1,2,3		0.91	93 NP	KB2	2	0.105	1	
0.83	77 IR	KA1	1	0.191	1,2,3		0.91	69 TM	KB2	1	0.210	1	
0.83	73 TA	KB3	1	0.191	1,2		0.92	94 PU	KB1	2	0.106	1	
0.83	72 HF	KB2	1	0.191	1,2,3		0.93	74 W	KA2	1	0.214	1,2,3	
0.84	98 CF	KB1	2	0.097	1		0.93	69 TM	KB1	1	0.215	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							0.93 TO 1.09						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
0.93	73 TA	KA1	1	0.215	1,2,3		1.02	95 AM	KA1	2	0.117	1	
0.94	69 TM	KB3	1	0.216	1,2		1.02	90 TH	KB1	2	0.117	1,2,3	
0.94	98 CF	KA1	2	0.108	1		1.02	89 AC	KB2	2	0.117	1	
0.94	68 ER	KB2	1	0.217	1,2,3		1.02	71 LU	KA2	1	0.234	1,2,3	
0.95	93 NP	KB1	2	0.109	1		1.02	90 TH	KB3	2	0.118	1,2	
0.95	92 U	KB2	2	0.109	1,2,3		1.03	70 YB	KA1	1	0.237	1,2,3	
0.95	73 TA	KA2	1	0.220	1,2,3		1.03	66 DY	KB1	1	0.237	1,2,3	
0.96	97 BK	KA1	2	0.111	1		1.03	66 DY	KB3	1	0.238	1,2	
0.96	91 PA	KB2	2	0.111	1		1.03	96 CM	KA2	2	0.119	1	
0.96	72 HF	KA1	1	0.222	1,2,3		1.04	88 RA	KB2	2	0.120	1	
0.96	92 U	KB1	2	0.111	1,2,3		1.04	94 PU	KA1	2	0.120	1	
0.97	68 ER	KB3	1	0.223	1,2		1.04	65 TB	KB2	1	0.240	1,2,3	
0.97	68 ER	KB1	1	0.223	1,2,3		1.05	70 YB	KA2	1	0.241	1,2,3	
0.97	92 U	KB3	2	0.112	1,2		1.05	89 AC	KB1	2	0.121	1	
0.97	67 HO	KB2	1	0.224	1		1.06	95 AM	KA2	2	0.122	1	
0.98	98 CF	KA2	2	0.113	1		1.06	69 TM	KA1	1	0.244	1,2,3	
0.98	72 HF	KA2	1	0.227	1,2,3		1.07	93 NP	KA1	2	0.123	1	
0.99	90 TH	KB2	2	0.114	1,3		1.07	65 TB	KB1	1	0.246	1,2,3	
0.99	96 CM	KA1	2	0.114	1		1.07	65 TB	KB3	1	0.246	1,2	
0.99	91 PA	KB1	2	0.114	1		1.08	87 FR	KB2	2	0.124	1	
0.99	71 LU	KA1	1	0.229	1,2,3		1.08	88 RA	KB1	2	0.124	1	
1.00	67 HO	KB1	1	0.230	1		1.08	64 GD	KB2	1	0.248	1,2,3	
1.01	97 BK	KA2	2	0.116	1		1.08	69 TM	KA2	1	0.249	1,2,3	
1.01	66 DY	KB2	1	0.232	1,2,3		1.08	94 PU	KA2	2	0.125	1	
1.01	90 TH	KB3	2	0.116	1,2		1.09	92 U	KA1	2	0.126	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							1.09 TO 1.27						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
1.09	68 ER	KA1	1	0.252	1,2,3		1.19	66 DY	KA2	1	0.274	1,2,3	
1.10	87 FR	KB1	2	0.127	1		1.20	83 BI	KB2	2	0.138	1,3	
1.10	86 RN	KB2	2	0.127	1		1.20	61 PM	KB2	1	0.276	1	
1.10	64 GD	KB1	1	0.254	1,2,3		1.20	84 PC	KB1	2	0.138	1	
1.11	64 GD	KB3	1	0.255	1,2		1.20	90 TH	KA2	2	0.138	1,2,3	
1.11	93 NP	KA2	2	0.128	1		1.21	98 CF	KB2	3	0.093	1	
1.12	68 ER	KA2	1	0.257	1,2,3		1.21	65 TE	KA1	1	0.279	1,2,3	
1.12	63 EU	KB2	1	0.257	1,2,3		1.21	88 RA	KA1	2	0.140	1	
1.12	91 PA	KA1	2	0.129	1		1.22	82 PB	KB4	2	0.141	1,2	
1.13	67 HO	KA1	1	0.261	1,2,3		1.22	61 PM	KB1	1	0.282	1,2,3	
1.14	86 RN	KB1	2	0.131	1		1.22	89 AC	KA2	2	0.141	1	
1.14	85 AT	KB2	2	0.131	1		1.23	65 TE	KA2	1	0.283	1,2,3	
1.14	92 U	KA2	2	0.131	1,2,3		1.23	61 PM	KB3	1	0.283	2	
1.15	63 EU	KB3	1	0.264	1,2		1.23	83 BI	KB1	2	0.142	1,2,3	
1.15	63 EU	KB1	1	0.264	1,2,3		1.23	82 PB	KB2	2	0.142	1,3	
1.15	67 HO	KA2	1	0.266	1,2,3		1.24	97 BK	KB2	3	0.095	1	
1.15	90 TH	KA1	2	0.133	1,2,3		1.24	60 ND	KB2	1	0.286	1,2,3	
1.15	62 SM	KB2	1	0.266	1,2,3		1.24	83 BI	KB3	2	0.143	1,2	
1.16	84 PO	KB2	2	0.134	1		1.25	87 FR	KA1	2	0.144	1	
1.16	91 PA	KA2	2	0.134	1		1.25	64 GD	KA1	1	0.288	1,2,3	
1.16	85 AT	KB1	2	0.134	1		1.26	88 RA	KA2	2	0.145	1	
1.17	66 DY	KA1	1	0.270	1,2,3		1.26	82 PB	KB5	2	0.145	1	
1.18	89 AC	KA1	2	0.136	1		1.26	98 CF	KB1	3	0.097	1	
1.18	62 SM	KB1	1	0.273	1,2,3		1.27	81 TL	KB2	2	0.146	1	
1.19	62 SM	KB3	1	0.274	1,2		1.27	82 PB	KB1	2	0.146	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							1.27 TC 1.42						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
1.27	60 ND	KB1	1	0.293	1,2,3		1.34	94 PU	KB2	3	0.103	1	
1.27	64 GC	KA2	1	0.293	1,2,3		1.35	79 AU	KB2	2	0.155	1,3	
1.28	82 PB	KB3	2	0.147	1		1.35	80 HG	KB3	2	0.155	1	
1.28	97 BK	KB1	3	0.098	1		1.35	84 PC	KA1	2	0.156	1	
1.28	65 ND	KB3	1	0.294	1,2		1.36	85 AT	KA2	2	0.157	1	
1.28	96 CM	KB2	3	0.098	1		1.36	62 SM	KA2	1	0.314	1,2,3	
1.28	86 RN	KA1	2	0.148	1		1.37	93 NP	KB2	3	0.105	1	
1.29	59 PR	KB2	1	0.297	1,2,3		1.37	79 AU	KB5	2	0.158	1	
1.29	87 FR	KA2	2	0.149	1		1.37	58 CE	KB1	1	0.316	1,2,3	
1.30	63 EU	KA1	1	0.299	1,2,3		1.37	58 CE	KB3	1	0.316	1,2	
1.30	80 HG	KB2	2	0.150	1		1.38	79 AU	KB1	2	0.159	1,2,3	
1.30	81 TL	KB1	2	0.150	1,2,3		1.38	78 PT	KB2	2	0.159	1,3	
1.30	95 AM	KB2	3	0.100	1		1.38	94 PU	KB1	3	0.106	1	
1.31	81 TL	KB3	2	0.151	1,2		1.38	78 PT	KB4	2	0.159	1,2	
1.31	96 CM	KB1	3	0.101	1		1.39	57 LA	KB2	1	0.320	1,2,3	
1.31	63 EU	KA2	1	0.303	1,2,3		1.39	79 AU	KB3	2	0.160	1,2	
1.32	85 AT	KA1	2	0.152	1		1.39	61 PM	KA1	1	0.321	1,2,3	
1.32	59 PR	KB1	1	0.304	1,2,3		1.40	84 PC	KA2	2	0.161	1	
1.32	59 PR	KB3	1	0.305	1,2		1.40	83 BI	KA1	2	0.161	1,2,3	
1.33	86 RN	KA2	2	0.153	1		1.41	98 CF	KA1	3	0.108	1	
1.34	79 AU	KB4	2	0.154	1,2		1.41	61 PM	KA2	1	0.325	1,2,3	
1.34	80 HG	KB1	2	0.154	1		1.41	57 LA	KB5	1	0.326	1	
1.34	58 CE	KB2	1	0.308	1,2,3		1.41	77 IR	KB4	2	0.163	1,2	
1.34	95 AM	KB1	3	0.103	1		1.41	78 PT	KB5	2	0.163	1	
1.34	62 SM	KA1	1	0.309	1,2,3		1.42	93 NP	KB1	3	0.109	1	

KAP CRYSTAL, D#13.200 ANGSTROMS						1.42 TC 1.55					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
1.42	92 U	K82	3	0.109	1,2,3	1.48	96 CM	KA1	3	0.114	1
1.42	77 IR	K82	2	0.164	1,3	1.48	91 PA	K81	3	0.114	1
1.42	57 LA	K81	1	0.328	1,2,3	1.48	90 TH	K82	3	0.114	1,3
1.42	78 PT	K81	2	0.164	1,2,3	1.49	59 PR	KA1	1	0.344	1,2,3
1.42	78 PT	K83	2	0.164	1,2	1.50	55 CS	K82	1	0.346	1,2,3
1.43	57 LA	K83	1	0.329	1,2	1.51	76 CS	K83	2	0.174	1,2
1.43	82 PB	KA1	2	0.165	1,2,3	1.51	90 TH	K85	3	0.116	1,2
1.44	83 BI	KA2	2	0.166	1,2,3	1.51	76 CS	K81	2	0.174	1,2,3
1.44	60 ND	KA1	1	0.332	1,2,3	1.51	97 BK	KA2	3	0.116	1
1.44	92 U	K81	3	0.111	1,2,3	1.51	75 RE	K82	2	0.174	1,3
1.44	56 BA	K82	1	0.333	1,2,3	1.51	59 PR	KA2	1	0.349	1,2,3
1.44	97 BK	KA1	3	0.111	1	1.52	80 HG	KA1	2	0.175	1
1.44	91 PA	K82	3	0.111	1	1.52	81 TL	KA2	2	0.175	1,2,3
1.45	77 IR	K85	2	0.167	1	1.52	90 TH	K81	3	0.117	1,2,3
1.46	60 ND	KA2	1	0.336	1,2,3	1.52	95 AM	KA1	3	0.117	1
1.46	92 U	K83	3	0.112	1,2	1.52	89 AC	K82	3	0.117	1
1.47	76 OS	K82	2	0.169	1,3	1.54	55 CS	K81	1	0.354	1,2,3
1.47	56 BA	K85	1	0.338	1	1.54	90 TH	K83	3	0.118	1,2
1.47	77 IR	K81	2	0.169	1,2,3	1.54	55 CS	K83	1	0.355	1,2
1.47	77 IR	K83	2	0.169	1,2	1.55	96 CM	KA2	3	0.119	1
1.47	98 CF	KA2	3	0.113	1	1.55	58 CE	KA1	1	0.357	1,2,3
1.48	81 TL	KA1	2	0.170	1,2,3	1.55	74 W	K84	2	0.179	1
1.48	82 PB	KA2	2	0.170	1,2,3	1.55	74 W	K82	2	0.179	1,2,3
1.48	56 BA	K83	1	0.341	1,2	1.55	75 RE	K83	2	0.179	1,2
1.48	56 BA	K81	1	0.341	1,2,3	1.55	75 RE	K81	2	0.179	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						1.56 TC 1.71					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
1.56	80 HG	KA2	2	0.180	1	1.64	92 U	KA1	3	0.126	1,2,3
1.56	79 AU	KA1	2	0.180	1,2,3	1.65	73 TA	KB1	2	0.190	1,2,3
1.56	94 PU	KA1	3	0.120	1	1.65	97 BK	KB2	4	0.095	1
1.56	54 XE	KB2	1	0.360	1,2,3	1.65	78 PT	KA2	2	0.190	1,2,3
1.56	88 RA	KB2	3	0.120	1	1.65	86 RN	KB2	3	0.127	1
1.57	58 CE	KA2	1	0.362	1,2,3	1.65	87 FR	KB1	3	0.127	1
1.58	89 AC	KB1	3	0.121	1	1.66	73 TA	KB3	2	0.191	1,2
1.59	74 W	KB5	2	0.183	1	1.66	77 IR	KA1	2	0.191	1,2,3
1.59	95 AM	KA2	3	0.122	1	1.66	72 HF	KB2	2	0.191	1,2,3
1.60	73 TA	KB4	2	0.184	1	1.67	53 I	KB1	1	0.384	1,2,3
1.60	54 XE	KB1	1	0.368	1,2,3	1.67	93 NP	KA2	3	0.128	1
1.60	74 W	KB1	2	0.184	1,2,3	1.67	56 BA	KA1	1	0.385	1,2,3
1.60	93 NP	KA1	3	0.123	1	1.67	53 I	KB3	1	0.385	1,2
1.61	79 AU	KA2	2	0.185	1,2,3	1.68	91 PA	KA1	3	0.129	1
1.61	73 TA	KB2	2	0.185	1,2,3	1.68	98 CF	KB1	4	0.097	1
1.61	74 W	KB3	2	0.185	1,2	1.69	56 BA	KA2	1	0.390	1,2,3
1.61	57 LA	KA1	1	0.371	1,2,3	1.70	52 TE	KB2	1	0.391	1,2,3
1.61	78 PT	KA1	2	0.186	1,2,3	1.70	72 HF	KB1	2	0.196	1,2,3
1.61	88 RA	KB1	3	0.124	1	1.70	97 BK	KB1	4	0.098	1
1.61	87 FR	KB2	3	0.124	1	1.70	72 HF	KB3	2	0.196	1,2
1.61	98 CF	KB2	4	0.093	1	1.70	77 IR	KA2	2	0.196	1,2,3
1.63	53 I	KB2	1	0.375	1,2,3	1.70	96 CP	KB2	4	0.098	1
1.63	94 PU	KA2	3	0.125	1	1.71	92 U	KA2	3	0.131	1,2,3
1.63	57 LA	KA2	1	0.375	1,2,3	1.71	86 RN	KB1	3	0.131	1
1.64	73 TA	KB5	2	0.189	1	1.71	85 AT	KB2	3	0.131	1

KAP CRYSTAL, D#13.200 ANGSTROMS						1.71 TC 1.88					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
1.71	76 OS	KA1	2	0.197	1,2,3	1.81	75 RE	KA2	2	0.208	1,2,3
1.71	71 LU	KB2	2	0.197	1,2,3	1.81	54 XE	KA1	1	0.416	1,2,3
1.73	93 TH	KA1	3	0.133	1,2,3	1.81	51 SB	KB1	1	0.417	1,2,3
1.74	52 TF	KB1	1	0.400	1,2,3	1.81	70 YB	KB3	2	0.209	1,2
1.74	55 CS	KA1	1	0.400	1,2,3	1.81	51 SB	KB3	1	0.418	1,2
1.74	95 AM	KB2	4	0.100	1	1.81	70 YB	KB1	2	0.209	1,2,3
1.74	52 TE	KB3	1	0.401	1,2	1.81	74 W	KA1	2	0.209	1,2,3
1.74	85 AT	KB1	3	0.134	1	1.82	69 TM	KB2	2	0.210	1
1.74	84 PO	KB2	3	0.134	1	1.82	54 XE	KA2	1	0.420	1,2,3
1.74	91 PA	KA2	3	0.134	1	1.82	88 RA	KA1	3	0.140	1
1.75	71 LU	KB1	2	0.202	1,2,3	1.82	93 NP	KB2	4	0.105	1
1.75	96 CM	KB1	4	0.101	1	1.84	89 AC	KA2	3	0.141	1
1.75	76 OS	KA2	2	0.202	1,2,3	1.84	82 PB	KB4	3	0.141	1,2
1.76	55 CS	KA2	1	0.405	1,2,3	1.84	94 PU	KB1	4	0.106	1
1.76	75 RE	KA1	2	0.203	1,2,3	1.85	83 BI	KB1	3	0.142	1,2,3
1.76	71 LU	KB3	2	0.203	1,2	1.85	82 PB	KB2	3	0.142	1,3
1.77	70 YB	KB2	2	0.204	1,2,3	1.85	50 SN	KB2	1	0.426	1,2,3
1.77	89 AC	KA1	3	0.136	1	1.86	74 W	KA2	2	0.214	1,2,3
1.77	51 SB	KB2	1	0.408	1,2,3	1.86	83 BI	KB3	3	0.143	1,2
1.79	95 AM	KB1	4	0.103	1	1.87	69 TM	KB1	2	0.215	1,2,3
1.79	94 PU	KB2	4	0.103	1	1.87	73 TA	KA1	2	0.215	1,2,3
1.80	90 TH	KA2	3	0.138	1,2,3	1.88	87 FR	KA1	3	0.144	1
1.80	51 SB	KB5	1	0.414	1	1.88	50 SN	KB5	1	0.432	1
1.80	83 BI	KB2	3	0.138	1,3	1.88	69 TM	KB3	2	0.216	1,2
1.80	84 PO	KB1	3	0.138	1	1.88	98 CF	KA1	4	0.108	1

KAP CRYSTAL, D#13.200 ANGSTROMS						1.88 TO 2.02					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
1.88	53 I	KA1	1	0.433	1,2,3	1.95	81 TL	KB1	3	0.150	1,2,3
1.88	68 ER	KB2	2	0.217	1,2,3	1.96	52 TE	KA1	1	0.451	1,2,3
1.89	82 PB	KB5	3	0.145	1	1.96	49 IN	KB5	1	0.451	1
1.89	50 SN	KB1	1	0.435	1,2,3	1.96	98 CF	KA2	4	0.113	1
1.89	88 RA	KA2	3	0.145	1	1.97	81 TL	KB3	3	0.151	1,2
1.89	93 NP	KB1	4	0.109	1	1.97	72 HF	KA2	2	0.227	1,2,3
1.89	92 U	KB2	4	0.109	1,2,3	1.97	49 IN	KB1	1	0.455	1,2,3
1.89	50 SN	KB3	1	0.436	1,2	1.97	49 IN	KB3	1	0.455	1,2
1.90	81 TL	KB2	3	0.146	1	1.98	52 TE	KA2	1	0.456	1,2,3
1.90	82 PB	KB1	3	0.146	1,2,3	1.98	91 PA	KB1	4	0.114	1
1.90	53 I	KA2	1	0.438	1,2,3	1.98	96 CM	KA1	4	0.114	1
1.91	73 TA	KA2	2	0.220	1,2,3	1.98	85 AT	KA1	3	0.152	1
1.91	82 PB	KB3	3	0.147	1	1.98	90 TH	KB2	4	0.114	1,3
1.93	97 BK	KA1	4	0.111	1	1.99	71 LU	KA1	2	0.229	1,2,3
1.93	86 RN	KA1	3	0.148	1	1.99	86 RN	KA2	3	0.153	1
1.93	91 PA	KB2	4	0.111	1	2.00	67 HC	KB1	2	0.230	1
1.93	92 U	KB1	4	0.111	1,2,3	2.00	79 AU	KB4	3	0.154	1,2
1.93	72 HF	KA1	2	0.222	1,2,3	2.00	80 HG	KB1	3	0.154	1
1.93	49 IN	KB2	1	0.445	1,2,3	2.01	90 TH	KB5	4	0.116	1,2
1.94	68 ER	KB1	2	0.223	1,2,3	2.01	66 DY	KB2	2	0.232	1,2,3
1.94	68 ER	KB3	2	0.223	1,2	2.01	97 BK	KA2	4	0.116	1
1.94	87 FR	KA2	3	0.149	1	2.02	98 CF	KB2	5	0.093	1
1.94	67 HO	KB2	2	0.224	1	2.02	79 AU	KB2	3	0.155	1,3
1.94	92 U	KB3	4	0.112	1,2	2.02	80 HG	KB3	3	0.155	1
1.95	80 HG	KB2	3	0.150	1	2.02	48 CC	KB2	1	0.465	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							2.03 TO		2.16			
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF
2.03	95 AM	KA1	4	0.117	1		2.10	83 BI	KA1	3	0.161	1,2,3
2.03	89 AC	KB2	4	0.117	1		2.10	84 PC	KA2	3	0.161	1
2.03	84 PO	KA1	3	0.156	1		2.10	89 AC	KB1	4	0.121	1
2.03	71 LU	KA2	2	0.234	1,2,3		2.10	98 CF	KB1	5	0.097	1
2.03	90 TH	KB1	4	0.117	1,2,3		2.11	47 AG	KB2	1	0.487	1,2,3
2.04	51 SB	KA1	1	0.470	1,2,3		2.12	69 TM	KA1	2	0.244	1,2,3
2.04	85 AT	KA2	3	0.157	1		2.12	95 AM	KA2	4	0.122	1
2.05	90 TH	KB3	4	0.116	1,2		2.12	77 IR	KB4	3	0.163	1,2
2.06	79 AU	KB5	3	0.156	1		2.12	78 PT	KB5	3	0.163	1
2.06	66 DY	KB1	2	0.237	1,2,3		2.13	97 BK	KB1	5	0.098	1
2.06	70 YB	KA1	2	0.237	1,2,3		2.13	96 CM	KB2	5	0.098	1
2.06	51 SB	KA2	1	0.475	1,2,3		2.13	50 SN	KA1	1	0.491	1,2,3
2.06	97 BK	KB2	5	0.095	1		2.14	65 TB	KB1	2	0.246	1,2,3
2.06	48 CD	KB1	1	0.475	1,2,3		2.14	93 NP	KA1	4	0.123	1
2.07	66 DY	KB3	2	0.236	1,2		2.14	65 TB	KB3	2	0.246	1,2
2.07	48 CD	KB3	1	0.476	1,2		2.14	78 PT	KB3	3	0.164	1,2
2.07	96 CM	KA2	4	0.115	1		2.14	78 PT	KB1	3	0.164	1,2,3
2.07	79 AU	KB1	3	0.155	1,2,3		2.14	77 IR	KB2	3	0.164	1,3
2.07	78 PT	KB4	3	0.155	1,2		2.14	47 AG	KB5	1	0.493	1
2.07	78 PT	KB2	3	0.155	1,3		2.15	50 SN	KA2	1	0.495	1,2,3
2.08	88 RA	KB2	4	0.120	1		2.15	82 PB	KA1	3	0.165	1,2,3
2.08	65 TB	KB2	2	0.240	1,2,3		2.15	87 FR	KB2	4	0.124	1
2.08	79 AU	KB3	3	0.160	1,2		2.15	88 RA	KB1	4	0.124	1
2.08	94 PU	KA1	4	0.120	1		2.15	64 GC	KB2	2	0.248	1,2,3
2.09	70 YB	KA2	2	0.241	1,2,3		2.16	47 AG	KB1	1	0.497	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							2.16 TO 2.32						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
2.16	69 TM	KA2	2	0.249	1,2,3		2.24	94 PU	KB2	5	0.103	1	
2.16	83 BI	KA2	3	0.166	1,2,3		2.24	91 PA	KA1	4	0.129	1	
2.16	47 AG	KB3	1	0.498	1,2		2.24	49 IN	KA2	1	0.517	1,2,3	
2.17	94 PU	KA2	4	0.125	1		2.24	46 PC	KB5	1	0.517	1	
2.17	95 AM	KB2	5	0.100	1		2.26	46 PC	KB3	1	0.521	1,2	
2.17	77 IR	KB5	3	0.167	1		2.26	46 PC	KB1	1	0.521	1,2,3	
2.19	68 ER	KA1	2	0.252	1,2,3		2.27	76 OS	KB3	3	0.174	1,2	
2.19	92 U	KA1	4	0.126	1,2,3		2.27	75 RE	KB2	3	0.174	1,3	
2.19	96 CM	KB1	5	0.101	1		2.27	67 HC	KA1	2	0.261	1,2,3	
2.20	77 IR	KB1	3	0.169	1,2,3		2.27	76 OS	KB1	3	0.174	1,2,3	
2.20	77 IR	KB3	3	0.169	1,2		2.27	85 AT	KB2	4	0.131	1	
2.20	76 OS	KB2	3	0.169	1,3		2.27	92 U	KA2	4	0.131	1,2,3	
2.20	86 RN	KB2	4	0.127	1		2.27	86 RN	KB1	4	0.131	1	
2.20	87 FR	KB1	4	0.127	1		2.28	93 NF	KB2	5	0.105	1	
2.20	64 GD	KB1	2	0.254	1,2,3		2.28	81 TL	KA2	3	0.175	1,2,3	
2.21	82 PB	KA2	3	0.170	1,2,3		2.28	80 HG	KA1	3	0.175	1	
2.21	46 PC	KB2	1	0.510	1,2,3		2.29	63 EU	KB1	2	0.264	1,2,3	
2.21	81 TL	KA1	3	0.170	1,2,3		2.29	63 EU	KB3	2	0.264	1,2	
2.21	64 GD	KB3	2	0.255	1,2		2.30	94 PU	KB1	5	0.106	1	
2.22	93 NP	KA2	4	0.128	1		2.30	97 BK	LY1	1	0.530	1	
2.22	49 IN	KA1	1	0.512	1,2,3		2.31	62 SM	KB2	2	0.266	1,2,3	
2.23	63 EU	KB2	2	0.257	1,2,3		2.31	90 TH	KA1	4	0.133	1,2,3	
2.23	68 ER	KA2	2	0.257	1,2,3		2.31	67 HC	KA2	2	0.266	1,2,3	
2.24	95 AM	KB1	5	0.103	1		2.32	48 CC	KA1	1	0.535	1,2,3	
2.24	98 CF	LY1	1	0.515	1		2.32	45 RH	KB2	1	0.535	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							2.33 TC 2.46						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
2.33	84 PO	KB2	4	0.134	1		2.40	73 TA	KB4	3	0.184	1	
2.33	91 PA	KA2	4	0.134	1		2.40	90 TH	KA2	4	0.138	1,2,3	
2.33	85 AT	KB1	4	0.134	1		2.40	84 PC	KB1	4	0.138	1	
2.33	75 RE	KB1	3	0.179	1,2,3		2.40	61 PM	KB2	2	0.276	1	
2.33	75 RE	KB3	3	0.179	1,2		2.41	92 U	KB1	5	0.111	1,2,3	
2.33	74 W	KB2	3	0.179	1,2,3		2.41	74 W	KB3	3	0.185	1,2	
2.33	74 W	KB4	3	0.179	1		2.41	73 TA	KB2	3	0.185	1,2,3	
2.34	48 CD	KA2	1	0.539	1,2,3		2.41	91 PA	KB2	5	0.111	1	
2.34	98 CF	KA1	5	0.108	1		2.41	97 BK	KA1	5	0.111	1	
2.34	79 AU	KA1	3	0.180	1,2,3		2.41	79 AU	KA2	3	0.185	1,2,3	
2.34	66 DY	KA1	2	0.270	1,2,3		2.42	65 TB	KA1	2	0.279	1,2,3	
2.34	80 HG	KA2	3	0.180	1		2.42	78 PT	KA1	3	0.186	1,2,3	
2.35	45 RH	KB5	1	0.541	1		2.43	47 AG	KA1	1	0.559	1,2,3	
2.36	89 AC	KA1	4	0.136	1		2.43	92 U	KB3	5	0.112	1,2	
2.37	92 U	KB2	5	0.109	1,2,3		2.43	88 RA	KA1	4	0.140	1	
2.37	93 NP	KB1	5	0.109	1		2.44	95 AM	LY1	1	0.562	1,3	
2.37	62 SM	KB1	2	0.273	1,2,3		2.44	44 RU	KB2	1	0.552	1,2,3	
2.37	45 RH	KB3	1	0.546	1,2		2.45	82 PB	KB4	4	0.141	1,2	
2.37	45 RH	KB1	1	0.546	1,2,3		2.45	47 AG	KA2	1	0.564	1,2,3	
2.37	96 CM	LY1	1	0.546	1		2.45	61 PM	KB1	2	0.282	1,2,3	
2.38	66 DY	KA2	2	0.274	1,2,3		2.45	89 AC	KA2	4	0.141	1	
2.38	62 SM	KB3	2	0.274	1,2		2.45	98 CF	KA2	5	0.113	1	
2.38	74 W	KB5	3	0.182	1		2.46	61 PM	KB3	2	0.283	2	
2.40	74 W	KB1	3	0.184	1,2,3		2.46	65 TB	KA2	2	0.283	1,2,3	
2.40	83 BI	KB2	4	0.13E	1,3		2.46	73 TA	KB5	3	0.189	1	

KAP CRYSTAL, D#13.200 ANGSTROMS							2.47 TO 2.60						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
2.47	82 PB	KB2	4	0.142	1,3		2.54	46 PD	KA1	1	0.585	1,2,3	
2.47	83 BI	KB1	4	0.142	1,2,3		2.54	95 AM	KA1	5	0.117	1	
2.47	44 RU	KB5	1	0.568	1		2.54	89 AC	KB2	5	0.117	1	
2.47	96 CM	KA1	5	0.114	1		2.54	64 GC	KA2	2	0.293	1,2,3	
2.47	91 PA	KB1	5	0.114	1		2.54	60 ND	KB1	2	0.293	1,2,3	
2.47	73 TA	KB1	3	0.190	1,2,3		2.55	72 HF	KB3	3	0.196	1,2	
2.47	78 PT	KA2	3	0.190	1,2,3		2.55	77 IR	KA2	3	0.196	1,2,3	
2.47	90 TH	KB2	5	0.114	1,3		2.55	82 PB	KB3	4	0.147	1	
2.48	83 BI	KB3	4	0.143	1,2		2.55	60 ND	KB3	2	0.294	1,2	
2.48	60 ND	KB2	2	0.286	1,2,3		2.55	72 HF	KB1	3	0.196	1,2,3	
2.48	44 RU	KB1	1	0.572	1,2,3		2.56	46 PC	KA2	1	0.590	1,2,3	
2.49	72 HF	KB2	3	0.191	1,2,3		2.56	43 TC	KB4	1	0.590	1	
2.49	73 TA	KB3	3	0.191	1,2		2.56	43 TC	KB2	1	0.590	1	
2.49	77 IR	KA1	3	0.191	1,2,3		2.56	90 TH	KB3	5	0.118	1,2	
2.49	44 RU	KB3	1	0.573	1,2		2.57	76 OS	KA1	3	0.197	1,2,3	
2.50	87 FR	KA1	4	0.144	1		2.57	71 LU	KB2	3	0.197	1,2,3	
2.50	64 GC	KA1	2	0.288	1,2,3		2.57	86 RN	KA1	4	0.148	1	
2.51	94 PU	LY1	1	0.579	1		2.58	91 PA	LY4	1	0.594	1,2	
2.52	90 TH	KB5	5	0.116	1,2		2.58	59 PR	KB2	2	0.297	1,2,3	
2.52	97 BK	KA2	5	0.116	1		2.58	96 CM	KA2	5	0.119	1	
2.52	82 PB	KB5	4	0.145	1		2.58	92 U	LY6	1	0.595	1,2	
2.52	88 RA	KA2	4	0.145	1		2.59	87 FR	KA2	4	0.149	1	
2.53	81 TL	KB2	4	0.146	1		2.59	93 NP	LY1	1	0.597	1,2,3	
2.53	82 PB	KB1	4	0.146	1,2,3		2.60	92 U	LY3	1	0.598	1,2,3	
2.54	90 TH	KB1	5	0.117	1,2,3		2.60	63 EU	KA1	2	0.299	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							2.60 TC 2.73						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
2.60	94 PU	KA1	5	0.120	1		2.67	93 NP	KA1	5	0.123	1	
2.60	81 FL	KB1	4	0.150	1,2,3		2.67	79 AU	KB4	4	0.154	1,2	
2.60	80 HG	KB2	4	0.150	1		2.67	80 HG	KB1	4	0.154	1	
2.60	88 RA	KB2	5	0.120	1		2.67	58 CE	KB2	2	0.308	1,2,3	
2.61	43 TC	KB3	1	0.601	1,2		2.68	91 PA	LY3	1	0.617	1,2,3	
2.61	43 TC	KB1	1	0.602	1,2,3		2.68	45 RH	KA2	1	0.618	1,2,3	
2.62	98 EF	LB1	1	0.603	1		2.68	62 SM	KA1	2	0.309	1,2,3	
2.62	81 FL	KB3	4	0.151	1,2		2.69	87 FR	KB2	5	0.124	1	
2.63	89 AC	KB1	5	0.121	1		2.69	80 HG	KB3	4	0.155	1	
2.63	92 J	LY2	1	0.605	1,2,3		2.69	42 MC	KB4	1	0.620	2	
2.63	76 DS	KA2	3	0.202	1,2,3		2.69	79 AU	KB2	4	0.155	1,3	
2.63	63 EU	KA2	2	0.303	1,2,3		2.69	88 RA	KB1	5	0.124	1	
2.63	71 LU	KB1	3	0.202	1,2,3		2.70	42 MC	KB2	1	0.621	1,2,3	
2.64	59 PR	KB1	2	0.304	1,2,3		2.70	97 BK	LB1	1	0.621	1	
2.64	85 AT	KA1	4	0.152	1		2.71	75 RE	KA2	3	0.208	1,2,3	
2.64	71 LU	KB3	3	0.203	1,2		2.71	91 PA	LY2	1	0.624	1,2,3	
2.64	75 RE	KA1	3	0.203	1,2,3		2.71	84 PC	KA1	4	0.156	1	
2.65	95 AM	KA2	5	0.122	1		2.71	94 PU	KA2	5	0.125	1	
2.65	59 PR	KB3	2	0.305	1,2		2.72	70 YB	KB3	3	0.209	1,2	
2.65	90 TH	LY4	1	0.611	1,2		2.72	42 MC	KB5	1	0.627	1	
2.66	70 YB	KB2	3	0.204	1,2,3		2.72	70 YB	KB1	3	0.209	1,2,3	
2.66	86 RN	KA2	4	0.153	1		2.72	74 W	KA1	3	0.209	1,2,3	
2.66	91 PA	LY6	1	0.613	1,2		2.73	62 SM	KA2	2	0.314	1,2,3	
2.66	45 RH	KA1	1	0.613	1,2,3		2.73	85 AT	KA2	4	0.157	1	
2.67	92 U	LY1	1	0.615	1,2,3		2.73	69 TM	KB2	3	0.210	1	

KAP CRYSTAL, D#13.200 ANGSTROMS							2.73 TO 2.86						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
2.73	92 U	KA1	5	0.126	1,2,3		2.80	69 TM	KB1	3	0.215	1,2,3	
2.74	79 AU	KB5	4	0.158	1		2.80	73 TA	KA1	3	0.215	1,2,3	
2.74	90 TH	LY6	1	0.632	1,2		2.80	91 PA	KA1	5	0.129	1	
2.74	58 CE	KB3	2	0.316	1,2		2.81	44 RU	KA2	1	0.647	1,2,3	
2.74	58 CE	KB1	2	0.316	1,2,3		2.81	69 TM	KB3	3	0.216	1,2	
2.74	42 MO	KB1	1	0.632	1,2,3		2.82	88 RA	LY4	1	0.649	1,2	
2.75	42 MO	KB3	1	0.633	1,2		2.82	61 PM	KA2	2	0.325	1,2,3	
2.75	91 PA	LY1	1	0.634	1,2,3		2.83	68 ER	KB2	3	0.217	1,2,3	
2.76	87 FR	KB1	5	0.127	1		2.83	78 PT	KB5	4	0.163	1	
2.76	86 RN	KB2	5	0.127	1		2.83	57 LA	KB5	2	0.326	1	
2.76	92 U	LY5	1	0.635	1,2		2.83	77 IR	KB4	4	0.163	1,2	
2.76	78 PT	KB4	4	0.159	1,2		2.83	98 CF	LB2	1	0.653	1	
2.76	79 AU	KB1	4	0.159	1,2,3		2.83	90 TH	LY1	1	0.653	1,2,3	
2.76	90 TH	LY3	1	0.636	1,2,3		2.84	41 NB	KB2	1	0.654	1,2,3	
2.76	78 PT	KB2	4	0.159	1,3		2.84	92 U	KA2	5	0.131	1,2,3	
2.77	96 CM	LB1	1	0.639	1		2.84	91 PA	LY5	1	0.655	1,2	
2.78	93 NP	KA2	5	0.128	1		2.84	85 AT	KB2	5	0.131	1	
2.78	57 LA	KB2	2	0.320	1,2,3		2.84	86 RN	KB1	5	0.131	1	
2.78	79 AU	KB3	4	0.160	1,2		2.85	78 PT	KB3	4	0.164	1,2	
2.79	74 W	KA2	3	0.214	1,2,3		2.85	78 PT	KB1	4	0.164	1,2,3	
2.79	90 TH	LY2	1	0.642	1,2,3		2.85	77 IR	KB2	4	0.164	1,3	
2.79	61 PM	KA1	2	0.321	1,2,3		2.85	57 LA	KB1	2	0.328	1,2,3	
2.79	44 RU	KA1	1	0.643	1,2,3		2.86	57 LA	KB3	2	0.329	1,2	
2.80	84 PO	KA2	4	0.161	1		2.86	95 AM	LB1	1	0.658	1,3	
2.80	83 BI	KA1	4	0.161	1,2,3		2.86	82 PE	KA1	4	0.165	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						2.86 TO 3.02					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
2.86	41 NB	KB5	1	0.666	1	2.93	77 IR	KB3	4	0.169	1,2
2.86	73 TA	KA2	3	0.220	1,2,3	2.93	56 BA	KB5	2	0.338	1
2.88	60 ND	KA1	2	0.332	1,2,3	2.93	77 IR	KB1	4	0.169	1,2,3
2.88	83 BI	KA2	4	0.100	1,2,3	2.94	94 PU	LB1	1	0.678	1
2.89	90 TH	KA1	5	0.133	1,2,3	2.95	81 TL	KA1	4	0.170	1,2,3
2.89	41 NB	KB3	1	0.666	1,2	2.95	82 PB	KA2	4	0.170	1,2,3
2.89	41 NB	KB1	1	0.666	1,2,3	2.95	89 AC	KA1	5	0.136	1
2.89	72 HF	KA1	3	0.222	1,2,3	2.96	92 U	LB9	1	0.681	1,2
2.89	56 BA	KB2	2	0.333	1,2,3	2.96	72 HF	KA2	3	0.227	1,2,3
2.90	77 IR	KB5	4	0.167	1	2.96	88 RA	LY2	1	0.682	1,2,3
2.90	68 ER	KB3	3	0.223	1,2	2.96	56 BA	KB3	2	0.341	1,2
2.90	97 BK	LB2	1	0.669	1	2.96	56 BA	KB1	2	0.341	1,2,3
2.90	68 ER	KB1	3	0.223	1,2,3	2.97	96 CM	LB2	1	0.685	1
2.91	91 PA	KA2	5	0.134	1	2.98	71 LU	KA1	3	0.229	1,2,3
2.91	85 AT	KB1	5	0.134	1	2.98	92 U	LB10	1	0.687	1,2
2.91	84 PO	KB2	5	0.134	1	2.99	59 PR	KA1	2	0.344	1,2,3
2.92	67 HO	KB2	3	0.224	1	2.99	83 BI	KB2	5	0.138	1,3
2.92	60 ND	KA2	2	0.336	1,2,3	2.99	84 PC	KB1	5	0.138	1
2.92	43 TC	KA1	1	0.673	2,3	2.99	90 TH	KA2	5	0.138	1,2,3
2.92	86 RA	LY6	1	0.673	1,2	2.99	40 ZR	KB2	1	0.690	1,2,3
2.93	89 AC	LY1	1	0.674	1	2.99	67 HC	KB1	3	0.230	1
2.93	90 TH	LY5	1	0.675	1,2	3.00	55 CS	KB2	2	0.346	1,2,3
2.93	88 RA	LY3	1	0.675	1,2,3	3.02	88 RA	LY1	1	0.695	1,2,3
2.93	43 TC	KA2	1	0.676	2,3	3.02	40 ZR	KB5	1	0.696	1
2.93	76 OS	KB2	4	0.169	1,3	3.02	76 OS	KB1	4	0.174	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						3.02 TO 3.17					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
3.02	75 RE	KB2	4	0.174	1,3	3.10	66 DY	KB3	3	0.238	1,2
3.02	76 OS	KB3	4	0.174	1,2	3.10	58 CE	KA1	2	0.357	1,2,3
3.02	66 DY	KB2	3	0.232	1,2,3	3.10	83 BI	KB3	5	0.143	1,2
3.03	93 NP	LB1	1	0.698	1,2,3	3.11	87 FR	LY1	1	0.716	1,2,3
3.03	59 PR	KA2	2	0.349	1,2,3	3.11	74 W	KB4	4	0.179	1
3.04	88 RA	KA1	5	0.140	1	3.11	74 W	KB2	4	0.179	1,2,3
3.04	81 TL	KA2	4	0.175	1,2,3	3.11	75 RE	KB3	4	0.179	1,2
3.04	80 HG	KA1	4	0.175	1	3.11	75 RE	KB1	4	0.179	1,2,3
3.04	91 PA	LB9	1	0.701	1,2	3.11	88 RA	LY5	1	0.717	1,2
3.04	95 AM	LB2	1	0.701	1,3	3.12	94 PU	LB2	1	0.718	1
3.05	40 ZR	KB1	1	0.702	1,2,3	3.13	54 XE	KB2	2	0.360	1,2,3
3.05	71 LU	KA2	3	0.234	1,2,3	3.13	79 AU	KA1	4	0.180	1,2,3
3.05	40 ZR	KB3	1	0.702	1,2	3.13	65 TB	KB2	3	0.240	1,2,3
3.06	82 PB	KB4	5	0.141	1,2	3.13	87 FR	KA1	5	0.144	1
3.06	89 AC	KA2	5	0.141	1	3.13	80 HG	KA2	4	0.180	1
3.07	91 PA	LB10	1	0.708	1,2	3.13	92 U	LB1	1	0.720	1,2,3
3.07	55 CS	KB1	2	0.354	1,2,3	3.14	90 TH	LB9	1	0.723	1,2
3.08	42 MO	KA1	1	0.709	1,2,3	3.14	70 YB	KA2	3	0.241	1,2,3
3.08	92 U	LB3	1	0.710	1,2,3	3.14	58 CE	KA2	2	0.362	1,2,3
3.08	55 CS	KB3	2	0.355	1,2	3.15	82 PB	KB5	5	0.145	1
3.08	82 PB	KB2	5	0.142	1,3	3.15	88 RA	KA2	5	0.145	1
3.08	83 BI	KB1	5	0.142	1,2,3	3.15	92 U	LB5	1	0.726	1,2
3.09	70 YB	KA1	3	0.237	1,2,3	3.16	39 Y	KB4	1	0.727	2
3.09	66 DY	KB1	3	0.237	1,2,3	3.16	39 Y	KB2	1	0.729	1,2,3
3.09	42 MC	KA2	1	0.713	1,2,3	3.17	90 TH	LB10	1	0.730	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							3.17 10 3.32						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
3.17	82 PB	KB1	5	0.146	1,2,3		3.23	87 FR	KA2	5	0.149	1	
3.17	81 TL	KB2	5	0.146	1		3.23	91 PA	LB5	1	0.745	1,2	
3.18	91 PA	LB3	1	0.732	1,2,3		3.24	41 NB	KA1	1	0.746	1,2,3	
3.18	69 TM	KA1	3	0.244	1,2,3		3.24	69 TM	KA2	3	0.249	1,2,3	
3.18	74 W	KB5	4	0.183	1		3.25	92 U	LB4	1	0.748	1,2,3	
3.19	39 Y	KB5	1	0.734	1		3.26	57 LA	KA2	2	0.375	1,2,3	
3.19	82 PB	KB3	5	0.147	1		3.26	53 I	KB2	2	0.375	1,2,3	
3.19	92 U	LB7	1	0.736	1,2		3.26	81 TL	KB1	5	0.150	1,2,3	
3.19	93 NP	LB2	1	0.736	1,2,3		3.26	80 HG	KB2	5	0.150	1	
3.19	74 W	KB1	4	0.184	1,2,3		3.26	41 NB	KA2	1	0.750	1,2,3	
3.19	54 XE	KB1	2	0.368	1,2,3		3.28	91 PA	LB7	1	0.755	1,2	
3.19	73 TA	KB4	4	0.184	1		3.28	81 TL	KB3	5	0.151	1,2	
3.20	65 TB	KB3	3	0.246	1,2		3.28	90 TH	LB3	1	0.755	1,2,3	
3.20	65 TB	KB1	3	0.246	1,2,3		3.28	92 U	LB2	1	0.755	1,2,3	
3.21	86 RN	LY1	1	0.739	1		3.28	68 ER	KA1	3	0.252	1,2,3	
3.21	79 AU	KA2	4	0.185	1,2,3		3.28	73 TA	KB5	4	0.189	1	
3.21	73 TA	KB2	4	0.185	1,2,3		3.30	85 AT	KA1	5	0.152	1	
3.21	74 W	KB3	4	0.185	1,2		3.30	73 TA	KB1	4	0.190	1,2,3	
3.21	86 RN	KA1	5	0.148	1		3.30	78 PT	KA2	4	0.190	1,2,3	
3.22	39 Y	KB1	1	0.741	1,2,3		3.30	83 BI	LY4	1	0.761	1,2	
3.22	39 Y	KB3	1	0.741	1,2		3.31	64 GC	KB1	3	0.254	1,2,3	
3.22	91 PA	LB1	1	0.742	1,2,3		3.31	85 AT	LY1	1	0.763	1	
3.22	57 LA	KA1	2	0.371	1,2,3		3.32	84 PC	LY6	1	0.764	1,2	
3.23	64 GC	KB2	3	0.248	1,2,3		3.32	73 TA	KB3	4	0.191	1,2	
3.23	78 PT	KA1	4	0.186	1,2,3		3.32	77 IR	KA1	4	0.191	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						3.32 TO 3.45					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
3.32	84 PO	LY3	1	0.764	1,2,3	3.40	38 SR	KB3	1	0.783	1,2
3.32	72 HF	KB2	4	0.191	1,2,3	3.40	38 SR	KB1	1	0.783	1,2,3
3.32	90 TH	LB5	1	0.765	1,2	3.40	67 HC	KA1	3	0.261	1,2,3
3.32	64 GD	KB3	3	0.255	1,2	3.40	72 HF	KB3	4	0.196	1,2
3.32	90 TH	LB1	1	0.765	1,2,3	3.40	77 IR	KA2	4	0.196	1,2,3
3.32	86 RN	KA2	5	0.153	1	3.40	72 HF	KB1	4	0.196	1,2,3
3.33	53 I	KB1	2	0.384	1,2,3	3.41	85 AT	KA2	5	0.157	1
3.34	88 RA	LB9	1	0.769	1,2	3.41	82 PB	LY4	1	0.786	1
3.34	53 I	KB3	2	0.385	1,2	3.41	40 ZR	KA1	1	0.786	1,2,3
3.34	56 BA	KA1	2	0.385	1,2,3	3.42	84 PC	LY1	1	0.787	1,2,3
3.34	91 PA	LB4	1	0.770	1,2,3	3.42	92 U	LB6	1	0.788	1,2,3
3.34	79 AU	KB4	5	0.154	1,2	3.42	76 OS	KA1	4	0.197	1,2,3
3.34	80 HG	KB1	5	0.154	1	3.42	71 LU	KB2	4	0.197	1,2,3
3.35	68 ER	KA2	3	0.257	1,2,3	3.42	89 AC	LB1	1	0.789	1
3.35	38 SR	KB2	1	0.771	1,2,3	3.42	83 BI	LY3	1	0.789	1,2,3
3.35	63 EU	KB2	3	0.257	1,2,3	3.43	83 BI	LY6	1	0.790	1,2
3.36	91 PA	LB2	1	0.774	1,2,3	3.43	40 ZR	KA2	1	0.790	1,2,3
3.36	90 TH	LB7	1	0.774	1,2	3.43	79 AU	KB5	5	0.158	1
3.36	38 SR	KB5	1	0.775	1	3.44	63 EU	KB3	3	0.264	1,2
3.36	88 RA	LB10	1	0.775	1,2	3.44	98 CF	LA1	1	0.792	1
3.36	80 HG	KB3	5	0.155	1	3.44	63 EU	KB1	3	0.264	1,2,3
3.36	79 AU	KB2	5	0.155	1,3	3.44	90 TH	LB4	1	0.793	1,2,3
3.39	56 BA	KA2	2	0.390	1,2,3	3.45	90 TH	LB2	1	0.794	1,2,3
3.39	84 PO	KA1	5	0.156	1	3.45	78 PT	KB4	5	0.159	1,2
3.39	52 TE	KB2	2	0.391	1,2,3	3.45	79 AU	KB1	5	0.159	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							3.45 TO 3.60					
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF
3.45	78 PT	KB2	5	0.159	1,3		3.53	88 RA	LB1	1	0.814	1,2,3
3.46	83 BI	LY2	1	0.796	1,2,3		3.54	78 PT	KB5	5	0.163	1
3.46	67 HC	KA2	3	0.266	1,2,3		3.54	77 IR	KB4	5	0.163	1,2
3.46	62 SM	KB2	3	0.266	1,2,3		3.54	82 PB	LY3	1	0.815	1,2,3
3.47	52 TE	KB1	2	0.400	1,2,3		3.54	37 RB	KB2	1	0.816	1,2,3
3.47	55 CS	KA1	2	0.400	1,2,3		3.54	88 RA	LB7	1	0.816	1,2
3.47	79 AU	KB3	5	0.160	1,2		3.54	51 SB	KB2	2	0.408	1,2,3
3.48	52 TE	KB3	2	0.401	1,2		3.54	70 YB	KB2	4	0.204	1,2,3
3.49	88 RA	LB3	1	0.803	1,2,3		3.55	82 PB	LY6	1	0.817	1,2
3.49	98 CF	LA2	1	0.804	1		3.56	62 SM	KB1	3	0.273	1,2,3
3.49	92 U	LN	1	0.805	1,2,3		3.56	78 PT	KB3	5	0.164	1,2
3.49	84 PO	KA2	5	0.161	1		3.56	77 IR	KB2	5	0.164	1,3
3.49	83 BI	KA1	5	0.161	1,2,3		3.56	78 PT	KB1	5	0.164	1,2,3
3.50	88 RA	LB5	1	0.806	1,2		3.56	82 PB	LY2	1	0.821	1,2,3
3.51	71 LU	KB1	4	0.202	1,2,3		3.57	37 RB	KB5	1	0.822	1
3.51	91 PA	LB6	1	0.808	1,2,3		3.57	66 DY	KA2	3	0.274	1,2,3
3.51	76 OS	KA2	4	0.202	1,2,3		3.57	97 BK	LA2	1	0.822	1
3.52	66 DY	KA1	3	0.270	1,2,3		3.57	62 SM	KB3	3	0.274	1,2
3.52	97 BK	LA1	1	0.810	1		3.58	82 PB	KA1	5	0.165	1,2,3
3.52	55 CS	KA2	2	0.405	1,2,3		3.59	61 PM	KB2	3	0.276	1
3.52	81 TL	LY4	1	0.812	1,2		3.59	90 TH	LB6	1	0.828	1,2,3
3.52	75 RE	KA1	4	0.203	1,2,3		3.59	51 SB	KB5	2	0.414	1
3.52	71 LU	KB3	4	0.203	1,2		3.60	96 CM	LA1	1	0.829	1
3.53	83 BI	LY1	1	0.813	1,2,3		3.60	91 PA	LN	1	0.829	1,2,3
3.53	89 AC	LB2	1	0.814	1		3.60	39 Y	KA1	1	0.829	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						3.60 TO 3.76					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
3.60	37 RB	KB3	1	0.829	1,2	3.67	76 CS	KB2	5	0.169	1,3
3.60	37 RB	KB1	1	0.829	1,2,3	3.67	77 IR	KB3	5	0.169	1,2
3.60	83 BI	KA2	5	0.166	1,2,3	3.67	61 PM	KB1	3	0.282	1,2,3
3.61	75 RE	KA2	4	0.208	1,2,3	3.68	81 TL	LY2	1	0.848	1,2,3
3.61	54 XE	KA1	2	0.416	1,2,3	3.68	95 AM	LA1	1	0.848	1,3
3.62	39 Y	KA2	1	0.833	1,2,3	3.69	61 PM	KB3	3	0.283	2
3.62	51 SB	KB1	2	0.417	1,2,3	3.69	65 TB	KA2	3	0.283	1,2,3
3.63	77 IR	KB5	5	0.167	1	3.69	82 PB	KA2	5	0.170	1,2,3
3.63	88 RA	LB2	1	0.835	1,2,3	3.69	81 TL	KA1	5	0.170	1,2,3
3.63	70 YB	KB3	4	0.209	1,2	3.70	50 SN	KB2	2	0.426	1,2,3
3.63	51 SB	KB3	2	0.418	1,2	3.71	90 TH	LN	1	0.854	1,2,3
3.63	70 YB	KB1	4	0.209	1,2,3	3.72	74 W	KA2	4	0.214	1,2,3
3.63	74 W	KA1	4	0.209	1,2,3	3.72	60 ND	KB2	3	0.286	1,2,3
3.63	65 TB	KA1	3	0.279	1,2,3	3.72	87 FR	LB2	1	0.858	1,2,3
3.64	80 HG	LY4	1	0.839	1,2	3.73	69 TM	KB1	4	0.215	1,2,3
3.64	83 BI	LY5	1	0.839	1,2	3.73	95 AM	LA2	1	0.860	1,3
3.65	82 PB	LY1	1	0.840	1,2,3	3.73	73 TA	KA1	4	0.215	1,2,3
3.65	54 XE	KA2	2	0.420	1,2,3	3.75	50 SN	KB5	2	0.432	1
3.65	87 FR	LB1	1	0.840	1,2,3	3.75	69 TM	KB3	4	0.216	1,2
3.65	69 TM	KB2	4	0.210	1	3.75	64 GD	KA1	3	0.288	1,2,3
3.65	88 RA	LB4	1	0.841	1,2,3	3.76	82 PB	LY5	1	0.866	1,2
3.65	96 CM	LA2	1	0.841	1	3.76	36 KR	KB4	1	0.866	2
3.65	81 TL	LY3	1	0.841	1,2,3	3.76	86 RN	LB1	1	0.866	1
3.66	81 TL	LY6	1	0.844	1,2	3.76	36 KR	KB2	1	0.866	1,2,3
3.67	77 IR	KB1	5	0.169	1,2,3	3.76	53 I	KA1	2	0.433	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							3.77 TO 3.92						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
3.77	81 TL	LY1	1	0.868	1,2,3		3.83	60 ND	KB3	3	0.294	1,2	
3.77	94 PU	LA1	1	0.868	1		3.85	72 HF	KA1	4	0.222	1,2,3	
3.77	68 ER	KB2	4	0.217	1,2,3		3.86	93 NP	LA1	1	0.889	1,2,3	
3.77	80 HG	LY3	1	0.869	1,2,3		3.86	49 IN	KB2	2	0.445	1,2,3	
3.78	75 RE	KB2	5	0.174	1,3		3.87	59 PR	KB2	3	0.297	1,2,3	
3.78	76 OS	KB3	5	0.174	1,2		3.87	68 ER	KB3	4	0.223	1,2	
3.78	76 OS	KB1	5	0.174	1,2,3		3.87	68 ER	KB1	4	0.223	1,2,3	
3.78	50 SN	KB1	2	0.435	1,2,3		3.88	85 AT	LB1	1	0.894	1	
3.78	36 KR	KB5	1	0.871	1,2		3.89	74 W	KB4	5	0.179	1	
3.78	88 RA	LB6	1	0.871	1,2,3		3.89	81 TL	LY5	1	0.895	1,2	
3.79	50 SN	KB3	2	0.436	1,2		3.89	74 W	KB2	5	0.179	1,2,3	
3.79	80 HG	LY6	1	0.873	1,2		3.89	75 RE	KB1	5	0.179	1,2,3	
3.80	38 SR	KA1	1	0.875	1,2,3		3.89	75 RE	KB3	5	0.179	1,2	
3.80	80 HG	LY2	1	0.875	1,2,3		3.89	67 HC	KB2	4	0.224	1	
3.80	81 TL	KA2	5	0.175	1,2,3		3.89	78 PT	LY4	1	0.897	1,2	
3.80	80 HG	KA1	5	0.175	1		3.89	80 HG	LY1	1	0.897	1,2,3	
3.80	53 I	KA2	2	0.438	1,2,3		3.89	63 EU	KA1	3	0.299	1,2,3	
3.81	36 KR	KB1	1	0.878	1,2,3		3.90	83 BI	LB9	1	0.898	1,2	
3.82	38 SR	KA2	1	0.879	1,2,3		3.90	79 AU	LY3	1	0.898	1,2,3	
3.82	64 GD	KA2	3	0.293	1,2,3		3.90	84 PC	LB5	1	0.899	1,2	
3.82	36 KR	KB3	1	0.879	1,2		3.91	80 HG	KA2	5	0.180	1	
3.82	60 ND	KB1	3	0.293	1,2,3		3.91	79 AU	KA1	5	0.180	1,2,3	
3.82	73 TA	KA2	4	0.220	1,2,3		3.91	93 NP	LA2	1	0.901	1	
3.82	94 PU	LA2	1	0.880	1		3.92	49 IN	KB5	2	0.451	1	
3.82	86 RN	LB2	1	0.881	1		3.92	52 TE	KA1	2	0.451	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							3.92 TO 4.08						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
3.92	79 AU	LY6	1	0.903	1,2		4.02	79 AU	KA2	5	0.185	1,2,3	
3.92	79 AU	LY2	1	0.904	1,2,3		4.02	73 TA	KB2	5	0.185	1,2,3	
3.93	85 AT	LB2	1	0.905	1		4.02	35 BR	KB5	1	0.925	1,2	
3.93	83 BI	LB10	1	0.905	1,2		4.02	83 BI	LB5	1	0.926	1,2	
3.94	88 RA	LN	1	0.907	1,2,3		4.02	37 RE	KA1	1	0.926	1,2,3	
3.94	72 HF	KA2	4	0.227	1,2,3		4.02	62 SM	KA1	3	0.309	1,2,3	
3.95	84 PO	LB3	1	0.909	1,2,3		4.02	79 AU	LY1	1	0.927	1,2,3	
3.95	63 EU	KA2	3	0.303	1,2,3		4.02	82 PB	LB9	1	0.927	1,2	
3.95	49 IN	KB3	2	0.455	1,2		4.02	77 IR	LY4	1	0.927	1,2	
3.95	49 IN	KB1	2	0.455	1,2,3		4.03	78 PT	LY3	1	0.928	1,2,3	
3.95	92 U	LA1	1	0.911	1,2,3		4.03	66 DY	KB2	4	0.232	1,2,3	
3.96	59 PR	KB1	3	0.304	1,2,3		4.03	84 PC	LB2	1	0.929	1,2,3	
3.96	52 TE	KA2	2	0.456	1,2,3		4.04	78 PT	KA1	5	0.186	1,2,3	
3.97	59 PR	KB3	3	0.305	1,2		4.04	48 CD	KB2	2	0.465	1,2,3	
3.97	74 W	KB5	5	0.183	1		4.04	37 RE	KA2	1	0.930	1,2,3	
3.98	71 LU	KA1	4	0.229	1,2,3		4.05	35 BR	KB3	1	0.933	1,2	
3.99	67 HO	KB1	4	0.230	1		4.05	35 BR	KB1	1	0.933	1,2,3	
3.99	73 TA	KB4	5	0.184	1		4.05	91 PA	LA1	1	0.933	1,2,3	
3.99	74 W	KB1	5	0.184	1,2,3		4.05	78 PT	LY2	1	0.934	1,2,3	
4.00	35 BR	KB2	1	0.921	1,2,3		4.05	78 PT	LY6	1	0.934	1,2	
4.00	84 PO	LB1	1	0.922	1,2,3		4.05	82 PB	LB10	1	0.934	1,2	
4.00	92 U	LA2	1	0.922	1,2,3		4.06	83 BI	LB7	1	0.935	1,2	
4.01	58 CE	KB2	3	0.308	1,2,3		4.06	71 LU	KA2	4	0.234	1,2,3	
4.01	80 HG	LY5	1	0.924	1,2		4.08	83 BI	LB3	1	0.939	1,2,3	
4.02	74 W	KB3	5	0.185	1,2		4.08	51 SB	KA1	2	0.470	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						4.09 TO 4.26					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
4.09	62 SM	KA2	3	0.314	1,2,3	4.16	77 IR	LY3	1	0.959	1,2,3
4.10	91 PA	LA2	1	0.945	1,2,3	4.17	57 LA	KB2	3	0.320	1,2,3
4.10	73 TA	KB5	5	0.189	1	4.17	65 TB	KB2	4	0.240	1,2,3
4.11	84 PO	LB4	1	0.947	1,2,3	4.18	32 PB	LB7	1	0.962	1,2
4.12	58 DE	KB1	3	0.316	1,2,3	4.18	61 PM	KA1	3	0.321	1,2,3
4.12	66 DY	KB1	4	0.237	1,2,3	4.18	70 YB	KA2	4	0.241	1,2,3
4.12	58 DE	KB3	3	0.316	1,2	4.18	81 TL	LB10	1	0.964	1,2
4.12	70 YB	KA1	4	0.237	1,2,3	4.19	77 IR	LY2	1	0.965	1,2,3
4.12	48 CD	KB1	2	0.475	1,2,3	4.20	84 PC	LB6	1	0.967	1,2,3
4.12	73 TA	KB1	5	0.190	1,2,3	4.20	77 IR	LY6	1	0.967	1,2
4.12	78 PT	KA2	5	0.190	1,2,3	4.20	90 TH	LA2	1	0.968	1,2,3
4.12	51 SB	KA2	2	0.475	1,2,3	4.21	82 PB	LB3	1	0.969	1,2,3
4.13	83 BI	LB1	1	0.952	1,2,3	4.23	47 AG	KB2	2	0.487	1,2,3
4.13	66 DY	KB3	4	0.238	1,2	4.23	61 PM	KA2	3	0.325	1,2,3
4.13	48 CD	KB3	2	0.476	1,2	4.24	69 TM	KA1	4	0.244	1,2,3
4.14	82 PB	LB5	1	0.953	1,2	4.24	83 BI	LB4	1	0.977	1,2,3
4.15	73 TA	KB3	5	0.191	1,2	4.25	57 LA	KB5	3	0.326	1
4.15	83 BI	LB2	1	0.955	1,2,3	4.25	89 AC	LA1	1	0.980	1
4.15	72 HF	KB2	5	0.191	1,2,3	4.25	72 HF	KB1	5	0.196	1,2,3
4.15	77 IR	KA1	5	0.191	1,2,3	4.25	72 HF	KB3	5	0.196	1,2
4.15	79 AU	LY5	1	0.956	1,2	4.25	77 IR	KA2	5	0.196	1,2,3
4.15	90 TH	LA1	1	0.956	1,2,3	4.25	36 KR	KA1	1	0.980	1,2,3
4.15	81 TL	LB9	1	0.957	1,2	4.25	34 SE	KB2	1	0.980	1,2,3
4.16	78 PT	LY1	1	0.958	1,2,3	4.26	81 TL	LB5	1	0.981	1,2
4.16	76 OS	LY4	1	0.959	1,2	4.26	50 SN	KA1	2	0.491	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							4.26 TO 4.43						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
4.26	82 PB	LB1	1	0.982	1,2,3		4.32	80 HG	LB10	1	0.996	1,2	
4.27	82 PB	LB2	1	0.983	1,2,3		4.32	60 ND	KA1	3	0.332	1,2,3	
4.27	65 TR	KB1	4	0.246	1,2,3		4.32	69 TM	KA2	4	0.249	1,2,3	
4.27	34 SE	KB5	1	0.984	1,2		4.33	76 OS	LY2	1	0.998	1,2,3	
4.27	65 TR	KB3	4	0.246	1,2		4.34	56 BA	KB2	3	0.333	1,2,3	
4.27	36 KR	KA2	1	0.984	1,2,3		4.35	76 OS	LY6	1	1.001	1,2	
4.27	57 LA	KB1	3	0.328	1,2,3		4.35	81 TL	LB3	1	1.001	1,2,3	
4.28	71 LU	KB2	5	0.197	1,2,3		4.36	88 RA	LA1	1	1.005	1,2,3	
4.28	76 OS	KA1	5	0.197	1,2,3		4.37	82 PB	LB4	1	1.007	1,2,3	
4.28	80 HG	LB9	1	0.986	1,2		4.38	60 ND	KA2	3	0.336	1,2,3	
4.28	47 AG	KB5	2	0.493	1		4.38	68 ER	KA1	4	0.252	1,2,3	
4.28	57 LA	KB3	3	0.329	1,2		4.38	71 LU	KB1	5	0.202	1,2,3	
4.29	78 PT	LY5	1	0.988	1,2		4.38	81 TL	LB2	1	1.010	1,2,3	
4.30	51 SN	KA2	2	0.495	1,2,3		4.38	80 HG	LB5	1	1.010	1,2	
4.30	81 TL	LB7	1	0.990	1,2		4.38	76 OS	KA2	5	0.202	1,2,3	
4.30	77 IR	LY1	1	0.991	1,2,3		4.40	56 BA	KB5	3	0.338	1	
4.31	75 RE	LY4	1	0.992	1,2		4.41	81 TL	LB1	1	1.015	1,2,3	
4.31	34 SE	KB1	1	0.992	1,2,3		4.41	75 RE	KA1	5	0.203	1,2,3	
4.31	89 AC	LA2	1	0.992	1		4.41	71 LU	KB3	5	0.203	1,2	
4.31	64 GD	KB2	4	0.248	1,2,3		4.41	88 RA	LA2	1	1.016	1,2,3	
4.31	76 OS	LY3	1	0.992	1,2,3		4.41	64 GD	KB1	4	0.254	1,2,3	
4.31	83 BI	LB6	1	0.993	1,2,3		4.42	80 HG	LB7	1	1.019	1,2	
4.31	34 SE	KB3	1	0.993	1,2		4.43	46 PC	KB2	2	0.510	1,2,3	
4.32	47 AG	KB1	2	0.497	1,2,3		4.43	70 YB	KB2	5	0.204	1,2,3	
4.32	47 AG	KB3	2	0.498	1,2		4.43	64 GD	KB3	4	0.255	1,2	

KAP CRYSTAL, D#13.2GC ANGSTROMS							4.43 TO 4.60						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
4.43	79 AU	LB9	1	1.021	1,2		4.51	75 RE	KA2	5	0.208	1,2,3	
4.43	82 PB	LB6	1	1.021	1,2,3		4.52	87 FR	LA2	1	1.042	1	
4.44	77 IR	LY5	1	1.022	1,2		4.52	46 PC	KB3	2	0.521	1,2	
4.44	56 BA	KB1	3	0.341	1,2,3		4.52	46 PC	KB1	2	0.521	1,2,3	
4.44	56 BA	KB3	3	0.341	1,2		4.53	67 HG	KA1	4	0.261	1,2,3	
4.45	49 IN	KA1	2	0.512	1,2,3		4.53	35 BR	KA2	1	1.044	1,2,3	
4.45	76 OS	LY1	1	1.025	1,2,3		4.54	70 YB	KB3	5	0.239	1,2	
4.45	75 RE	LY3	1	1.026	1,2,3		4.54	74 W	KA1	5	0.209	1,2,3	
4.46	74 W	LY4	1	1.028	1,2		4.54	33 AS	KB2	1	1.045	1,2,3	
4.46	63 EU	KB2	4	0.257	1,2,3		4.54	70 YB	KB1	5	0.209	1,2,3	
4.46	68 ER	KA2	4	0.257	1,2,3		4.55	59 PR	KA2	3	0.349	1,2,3	
4.46	79 AU	LB10	1	1.028	1,2		4.55	80 HG	LB1	1	1.049	1,2,3	
4.47	87 FR	LA1	1	1.030	1,2,3		4.55	33 AS	KB5	1	1.049	1,2	
4.47	98 CF	LY1	2	0.515	1		4.56	81 TL	LB6	1	1.050	1,2,3	
4.48	59 PR	KA1	3	0.344	1,2,3		4.56	79 AU	LB7	1	1.050	1,2	
4.48	75 RE	LY2	1	1.032	1,2,3		4.56	69 TP	KB2	5	0.210	1	
4.49	46 PD	KB5	2	0.517	1		4.58	78 PT	LB9	1	1.054	1,2	
4.49	49 IN	KA2	2	0.517	1,2,3		4.58	63 EU	KB3	4	0.264	1,2	
4.49	80 HG	LB3	1	1.034	1,2,3		4.58	63 EU	KB1	4	0.264	1,2,3	
4.50	75 RE	LY6	1	1.037	1,2		4.59	86 RN	LA1	1	1.057	1	
4.51	55 CS	KB2	3	0.346	1,2,3		4.59	76 OS	LY5	1	1.057	1,2	
4.51	81 TL	LB4	1	1.039	1,2,3		4.59	33 AS	KB1	1	1.057	1,2,3	
4.51	35 BR	KA1	1	1.040	1,2,3		4.59	33 AS	KB3	1	1.058	1,2	
4.51	79 AU	LB5	1	1.040	1,2		4.60	83 BI	LN	1	1.059	1,2,3	
4.51	80 HG	LB2	1	1.040	1,2,3		4.60	97 BK	LY1	2	0.530	1	

KAP CRYSTAL, D#13.200 ANGSTROMS							4.61 TC 4.79						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
4.61	75 RE	LY1	1	1.061	1,2,3		4.69	80 HG	LB6	1	1.080	1,2,3	
4.61	55 CS	KB1	3	0.354	1,2,3		4.69	69 TM	KB3	5	0.216	1,2	
4.61	74 W	LY3	1	1.062	1,2,3		4.70	45 RH	KB5	2	0.541	1	
4.61	78 PT	LB10	1	1.062	1,2		4.70	78 PT	LB7	1	1.082	1,2	
4.62	62 SM	KB2	4	0.266	1,2,3		4.71	79 AU	LB1	1	1.084	1,2,3	
4.62	67 HO	KA2	4	0.266	1,2,3		4.71	68 ER	KB2	5	0.217	1,2,3	
4.62	73 TA	LY4	1	1.065	1,2		4.71	85 AT	LA1	1	1.085	1	
4.62	55 CS	KB3	3	0.355	1,2		4.71	58 CE	KA2	3	0.362	1,2,3	
4.63	92 U	LL	1	1.067	2,3		4.73	77 IR	LB9	1	1.090	1,2	
4.64	74 W	LY2	1	1.068	1,2,3		4.74	91 PA	LL	1	1.091	1,2,3	
4.64	79 AU	LB3	1	1.068	1,2,3		4.74	62 SM	KB1	4	0.273	1,2,3	
4.64	86 RN	LA2	1	1.069	1		4.74	45 RH	KB1	2	0.546	1,2,3	
4.65	74 W	KA2	5	0.214	1,2,3		4.74	96 CM	LY1	2	0.546	1	
4.65	79 AU	LB2	1	1.070	1,2,3		4.74	82 PE	LN	1	1.092	1,2,3	
4.65	48 CD	KA1	2	0.535	1,2,3		4.74	45 RH	KB3	2	0.546	1,2	
4.65	45 RH	KB2	2	0.535	1,2,3		4.75	75 RE	LY5	1	1.094	1,2	
4.65	58 CE	KA1	3	0.357	1,2,3		4.76	66 DY	KA2	4	0.274	1,2,3	
4.65	80 HG	LB4	1	1.072	1,2,3		4.76	62 SM	KB3	4	0.274	1,2	
4.65	78 PT	LB5	1	1.072	1,2		4.76	85 AT	LA2	1	1.097	1	
4.66	74 W	LY6	1	1.074	1,2		4.76	77 IR	LB10	1	1.097	1,2	
4.67	69 TM	KB1	5	0.215	1,2,3		4.77	74 W	LY1	1	1.099	1,2,3	
4.67	73 TA	KA1	5	0.215	1,2,3		4.77	73 TA	LY3	1	1.099	1,2,3	
4.68	48 CD	KA2	2	0.539	1,2,3		4.78	73 TA	KA2	5	0.220	1,2,3	
4.69	54 XE	KB2	3	0.360	1,2,3		4.78	78 PT	LB2	1	1.102	1,2,3	
4.69	66 DY	KA1	4	0.270	1,2,3		4.79	72 HF	LY4	1	1.103	1,2	

KAP CRYSTAL, D#13.200 ANGSTROMS						4.79 TO 4.97					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
4.79	61 PM	KB2	4	0.276	1	4.88	53 I	KB2	3	0.375	1,2,3
4.79	54 XE	KB1	3	0.368	1,2,3	4.88	57 LA	KA2	3	0.375	1,2,3
4.79	78 FT	LB3	1	1.104	1,2,3	4.89	84 PC	LA2	1	1.126	1,2,3
4.80	34 SE	KA1	1	1.105	1,2,3	4.89	76 OS	LB9	1	1.126	1,2
4.80	73 TA	LY2	1	1.105	1,2,3	4.90	61 PM	KB1	4	0.282	1,2,3
4.80	77 IR	LB5	1	1.106	1,2	4.90	81 TL	LN	1	1.128	1,2,3
4.81	79 AU	LB4	1	1.107	1,2,3	4.90	47 AG	KA2	2	0.564	1,2,3
4.81	34 SE	KA2	1	1.109	1,2,3	4.90	32 GE	KB1	1	1.129	1,2,3
4.82	72 HF	KA1	5	0.222	1,2,3	4.90	32 GE	KB3	1	1.129	1,2
4.82	79 AU	LB6	1	1.111	1,2,3	4.91	65 TB	KA2	4	0.283	1,2,3
4.83	57 LA	KA1	3	0.371	1,2,3	4.91	61 PM	KB3	4	0.283	2
4.84	73 TA	LY6	1	1.114	1,2	4.91	74 W	LY5	1	1.132	1,2
4.84	84 PO	LA1	1	1.114	1,2,3	4.92	76 OS	LB10	1	1.133	1,2
4.84	68 ER	KB3	5	0.223	1,2	4.93	77 IR	LB2	1	1.135	1,2,3
4.84	68 ER	KB1	5	0.223	1,2,3	4.93	72 HF	KA2	5	0.227	1,2,3
4.84	77 IR	LB7	1	1.115	1,2	4.93	44 RU	KB5	2	0.558	1
4.84	90 TH	LL	1	1.115	1,2,3	4.94	72 HF	LY3	1	1.138	1,2,3
4.85	65 TB	KA1	4	0.279	1,2,3	4.94	73 TA	LY1	1	1.138	1,2,3
4.85	32 GE	KB2	1	1.117	1,2,3	4.95	76 OS	LB5	1	1.140	1,2
4.85	47 AG	KA1	2	0.559	1,2,3	4.95	77 IR	LB3	1	1.141	1,2,3
4.86	32 GE	KB5	1	1.119	1,2	4.96	78 PT	LB4	1	1.142	1,2,3
4.86	67 HO	KB2	5	0.224	1	4.96	71 LU	LY4	1	1.143	1
4.86	78 PT	LB1	1	1.120	1,2,3	4.97	78 PT	LB6	1	1.144	1,2,3
4.88	44 RU	KB2	2	0.562	1,2,3	4.97	83 BI	LA1	1	1.144	1,2,3
4.88	95 AM	LY1	2	0.562	1,3	4.97	63 NC	KB2	4	0.286	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						4.97 TO 5.17					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
4.97	44 RU	KB1	2	0.572	1,2,3	5.09	73 TA	LY5	1	1.173	1,2
4.97	72 HF	LY2	1	1.144	1,2,3	5.09	52 TE	KB2	3	0.391	1,2,3
4.97	71 LU	KA1	5	0.229	1,2,3	5.10	82 PB	LA1	1	1.175	1,2,3
4.98	44 RU	KB3	2	0.573	1,2	5.11	33 AS	KA1	1	1.176	1,2,3
4.99	76 OS	LB7	1	1.149	1,2	5.11	60 ND	KB3	4	0.294	1,2
4.99	67 HO	KB1	5	0.230	1	5.11	75 RE	LB5	1	1.177	1,2
5.00	64 GD	KA1	4	0.288	1,2,3	5.11	77 IR	LB6	1	1.178	1,2,3
5.00	53 I	KB1	3	0.384	1,2,3	5.12	72 HF	LY1	1	1.179	1,2,3
5.01	72 HF	LY6	1	1.155	1,2	5.12	71 LU	LY3	1	1.179	1,2,3
5.01	83 BI	LA2	1	1.155	1,2,3	5.12	33 AS	KA2	1	1.180	1,2,3
5.01	56 BA	KA1	3	0.385	1,2,3	5.12	76 OS	LB3	1	1.180	1,2,3
5.01	53 I	KB3	3	0.385	1,2	5.12	43 TC	KB4	2	0.590	1
5.03	94 PU	LY1	2	0.579	1	5.12	43 TC	KB2	2	0.590	1
5.03	77 IR	LB1	1	1.158	1,2,3	5.12	46 PD	KA2	2	0.590	1,2,3
5.04	66 DY	KB2	5	0.232	1,2,3	5.12	77 IR	LB4	1	1.180	1,2,3
5.05	80 HG	LN	1	1.164	1,2,3	5.14	70 YB	KA1	5	0.237	1,2,3
5.06	75 RE	LB9	1	1.165	1,2	5.14	71 LU	LY2	1	1.185	1,2,3
5.07	88 RA	LL	1	1.167	1,2,3	5.14	70 YB	LY4	1	1.185	1,2
5.08	76 OS	LB2	1	1.170	1,2,3	5.14	66 DY	KB1	5	0.237	1,2,3
5.08	46 PD	KA1	2	0.585	1,2,3	5.15	82 PB	LA2	1	1.186	1,2,3
5.08	56 BA	KA2	3	0.390	1,2,3	5.15	75 RE	LB7	1	1.186	1,2
5.08	71 LU	KA2	5	0.234	1,2,3	5.16	59 PR	KB2	4	0.297	1,2,3
5.09	64 GD	KA2	4	0.293	1,2,3	5.16	91 PA	LY4	2	0.594	1,2
5.09	60 ND	KB1	4	0.293	1,2,3	5.17	92 U	LY6	2	0.595	1,2
5.09	75 RE	LB10	1	1.172	1,2	5.17	66 DY	KB3	5	0.238	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						5.18 TO 5.37					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
5.18	93 NP	LY1	2	0.597	1,2,3	5.28	72 HF	LY5	1	1.215	1,2
5.19	31 GA	KB2	1	1.196	1,2,3	5.28	74 W	LB5	1	1.215	1,2
5.19	63 EU	KA1	4	0.299	1,2,3	5.28	55 CS	KA2	3	0.405	1,2,3
5.19	92 U	LY3	2	0.598	1,2,3	5.28	59 PR	KB1	4	0.304	1,2,3
5.20	31 GA	KB5	1	1.197	1,2	5.29	76 OS	LB4	1	1.218	1,2,3
5.20	76 OS	LB1	1	1.197	1,2,3	5.29	81 TL	LA2	1	1.219	1,2,3
5.20	71 LU	LY6	1	1.198	1,2	5.30	59 PR	KB3	4	0.305	1,2
5.21	65 TB	KB2	5	0.240	1,2,3	5.30	75 RE	LB3	1	1.220	1,2,3
5.21	55 CS	KA1	3	0.400	1,2,3	5.30	69 TM	KA1	5	0.244	1,2,3
5.21	52 TE	KB1	3	0.400	1,2,3	5.31	90 TH	LY4	2	0.611	1,2
5.22	43 TC	KB3	2	0.601	1,2	5.31	70 YB	LY3	1	1.222	1,2,3
5.22	52 TE	KB3	3	0.401	1,2	5.31	71 LU	LY1	1	1.222	1,2,3
5.22	79 AU	LN	1	1.203	1,2,3	5.31	74 W	LB7	1	1.224	1,2
5.23	43 TC	KB1	2	0.602	1,2,3	5.31	51 SB	KB2	3	0.408	1,2,3
5.23	74 W	LB9	1	1.204	1,2	5.32	91 PA	LY6	2	0.613	1,2
5.23	70 YB	KA2	5	0.241	1,2,3	5.32	45 RH	KA1	2	0.613	1,2,3
5.24	98 CF	LB1	2	0.603	1	5.34	69 TM	LY4	1	1.229	1
5.24	81 TL	LA1	1	1.207	1,2,3	5.34	70 YB	LY2	1	1.229	1,2,3
5.24	75 RE	LB2	1	1.207	1,2,3	5.34	92 U	LY1	2	0.615	1,2,3
5.24	31 GA	KB1	1	1.208	1,2,3	5.34	65 TB	KB3	5	0.246	1,2
5.24	31 GA	KB3	1	1.208	1,2	5.34	65 TB	KB1	5	0.246	1,2,3
5.25	92 U	LY2	2	0.605	1,2,3	5.35	58 CE	KB2	4	0.308	1,2,3
5.26	63 EU	KA2	4	0.303	1,2,3	5.36	91 PA	LY3	2	0.617	1,2,3
5.26	74 W	LB10	1	1.212	1,2	5.37	62 SM	KA1	4	0.309	1,2,3
5.27	76 OS	LB6	1	1.213	1,2,3	5.37	45 RH	KA2	2	0.618	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							5.38 TO 5.58					
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF
5.38	75 RE	LB1	1	1.239	1,2,3		5.47	54 XE	KA2	3	0.420	1,2,3
5.38	64 GO	KB2	5	0.248	1,2,3		5.47	71 LU	LY5	1	1.260	1,2
5.38	42 MO	KB4	2	0.620	2		5.47	68 ER	KA1	5	0.252	1,2,3
5.39	80 HG	LA1	1	1.241	1,2,3		5.48	74 W	LB3	1	1.263	1,2,3
5.39	51 SB	KB5	3	0.414	1		5.49	73 TA	LB7	1	1.264	1,2
5.39	97 BK	LB1	2	0.621	1		5.49	58 CE	KB3	4	0.316	1,2
5.39	42 MO	KB2	2	0.621	1,2,3		5.49	42 MC	KB1	2	0.632	1,2,3
5.40	78 PT	LN	1	1.243	1,2,3		5.49	90 TH	LY6	2	0.632	1,2
5.40	70 YB	LY6	1	1.243	1,2		5.49	58 CE	KB1	4	0.316	1,2,3
5.41	69 TM	KA2	5	0.249	1,2,3		5.50	42 MC	KB3	2	0.633	1,2
5.41	74 W	LB2	1	1.245	1,2,3		5.51	69 TM	LY3	1	1.268	1,2,3
5.41	73 TA	LB9	1	1.246	1,2		5.51	91 PA	LY1	2	0.634	1,2,3
5.42	91 PA	LY2	2	0.624	1,2,3		5.51	70 YB	LY1	1	1.268	1,2,3
5.42	54 XE	KA1	3	0.416	1,2,3		5.51	92 U	LY5	2	0.635	1,2
5.43	75 RE	LB6	1	1.251	1,2,3		5.51	64 GO	KB1	5	0.254	1,2,3
5.43	51 SB	KB1	3	0.417	1,2,3		5.52	90 TH	LY3	2	0.636	1,2,3
5.44	80 HG	LA2	1	1.253	1,2,3		5.53	69 TM	LY2	1	1.274	1,2,3
5.44	42 MO	KB5	2	0.627	1		5.54	64 GO	KB3	5	0.255	1,2
5.44	51 SB	KB3	3	0.418	1,2		5.54	68 ER	LY4	1	1.276	1,2
5.44	32 GE	KA1	1	1.254	1,2,3		5.54	79 AU	LA1	1	1.276	1,3
5.44	73 TA	LB10	1	1.254	1,2		5.55	50 SN	KB2	3	0.426	1,2,3
5.45	73 TA	LB5	1	1.255	1,2		5.55	96 CM	LB1	2	0.639	1
5.45	62 SM	KA2	4	0.314	1,2,3		5.56	57 LA	KB2	4	0.320	1,2,3
5.46	32 GE	KA2	1	1.258	1,2,3		5.57	74 W	LB1	1	1.282	1,2,3
5.47	75 RE	LB4	1	1.259	1,2,3		5.58	77 IR	LN	1	1.284	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						5.58 TO 5.77					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
5.58	61 PM	KA1	4	0.321	1,2,3	5.67	70 YB	LY5	1	1.336	1,2
5.58	90 TH	LY2	2	0.642	1,2,3	5.67	98 CF	LB2	2	0.653	1
5.58	30 ZN	KB2	1	1.284	1,2,3	5.67	72 HF	LB7	1	1.306	1,2
5.58	73 TA	LB2	1	1.284	1,2,3	5.67	73 TA	LB3	1	1.307	1,2,3
5.58	63 EU	KB2	5	0.257	1,2,3	5.68	50 SN	KB3	3	0.436	1,2
5.58	68 ER	KA2	5	0.257	1,2,3	5.68	41 NB	KB2	2	0.654	1,2,3
5.58	30 ZN	KB5	1	1.285	1,2	5.69	91 PA	LY5	2	0.655	1,2
5.58	44 RU	KA1	2	0.643	1,2,3	5.70	57 LA	KB1	4	0.328	1,2,3
5.59	79 AU	LA2	1	1.288	1,2,3	5.70	78 PT	LA1	1	1.313	1,2,3
5.60	69 FM	LY6	1	1.290	1	5.71	53 I	KA2	3	0.438	1,2,3
5.60	74 W	LB6	1	1.290	1,2,3	5.71	69 TM	LY1	1	1.315	1,2,3
5.60	72 HF	LB9	1	1.290	1,2	5.71	68 ER	LY3	1	1.315	1,2,3
5.62	44 RU	KA2	2	0.647	1,2,3	5.71	57 LA	KB3	4	0.329	1,2
5.62	30 ZN	KB1	1	1.295	1,2,3	5.71	83 BI	LL	1	1.316	1,2,3
5.63	50 SN	KB5	3	0.432	1	5.71	95 AM	LB1	2	0.658	1,3
5.64	88 RA	LY4	2	0.649	1,2	5.73	63 EU	KB3	5	0.264	1,2
5.64	72 HF	LB5	1	1.298	1,2	5.73	41 NB	KB5	2	0.660	1
5.64	72 HF	LB10	1	1.298	1,2	5.73	63 EU	KB1	5	0.264	1,2,3
5.64	53 I	KA1	3	0.433	1,2,3	5.74	68 ER	LY2	1	1.321	1,2,3
5.64	61 PM	KA2	4	0.325	1,2,3	5.74	67 HC	LY4	1	1.322	1,2
5.65	74 W	LB4	1	1.302	1,2,3	5.75	78 PT	LA2	1	1.324	1,2,3
5.66	57 LA	KB5	4	0.326	1	5.76	72 HF	LB2	1	1.326	1,2,3
5.67	67 HO	KA1	5	0.261	1,2,3	5.76	73 TA	LB1	1	1.327	1,2,3
5.67	50 SN	KB1	3	0.435	1,2,3	5.77	60 ND	KA1	4	0.332	1,2,3
5.67	90 TH	LY1	2	0.653	1,2,3	5.77	76 OS	LN	1	1.328	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							5.77 TO 5.97						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
5.77	62 SM	KB2	5	0.266	1,2,3		5.87	56 BA	KB5	4	0.338	1	
5.77	67 HO	KA2	5	0.266	1,2,3		5.88	52 TE	KA1	3	0.451	1,2,3	
5.78	73 TA	LB6	1	1.331	1,2,3		5.88	72 HF	LB3	1	1.353	1,2,3	
5.78	56 BA	KB2	4	0.333	1,2,3		5.88	49 IN	KB5	3	0.451	1	
5.78	41 NR	KB3	2	0.666	1,2		5.88	69 TM	LY5	1	1.355	1,2	
5.78	41 NB	KB1	2	0.666	1,2,3		5.89	94 PU	LB1	2	0.678	1	
5.80	49 IN	KB2	3	0.445	1,2,3		5.91	77 IR	LA2	1	1.362	1,2,3	
5.80	71 LU	LB9	1	1.336	1,2		5.91	92 U	LB9	2	0.681	1,2	
5.81	97 BK	LB2	2	0.669	1		5.92	68 ER	LY1	1	1.364	1,2,3	
5.82	31 GA	KA1	1	1.340	1,2,3		5.92	88 RA	LY2	2	0.682	1,2,3	
5.83	71 LU	LB5	1	1.342	1,2		5.92	56 BA	KB3	4	0.341	1,2	
5.83	71 LU	LB13	1	1.343	1,2		5.92	67 HC	LY3	1	1.364	1,2,3	
5.84	60 ND	KA2	4	0.336	1,2,3		5.92	56 BA	KB1	4	0.341	1,2,3	
5.84	31 GA	KA2	1	1.344	1,2,3		5.93	49 IN	KB1	3	0.455	1,2,3	
5.84	43 TC	KA1	2	0.673	2,3		5.93	62 SM	KB1	5	0.273	1,2,3	
5.84	73 TA	LB4	1	1.346	1,2,3		5.93	49 IN	KB3	3	0.455	1,2	
5.84	88 RA	LY6	2	0.673	1,2		5.94	52 TE	KA2	3	0.456	1,2,3	
5.85	89 AC	LY1	2	0.674	1		5.95	67 HC	LY2	1	1.370	1,2,3	
5.86	71 LU	LB7	1	1.349	1,2		5.95	96 CM	LB2	2	0.685	1	
5.86	66 DY	KA1	5	0.270	1,2,3		5.95	66 DY	KA2	5	0.274	1,2,3	
5.86	88 RA	LY3	2	0.675	1,2,3		5.95	71 LU	LB2	1	1.370	1,2,3	
5.86	82 PB	LL	1	1.350	1,2,3		5.95	62 SM	KB3	5	0.274	1,2	
5.86	93 TH	LY5	2	0.675	1,2		5.96	75 RE	LN	1	1.373	1,2,3	
5.87	77 IR	LA1	1	1.351	1,2,3		5.97	66 DY	LY4	1	1.374	1,2	
5.87	43 TC	KA2	2	0.676	2,3		5.97	72 HF	LB1	1	1.374	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						5.97 TO 6.19					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
5.97	72 HF	LB6	1	1.374	1,2,3	6.09	95 AM	LB2	2	0.701	1,3
5.97	92 U	LB10	2	0.687	1,2	6.09	76 OS	LA2	1	1.402	1,2,3
5.97	59 PR	KA1	4	0.344	1,2,3	6.10	40 ZR	KB1	2	0.702	1,2,3
5.99	40 ZR	KB2	2	0.690	1,2,3	6.10	40 ZR	KB3	2	0.702	1,2
5.99	61 PM	KB2	5	0.276	1	6.11	68 ER	LY5	1	1.406	1,2
6.00	29 CU	KB2	1	1.381	2,3	6.12	51 SB	KA1	3	0.470	1,2,3
6.00	29 CU	KB5	1	1.382	2	6.12	61 PM	KB1	5	0.282	1,2,3
6.01	70 YB	LB9	1	1.384	1,2	6.14	61 PM	KB3	5	0.283	2
6.01	55 CS	KB2	4	0.346	1,2,3	6.14	70 YB	LB2	1	1.415	1,2,3
6.01	81 TL	LL	1	1.385	1,2,3	6.14	65 TB	KA2	5	0.283	1,2,3
6.02	70 YB	LB5	1	1.387	1,2	6.15	55 CS	KB1	4	0.354	1,2,3
6.04	88 RA	LY1	2	0.695	1,2,3	6.15	91 PA	LB10	2	0.708	1,2
6.04	76 OS	LA1	1	1.391	1,2,3	6.15	66 DY	LY3	1	1.417	1,2,3
6.04	70 YB	LB10	1	1.391	1,2	6.15	67 HC	LY1	1	1.417	1,2,3
6.04	29 CU	KB1	1	1.392	1,2,3	6.16	42 MC	KA1	2	0.709	1,2,3
6.04	72 HF	LB4	1	1.392	1,2,3	6.16	71 LU	LB6	1	1.419	1,2,3
6.04	40 ZR	KB5	2	0.696	1	6.17	55 CS	KB3	4	0.355	1,2
6.05	29 CU	KB3	1	1.393	1,2	6.17	92 U	LB3	2	0.710	1,2,3
6.06	70 YB	LB7	1	1.395	1,2	6.17	74 W	LN	1	1.421	1,2,3
6.06	48 CD	KB2	3	0.465	1,2,3	6.17	80 HG	LL	1	1.422	1,2,3
6.06	65 TB	KA1	5	0.279	1,2,3	6.18	66 DY	LY2	1	1.423	1,2,3
6.06	93 NP	LB1	2	0.698	1,2,3	6.18	71 LU	LB1	1	1.424	1,2,3
6.06	59 PR	KA2	4	0.349	1,2,3	6.19	51 SB	KA2	3	0.475	1,2,3
6.08	71 LU	LB3	1	1.401	1,2,3	6.19	48 CD	KB1	3	0.475	1,2,3
6.09	91 PA	LB9	2	0.701	1,2	6.19	42 MC	KA2	2	0.713	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						6.20 TO 6.44					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
6.20	65 TB	LY4	1	1.427	1,2	6.35	67 HC	LY5	1	1.462	1,2
6.20	58 CE	KA1	4	0.357	1,2,3	6.35	69 TM	LB2	1	1.463	1,2,3
6.20	48 CC	KB3	3	0.476	1,2	6.36	91 PA	LB3	2	0.732	1,2,3
6.21	60 ND	KB2	5	0.286	1,2,3	6.36	64 GD	KA2	5	0.293	1,2,3
6.22	87 FR	LY1	2	0.716	1,2,3	6.36	60 ND	KB1	5	0.293	1,2,3
6.22	75 RE	LA1	1	1.433	1,2,3	6.37	70 YB	LB6	1	1.466	1,2,3
6.23	88 RA	LY5	2	0.717	1,2	6.38	39 Y	KB5	2	0.734	1
6.23	30 ZN	KA1	1	1.435	1,2,3	6.38	60 ND	KB3	5	0.294	1,2
6.24	94 PU	LB2	2	0.718	1	6.39	73 TA	LN	1	1.471	1,2,3
6.25	30 ZN	KA2	1	1.439	1,2,3	6.39	65 TB	LY3	1	1.471	1,2,3
6.25	54 XE	KB2	4	0.360	1,2,3	6.39	92 U	LB7	2	0.736	1,2
6.25	71 LU	LB4	1	1.440	1,2,3	6.39	93 NP	LB2	2	0.736	1,2,3
6.25	64 GD	KA1	5	0.288	1,2,3	6.39	54 XE	KB1	4	0.368	1,2,3
6.25	92 U	LB1	2	0.720	1,2,3	6.40	66 DY	LY1	1	1.473	1,2,3
6.26	69 TM	LB10	1	1.441	1	6.40	50 SN	KA1	3	0.491	1,2,3
6.27	75 RE	LA2	1	1.444	1,2,3	6.41	70 YB	LB1	1	1.476	1,2,3
6.28	90 TH	LB9	2	0.723	1,2	6.41	74 W	LA1	1	1.476	1,2,3
6.29	58 CE	KA2	4	0.362	1,2,3	6.41	65 TB	LY2	1	1.477	1,2,3
6.31	92 U	LB5	2	0.726	1,2	6.42	86 RN	LY1	2	0.739	1
6.31	70 YB	LB3	1	1.452	1,2,3	6.42	71 LU	LN	1	1.478	1,2
6.31	39 Y	KB4	2	0.727	2	6.42	47 AG	KB5	3	0.493	1
6.33	39 Y	KB2	2	0.729	1,2,3	6.44	39 Y	KB3	2	0.741	1,2
6.34	79 AU	LL	1	1.460	1,2,3	6.44	39 Y	KB1	2	0.741	1,2,3
6.34	90 TH	LB10	2	0.730	1,2	6.44	91 PA	LB1	2	0.742	1,2,3
6.34	47 AG	KB2	3	0.487	1,2,3	6.44	57 LA	KA1	4	0.371	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							6.45 TO 6.69						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
6.45	68 ER	LB9	1	1.485	1,2		6.57	68 ER	LB2	1	1.514	1,2,3	
6.45	50 SN	KA2	3	0.495	1,2,3		6.58	63 EU	KA2	5	0.303	1,2,3	
6.45	59 PR	KB2	5	0.297	1,2,3		6.58	69 TM	LB6	1	1.515	1,2,3	
6.45	64 GD	LY4	1	1.485	1,2		6.59	66 DY	LY5	1	1.518	1,2	
6.46	74 W	LA2	1	1.487	1,2,3		6.60	59 PR	KB1	5	0.304	1,2,3	
6.47	28 NI	KB5	1	1.489	1,2		6.61	83 BI	LY4	2	0.761	1,2	
6.47	28 NI	KB2	1	1.489	1,2,3		6.61	73 TA	LA1	1	1.522	1,2,3	
6.47	91 PA	LB5	2	0.745	1,2		6.61	72 HF	LN	1	1.523	1,2,3	
6.47	47 AG	KB1	3	0.497	1,2,3		6.62	59 PR	KB3	5	0.305	1,2	
6.47	70 YB	LB4	1	1.491	1,2,3		6.63	85 AT	LY1	2	0.763	1	
6.48	41 NB	KA1	2	0.746	1,2,3		6.64	84 PC	LY3	2	0.764	1,2,3	
6.49	68 ER	LB7	1	1.494	1,2		6.64	84 PC	LY6	2	0.764	1,2	
6.49	68 ER	LB10	1	1.494	1,2		6.64	64 GC	LY3	1	1.529	1,2,3	
6.49	47 AG	KB3	3	0.498	1,2		6.64	46 PC	KB2	3	0.510	1,2,3	
6.49	63 EU	KA1	5	0.299	1,2,3		6.64	65 TB	LY1	1	1.530	1,2,3	
6.50	92 U	LB4	2	0.748	1,2,3		6.64	69 TM	LB1	1	1.530	1,2,3	
6.51	78 PT	LL	1	1.499	1,2,3		6.64	90 TH	LB1	2	0.765	1,2,3	
6.51	41 NB	KA2	2	0.750	1,2,3		6.64	90 TH	LB5	2	0.765	1,2	
6.51	57 LA	KA2	4	0.375	1,2,3		6.66	73 TA	LA2	1	1.533	1,2,3	
6.51	53 I	KB2	4	0.375	1,2,3		6.66	64 GC	LY2	1	1.534	1,2,3	
6.51	28 NI	KB1	1	1.500	1,2,3		6.67	49 IN	KA1	3	0.512	1,2,3	
6.54	69 TM	LB3	1	1.505	1,2,3		6.67	53 I	KB1	4	0.384	1,2,3	
6.56	90 TH	LB3	2	0.755	1,2,3		6.68	88 RA	LB9	2	0.769	1,2	
6.56	91 PA	LB7	2	0.755	1,2		6.69	91 PA	LB4	2	0.770	1,2,3	
6.56	92 U	LB2	2	0.755	1,2,3		6.69	58 CE	KB2	5	0.308	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						6.69 TO 6.91					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
6.69	56 BA	KA1	4	0.385	1,2,3	6.81	68 ER	LB6	1	1.567	1,2,3
6.69	53 I	KB3	4	0.385	1,2	6.81	72 HF	LA1	1	1.569	1,2,3
6.69	77 IR	LL	1	1.541	1,2,3	6.82	62 SM	KA2	5	0.314	1,2,3
6.69	29 CU	KA1	1	1.541	1,2,3	6.83	82 PB	LY4	2	0.786	1
6.70	38 SR	KB2	2	0.771	1,2,3	6.83	40 ZR	KA1	2	0.786	1,2,3
6.71	29 CU	KA2	1	1.544	1,2,3	6.84	84 PC	LY1	2	0.787	1,2,3
6.71	69 TM	LB4	1	1.544	1,2,3	6.84	92 U	LB6	2	0.788	1,2,3
6.71	63 EU	LY4	1	1.544	1,2	6.85	65 TE	LB5	1	1.577	2
6.71	98 CF	LY1	3	0.515	1	6.85	65 TE	LY5	1	1.577	1
6.71	62 SM	KA1	5	0.309	1,2,3	6.85	89 AC	LB1	2	0.789	1
6.72	90 TH	LB7	2	0.774	1,2	6.85	83 BI	LY3	2	0.789	1,2,3
6.72	91 PA	LB2	2	0.774	1,2,3	6.86	58 CE	KB3	5	0.316	1,2
6.73	67 HO	LB10	1	1.549	1	6.86	40 ZR	KA2	2	0.790	1,2,3
6.73	38 SR	KB5	2	0.775	1	6.86	58 CE	KB1	5	0.316	1,2,3
6.73	88 RA	LB10	2	0.775	1,2	6.86	83 BI	LY6	2	0.790	1,2
6.74	49 IN	KA2	3	0.517	1,2,3	6.86	72 HF	LA2	1	1.580	1,2,3
6.74	46 PD	KB5	3	0.517	1	6.88	98 CF	LA1	2	0.792	1
6.77	56 BA	KA2	4	0.390	1,2,3	6.88	76 OS	LL	1	1.585	1,2,3
6.78	68 ER	LB3	1	1.561	1,2,3	6.89	90 TH	LB4	2	0.793	1,2,3
6.79	46 PD	KB3	3	0.521	1,2	6.89	68 ER	LB1	1	1.587	1,2,3
6.79	46 PD	KB1	3	0.521	1,2,3	6.90	90 TH	LB2	2	0.794	1,2,3
6.79	52 TE	KA2	4	0.391	1,2,3	6.91	97 BK	LY1	3	0.530	1
6.80	38 SR	KB3	2	0.783	1,2	6.91	63 EU	LY3	1	1.591	1,2,3
6.80	38 SR	KB1	2	0.783	1,2,3	6.91	83 BI	LY2	2	0.796	1,2,3
6.81	67 HO	LB2	1	1.567	1,2,3	6.91	64 GO	LY1	1	1.592	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						6.94 TO 7.14					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
6.94	63 EU	LY2	1	1.597	1,2,3	7.04	67 HC	LB6	1	1.622	1,2,3
6.94	66 DY	LB7	1	1.599	1,2	7.05	45 RH	KB5	3	0.541	1
6.95	52 TE	KB1	4	0.400	1,2,3	7.05	66 DY	LB2	1	1.623	1,2,3
6.95	55 CS	KA1	4	0.400	1,2,3	7.05	81 TL	LY4	2	0.812	1,2
6.95	57 LA	KB2	5	0.320	1,2,3	7.06	61 PM	KA2	5	0.325	1,2,3
6.95	66 DY	LB9	1	1.600	1	7.06	83 BI	LY1	2	0.813	1,2,3
6.95	68 ER	LB4	1	1.601	1,2,3	7.07	88 RA	LB1	2	0.814	1,2,3
6.97	52 TE	KB3	4	0.401	1,2	7.07	89 AC	LB2	2	0.814	1
6.97	48 CD	KA1	3	0.535	1,2,3	7.08	71 LU	LA2	1	1.630	1,2,3
6.97	61 PM	KA1	5	0.321	1,2,3	7.08	75 RE	LL	1	1.630	1,2,3
6.97	45 RH	KB2	3	0.535	1,2,3	7.08	57 LA	KB5	5	0.326	1
6.97	88 RA	LB3	2	0.803	1,2,3	7.08	82 PB	LY3	2	0.815	1,2,3
6.97	62 SM	LY4	1	1.606	1,2	7.09	51 SB	KB2	4	0.408	1,2,3
6.98	66 DY	LB10	1	1.607	1	7.09	88 RA	LB7	2	0.816	1,2
6.98	98 CF	LA2	2	0.804	1	7.09	37 RB	KB2	2	0.816	1,2,3
6.99	27 CO	KB5	1	1.609	1,2	7.10	82 PB	LY6	2	0.817	1,2
6.99	92 U	LN	2	0.805	1,2,3	7.11	73 YB	LN	1	1.636	1,2,3
7.00	88 RA	LB5	2	0.806	1,2	7.11	45 RH	KB3	3	0.546	1,2
7.02	91 PA	LB6	2	0.808	1,2,3	7.11	96 CM	LY1	3	0.546	1
7.02	48 CD	KA2	3	0.539	1,2,3	7.11	45 RH	KB1	3	0.546	1,2,3
7.03	71 LU	LA1	1	1.619	1,2,3	7.12	57 LA	KB1	5	0.328	1,2,3
7.03	67 HO	LB3	1	1.619	1,2,3	7.13	64 GD	LY5	1	1.641	1
7.04	97 BK	LA1	2	0.810	1	7.13	82 PB	LY2	2	0.821	1,2,3
7.04	55 CS	KA2	4	0.405	1,2,3	7.14	97 BK	LA2	2	0.822	1
7.04	27 CO	KB1	1	1.621	1,2,3	7.14	37 RB	KB5	2	0.822	1

KAP CRYSTAL, D#13.200 ANGSTROMS							7.14 TO 7.40						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
7.14	57 LA	KB3	5	0.329	1,2		7.28	47 AG	KA1	3	0.559	1,2,3	
7.15	67 HO	LB1	1	1.647	1,2,3		7.29	83 BI	LY5	2	0.839	1,2	
7.19	62 SM	LY3	1	1.655	1,2,3		7.29	80 HG	LY4	2	0.839	1,2	
7.19	90 TH	LB6	2	0.828	1,2,3		7.29	74 W	LL	1	1.678	1,2,3	
7.19	51 SB	KB5	4	0.414	1		7.30	82 PB	LY1	2	0.840	1,2,3	
7.20	37 RB	KB1	2	0.829	1,2,3		7.30	87 FR	LB1	2	0.840	1,2,3	
7.20	39 Y	KA1	2	0.829	1,2,3		7.30	60 NC	KA2	5	0.336	1,2,3	
7.20	63 EU	LY1	1	1.658	1,2,3		7.30	54 XE	KA2	4	0.420	1,2,3	
7.20	96 CM	LA1	2	0.829	1		7.30	66 DY	LB3	1	1.681	1,2,3	
7.20	28 NI	KA1	1	1.658	1,2,3		7.30	66 DY	LB6	1	1.681	1,2,3	
7.20	91 PA	LN	2	0.829	1,2,3		7.31	88 RA	LB4	2	0.841	1,2,3	
7.20	37 RB	KB3	2	0.829	1,2		7.31	65 TB	LB2	1	1.682	1,2,3	
7.21	62 SM	LY2	1	1.659	1,2,3		7.31	96 CM	LA2	2	0.841	1	
7.21	65 TB	LB7	1	1.659	1,2		7.31	81 TL	LY3	2	0.841	1,2,3	
7.21	67 HO	LB4	1	1.659	1,2,3		7.31	70 YB	LA2	1	1.683	1,2,3	
7.21	60 ND	KA1	5	0.332	1,2,3		7.32	95 AM	LY1	3	0.562	1,3	
7.22	28 NI	KA2	1	1.662	1,2,3		7.32	44 RU	KB2	3	0.562	1,2,3	
7.23	54 XE	KA1	4	0.416	1,2,3		7.33	81 TL	LY6	2	0.844	1,2	
7.23	56 BA	KB2	5	0.333	1,2,3		7.34	56 BA	KB5	5	0.338	1	
7.24	39 Y	KA2	2	0.833	1,2,3		7.35	47 AG	KA2	3	0.564	1,2,3	
7.24	65 TB	LB10	1	1.667	1,2		7.37	95 AM	LA1	2	0.848	1,3	
7.24	51 SB	KB1	4	0.417	1,2,3		7.37	69 TM	LN	1	1.696	1,2,3	
7.25	88 RA	LB2	2	0.835	1,2,3		7.37	81 TL	LY2	2	0.848	1,2,3	
7.26	70 YB	LA1	1	1.672	1,2,3		7.40	44 RU	KB5	3	0.568	1	
7.26	51 SB	KB3	4	0.418	1,2		7.40	50 SN	KB2	4	0.426	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						7.41 TO 7.64					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
7.41	56 BA	KB1	5	0.341	1,2,3	7.54	81 TL	LY1	2	0.868	1,2,3
7.41	56 BA	KB3	5	0.341	1,2	7.54	69 TM	LA2	1	1.737	1,2,3
7.42	63 EU	LY5	1	1.708	1,2	7.54	94 PU	LY1	3	0.579	1
7.42	90 TH	LN	2	0.854	1,2,3	7.55	80 HG	LY3	2	0.869	1,2,3
7.43	66 DY	LB1	1	1.710	1,2,3	7.56	50 SN	KB1	4	0.435	1,2,3
7.45	44 RU	KB1	3	0.572	1,2,3	7.56	65 TB	LB6	1	1.741	1,2,3
7.45	87 FR	LB2	2	0.858	1,2,3	7.57	36 KR	KB5	2	0.871	1,2
7.47	44 RU	KB3	3	0.573	1,2	7.57	88 RA	LB6	2	0.871	1,2,3
7.47	95 AM	LA2	2	0.860	1,3	7.58	26 FE	KB5	1	1.744	1,2
7.47	59 PR	KA1	5	0.344	1,2,3	7.58	50 SN	KB3	4	0.436	1,2
7.47	66 DY	LB4	1	1.720	1,2,3	7.58	60 ND	LY4	1	1.744	1,2
7.48	64 GD	LB7	1	1.723	1,2	7.58	59 PR	KA2	5	0.349	1,2,3
7.49	64 GD	LB9	1	1.724	1	7.58	64 GD	LB2	1	1.745	1,2,3
7.50	69 TM	LA1	1	1.726	1,2,3	7.58	80 HG	LY6	2	0.873	1,2
7.50	62 SM	LY1	1	1.727	1,2,3	7.58	65 TB	LB3	1	1.746	1,2,3
7.51	50 SN	KB5	4	0.432	1	7.60	38 SR	KA1	2	0.875	1,2,3
7.51	73 TA	LL	1	1.728	1,2,3	7.60	80 HG	LY2	2	0.875	1,2,3
7.51	55 CS	KB2	5	0.346	1,2,3	7.61	53 I	KA2	4	0.438	1,2,3
7.52	64 GD	LB10	1	1.731	1,2	7.62	46 PC	KA1	3	0.585	1,2,3
7.52	36 KR	KB4	2	0.866	2	7.63	68 ER	LN	1	1.756	1,2,3
7.52	36 KR	KB2	2	0.866	1,2,3	7.63	36 KR	KB1	2	0.878	1,2,3
7.52	82 PB	LY5	2	0.866	1,2	7.63	26 FE	KB1	1	1.757	1,2,3
7.52	53 I	KA1	4	0.433	1,2,3	7.64	38 SR	KA2	2	0.879	1,2,3
7.52	86 RN	LB1	2	0.866	1	7.64	36 KR	KB3	2	0.879	1,2
7.54	94 PU	LA1	2	0.866	1	7.64	94 PU	LA2	2	0.880	1

KAP CRYSTAL, D#13.200 ANGSTROMS						7.65 TO 7.88					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
7.65	86 RN	LB2	2	0.881	1	7.79	80 HG	LY1	2	0.897	1,2,3
7.69	43 TC	KB4	3	0.590	1	7.79	92 U	LY3	3	0.598	1,2,3
7.69	55 CS	KB1	5	0.354	1,2,3	7.80	60 ND	LY3	1	1.796	1,2,3
7.69	46 PD	KA2	3	0.590	1,2,3	7.80	83 BI	LB9	2	0.898	1,2
7.69	43 TC	KB2	3	0.590	1	7.80	68 ER	LA2	1	1.796	1,2,3
7.71	55 CS	KB3	5	0.355	1,2	7.80	79 AU	LY3	2	0.898	1,2,3
7.71	65 TB	LB1	1	1.776	1,2,3	7.81	84 PC	LB5	2	0.899	1,2
7.72	93 NP	LA1	2	0.889	1,2,3	7.82	63 EU	LB10	1	1.800	1,2
7.73	62 SM	LY5	1	1.779	1	7.82	54 XE	KB2	5	0.360	1,2,3
7.73	62 SM	LB5	1	1.779	2	7.82	60 ND	LY2	1	1.801	1,2,3
7.73	49 IN	KB2	4	0.445	1,2,3	7.83	93 NP	LA2	2	0.901	1
7.74	72 HF	LL	1	1.781	1,2,3	7.83	43 TC	KB3	3	0.601	1,2
7.74	91 PA	LY4	3	0.594	1,2	7.84	49 IN	KB5	4	0.451	1
7.75	68 ER	LA1	1	1.784	1,2,3	7.84	52 TE	KA1	4	0.451	1,2,3
7.75	65 TB	LB4	1	1.785	1,2,3	7.84	43 TC	KB1	3	0.602	1,2,3
7.75	58 CE	KA1	5	0.357	1,2,3	7.84	79 AU	LY6	2	0.903	1,2
7.75	92 U	LY6	3	0.595	1,2	7.85	64 GD	LB6	1	1.807	1,2,3
7.77	63 EU	LB7	1	1.788	1,2	7.85	79 AU	LY2	2	0.904	1,2,3
7.77	85 AT	LB1	2	0.894	1	7.86	98 CF	LB1	3	0.603	1
7.77	27 CO	KA1	1	1.789	1,2,3	7.86	58 CE	KA2	5	0.362	1,2,3
7.78	81 TL	LY5	2	0.895	1,2	7.86	83 BI	LB10	2	0.905	1,2
7.78	93 NP	LY1	3	0.597	1,2,3	7.86	85 AT	LB2	2	0.905	1
7.78	63 EU	LB9	1	1.792	1,2	7.87	63 EU	LB2	1	1.812	1,2,3
7.79	27 CO	KA2	1	1.793	1,2,3	7.88	88 RA	LN	2	0.907	1,2,3
7.79	78 PT	LY4	2	0.897	1,2	7.88	64 GD	LB3	1	1.815	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							7.88 TO 8.12						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
7.88	92 U	LY2	3	0.605	1,2,3		8.05	64 GC	LB4	1	1.853	1,2,3	
7.89	61 PM	LY1	1	1.816	1		8.05	45 RH	KA2	3	0.616	1,2,3	
7.90	84 PC	LB3	2	0.939	1,2,3		8.05	82 PB	LB9	2	0.927	1,2	
7.90	59 PR	LY4	1	1.819	1,2		8.05	79 AU	LY1	2	0.927	1,2,3	
7.91	49 IN	KB3	4	0.455	1,2		8.05	77 IR	LY4	2	0.927	1,2	
7.91	49 IN	KB1	4	0.455	1,2,3		8.06	60 ND	LY6	1	1.855	2	
7.91	92 U	LA1	2	0.911	1,2,3		8.06	57 LA	KA1	5	0.371	1,2,3	
7.92	52 TE	KA2	4	0.456	1,2,3		8.06	78 PT	LY3	2	0.928	1,2,3	
7.93	67 HC	LN	1	1.826	1,2,3		8.06	67 HC	LA2	1	1.856	1,2,3	
7.96	93 TH	LY4	3	0.611	1,2		8.06	62 SM	LB7	1	1.856	1,2	
7.98	71 LU	LL	1	1.836	1,2,3		8.07	84 PC	LB2	2	0.929	1,2,3	
7.99	45 RH	KA1	3	0.613	1,2,3		8.08	42 MC	KB4	3	0.620	2	
7.99	91 PA	LY6	3	0.613	1,2		8.08	48 CC	KB2	4	0.465	1,2,3	
7.99	54 XE	KB1	5	0.366	1,2,3		8.08	37 RB	KA2	2	0.930	1,2,3	
8.00	35 BR	KB2	2	0.921	1,2,3		8.08	62 SM	LB9	1	1.861	1,2	
8.01	84 PC	LB1	2	0.922	1,2,3		8.09	42 MC	KB2	3	0.621	1,2,3	
8.01	92 U	LA2	2	0.922	1,2,3		8.09	97 BK	LB1	3	0.621	1	
8.01	92 U	LY1	3	0.615	1,2,3		8.11	91 PA	LA1	2	0.933	1,2,3	
8.01	67 HO	LA1	1	1.845	1,2,3		8.11	35 BR	KB1	2	0.933	1,2,3	
8.02	64 GC	LB1	1	1.846	1,2,3		8.11	35 BR	KB3	2	0.933	1,2	
8.03	80 HG	LY5	2	0.924	1,2		8.11	82 PB	LB10	2	0.934	1,2	
8.04	35 BR	KB5	2	0.925	1,2		8.11	78 PT	LY6	2	0.934	1,2	
8.04	91 PA	LY3	3	0.617	1,2,3		8.11	78 PT	LY2	2	0.934	1,2,3	
8.04	83 BI	LB5	2	0.926	1,2		8.12	62 SM	LB10	1	1.869	1,2	
8.04	37 RB	KA1	2	0.926	1,2,3		8.12	83 BI	LB7	2	0.935	1,2	

KAP CRYSTAL, D#13.200 ANGSTROMS							8.13 TO 8.38						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
8.13	91 PA	LY2	3	0.624	1,2,3		8.27	48 CD	KB3	4	0.476	1,2	
8.14	59 PR	LY3	1	1.874	1,2,3		8.28	92 U	LY5	3	0.635	1,2	
8.14	63 EU	LB6	1	1.874	1,2,3		8.28	82 PB	LB5	2	0.953	1,2	
8.14	53 I	KB2	5	0.375	1,2,3		8.29	90 TH	LY3	3	0.636	1,2,3	
8.14	57 LA	KA2	5	0.375	1,2,3		8.29	66 DY	LA1	1	1.909	1,2,3	
8.16	60 ND	LY1	1	1.878	1,2,3		8.30	83 BI	LB2	2	0.955	1,2,3	
8.16	83 BI	LB3	2	0.939	1,2,3		8.30	25 MN	KB1	1	1.910	1,2,3	
8.16	59 PR	LY2	1	1.879	1,2,3		8.31	79 AU	LY5	2	0.956	1,2	
8.17	51 SB	KA1	4	0.470	1,2,3		8.31	90 TH	LA1	2	0.956	1,2,3	
8.17	42 MC	KB5	3	0.627	1		8.31	81 TL	LB9	2	0.957	1,2	
8.18	62 SM	LB2	1	1.882	1,2,3		8.32	78 PT	LY1	2	0.958	1,2,3	
8.20	63 EU	LB3	1	1.887	1,2,3		8.33	96 CM	LB1	3	0.639	1	
8.21	91 PA	LA2	2	0.945	1,2,3		8.33	76 OS	LY4	2	0.959	1,2	
8.23	70 YB	LL	1	1.894	1,2,3		8.33	77 IR	LY3	2	0.959	1,2,3	
8.23	84 PO	LB4	2	0.947	1,2,3		8.34	63 EU	LB1	1	1.920	1,2,3	
8.24	90 TH	LY6	3	0.632	1,2		8.34	53 I	KB1	5	0.384	1,2,3	
8.24	42 MC	KB1	3	0.632	1,2,3		8.34	66 DY	LA2	1	1.920	1,2,3	
8.24	66 DY	LN	1	1.897	1,2,3		8.36	82 PB	LB7	2	0.962	1,2	
8.24	25 MN	KB5	1	1.897	1,2		8.36	56 BA	KA1	5	0.385	1,2,3	
8.25	42 MC	KB3	3	0.633	1,2		8.36	53 I	KB3	5	0.385	1,2	
8.25	58 CE	LY4	1	1.899	1,2		8.37	90 TH	LY2	3	0.642	1,2,3	
8.25	51 SB	KA2	4	0.475	1,2,3		8.37	63 EU	LB4	1	1.926	1,2,3	
8.25	48 CD	KB1	4	0.475	1,2,3		8.38	81 TL	LB10	2	0.964	1,2	
8.26	91 PA	LY1	3	0.634	1,2,3		8.38	44 RU	KA1	3	0.643	1,2,3	
8.27	83 BI	LB1	2	0.952	1,2,3		8.38	77 IR	LY2	2	0.965	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							8.40 TO 8.63						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
8.40	84 PO	LB6	2	0.967	1,2,3		8.52	41 NE	KB2	3	0.654	1,2,3	
8.40	77 IR	LY6	2	0.967	1,2		8.52	81 TL	LB5	2	0.981	1,2	
8.41	60 ND	LY5	1	1.935	1,2		8.53	82 PB	LB1	2	0.982	1,2,3	
8.41	90 TH	LA2	2	0.968	1,2,3		8.53	50 SN	KA1	4	0.491	1,2,3	
8.41	26 FE	KA1	1	1.936	1,2,3		8.54	91 PA	LY5	3	0.655	1,2	
8.42	82 PB	LB3	2	0.969	1,2,3		8.54	82 PB	LB2	2	0.983	1,2,3	
8.43	26 FE	KA2	1	1.940	1,2,3		8.55	36 KR	KA2	2	0.984	1,2,3	
8.43	44 RU	KA2	3	0.647	1,2,3		8.55	34 SE	KB5	2	0.984	1,2	
8.45	62 SM	LB6	1	1.946	1,2,3		8.57	80 HG	LB9	2	0.986	1,2	
8.46	88 RA	LY4	3	0.649	1,2		8.57	47 AG	KB5	4	0.493	1	
8.46	47 AG	KB2	4	0.487	1,2,3		8.57	65 TB	LN	1	1.973	1	
8.47	56 BA	KA2	5	0.390	1,2,3		8.58	95 AM	LB1	3	0.658	1,3	
8.49	83 BI	LB4	2	0.977	1,2,3		8.58	65 TB	LA1	1	1.975	1,2,3	
8.49	69 TM	LL	1	1.955	1,2,3		8.58	78 PT	LY5	2	0.988	1,2	
8.49	58 CE	LY3	1	1.955	1,2,3		8.60	41 NE	KB5	3	0.660	1	
8.49	52 TE	KB2	5	0.391	1,2,3		8.60	50 SN	KA2	4	0.495	1,2,3	
8.50	61 PM	LB2	1	1.957	1		8.60	81 TL	LB7	2	0.990	1,2	
8.51	90 TH	LY1	3	0.653	1,2,3		8.61	77 IR	LY1	2	0.991	1,2,3	
8.51	98 CF	LB2	3	0.653	1		8.62	57 LA	LY4	1	1.983	1,2	
8.51	89 AC	LA1	2	0.980	1		8.62	34 SE	KB1	2	0.992	1,2,3	
8.51	34 SE	KB2	2	0.980	1,2,3		8.62	89 AC	LA2	2	0.992	1	
8.51	36 KR	KA1	2	0.980	1,2,3		8.62	76 OS	LY3	2	0.992	1,2,3	
8.51	58 CE	LY2	1	1.960	1,2,3		8.62	75 RE	LY4	2	0.992	1,2	
8.52	59 PR	LY1	1	1.961	1,2,3		8.63	65 TB	LA2	1	1.986	1,2,3	
8.52	62 SM	LB3	1	1.962	1,2,3		8.63	34 SE	KB3	2	0.993	1,2	

KAP CRYSTAL, D#13.200 ANGSTROMS						8.63 TO 8.91					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
8.63	83 BI	LB6	2	0.993	1,2,3	8.78	89 AC	LY1	3	0.674	1
8.64	47 AG	KB1	4	0.497	1,2,3	8.79	60 ND	LB10	1	2.023	1,2
8.65	80 HG	LB10	2	0.996	1,2	8.80	90 TH	LY5	3	0.675	1,2
8.65	47 AG	KB3	4	0.498	1,2	8.80	88 RA	LY3	3	0.675	1,2,3
8.67	76 OS	LY2	2	0.998	1,2,3	8.80	55 CS	KA2	5	0.405	1,2,3
8.68	62 SM	LB1	1	1.998	1,2,3	8.81	43 TC	KA2	3	0.676	2,3
8.68	41 NB	KB3	3	0.666	1,2	8.82	81 TL	LB1	2	1.015	1,2,3
8.68	41 NB	KB1	3	0.666	1,2,3	8.83	88 RA	LA2	2	1.016	1,2,3
8.69	62 SM	LB4	1	2.000	1,2,3	8.84	94 PU	LB1	3	0.678	1
8.69	55 CS	KA1	5	0.400	1,2,3	8.85	60 ND	LB2	1	2.036	1,2,3
8.69	52 TE	KB1	5	0.400	1,2,3	8.85	80 HG	LB7	2	1.019	1,2
8.70	81 TL	LB3	2	1.001	1,2,3	8.86	46 PD	KB2	4	0.510	1,2,3
8.70	76 OS	LY6	2	1.001	1,2	8.86	51 SB	KB2	5	0.408	1,2,3
8.71	52 TE	KB3	5	0.401	1,2	8.87	57 LA	LY3	1	2.041	1,2,3
8.72	97 BK	LB2	3	0.669	1	8.87	79 AU	LB9	2	1.021	1,2
8.73	60 ND	LB7	1	2.009	1,2	8.87	82 PB	LB6	2	1.021	1,2,3
8.73	88 RA	LA1	2	1.005	1,2,3	8.88	92 U	LB9	3	0.681	1,2
8.75	82 PB	LB4	2	1.007	1,2,3	8.88	77 IR	LY5	2	1.022	1,2
8.76	60 ND	LB9	1	2.016	1,2	8.89	57 LA	LY2	1	2.046	1,2,3
8.77	68 ER	LL	1	2.019	1,2,3	8.89	64 GC	LA1	1	2.046	1,2,3
8.77	43 TC	KA1	3	0.673	2,3	8.89	88 RA	LY2	3	0.682	1,2,3
8.77	88 RA	LY6	3	0.673	1,2	8.90	58 CE	LY1	1	2.048	1,2,3
8.78	80 HG	LB5	2	1.010	1,2	8.90	49 IN	KA1	4	0.512	1,2,3
8.78	81 TL	LB2	2	1.010	1,2,3	8.90	64 GC	LN	1	2.049	1,2,3
8.78	59 PR	LY5	1	2.020	1,2	8.91	76 CS	LY1	2	1.025	1,2,3

KAP CRYSTAL, D#13.20C ANGSTROMS							8.92 TO 9.15						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
8.92	75 RE	LY3	2	1.026	1,2,3		9.05	46 PC	K83	4	0.521	1,2	
8.93	96 CM	LB2	3	0.685	1		9.06	88 RA	LY1	3	0.495	1,2,3	
8.93	79 AU	LB10	2	1.028	1,2		9.06	51 SE	K81	5	0.417	1,2,3	
8.93	74 W	LY4	2	1.028	1,2		9.06	24 CR	K83	1	2.085	1,2	
8.94	64 GD	LA2	1	2.057	1,2,3		9.06	24 CR	K81	1	2.085	1,2,3	
8.95	87 FR	LA1	2	1.030	1,2,3		9.06	67 HC	LL	1	2.086	1,2,3	
8.95	98 CF	LY1	4	0.515	1		9.07	40 ZR	K85	3	0.696	1	
8.95	92 U	LB10	3	0.687	1,2		9.07	35 BR	KA2	2	1.044	1,2,3	
8.97	75 RE	LY2	2	1.032	1,2,3		9.08	33 AS	K82	2	1.045	1,2,3	
8.99	46 PC	K85	4	0.517	1		9.08	51 SE	K83	5	0.418	1,2	
8.99	80 HG	LB3	2	1.034	1,2,3		9.09	59 PR	LB7	1	2.091	1,2	
8.99	49 IN	KA2	4	0.517	1,2,3		9.10	93 NP	LB1	3	0.698	1,2,3	
8.99	40 ZR	K82	3	0.690	1,2,3		9.12	80 HG	LB1	2	1.049	1,2,3	
8.99	51 SB	K85	5	0.414	1		9.12	33 AS	K85	2	1.049	1,2	
9.00	24 CR	K85	1	2.074	1,2		9.13	54 XE	KA2	5	0.420	1,2,3	
9.01	75 RE	LY6	2	1.037	1,2		9.13	59 PR	LB9	1	2.100	1,2	
9.02	56 BA	LY4	1	2.075	1,2		9.13	81 TL	LB6	2	1.050	1,2,3	
9.03	81 TL	LB4	2	1.039	1,2,3		9.13	79 AU	LB7	2	1.050	1,2	
9.04	35 BR	KA1	2	1.040	1,2,3		9.13	25 MN	KA1	1	2.102	1,2,3	
9.04	79 AU	LB5	2	1.040	1,2		9.14	91 PA	LB9	3	0.701	1,2	
9.04	54 XE	KA1	5	0.416	1,2,3		9.14	95 AP	LB2	3	0.701	1,3	
9.04	80 HG	LB2	2	1.045	1,2,3		9.14	60 ND	LB6	1	2.104	1,2,3	
9.04	61 PM	LB1	1	2.081	1,2,3		9.15	40 ZR	K83	3	0.702	1,2	
9.05	46 PC	K81	4	0.521	1,2,3		9.15	40 ZR	K81	3	0.702	1,2,3	
9.05	87 FR	LA2	2	1.042	1		9.15	25 MN	KA2	1	2.106	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						9.15 TO 9.42					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
9.15	59 PR	LB10	1	2.107	1,2	9.28	74 W	LY2	2	1.068	1,2,3
9.16	78 PT	LB9	2	1.054	1,2	9.29	86 RN	LA2	2	1.069	1
9.17	58 CE	LY5	1	2.110	1,2	9.29	56 BA	LY2	1	2.138	1,2,3
9.19	33 AS	KB1	2	1.057	1,2,3	9.29	42 MC	KA2	3	0.713	1,2,3
9.19	76 OS	LY5	2	1.057	1,2	9.30	48 CD	KA1	4	0.535	1,2,3
9.19	86 RN	LA1	2	1.057	1	9.30	79 AU	LB2	2	1.070	1,2,3
9.19	33 AS	KB3	2	1.058	1,2	9.30	45 RH	KB2	4	0.535	1,2,3
9.20	83 BI	LN	2	1.059	1,2,3	9.31	57 LA	LY1	1	2.142	1,2,3
9.21	59 PR	LB2	1	2.119	1,2,3	9.32	78 PT	LB5	2	1.072	1,2
9.21	97 BK	LY1	4	0.530	1	9.32	83 HG	LB4	2	1.072	1,2,3
9.22	63 EU	LA1	1	2.121	1,2,3	9.33	87 FR	LY1	3	0.716	1,2,3
9.22	75 RE	LY1	2	1.061	1,2,3	9.33	74 W	LY6	2	1.074	1,2
9.23	74 W	LY3	2	1.062	1,2,3	9.35	88 RA	LY5	3	0.717	1,2
9.23	78 PT	LB10	2	1.062	1,2	9.36	94 PU	LB2	3	0.718	1
9.23	91 PA	LB10	3	0.708	1,2	9.37	48 CD	KA2	4	0.539	1,2,3
9.24	60 ND	LB3	1	2.126	1,2,3	9.38	66 DY	LL	1	2.158	1,2,3
9.24	42 MO	KA1	3	0.709	1,2,3	9.39	50 SN	KB5	5	0.432	1
9.26	73 TA	LY4	2	1.065	1,2	9.39	92 U	LB1	3	0.720	1,2,3
9.26	92 U	LB3	3	0.710	1,2,3	9.39	80 HG	LB6	2	1.080	1,2,3
9.26	50 SN	KB2	5	0.426	1,2,3	9.40	78 PT	LB7	2	1.082	1,2
9.26	63 EU	LN	1	2.131	1	9.40	45 RH	KB5	4	0.541	1
9.26	63 EU	LA2	1	2.132	1,2,3	9.41	53 I	KA1	5	0.433	1,2,3
9.27	92 U	LL	2	1.067	2,3	9.42	60 ND	LB4	1	2.167	1,2,3
9.27	56 BA	LY3	1	2.134	1,2,3	9.42	60 ND	LB1	1	2.167	1,2,3
9.28	79 AU	LB3	2	1.068	1,2,3	9.42	79 AU	LB1	2	1.084	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						9.42 TC 9.68					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
9.42	90 TH	LB9	3	0.723	1,2	9.55	73 TA	LY3	2	1.099	1,2,3
9.43	85 AT	LA1	2	1.085	1	9.56	62 SM	LA1	1	2.199	1,2,3
9.45	55 CS	LY4	1	2.174	1,2	9.57	39 Y	KB5	3	0.734	1
9.45	50 SN	KB1	5	0.435	1,2,3	9.58	78 PT	LB2	2	1.102	1,2,3
9.46	92 U	LB5	3	0.726	1,2	9.58	57 LA	LY5	1	2.205	1,2
9.47	58 CE	LB7	1	2.185	1,2	9.59	72 HF	LY4	2	1.103	1,2
9.47	77 IR	LB9	2	1.090	1,2	9.59	93 NP	LB2	3	0.736	1,2,3
9.47	50 SN	KB3	5	0.435	1,2	9.59	78 PT	LB3	2	1.104	1,2,3
9.48	39 Y	KB4	3	0.727	2	9.59	92 U	LB7	3	0.736	1,2
9.48	91 PA	LL	2	1.091	1,2,3	9.60	58 CE	LB2	1	2.209	1,2,3
9.49	45 RH	KB1	4	0.545	1,2,3	9.60	34 SE	KA1	2	1.105	1,2,3
9.49	96 CM	LY1	4	0.545	1	9.60	62 SM	LA2	1	2.210	1,2,3
9.49	45 RH	KB3	4	0.545	1,2	9.60	73 TA	LY2	2	1.105	1,2,3
9.49	82 PB	LN	2	1.092	1,2,3	9.61	77 IR	LB5	2	1.106	1,2
9.50	39 Y	KB2	3	0.729	1,2,3	9.62	79 AU	LB4	2	1.107	1,2,3
9.51	75 RE	LY5	2	1.094	1,2	9.63	86 RN	LY1	3	0.739	1
9.51	58 CE	LB9	1	2.188	1,2	9.63	59 PR	LB3	1	2.217	1,2,3
9.52	59 PR	LB6	1	2.190	1,2,3	9.64	34 SE	KA2	2	1.109	1,2,3
9.52	53 I	KA2	5	0.438	1,2,3	9.64	62 SM	LN	1	2.218	1,2,3
9.52	90 TH	LB10	3	0.730	1,2	9.66	79 AU	LB6	2	1.111	1,2,3
9.53	85 AT	LA2	2	1.097	1	9.66	39 Y	KB3	3	0.741	1,2
9.53	77 IR	LB10	2	1.097	1,2	9.66	39 Y	KB1	3	0.741	1,2,3
9.54	58 CE	LB10	1	2.195	1,2	9.67	49 IN	KB2	5	0.445	1,2,3
9.54	91 PA	LB3	3	0.732	1,2,3	9.67	91 PA	LB1	3	0.742	1,2,3
9.55	74 W	LY1	2	1.099	1,2,3	9.68	73 TA	LY6	2	1.114	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							9.68 TO 9.93						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
9.68	84 PO	LA1	2	1.114	1,2,3		9.81	32 GE	KB3	2	1.129	1,2	
9.69	77 IR	LB7	2	1.115	1,2		9.81	59 PR	LB1	1	2.258	1,2,3	
9.69	95 TH	LL	2	1.115	1,2,3		9.84	74 W	LY5	2	1.132	1,2	
9.70	55 CS	LY3	1	2.233	1,2,3		9.84	90 TH	LB3	3	0.755	1,2,3	
9.71	32 GE	KB2	2	1.117	1,2,3		9.84	91 PA	LB7	3	0.755	1,2	
9.71	65 TB	LL	1	2.234	1,2,3		9.84	92 U	LB2	3	0.755	1,2,3	
9.71	91 PA	LB5	3	0.745	1,2		9.85	76 OS	LB10	2	1.133	1,2	
9.72	47 AG	KA1	4	0.559	1,2,3		9.86	23 V	KB5	1	2.269	1,2	
9.72	55 CS	LY2	1	2.237	1,2,3		9.86	77 IR	LB2	2	1.135	1,2,3	
9.73	32 GE	KB5	2	1.119	1,2		9.87	44 RU	KB5	4	0.568	1	
9.73	41 NB	KA1	3	0.746	1,2,3		9.89	49 IN	KB3	5	0.455	1,2	
9.73	78 PT	LB1	2	1.120	1,2,3		9.89	57 LA	LB7	1	2.275	1,2	
9.74	56 BA	LY1	1	2.241	1,2,3		9.89	49 IN	KB1	5	0.455	1,2,3	
9.75	92 U	LB4	3	0.748	1,2,3		9.89	73 TA	LY1	2	1.138	1,2,3	
9.77	95 AM	LY1	4	0.562	1,3		9.89	72 HF	LY3	2	1.138	1,2,3	
9.77	44 RU	KB2	4	0.562	1,2,3		9.91	76 OS	LB5	2	1.140	1,2	
9.78	41 NB	KA2	3	0.750	1,2,3		9.91	52 TE	KA2	5	0.456	1,2,3	
9.79	84 PO	LA2	2	1.126	1,2,3		9.91	58 CE	LB6	1	2.281	1,2,3	
9.79	76 OS	LB9	2	1.126	1,2		9.92	77 IR	LB3	2	1.141	1,2,3	
9.80	59 PR	LB4	1	2.255	1,2,3		9.92	57 LA	LB9	1	2.282	1,2	
9.80	52 TE	KA1	5	0.451	1,2,3		9.92	83 BI	LY4	3	0.761	1,2	
9.80	49 IN	KB5	5	0.451	1		9.92	61 PM	LA1	1	2.283	1,2,3	
9.80	81 TL	LN	2	1.128	1,2,3		9.93	23 V	KB1	1	2.284	1,2,3	
9.80	47 AG	KA2	4	0.564	1,2,3		9.93	23 V	KB3	1	2.284	1,2	
9.81	32 GE	KB1	2	1.129	1,2,3		9.93	78 PT	LB4	2	1.142	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						9.93 TC 9.99					
ANGLE	ELEM	LINE	N	LAMBCA	REF	ANGLE	ELEM	LINE	N	LAMBCA	REF
9.93	71 LU	LY4	2	1.143	1						
9.94	44 RU	KB1	4	0.572	1,2,3						
9.94	72 HF	LY2	2	1.144	1,2,3						
9.94	83 BI	LA1	2	1.144	1,2,3						
9.94	75 PF	LB6	2	1.144	1,2,3						
9.95	85 AT	LY1	3	0.763	1						
9.95	24 CR	KA1	1	2.290	1,2,3						
9.95	57 LA	LB13	1	2.290	1,2						
9.96	61 PM	LA2	1	2.292	1						
9.96	84 PD	LY3	3	0.764	1,2,3						
9.96	84 PD	LY6	3	0.764	1,2						
9.96	44 RU	KB3	4	0.573	1,2						
9.97	24 CR	KA2	1	2.294	1,2,3						
9.97	91 TH	LB5	3	0.765	1,2						
9.97	91 TH	LB1	3	0.765	1,2,3						
9.99	76 OS	LB7	2	1.149	1,2						

KAP CRYSTAL, D#13.200 ANGSTROMS						10.01 TO 10.30					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
10.01	57 LA	LB2	1	2.303	1,2,3	10.21	38 SR	KB3	3	0.783	1,2
10.03	88 RA	LB9	3	0.769	1,2	10.21	38 SR	KB1	3	0.783	1,2,3
10.03	56 BA	LY5	1	2.308	1,2	10.21	51 SB	KA1	5	0.470	1,2,3
10.04	83 BI	LA2	2	1.155	1,2,3	10.21	82 PB	LA1	2	1.175	1,2,3
10.04	72 HF	LY6	2	1.155	1,2	10.22	33 AS	KA1	2	1.176	1,2,3
10.04	91 PA	LB4	3	0.770	1,2,3	10.23	75 RE	LB5	2	1.177	1,2
10.04	58 CE	LB3	1	2.311	1,2,3	10.24	77 IR	LB6	2	1.178	1,2,3
10.05	64 GD	LL	1	2.312	1,2,3	10.24	58 CE	LB1	1	2.356	1,2,3
10.05	38 SR	KB2	3	0.771	1,2,3	10.25	40 ZR	KA1	3	0.786	1,2,3
10.07	77 IR	LB1	2	1.158	1,2,3	10.25	72 HF	LY1	2	1.179	1,2,3
10.07	94 PU	LY1	4	0.579	1	10.25	82 PB	LY4	3	0.786	1
10.09	90 TH	LB7	3	0.774	1,2	10.25	71 LU	LY3	2	1.179	1,2,3
10.09	91 PA	LB2	3	0.774	1,2,3	10.26	76 OS	LB3	2	1.180	1,2,3
10.10	88 RA	LB10	3	0.775	1,2	10.26	77 IR	LB4	2	1.180	1,2,3
10.10	48 CD	KB2	5	0.465	1,2,3	10.26	43 TC	KB4	4	0.590	1
10.10	38 SR	KB5	3	0.775	1	10.26	33 AS	KA2	2	1.180	1,2,3
10.12	80 HG	LN	2	1.164	1,2,3	10.26	46 PC	KA2	4	0.590	1,2,3
10.13	75 RE	LB9	2	1.165	1,2	10.26	43 TC	KB2	4	0.590	1
10.14	88 RA	LL	2	1.167	1,2,3	10.26	84 PC	LY1	3	0.787	1,2,3
10.17	46 PD	KA1	4	0.585	1,2,3	10.27	92 U	LB6	3	0.788	1,2,3
10.17	76 OS	LB2	2	1.170	1,2,3	10.29	83 BI	LY3	3	0.789	1,2,3
10.19	75 RE	LB10	2	1.172	1,2	10.29	89 AC	LB1	3	0.789	1
10.20	73 TA	LY5	2	1.173	1,2	10.30	71 LU	LY2	2	1.185	1,2,3
10.20	55 CS	LY1	1	2.348	1,2,3	10.30	83 BI	LY6	3	0.790	1,2
10.21	58 CE	LB4	1	2.349	1,2,3	10.30	60 ND	LA1	1	2.370	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						10.33 TO 10.58					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
10.30	70 YB	LY4	2	1.185	1,2	10.45	43 TC	KB3	4	0.601	1,2
10.30	40 ZR	KA2	3	0.790	1,2,3	10.45	56 BA	LB2	1	2.404	1,2,3
10.31	82 PB	LA2	2	1.186	1,2,3	10.46	79 AU	LN	2	1.203	1,2,3
10.31	75 RE	LB7	2	1.186	1,2	10.47	43 TC	KB1	4	0.602	1,2,3
10.32	48 CD	KB1	5	0.475	1,2,3	10.47	74 W	LB9	2	1.204	1,2
10.32	51 SB	KA2	5	0.475	1,2,3	10.47	88 RA	LB3	3	0.603	1,2,3
10.33	98 CF	LA1	3	0.792	1	10.47	60 ND	LN	1	2.409	1,2,3
10.33	91 PA	LY4	4	0.594	1,2	10.47	57 LA	LB3	1	2.410	1,2,3
10.33	56 BA	LB9	1	2.376	1,2	10.48	98 CF	LB1	4	0.603	1
10.34	90 TH	LB4	3	0.793	1,2,3	10.48	98 CF	LA2	3	0.604	1
10.34	57 LA	LB6	1	2.379	1,2,3	10.49	81 TL	LA1	2	1.207	1,2,3
10.34	92 U	LY6	4	0.595	1,2	10.49	75 RE	LB2	2	1.207	1,2,3
10.34	48 CD	KB3	5	0.476	1,2	10.50	92 U	LN	3	0.605	1,2,3
10.34	60 ND	LA2	1	2.380	1,3	10.50	31 GA	KB3	2	1.208	1,2
10.35	90 TH	LB2	3	0.794	1,2,3	10.50	31 GA	KB1	2	1.208	1,2,3
10.38	56 BA	LB10	1	2.387	1,2	10.51	55 CS	LY5	1	2.417	1,2
10.38	93 NP	LY1	4	0.597	1,2,3	10.51	88 RA	LB5	3	0.606	1,2
10.38	83 BI	LY2	3	0.796	1,2,3	10.52	92 U	LY2	4	0.605	1,2,3
10.39	53 I	LY4	1	2.391	1,2	10.54	91 PA	LB6	3	0.608	1,2,3
10.40	31 GA	KB2	2	1.196	1,2,3	10.54	74 W	LB10	2	1.212	1,2
10.40	92 U	LY3	4	0.598	1,2,3	10.54	76 OS	LB6	2	1.213	1,2,3
10.41	76 OS	LB1	2	1.197	1,2,3	10.56	72 HF	LY5	2	1.215	1,2
10.41	31 GA	KB5	2	1.197	1,2	10.56	74 W	LB5	2	1.215	1,2
10.41	63 EU	LL	1	2.395	1,2,3	10.56	97 BK	LA1	3	0.610	1
10.41	71 LU	LY6	2	1.198	1,2	10.58	47 AG	KB2	5	0.427	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							10.59 TO 10.81						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
10.59	81 TL	LY4	3	0.812	1,2		10.70	54 XE	LY1	1	2.462	1	
10.59	76 OS	LB4	2	1.218	1,2,3		10.71	59 PR	LA1	1	2.463	1,2,3	
10.60	81 TL	LA2	2	1.219	1,2,3		10.71	82 PB	LY2	3	0.821	1,2,3	
10.60	83 BI	LY1	3	0.813	1,2,3		10.71	47 AG	KB5	5	0.493	1	
10.61	75 RE	LB3	2	1.220	1,2,3		10.72	97 BK	LA2	3	0.822	1	
10.61	89 AC	LB2	3	0.814	1		10.72	37 RB	KB5	3	0.822	1	
10.61	88 RA	LB1	3	0.814	1,2,3		10.73	91 PA	LY3	4	0.617	1,2,3	
10.62	90 TH	LY4	4	0.611	1,2		10.75	45 RH	KA2	4	0.618	1,2,3	
10.62	71 LU	LY1	2	1.222	1,2,3		10.75	59 PR	LA2	1	2.473	1,2,3	
10.62	70 YB	LY3	2	1.222	1,2,3		10.76	50 SN	KA2	5	0.495	1,2,3	
10.63	82 PB	LY3	3	0.815	1,2,3		10.77	55 CS	LB9	1	2.478	1,2	
10.64	53 I	LY2	1	2.447	1,2,3		10.77	75 RE	LB1	2	1.239	1,2,3	
10.64	53 I	LY3	1	2.447	1,2		10.78	42 MC	KB4	4	0.620	2	
10.64	74 W	LB7	2	1.224	1,2		10.79	62 SM	LL	1	2.482	1,2,3	
10.64	88 RA	LB7	3	0.816	1,2		10.79	56 BA	LB6	1	2.482	1,2,3	
10.64	37 RB	KB2	3	0.816	1,2,3		10.79	80 HG	LA1	2	1.241	1,2,3	
10.64	57 LA	LB4	1	2.449	1,2,3		10.80	97 BK	LB1	4	0.621	1	
10.65	82 PB	LY6	3	0.817	1,2		10.80	90 TH	LB6	3	0.828	1,2,3	
10.66	45 RH	KA1	4	0.613	1,2,3		10.80	42 MC	KB2	4	0.621	1,2,3	
10.66	91 PA	LY6	4	0.613	1,2		10.80	47 AG	KB1	5	0.497	1,2,3	
10.67	50 SN	KA1	5	0.491	1,2,3		10.80	55 CS	LB7	1	2.485	1,2	
10.68	70 YB	LY2	2	1.229	1,2,3		10.81	70 YB	LY6	2	1.243	1,2	
10.68	69 TM	LY4	2	1.229	1		10.81	78 PT	LN	2	1.243	1,2,3	
10.68	57 LA	LB1	1	2.458	1,2,3		10.81	37 RB	KB3	3	0.829	1,2	
10.69	92 U	LY1	4	0.615	1,2,3		10.81	91 PA	LN	3	0.829	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						10.81 TO 11.09					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
10.81	96 CM	LA1	3	0.829	1	10.94	32 GE	KA2	2	1.258	1,2,3
10.81	39 Y	KA1	3	0.829	1,2,3	10.94	83 BI	LY5	3	0.839	1,2
10.81	37 RB	KB1	3	0.829	1,2,3	10.94	80 HG	LY4	3	0.839	1,2
10.82	47 AG	KB3	5	0.498	1,2	10.95	75 RE	LB4	2	1.259	1,2,3
10.82	74 W	LB2	2	1.245	1,2,3	10.95	82 PB	LY1	3	0.840	1,2,3
10.83	55 CS	LB10	1	2.492	1,2	10.95	87 FR	LB1	3	0.840	1,2,3
10.83	73 TA	LB9	2	1.246	1,2	10.95	71 LU	LY5	2	1.260	1,2
10.85	91 PA	LY2	4	0.624	1,2,3	10.97	96 CM	LA2	3	0.841	1
10.86	22 TI	KB5	1	2.498	1,2	10.97	81 TL	LY3	3	0.841	1,2,3
10.86	39 Y	KA2	3	0.833	1,2,3	10.97	88 RA	LB4	3	0.841	1,2,3
10.88	75 RE	LB6	2	1.251	1,2,3	10.98	74 W	LB3	2	1.263	1,2,3
10.88	23 V	KA1	1	2.503	1,2,3	10.99	73 TA	LB7	2	1.264	1,2
10.89	88 RA	LB2	3	0.835	1,2,3	10.99	42 MC	KB1	4	0.632	1,2,3
10.89	80 HG	LA2	2	1.253	1,2,3	10.99	90 TH	LY6	4	0.632	1,2
10.90	23 V	KA2	1	2.507	1,2,3	11.01	42 MC	KB3	4	0.633	1,2
10.90	42 MC	KB5	4	0.627	1	11.01	81 TL	LY6	3	0.844	1,2
10.90	73 TA	LB10	2	1.254	1,2	11.02	91 PA	LY1	4	0.634	1,2,3
10.90	32 GE	KA1	2	1.254	1,2,3	11.02	70 YB	LY1	2	1.268	1,2,3
10.91	73 TA	LB5	2	1.255	1,2	11.02	69 TP	LY3	2	1.268	1,2,3
10.92	55 CS	LB2	1	2.511	1,2,3	11.04	92 U	LY5	4	0.635	1,2
10.92	52 TE	LY4	1	2.511	1,2	11.06	81 TL	LY2	3	0.848	1,2,3
10.92	59 PR	LN	1	2.512	1,2,3	11.06	90 TH	LY3	4	0.636	1,2,3
10.93	22 TI	KB3	1	2.514	1,2	11.06	95 AM	LA1	3	0.848	1,3
10.93	22 TI	KB1	1	2.514	1,2,3	11.08	69 TP	LY2	2	1.274	1,2,3
10.94	56 BA	LB3	1	2.515	1,2,3	11.09	46 PC	KB2	5	0.510	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						11.09 TO 11.36					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
11.09	79 AU	LA1	2	1.276	1,3	11.22	53 I	LY1	1	2.582	1,2,3
11.09	68 ER	LY4	2	1.276	1,2	11.24	49 IN	KA2	5	0.517	1,2,3
11.11	56 BA	LB4	1	2.555	1,2,3	11.24	46 PC	KB5	5	0.517	1
11.11	96 CM	LB1	4	0.639	1	11.25	44 RU	KA2	4	0.647	1,2,3
11.13	49 IN	KA1	5	0.512	1,2,3	11.26	30 ZN	KB1	2	1.295	1,2,3
11.13	58 CE	LA1	1	2.561	1,2,3	11.27	55 CS	LB6	1	2.593	1,2,3
11.14	90 TH	LN	3	0.854	1,2,3	11.29	72 HF	LB10	2	1.298	1,2
11.15	74 W	LB1	2	1.282	1,2,3	11.29	88 RA	LY4	4	0.649	1,2
11.16	52 TE	LY3	1	2.567	1,2	11.29	72 HF	LB5	2	1.298	1,2
11.16	52 TE	LY2	1	2.567	1,3	11.29	36 KR	KB4	3	0.866	2
11.16	56 BA	LB1	1	2.567	1,2,3	11.29	82 PB	LY5	3	0.866	1,2
11.16	90 TH	LY2	4	0.642	1,2,3	11.29	86 RN	LB1	3	0.866	1
11.16	73 TA	LB2	2	1.284	1,2,3	11.29	36 KR	KB2	3	0.866	1,2,3
11.16	77 IR	LN	2	1.284	1,2,3	11.32	81 TL	LY1	3	0.868	1,2,3
11.16	30 ZN	KB2	2	1.284	1,2,3	11.32	74 W	LB4	2	1.302	1,2,3
11.17	30 ZN	KB5	2	1.285	1,2	11.32	94 PU	LA1	3	0.868	1
11.17	58 CE	LA2	1	2.570	1,2,3	11.33	46 PC	KB3	5	0.521	1,2
11.18	44 RU	KA1	4	0.643	1,2,3	11.33	46 PC	KB1	5	0.521	1,2,3
11.19	87 FR	LB2	3	0.858	1,2,3	11.33	80 HG	LY3	3	0.869	1,2,3
11.19	98 CF	LY1	5	0.515	1	11.36	70 YB	LY5	2	1.306	1,2
11.20	79 AU	LA2	2	1.288	1,2,3	11.36	90 TH	LY1	4	0.653	1,2,3
11.22	72 HF	LB9	2	1.290	1,2	11.36	98 CF	LB2	4	0.653	1
11.22	95 AM	LA2	3	0.860	1,3	11.36	72 HF	LB7	2	1.306	1,2
11.22	69 TM	LY6	2	1.290	1	11.36	36 KR	KB5	3	0.871	1,2
11.22	74 W	LB6	2	1.290	1,2,3	11.36	88 RA	LB6	3	0.871	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						11.36 TO 11.70					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
11.36	73 TA	LB3	2	1.307	1,2,3	11.53	72 HF	LB2	2	1.326	1,2,3
11.37	41 NB	KB2	4	0.654	1,2,3	11.54	73 TA	LB1	2	1.327	1,2,3
11.39	80 HG	LY6	3	0.873	1,2	11.55	76 OS	LN	2	1.328	1,2,3
11.39	91 PA	LY5	4	0.655	1,2	11.55	53 I	LY5	1	2.657	1,2
11.39	58 CE	LN	1	2.623	1,2,3	11.57	73 TA	LB6	2	1.331	1,2,3
11.41	80 HG	LY2	3	0.875	1,2,3	11.58	41 NB	KB3	4	0.666	1,2
11.41	38 SR	KA1	3	0.875	1,2,3	11.58	41 NB	KB1	4	0.666	1,2,3
11.42	54 XE	LB2	1	2.626	1	11.59	57 LA	LA1	1	2.665	1,2,3
11.42	78 PT	LA1	2	1.313	1,2,3	11.59	55 CS	LB4	1	2.666	1,2,3
11.43	55 CS	LB3	1	2.626	1,2,3	11.60	93 NP	LA1	3	0.889	1,2,3
11.43	69 TM	LY1	2	1.315	1,2,3	11.62	71 LU	LB9	2	1.336	1,2
11.43	68 ER	LY3	2	1.315	1,2,3	11.63	57 LA	LA2	1	2.674	1,2,3
11.44	83 BI	LL	2	1.316	1,2,3	11.63	48 CD	KA1	5	0.535	1,2,3
11.44	95 AM	LB1	4	0.658	1,3	11.63	45 RH	KB2	5	0.535	1,2,3
11.45	36 KR	KR1	3	0.878	1,2,3	11.63	60 ND	LL	1	2.676	1,2,3
11.46	38 SR	KA2	3	0.870	1,2,3	11.63	97 BK	LB2	4	0.669	1
11.46	36 KR	KB3	3	0.870	1,2	11.65	31 GA	KA1	2	1.340	1,2,3
11.47	51 SB	LY4	1	2.630	1,2	11.66	85 AT	LB1	3	0.894	1
11.48	94 PU	LA2	3	0.880	1	11.67	55 CS	LB1	1	2.683	1,2,3
11.48	41 NB	KB5	4	0.660	1	11.67	71 LU	LB5	2	1.342	1,2
11.49	68 ER	LY2	2	1.321	1,2,3	11.67	81 TL	LY5	3	0.895	1,2
11.49	86 RN	LB2	3	0.881	1	11.68	71 LU	LB10	2	1.343	1,2
11.50	67 HO	LY4	2	1.322	1,2	11.69	31 GA	KA2	2	1.344	1,2,3
11.51	78 PT	LA2	2	1.324	1,2,3	11.70	78 PT	LY4	3	0.897	1,2
11.52	97 BK	LY1	5	0.533	1	11.70	80 HG	LY1	3	0.897	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						11.70 TO 11.95					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
11.70	73 TA	LB4	2	1.346	1,2,3	11.81	83 BI	LB10	3	0.905	1,2
11.70	43 TC	KA1	4	0.673	2,3	11.81	85 AT	LB2	3	0.905	1
11.70	88 RA	LY6	4	0.673	1,2	11.83	53 I	LB10	1	2.720	1,2
11.71	79 AU	LY3	3	0.898	1,2,3	11.83	88 RA	LN	3	0.907	1,2,3
11.71	83 BI	LB9	3	0.898	1,2	11.84	77 IR	LA2	2	1.362	1,2,3
11.72	51 SB	LY3	1	2.695	1,2	11.84	92 U	LB9	4	0.681	1,2
11.72	48 CD	KA2	5	0.539	1,2,3	11.86	84 PC	LB3	3	0.909	1,2,3
11.72	51 SB	LY2	1	2.695	1,2,3	11.86	67 HC	LY3	2	1.364	1,2,3
11.72	89 AC	LY1	4	0.674	1	11.86	68 ER	LY1	2	1.364	1,2,3
11.73	84 PC	LB5	3	0.899	1,2	11.86	88 RA	LY2	4	0.682	1,2,3
11.73	71 LU	LB7	2	1.349	1,2	11.87	45 RH	KB1	5	0.546	1,2,3
11.74	82 PB	LL	2	1.350	1,2,3	11.87	96 CM	LY1	5	0.546	1
11.74	88 RA	LY3	4	0.675	1,2,3	11.87	53 I	LB7	1	2.730	1,2
11.74	90 TH	LY5	4	0.675	1,2	11.87	45 RH	KB3	5	0.546	1,2
11.75	77 IR	LA1	2	1.351	1,2,3	11.88	92 U	LA1	3	0.911	1,2,3
11.75	93 NP	LA2	3	0.901	1	11.91	96 CM	LB2	4	0.685	1
11.76	43 TC	KA2	4	0.676	2,3	11.91	57 LA	LN	1	2.740	1,2,3
11.76	45 RH	KB5	5	0.541	1	11.91	67 HC	LY2	2	1.370	1,2,3
11.77	72 HF	LB3	2	1.353	1,2,3	11.91	71 LU	LB2	2	1.370	1,2,3
11.78	79 AU	LY6	3	0.903	1,2	11.94	75 RE	LN	2	1.373	1,2,3
11.78	69 TM	LY5	2	1.355	1,2	11.95	72 HF	LB4	2	1.374	1,2,3
11.79	79 AU	LY2	3	0.904	1,2,3	11.95	72 HF	LB6	2	1.374	1,2,3
11.79	52 TE	LY1	1	2.712	1,2,3	11.95	92 U	LB10	4	0.687	1,2
11.79	94 PU	LB1	4	0.678	1	11.95	22 TI	KA1	1	2.748	1,2,3
11.80	53 I	LB9	1	2.713	1,2	11.95	66 DY	LY4	2	1.374	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							11.96 TO 12.20						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
11.96	53 I	LB2	1	2.750	1,2,3		12.11	40 ZR	KB5	4	0.596	1	
11.97	22 TI	KA2	1	2.752	1,2,3		12.11	72 HF	LB4	2	1.392	1,2,3	
12.00	40 ZR	KB2	4	0.690	1,2,3		12.11	59 PR	LL	1	2.784	1,2,3	
12.01	29 CU	KB2	2	1.381	2,3		12.11	29 CU	KB1	2	1.392	1,2,3	
12.01	35 BR	KB2	3	0.921	1,2,3		12.11	78 PT	LY3	3	0.928	1,2,3	
12.02	29 CU	KB5	2	1.382	2		12.11	56 BA	LA2	1	2.785	1,2,3	
12.02	21 SC	KB5	1	2.764	1,2		12.11	29 CU	KB3	2	1.393	1,2	
12.03	92 U	LA2	3	0.922	1,2,3		12.12	84 PC	LB2	3	0.929	1,2,3	
12.03	84 PO	LB1	3	0.922	1,2,3		12.13	37 RB	KA2	3	0.930	1,2,3	
12.04	70 YB	LB9	2	1.384	1,2		12.13	52 TE	LY5	1	2.790	1,2	
12.05	81 TL	LL	2	1.385	1,2,3		12.13	70 YB	LB7	2	1.395	1,2	
12.05	80 HG	LY5	3	0.924	1,2		12.14	93 NP	LB1	4	0.698	1,2,3	
12.06	70 YB	LB5	2	1.387	1,2		12.15	47 AG	KA1	5	0.559	1,2,3	
12.07	35 BR	KB5	3	0.925	1,2		12.17	35 BR	KB3	3	0.933	1,2	
12.07	56 BA	LA1	1	2.775	1,2,3		12.17	35 BR	KB1	3	0.933	1,2,3	
12.08	50 SN	LY4	1	2.777	1,2		12.17	91 PA	LA1	3	0.933	1,2,3	
12.08	83 BI	LB5	3	0.926	1,2		12.18	82 PB	LB10	3	0.934	1,2	
12.08	37 RB	KA1	3	0.926	1,2,3		12.18	78 PT	LY6	3	0.934	1,2	
12.09	21 SC	KB1	1	2.780	1,2,3		12.18	71 LU	LB3	2	1.401	1,2,3	
12.09	88 RA	LY1	4	0.695	1,2,3		12.18	78 PT	LY2	3	0.934	1,2,3	
12.09	79 AU	LY1	3	0.927	1,2,3		12.19	54 XE	LB1	1	2.803	1	
12.09	82 PB	LB9	3	0.927	1,2		12.19	91 PA	LB9	4	0.701	1,2	
12.09	77 IR	LY4	3	0.927	1,2		12.19	76 OS	LA2	2	1.402	1,2,3	
12.10	76 OS	LA1	2	1.391	1,2,3		12.19	95 AP	LB2	4	0.701	1,3	
12.10	70 YB	LB10	2	1.391	1,2		12.20	83 BI	LB7	3	0.935	1,2	

KAP CRYSTAL, D#13.200 ANGSTROMS						12.21 TO 12.53					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
12.21	43 ZR	KB1	4	0.702	1,2,3	12.40	51 SE	LY1	1	2.851	1,2,3
12.21	43 ZR	KB3	4	0.702	1,2	12.40	42 MC	KA2	4	0.713	1,2,3
12.22	95 AM	LY1	5	0.562	1,3	12.41	65 TB	LY4	2	1.427	1,2
12.22	44 RU	KB2	5	0.562	1,2,3	12.42	83 BI	LB1	3	0.952	1,2,3
12.23	68 ER	LY5	2	1.406	1,2	12.43	82 PB	LB5	3	0.953	1,2
12.25	83 BI	LB3	3	0.939	1,2,3	12.44	44 RU	KB1	5	0.572	1,2,3
12.26	47 AG	KA2	5	0.564	1,2,3	12.45	56 BA	LN	1	2.862	1,2,3
12.31	70 YB	LB2	2	1.415	1,2,3	12.45	52 TE	LB7	1	2.863	1,2
12.32	91 PA	LB10	4	0.708	1,2	12.46	87 FR	LY1	4	0.716	1,2,3
12.32	50 SN	LY2	1	2.833	1,3	12.46	44 RU	KB3	5	0.573	1,2
12.32	67 HC	LY1	2	1.417	1,2,3	12.46	83 BI	LB2	3	0.955	1,2,3
12.32	66 DY	LY3	2	1.417	1,2,3	12.46	75 RE	LA1	2	1.433	1,2,3
12.33	91 PA	LA2	3	0.945	1,2,3	12.47	90 TH	LA1	3	0.956	1,2,3
12.33	42 MC	KA1	4	0.709	1,2,3	12.47	79 AU	LY5	3	0.956	1,2
12.34	53 I	LB6	1	2.837	1,2,3	12.47	88 RA	LY5	4	0.717	1,2
12.34	71 LU	LB6	2	1.419	1,2,3	12.48	30 ZN	KA1	2	1.435	1,2,3
12.35	52 TE	LB9	1	2.839	1,2	12.49	81 TL	LB9	3	0.957	1,2
12.35	44 RU	KB5	5	0.568	1	12.49	94 PU	LB2	4	0.718	1
12.35	92 U	LB3	4	0.710	1,2,3	12.50	53 I	LB3	1	2.874	1,2,3
12.36	84 PO	LB4	3	0.947	1,2,3	12.50	78 PT	LY1	3	0.958	1,2,3
12.36	74 W	LN	2	1.421	1,2,3	12.51	77 IR	LY3	3	0.959	1,2,3
12.37	80 HG	LL	2	1.422	1,2,3	12.51	76 OS	LY4	3	0.959	1,2
12.38	66 DY	LY2	2	1.423	1,2,3	12.52	30 ZN	KA2	2	1.439	1,2,3
12.38	52 TE	LB10	1	2.847	1,2	12.53	71 LU	LB4	2	1.440	1,2,3
12.39	71 LU	LB1	2	1.424	1,2,3	12.53	92 U	LB1	4	0.720	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							12.53 TO 12.84						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
12.53	52 TE	LB2	1	2.882	1,2,3		12.73	69 TM	LB2	2	1.463	1,2,3	
12.53	69 TM	LB10	2	1.441	1		12.73	91 PA	LB3	4	0.732	1,2,3	
12.55	82 PB	LB7	3	0.962	1,2		12.75	83 BI	LH4	3	0.977	1,2,3	
12.56	75 RE	LA2	2	1.444	1,2,3		12.75	70 YE	LB6	2	1.456	1,2,3	
12.58	58 CE	LL	1	2.892	1,2,3		12.75	51 SE	LY5	1	2.932	1,2	
12.58	55 CS	LA1	1	2.892	1,2,3		12.77	39 Y	KB5	4	0.734	1	
12.58	90 TH	LB9	4	0.723	1,2		12.77	53 I	LB1	1	2.937	1,2,3	
12.58	81 FL	LB10	3	0.964	1,2		12.79	36 KR	KA1	3	0.980	1,2,3	
12.59	94 PU	LY1	5	0.579	1		12.79	89 AC	LA1	3	0.980	1	
12.59	77 IR	LY2	3	0.965	1,2,3		12.79	34 SE	KB2	3	0.980	1,2,3	
12.62	77 IR	LY6	3	0.967	1,2		12.80	73 TA	LN	2	1.471	1,2,3	
12.62	84 PO	LB6	3	0.967	1,2,3		12.80	65 TB	LY3	2	1.471	1,2,3	
12.62	55 CS	LA2	1	2.902	1,2,3		12.80	81 TL	LB5	3	0.581	1,2	
12.63	92 U	LB5	4	0.726	1,2		12.80	92 U	LB7	4	0.736	1,2	
12.63	70 YB	LB3	2	1.452	1,2,3		12.80	93 NP	LB2	4	0.736	1,2,3	
12.63	90 TH	LA2	3	0.968	1,2,3		12.81	82 PB	LB1	3	0.982	1,2,3	
12.64	82 PB	LB3	3	0.969	1,2,3		12.81	66 DY	LY1	2	1.473	1,2,3	
12.65	39 Y	KB4	4	0.727	2		12.83	82 PB	LB2	3	0.983	1,2,3	
12.67	53 I	LB4	1	2.912	1,2,3		12.83	43 TC	KB2	5	0.590	1	
12.68	39 Y	KB2	4	0.729	1,2,3		12.83	43 TC	KB4	5	0.590	1	
12.70	90 TH	LB10	4	0.730	1,2		12.83	46 PC	KA2	5	0.590	1,2,3	
12.70	79 AU	LL	2	1.460	1,2,3		12.84	74 W	LA1	2	1.476	1,2,3	
12.72	67 HC	LY5	2	1.462	1,2		12.84	36 KR	KA2	3	0.984	1,2,3	
12.72	46 PD	KA1	5	0.585	1,2,3		12.84	34 SE	KB5	3	0.984	1,2	
12.73	49 IN	LY4	1	2.925	1,2		12.84	70 YB	LB1	2	1.476	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							12.85 TO 13.09						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
12.85	65 TB	LY2	2	1.477	1,2,3		12.96	34 SE	KB3	3	0.993	1,2	
12.86	71 LU	LN	2	1.478	1,2		12.96	49 IN	LY3	1	2.980	1,2	
12.86	86 RN	LY1	4	0.739	1		12.96	91 PA	LB5	4	0.745	1,2	
12.87	85 HG	LB9	3	0.986	1,2		12.96	49 IN	LY2	1	2.980	1,2,3	
12.89	39 Y	KB1	4	0.741	1,2,3		12.97	70 YE	LB4	2	1.491	1,2,3	
12.89	39 Y	KB3	4	0.741	1,2		12.98	41 NB	KA1	4	0.746	1,2,3	
12.89	78 PT	LY5	3	0.988	1,2		12.98	93 NP	LY1	5	0.597	1,2,3	
12.91	91 PA	LB1	4	0.742	1,2,3		13.00	80 HG	LB10	3	0.996	1,2	
12.92	91 PA	LY4	5	0.594	1,2		13.00	68 ER	LB10	2	1.494	1,2	
12.92	81 TL	LB7	3	0.990	1,2		13.00	68 ER	LB7	2	1.494	1,2	
12.92	68 ER	LB9	2	1.485	1,2		13.01	92 U	LY3	5	0.598	1,2,3	
12.92	64 GD	LY4	2	1.485	1,2		13.01	92 U	LB4	4	0.748	1,2,3	
12.92	52 TE	LB6	1	2.971	1,2,3		13.02	55 CS	LN	1	2.993	1,2,3	
12.93	51 SB	LB9	1	2.972	1,2		13.02	76 OS	LY2	3	0.998	1,2,3	
12.93	77 IR	LY1	3	0.991	1,2,3		13.04	78 PT	LL	2	1.499	1,2,3	
12.94	74 W	LA2	2	1.487	1,2,3		13.05	28 NI	KB1	2	1.500	1,2,3	
12.94	92 U	LY6	5	0.595	1,2		13.05	41 NB	KA2	4	0.750	1,2,3	
12.94	76 OS	LY3	3	0.992	1,2,3		13.05	50 SN	LY1	1	3.001	1,2,3	
12.94	34 SE	KB1	3	0.992	1,2,3		13.06	76 OS	LY6	3	1.001	1,2	
12.94	75 RE	LY4	3	0.992	1,2		13.06	81 TL	LB3	3	1.001	1,2,3	
12.94	89 AC	LA2	3	0.992	1		13.07	51 SB	LB7	1	3.005	1	
12.95	28 NI	KB5	2	1.489	1,2		13.07	43 TC	KB3	5	0.601	1,2	
12.95	28 NI	KB2	2	1.489	1,2,3		13.08	57 LA	LL	1	3.006	1,2,3	
12.96	83 BI	LB6	3	0.993	1,2,3		13.09	52 TE	LB3	1	3.009	1,2,3	
12.96	51 SB	LB10	1	2.979	1,2		13.09	69 TM	LB3	2	1.505	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							13.09 TO 13.41						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
13.09	43 TC	K81	5	0.602	1,2,3		13.29	90 TH	LY4	5	0.611	1,2	
13.11	54 XE	LA1	1	3.015	1		13.29	84 PC	LY6	4	0.764	1,2	
13.11	88 RA	LA1	3	1.005	1,2,3		13.29	84 PC	LY3	4	0.764	1,2,3	
13.11	98 CF	LB1	5	0.603	1		13.30	80 HG	LB7	3	1.019	1,2	
13.14	90 TH	LB3	4	0.755	1,2,3		13.30	64 GC	LY3	2	1.529	1,2,3	
13.14	91 PA	LB7	4	0.755	1,2		13.31	69 TM	LB1	2	1.530	1,2,3	
13.14	92 U	LB2	4	0.755	1,2,3		13.31	65 TE	LY1	2	1.530	1,2,3	
13.14	82 PB	LB4	3	1.007	1,2,3		13.31	90 TH	LB1	4	0.765	1,2,3	
13.15	51 SB	LB2	1	3.023	1,2,3		13.31	90 TH	LB5	4	0.765	1,2	
13.16	92 U	LY2	5	0.605	1,2,3		13.32	82 PB	LB6	3	1.021	1,2,3	
13.16	54 XE	LA2	1	3.025	1		13.32	79 AU	LB9	3	1.021	1,2	
13.17	68 ER	LB2	2	1.514	1,2,3		13.33	45 RH	KA1	5	0.613	1,2,3	
13.18	81 TL	LB2	3	1.010	1,2,3		13.33	91 PA	LY6	5	0.613	1,2	
13.18	80 HG	LB5	3	1.010	1,2		13.34	77 IR	LY5	3	1.022	1,2	
13.18	69 TM	LB6	2	1.515	1,2,3		13.34	73 TA	LA2	2	1.533	1,2,3	
13.18	21 SC	KA1	1	3.031	1,2,3		13.35	64 GC	LY2	2	1.534	1,2,3	
13.20	21 SC	KA2	1	3.035	1,2,3		13.37	20 CA	K85	1	3.074	1,2	
13.21	66 DY	LY5	2	1.518	1,2		13.38	76 GS	LY1	3	1.025	1,2,3	
13.24	83 BI	LY4	4	0.761	1,2		13.38	92 U	LY1	5	0.615	1,2,3	
13.24	73 TA	LA1	2	1.522	1,2,3		13.38	88 RA	LB9	4	0.769	1,2	
13.25	81 TL	LB1	3	1.015	1,2,3		13.39	52 TE	LB1	1	3.077	1,2,3	
13.25	72 HF	LN	2	1.523	1,2,3		13.39	75 RE	LY3	3	1.026	1,2,3	
13.25	52 TE	LB4	1	3.046	1,2,3		13.40	91 PA	LB4	4	0.770	1,2,3	
13.26	88 RA	LA2	3	1.016	1,2,3		13.41	29 CU	KA1	2	1.541	1,2,3	
13.28	85 AT	LY1	4	0.763	1		13.41	77 IR	LL	2	1.541	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							13.42 TO 13.71						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
13.42	38 SR	KB2	4	0.771	1,2,3		13.57	80 HG	LB2	3	1.040	1,2,3	
13.42	79 AU	LB10	3	1.028	1,2		13.57	91 PA	LY2	5	0.624	1,2,3	
13.42	74 W	LY4	3	1.028	1,2		13.57	79 AU	LB5	3	1.040	1,2	
13.42	50 SN	LY5	1	3.085	1,2		13.57	35 BR	KA1	3	1.040	1,2,3	
13.42	91 PA	LY3	5	0.617	1,2,3		13.58	50 SN	LB10	1	3.121	1,2	
13.43	29 CU	KA2	2	1.544	1,2,3		13.58	68 ER	LB3	2	1.561	1,2,3	
13.43	69 TH	LB4	2	1.544	1,2,3		13.60	87 FR	LA2	3	1.042	1	
13.43	63 EU	LY4	2	1.544	1,2		13.63	38 SR	KB1	4	0.783	1,2,3	
13.44	87 FR	LA1	3	1.030	1,2,3		13.63	38 SR	KB3	4	0.783	1,2	
13.44	45 RH	KA2	5	0.618	1,2,3		13.63	35 BR	KA2	3	1.044	1,2,3	
13.44	20 CA	KB1	1	3.090	1,2,3		13.64	67 HC	LB2	2	1.567	1,2,3	
13.47	75 RE	LY2	3	1.032	1,2,3		13.64	68 ER	LB6	2	1.567	1,2,3	
13.47	90 TH	LB7	4	0.774	1,2		13.64	56 BA	LL	1	3.135	1,2,3	
13.47	91 PA	LB2	4	0.774	1,2,3		13.64	33 AS	KB2	3	1.045	1,2,3	
13.48	67 HO	LB10	2	1.549	1		13.64	42 MC	KB5	5	0.627	1	
13.49	88 RA	LB10	4	0.775	1,2		13.65	48 CD	LY3	1	3.137	1,2	
13.49	38 SR	KB5	4	0.775	1		13.65	72 HF	LA1	2	1.569	1,2,3	
13.49	42 MO	KB4	5	0.620	2		13.65	48 CD	LY2	1	3.138	1,2,3	
13.50	80 HG	LB3	3	1.034	1,2,3		13.68	40 ZR	KA1	4	0.786	1,2,3	
13.51	42 MO	KB2	5	0.621	1,2,3		13.68	82 PB	LY4	4	0.786	1	
13.51	97 BK	LB1	5	0.621	1		13.69	80 HG	LB1	3	1.049	1,2,3	
13.53	75 RE	LY6	3	1.037	1,2		13.69	33 AS	KB5	3	1.049	1,2	
13.55	50 SN	LB9	1	3.115	1,2		13.70	53 I	LA1	1	3.148	1,2,3	
13.55	51 SB	LB6	1	3.115	1,2,3		13.70	84 PC	LY1	4	0.787	1,2,3	
13.56	81 TL	LB4	3	1.039	1,2,3		13.71	79 AU	LB7	3	1.050	1,2	

KAP CRYSTAL, D#13.200 ANGSTROMS						13.71 TO 13.97					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
13.71	81 TL	LB6	3	1.050	1,2,3	13.81	68 ER	LB1	2	1.587	1,2,3
13.71	51 SB	LB3	1	3.152	1,2,3	13.81	50 SN	LB2	1	3.175	1,2,3
13.71	92 U	LB6	4	0.788	1,2,3	13.81	92 U	LY5	5	0.635	1,2
13.72	65 TB	LB5	2	1.577	2	13.82	90 TH	LB2	4	2.794	1,2,3
13.72	65 TB	LY5	2	1.577	1	13.82	83 BI	LN	3	1.059	1,2,3
13.73	50 SN	LB7	1	3.155	1,2	13.84	90 TH	LY3	5	0.636	1,2,3
13.73	83 BI	LY3	4	0.789	1,2,3	13.84	63 EU	LY3	2	1.591	1,2,3
13.73	89 AC	LB1	4	3.789	1	13.85	75 RE	LY1	3	1.061	1,2,3
13.74	53 I	LA2	1	3.15E	1,2,3	13.85	64 GD	LY1	2	1.592	1,2,3
13.75	42 MC	KB1	5	0.632	1,2,3	13.85	83 BI	LY2	4	0.796	1,2,3
13.75	72 HF	LA2	2	1.580	1,2,3	13.86	78 PT	LB10	3	1.062	1,2
13.75	90 TH	LY6	5	0.632	1,2	13.86	74 W	LY3	3	1.062	1,2,3
13.75	83 BI	LY6	4	0.790	1,2	13.88	51 SB	LB4	1	3.190	1,2,3
13.75	40 ZR	KA2	4	0.790	1,2,3	13.90	63 EU	LY2	2	1.597	1,2,3
13.76	49 IN	LY1	1	3.162	1,2,3	13.90	73 TA	LY4	3	1.065	1,2
13.76	78 PT	LB9	3	1.054	1,2	13.90	96 CM	LB1	5	0.639	1
13.77	42 MC	KB3	5	0.633	1,2	13.91	66 DY	LB7	2	1.599	1,2
13.78	98 CF	LA1	4	0.792	1	13.92	66 DY	LB9	2	1.600	1
13.79	76 OS	LL	2	1.585	1,2,3	13.93	92 U	LL	3	1.067	2,3
13.79	91 PA	LY1	5	0.634	1,2,3	13.93	68 ER	LB4	2	1.601	1,2,3
13.80	33 AS	KB1	3	1.057	1,2,3	13.94	74 W	LY2	3	1.068	1,2,3
13.80	86 RN	LA1	3	1.057	1	13.94	79 AU	LB3	3	1.068	1,2,3
13.80	76 OS	LY5	3	1.057	1,2	13.95	86 RN	LA2	3	1.069	1
13.80	90 TH	LB4	4	0.793	1,2,3	13.97	90 TH	LY2	5	0.642	1,2,3
13.81	33 AS	KB3	3	1.058	1,2	13.97	79 AU	LB2	3	1.070	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							13.98 TC 14.28						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
13.98	62 SM	LY4	2	1.626	1,2		14.15	83 BI	LY1	4	0.813	1,2,3	
13.98	88 RA	LB3	4	0.813	1,2,3		14.15	79 AU	LB1	3	1.084	1,2,3	
13.98	66 DY	LB10	2	1.627	1		14.16	85 AT	LA1	3	1.085	1	
13.99	44 RU	KA1	5	0.643	1,2,3		14.17	88 RA	LB1	4	0.814	1,2,3	
13.99	78 PT	LB5	3	1.072	1,2		14.17	89 AC	LB2	4	0.814	1	
13.99	80 HG	LB4	3	1.072	1,2,3		14.19	82 PB	LY3	4	0.815	1,2,3	
13.99	98 CF	LA2	4	0.804	1		14.19	75 RE	LL	2	1.630	1,2,3	
14.00	27 CO	KB5	2	1.629	1,2		14.19	71 LU	LA2	2	1.630	1,2,3	
14.01	92 U	LN	4	0.805	1,2,3		14.20	37 RB	KB2	4	0.816	1,2,3	
14.02	74 W	LY6	3	1.074	1,2		14.20	88 RA	LB7	4	0.816	1,2	
14.03	88 RA	LB5	4	0.816	1,2		14.21	98 CF	LB2	5	0.653	1	
14.04	51 SB	LB1	1	3.226	1,2,3		14.21	90 TH	LY1	5	0.653	1,2,3	
14.06	91 PA	LB6	4	0.808	1,2,3		14.22	55 CS	LL	1	3.267	1,2,3	
14.08	44 RU	KA2	5	0.647	1,2,3		14.22	82 PB	LY6	4	0.817	1,2	
14.09	67 HO	LB3	2	1.619	1,2,3		14.22	49 IN	LB9	1	3.268	1,2	
14.09	71 LU	LA1	2	1.619	1,2,3		14.23	50 SN	LB6	1	3.269	1,2,3	
14.10	80 HG	LB6	3	1.080	1,2,3		14.23	77 IR	LB9	3	1.090	1,2	
14.10	97 BK	LA1	4	0.810	1		14.23	41 NE	KB2	5	0.654	1,2,3	
14.11	27 CO	KB1	2	1.621	1,2,3		14.24	70 YB	LN	2	1.636	1,2,3	
14.12	67 HO	LB6	2	1.622	1,2,3		14.24	91 PA	LL	3	1.091	1,2,3	
14.12	88 RA	LY4	5	0.649	1,2		14.25	49 IN	LB10	1	3.274	1,2	
14.13	66 DY	LB2	2	1.623	1,2,3		14.25	91 PA	LY5	5	0.655	1,2	
14.13	78 PT	LB7	3	1.082	1,2		14.26	82 PB	LN	3	1.092	1,2,3	
14.13	81 TL	LY4	4	0.812	1,2		14.27	53 I	LN	1	3.280	1,2,3	
14.14	49 IN	LY5	1	3.249	1,2		14.28	64 GD	LY5	2	1.641	1	

KAP CRYSTAL, D#13.200 ANGSTROMS						14.28 TO 14.56					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
14.28	75 RE	LY5	3	1.094	1,2	14.43	63 EU	LY1	2	1.658	1,2,3
14.29	82 PB	LY2	4	0.821	1,2,3	14.43	37 RB	KB3	4	0.829	1,2
14.31	97 BK	LA2	4	0.822	1	14.43	28 NI	KA1	2	1.658	1,2,3
14.31	37 RB	KB5	4	0.822	1	14.43	39 Y	KA1	4	0.829	1,2,3
14.31	52 TE	LA1	1	3.289	1,2,3	14.43	91 PA	LN	4	0.829	1,2,3
14.32	95 AM	LB1	5	0.658	1,3	14.44	77 IR	LB5	3	1.156	1,2
14.32	77 IR	LB10	3	1.097	1,2	14.44	67 HC	LB4	2	1.659	1,2,3
14.32	85 AT	LA2	3	1.097	1	14.44	62 SM	LY2	2	1.659	1,2,3
14.33	67 HO	LB1	2	1.647	1,2,3	14.44	65 TB	LB7	2	1.659	1,2
14.35	73 TA	LY3	3	1.099	1,2,3	14.45	79 AU	LB4	3	1.107	1,2,3
14.35	74 W	LY1	3	1.099	1,2,3	14.47	28 NI	KA2	2	1.662	1,2,3
14.35	52 TE	LA2	1	3.298	1,2,3	14.48	34 SE	KA2	3	1.109	1,2,3
14.36	41 NB	KB5	5	0.660	1	14.49	41 NB	KB3	5	0.666	1,2
14.39	47 AG	LY3	1	3.356	1,2	14.49	41 NB	KB1	5	0.666	1,2,3
14.39	78 PT	LB2	3	1.102	1,2,3	14.50	39 Y	KA2	4	0.833	1,2,3
14.39	47 AG	LY2	1	3.355	1,3	14.51	79 AU	LB6	3	1.111	1,2,3
14.39	50 SN	LB3	1	3.355	1,2,3	14.51	65 TB	LB10	2	1.667	1,2
14.40	72 HF	LY4	3	1.103	1,2	14.52	48 CD	LY1	1	3.336	1,2,3
14.40	62 SM	LY3	2	1.655	1,2,3	14.53	49 IN	LB2	1	3.338	1,2,3
14.41	90 TH	LB6	4	0.828	1,2,3	14.54	88 RA	LB2	4	0.835	1,2,3
14.41	78 PT	LB3	3	1.104	1,2,3	14.54	73 TA	LY6	3	1.114	1,2
14.43	34 SE	KA1	3	1.105	1,2,3	14.54	84 PC	LA1	3	1.114	1,2,3
14.43	73 TA	LY2	3	1.105	1,2,3	14.55	50 SN	LB4	1	3.343	1,2,3
14.43	37 RB	KB1	4	0.829	1,2,3	14.55	70 YB	LA1	2	1.672	1,2,3
14.43	96 CM	LA1	4	0.829	1	14.56	90 TH	LL	3	1.115	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							*14.56 TO 14.91						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
14.56	97 BK	LB2	5	0.669	1		14.70	84 PC	LA2	3	1.126	1,2,3	
14.56	77 IR	LB7	3	1.115	1,2		14.70	76 OS	LB9	3	1.126	1,2	
14.58	32 GE	KB2	3	1.117	1,2,3		14.71	43 TC	KA2	5	0.676	2,3	
14.61	74 W	LL	2	1.678	1,2,3		14.73	81 TL	LN	3	1.128	1,2,3	
14.61	80 HG	LY4	4	0.839	1,2		14.73	50 SN	LB1	1	3.385	1,2,3	
14.61	83 BI	LY5	4	0.839	1,2		14.74	32 GE	KB3	3	1.129	1,2	
14.61	32 GE	KB5	3	1.119	1,2		14.74	32 GE	KB1	3	1.129	1,2,3	
14.61	20 CA	KA1	1	3.358	1,2,3		14.75	94 PU	LB1	5	0.678	1	
14.62	87 FR	LB1	4	0.840	1,2,3		14.76	81 TL	LY2	4	0.848	1,2,3	
14.62	82 PB	LY1	4	0.840	1,2,3		14.76	95 AP	LA1	4	0.848	1,3	
14.62	78 PT	LB1	3	1.120	1,2,3		14.76	69 TP	LN	2	1.696	1,2,3	
14.63	20 CA	KA2	1	3.362	1,2,3		14.78	74 W	LY5	3	1.132	1,2	
14.63	66 DY	LB6	2	1.681	1,2,3		14.79	76 OS	LB10	3	1.133	1,2	
14.63	66 DY	LB3	2	1.681	1,2,3		14.82	92 U	LB9	5	0.681	1,2	
14.64	81 TL	LY3	4	0.841	1,2,3		14.82	77 IR	LB2	3	1.135	1,2,3	
14.64	96 CM	LA2	4	0.841	1		14.84	88 RA	LY2	5	0.682	1,2,3	
14.64	88 RA	LB4	4	0.841	1,2,3		14.86	73 TA	LY1	3	1.138	1,2,3	
14.64	65 TB	LB2	2	1.682	1,2,3		14.86	72 HF	LY3	3	1.138	1,2,3	
14.65	88 RA	LY6	5	0.673	1,2		14.87	90 TH	LN	4	0.854	1,2,3	
14.65	43 TC	KA1	5	0.673	2,3		14.87	63 EU	LY5	2	1.708	1,2	
14.65	70 YR	LA2	2	1.683	1,2,3		14.89	66 DY	LB1	2	1.710	1,2,3	
14.67	89 AC	LY1	5	0.674	1		14.89	76 OS	LB5	3	1.140	1,2	
14.69	90 TH	LY5	5	0.675	1,2		14.90	77 IR	LB3	3	1.141	1,2,3	
14.69	88 RA	LY3	5	0.675	1,2,3		14.91	96 CV	LB2	5	0.685	1	
14.69	81 TL	LY6	4	0.844	1,2		14.91	48 CD	LY5	1	3.425	1,2	

KAP CRYSTAL, D#13.200 ANGSTROMS						14.91 TO 15.20					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
14.91	78 PT	LB4	3	1.142	1,2,3	15.08	86 RN	LB1	4	0.866	1
14.93	71 LU	LY4	3	1.143	1	15.08	36 KR	KB4	4	0.866	2
14.93	48 CD	LB9	1	3.430	1,2	15.08	82 PB	LY5	4	0.866	1,2
14.94	78 PT	LB6	3	1.144	1,2,3	15.08	36 KR	KB2	4	0.866	1,2,3
14.94	87 FR	LB2	4	0.858	1,2,3	15.08	72 HF	LY6	3	1.155	1,2
14.94	83 BI	LA1	3	1.144	1,2,3	15.08	83 BI	LA2	3	1.155	1,2,3
14.94	72 HF	LY2	3	1.144	1,2,3	15.11	49 IN	LB3	1	3.470	1,2,3
14.95	92 U	LB10	5	0.687	1,2	15.11	94 PU	LA1	4	0.868	1
14.96	49 IN	LB6	1	3.436	1,2,3	15.11	81 TL	LY1	4	0.868	1,2,3
14.96	48 CD	LB10	1	3.437	1,2	15.12	69 TM	LA2	2	1.737	1,2,3
14.96	52 TE	LN	1	3.438	1,2,3	15.12	77 IR	LB1	3	1.158	1,2,3
14.97	51 SB	LA1	1	3.439	1,2,3	15.13	88 RA	LY1	5	0.695	1,2,3
14.97	95 AM	LA2	4	0.860	1,3	15.13	80 HG	LY3	4	0.869	1,2,3
14.97	66 DY	LB4	2	1.720	1,2,3	15.15	40 ZR	KB5	5	0.696	1
14.98	19 K	KB5	1	3.441	1,2	15.16	65 TB	LB6	2	1.741	1,2,3
15.00	64 GD	LB7	2	1.723	1,2	15.17	36 KR	KB5	4	0.871	1,2
15.00	76 OS	LB7	3	1.149	1,2	15.17	88 RA	LB6	4	0.871	1,2,3
15.01	64 GD	LB9	2	1.724	1	15.18	26 FE	KB5	2	1.744	1,2
15.01	51 SB	LA2	1	3.448	1,2,3	15.18	60 ND	LY4	2	1.744	1,2
15.02	40 ZR	KB2	5	0.690	1,2,3	15.19	46 PC	LY2	1	3.489	1,2,3
15.03	69 TM	LA1	2	1.726	1,2,3	15.19	46 PC	LY3	1	3.489	1,2
15.04	62 SM	LY1	2	1.727	1,2,3	15.19	93 NP	LB1	5	0.698	1,2,3
15.04	19 K	KB1	1	3.454	1,2,3	15.19	64 GC	LB2	2	1.745	1,2,3
15.04	73 TA	LL	2	1.728	1,2,3	15.20	80 HG	LN	3	1.164	1,2,3
15.07	64 GD	LB10	2	1.731	1,2	15.20	80 HG	LY6	4	0.873	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							15.20 TO 15.57						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
15.20	65 TB	LB3	2	1.746	1,2,3		15.39	77 IR	LB6	3	1.178	1,2,3	
15.21	75 RE	LB9	3	1.165	1,2		15.40	72 HF	LY1	3	1.179	1,2,3	
15.24	80 HG	LY2	4	0.875	1,2,3		15.40	71 LL	LY3	3	1.179	1,2,3	
15.24	38 SR	KA1	4	0.875	1,2,3		15.41	33 AS	KA2	3	1.180	1,2,3	
15.24	88 RA	LL	3	1.167	1,2,3		15.41	91 PA	LB10	5	0.708	1,2	
15.26	95 AM	LB2	5	0.701	1,3		15.41	76 OS	LB3	3	1.180	1,2,3	
15.26	91 PA	LB9	5	0.701	1,2		15.41	77 IR	LB4	3	1.180	1,2,3	
15.27	49 IN	LB4	1	3.507	1,2,3		15.43	42 MC	KA1	5	0.709	1,2,3	
15.28	40 ZR	KB3	5	0.702	1,2		15.46	92 U	LB3	5	0.710	1,2,3	
15.28	40 ZR	KB1	5	0.702	1,2,3		15.46	65 TB	LB1	2	1.776	1,2,3	
15.28	76 OS	LB2	3	1.170	1,2,3		15.48	71 LU	LY2	3	1.185	1,2,3	
15.29	68 ER	LN	2	1.756	1,2,3		15.48	49 IN	LB1	1	3.555	1,2,3	
15.29	36 KR	KB1	4	0.878	1,2,3		15.48	70 YE	LY4	3	1.185	1,2	
15.30	48 CD	LB2	1	3.514	1,2,3		15.48	93 NP	LA1	4	0.889	1,2,3	
15.30	26 FE	KB1	2	1.757	1,2,3		15.49	53 I	LL	1	3.557	1,2,3	
15.31	75 RE	LB10	3	1.172	1,2		15.49	75 RE	LB7	3	1.186	1,2	
15.31	38 SR	KA2	4	0.879	1,2,3		15.49	62 SM	LY5	2	1.779	1	
15.31	36 KR	KB3	4	0.879	1,2		15.49	62 SM	LB5	2	1.779	2	
15.32	73 TA	LY5	3	1.173	1,2		15.49	82 PB	LA2	3	1.186	1,2,3	
15.32	94 PU	LA2	4	0.880	1		15.51	72 HF	LL	2	1.781	1,2,3	
15.34	47 AG	LY1	1	3.523	1,2,3		15.52	42 MC	KA2	5	0.713	1,2,3	
15.34	86 RN	LB2	4	0.881	1		15.53	68 ER	LA1	2	1.784	1,2,3	
15.35	82 PB	LA1	3	1.175	1,2,3		15.54	65 TB	LB4	2	1.785	1,2,3	
15.36	33 AS	KA1	3	1.176	1,2,3		15.57	63 EU	LB7	2	1.788	1,2	
15.37	75 RE	LB5	3	1.177	1,2		15.57	85 AT	LB1	4	0.894	1	

KAP CRYSTAL, D#13.200 ANGSTROMS						15.58 TC 15.84					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
15.58	27 CO	KA1	2	1.789	1,2,3	15.71	79 AU	LN	3	1.203	1,2,3
15.59	81 TL	LY5	4	0.895	1,2	15.71	50 SA	LA2	1	3.609	1,2,3
15.59	87 FR	LY1	5	0.716	1,2,3	15.72	47 AG	LB10	1	3.611	1,2
15.60	63 EU	LB9	2	1.792	1,2	15.73	79 AU	LY6	4	0.903	1,2
15.61	88 RA	LY5	5	0.717	1,2	15.73	74 W	LB9	3	1.204	1,2
15.61	27 CO	KA2	2	1.793	1,2,3	15.74	48 CC	LB6	1	3.614	1,2,3
15.62	78 PT	LY4	4	0.897	1,2	15.74	64 GD	LB6	2	1.807	1,2,3
15.62	31 GA	KB2	3	1.196	1,2,3	15.74	50 TH	LB9	5	0.723	1,2
15.62	80 HG	LY1	4	0.897	1,2,3	15.74	79 AU	LY2	4	0.904	1,2,3
15.63	94 PU	LB2	5	0.718	1	15.74	47 AG	LY5	1	3.616	1,2
15.64	31 GA	KB5	3	1.197	1,2	15.76	83 BI	LB10	4	0.905	1,2
15.64	76 OS	LB1	3	1.197	1,2,3	15.76	85 AT	LB2	4	0.905	1
15.64	83 BI	LB9	4	0.898	1,2	15.77	75 RE	LB2	3	1.207	1,2,3
15.64	68 ER	LA2	2	1.796	1,2,3	15.77	81 TL	LA1	3	1.207	1,2,3
15.64	60 ND	LY3	2	1.796	1,2,3	15.78	63 EU	LB2	2	1.812	1,2,3
15.64	79 AU	LY3	4	0.898	1,2,3	15.78	31 GA	KB1	3	1.208	1,2,3
15.65	71 LU	LY6	3	1.198	1,2	15.78	31 GA	KB3	3	1.208	1,2
15.66	84 PO	LB5	4	0.899	1,2	15.80	38 RA	LN	4	0.907	1,2,3
15.67	92 U	LB1	5	0.720	1,2,3	15.81	92 U	LB5	5	0.726	1,2
15.67	63 EU	LB10	2	1.800	1,2	15.81	64 GD	LB3	2	1.815	1,2,3
15.67	50 SN	LA1	1	3.600	1,2,3	15.81	61 PP	LY1	2	1.816	1
15.68	60 ND	LY2	2	1.801	1,2,3	15.83	39 Y	KB4	5	0.727	2
15.69	93 NP	LA2	4	0.901	1	15.83	74 W	LB10	3	1.212	1,2
15.70	47 AG	LB9	1	3.605	1,2	15.83	84 PC	LB3	4	0.909	1,2,3
15.71	51 SB	LN	1	3.608	1,2,3	15.84	59 PR	LY4	2	1.819	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						15.85 TO 16.20					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
15.85	76 OS	LB6	3	1.213	1,2,3	16.06	92 U	LA2	4	0.922	1,2,3
15.87	92 U	LA1	4	0.911	1,2,3	16.06	84 PC	LB1	4	0.922	1,2,3
15.87	39 Y	KB2	5	0.729	1,2,3	16.07	67 HC	LA1	2	1.845	1,2,3
15.87	74 W	LB5	3	1.215	1,2	16.08	64 GC	LB1	2	1.846	1,2,3
15.87	72 HF	LY5	3	1.215	1,2	16.09	86 RN	LY1	5	0.739	1
15.87	48 CD	LB3	1	3.645	1,2,3	16.10	80 HG	LY5	4	0.924	1,2
15.89	90 TH	LB10	5	0.730	1,2	16.11	35 BR	KB5	4	0.925	1,2
15.90	67 HO	LN	2	1.826	1,2,3	16.13	47 AG	LB2	1	3.703	1,2,3
15.91	76 OS	LB4	3	1.218	1,2,3	16.13	83 BI	LB5	4	0.926	1,2
15.92	81 TL	LA2	3	1.219	1,2,3	16.13	37 RE	KA1	4	0.926	1,2,3
15.94	75 RE	LB3	3	1.220	1,2,3	16.13	39 Y	KB3	5	0.741	1,2
15.94	91 PA	LB3	5	0.732	1,2,3	16.13	39 Y	KB1	5	0.741	1,2,3
15.96	71 LU	LY1	3	1.222	1,2,3	16.14	64 GC	LB4	2	1.853	1,2,3
15.96	70 YB	LY3	3	1.222	1,2,3	16.15	82 PB	LB9	4	0.927	1,2
15.98	39 Y	KB5	5	0.734	1	16.15	77 IR	LY4	4	0.927	1,2
15.99	74 W	LB7	3	1.224	1,2	16.15	79 AU	LY1	4	0.927	1,2,3
15.99	71 LU	LL	2	1.836	1,2,3	16.16	60 ND	LY6	2	1.855	2
16.03	92 U	LB7	5	0.736	1,2	16.16	91 PA	LB1	5	0.742	1,2,3
16.03	93 NP	LB2	5	0.736	1,2,3	16.17	78 PT	LY3	4	0.928	1,2,3
16.03	48 CD	LB4	1	3.682	1,2,3	16.17	62 SP	LB7	2	1.856	1,2
16.04	35 BR	KB2	4	0.921	1,2,3	16.17	67 HC	LA2	2	1.856	1,2,3
16.05	45 RH	LY2	1	3.685	1,2,3	16.18	84 PC	LB2	4	0.929	1,2,3
16.05	45 RH	LY3	1	3.685	1,2	16.19	75 RE	LB1	3	1.239	1,2,3
16.06	70 YB	LY2	3	1.229	1,2,3	16.19	52 TE	LL	1	3.717	1,2,3
16.06	69 TM	LY4	3	1.229	1	16.20	37 RE	KA2	4	0.930	1,2,3

KAP CRYSTAL, D#13.250 ANGSTROMS						16.21 TO 16.52					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
16.21	62 SM	LB9	2	1.861	1,2	16.36	60 NC	LY1	2	1.878	1,2,3
16.21	80 HG	LA1	3	1.241	1,2,3	16.36	83 BI	LB3	4	0.939	1,2,3
16.22	46 PC	LY1	1	3.724	1,2,3	16.37	59 PR	LY2	2	1.879	1,2,3
16.22	91 PA	LB5	5	0.745	1,2	16.37	80 HG	LA2	3	1.253	1,2,3
16.24	70 YB	LY6	3	1.243	1,2	16.38	73 TA	LB10	3	1.254	1,2
16.24	78 PT	LN	3	1.243	1,2,3	16.38	32 GE	KA1	3	1.254	1,2,3
16.24	41 NB	KA1	5	0.746	1,2,3	16.39	62 SM	LB2	2	1.882	1,2,3
16.25	35 BR	KB3	4	0.933	1,2	16.40	73 TA	LB5	3	1.255	1,2
16.25	91 PA	LA1	4	0.933	1,2,3	16.43	49 IN	LA1	1	3.772	1,3
16.25	35 BR	KB1	4	0.933	1,2,3	16.44	63 EU	LB3	2	1.887	1,2,3
16.27	74 W	LB2	3	1.245	1,2,3	16.44	32 GE	KA2	3	1.258	1,2,3
16.27	82 PB	LB10	4	0.934	1,2	16.44	91 PA	LB7	5	0.755	1,2
16.27	78 PT	LY2	4	0.934	1,2,3	16.44	90 TH	LB3	5	0.755	1,2,3
16.27	78 PT	LY6	4	0.934	1,2	16.44	92 U	LB2	5	0.755	1,2,3
16.28	73 TA	LB9	3	1.246	1,2	16.45	75 RE	LB4	3	1.259	1,2,3
16.28	48 CD	LB1	1	3.738	1,2,3	16.46	91 PA	LA2	4	0.945	1,2,3
16.28	62 SM	LB10	2	1.869	1,2	16.46	71 LU	LY5	3	1.260	1,2
16.29	83 BI	LB7	4	0.935	1,2	16.47	49 IN	LA2	1	3.781	1,2,3
16.29	92 U	LB4	5	0.748	1,2,3	16.50	70 YB	LL	2	1.894	1,2,3
16.29	19 K	KA1	1	3.741	1,2,3	16.50	84 PC	LB4	4	0.947	1,2,3
16.31	19 K	KA2	1	3.745	1,2,3	16.50	74 W	LB3	3	1.263	1,2,3
16.32	59 PR	LY3	2	1.874	1,2,3	16.50	50 SN	LN	1	3.789	1,2,3
16.32	63 EU	LB6	2	1.874	1,2,3	16.52	46 PD	LB9	1	3.792	1,2
16.33	41 NB	KA2	5	0.750	1,2,3	16.52	73 TA	LB7	3	1.264	1,2
16.35	75 RE	LB6	3	1.251	1,2,3	16.52	25 MN	KB5	2	1.897	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						16.52 TO 16.86					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
16.52	66 DY	LN	2	1.897	1,2,3	16.70	47 AG	LB3	1	3.833	1,2,3
16.54	58 CE	LY4	2	1.899	1,2	16.71	77 IR	LY3	4	0.959	1,2,3
16.55	46 PD	LB1	1	3.799	1,2	16.71	76 OS	LY4	4	0.959	1,2
16.57	70 YB	LY1	3	1.268	1,2,3	16.73	63 EU	LB1	2	1.920	1,2,3
16.57	69 TM	LY3	3	1.268	1,2,3	16.73	66 DY	LA2	2	1.920	1,2,3
16.57	83 BI	LY4	5	0.761	1,2	16.75	88 RA	LB9	5	0.769	1,2
16.59	83 BI	LB1	4	0.952	1,2,3	16.75	74 W	LB1	3	1.282	1,2,3
16.59	47 AG	LB6	1	3.808	1,2,3	16.76	82 PB	LB7	4	0.962	1,2
16.60	82 PR	LB5	4	0.953	1,2	16.77	91 PA	LB4	5	0.770	1,2,3
16.62	85 AT	LY1	5	0.763	1	16.78	73 TA	LB2	3	1.284	1,2,3
16.63	66 DY	LA1	2	1.939	1,2,3	16.78	30 ZN	KB2	3	1.284	1,2,3
16.64	83 BI	LB2	4	0.955	1,2,3	16.78	77 IR	LN	3	1.284	1,2,3
16.64	25 MN	KB1	2	1.910	1,2,3	16.78	63 EU	LB4	2	1.926	1,2,3
16.64	84 PO	LY6	5	0.764	1,2	16.79	38 SR	KB2	5	0.771	1,2,3
16.64	84 PO	LY3	5	0.764	1,2,3	16.79	30 ZN	KB5	3	1.285	1,2
16.65	46 PD	LY5	1	3.822	1,2	16.80	81 TL	LB10	4	0.964	1,2
16.65	69 TM	LY2	3	1.274	1,2,3	16.81	77 IR	LY2	4	0.965	1,2,3
16.66	79 AU	LY5	4	0.956	1,2	16.83	79 AU	LA2	3	1.288	1,2,3
16.66	90 TH	LA1	4	0.956	1,2,3	16.85	77 IR	LY6	4	0.967	1,2
16.66	90 TH	LB5	5	0.765	1,2	16.85	84 PC	LB6	4	0.967	1,2,3
16.66	90 TH	LB1	5	0.765	1,2,3	16.86	74 W	LB6	3	1.290	1,2,3
16.67	79 AU	LA1	3	1.276	1,3	16.86	47 AG	LB4	1	3.870	1,2,3
16.67	81 TL	LB9	4	0.957	1,2	16.86	90 TH	LB7	5	0.774	1,2
16.67	68 ER	LY4	3	1.276	1,2	16.86	91 PA	LB2	5	0.774	1,2,3
16.69	78 PT	LY1	4	0.958	1,2,3	16.86	69 TM	LY6	3	1.290	1

KAP CRYSTAL, D#13.200 ANGSTROMS						16.86 TO 17.19					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
16.86	72 HF	LB9	3	1.290	1,2	17.07	70 YB	LY5	3	1.306	1,2
16.86	60 ND	LY5	2	1.935	1,2	17.07	72 HF	LB7	3	1.306	1,2
16.87	26 FE	KA1	2	1.936	1,2,3	17.08	34 SE	KB2	4	0.980	1,2,3
16.87	90 TH	LA2	4	0.968	1,2,3	17.08	58 CE	LY2	2	1.950	1,2,3
16.88	88 RA	LB10	5	0.775	1,2	17.08	36 KR	KA1	4	0.980	1,2,3
16.88	38 SR	KB5	5	0.775	1	17.08	89 AC	LA1	4	0.980	1
16.88	82 PB	LB3	4	0.969	1,2,3	17.08	73 TA	LB3	3	1.307	1,2,3
16.90	26 FE	KA2	2	1.940	1,2,3	17.09	59 PR	LY1	2	1.961	1,2,3
16.92	18 A	KB1	1	3.884	1	17.10	81 TL	LB5	4	0.981	1,2
16.92	30 ZN	KB1	3	1.295	1,2,3	17.10	92 U	MA2	1	3.924	1,2
16.94	51 SB	LL	1	3.888	1,2,3	17.10	62 SM	LB3	2	1.962	1,2,3
16.95	62 SM	LB6	2	1.946	1,2,3	17.11	82 PB	LB1	4	0.982	1,2,3
16.96	72 HF	LB5	3	1.298	1,2	17.12	40 ZR	KA1	5	0.786	1,2,3
16.96	72 HF	LB10	3	1.298	1,2	17.12	82 PB	LY4	5	0.786	1
16.98	44 RU	LY2	1	3.897	1,2,3	17.13	82 PB	LB2	4	0.983	1,2,3
16.98	44 RU	LY3	1	3.897	1,2	17.14	47 AG	LB1	1	3.934	1,2,3
17.02	74 W	LB4	3	1.302	1,2,3	17.14	84 PC	LY1	5	0.787	1,2,3
17.03	83 BI	LB4	4	0.977	1,2,3	17.15	34 SE	KB5	4	0.984	1,2
17.03	46 PD	LB2	1	3.909	1,2,3	17.15	36 KR	KA2	4	0.984	1,2,3
17.03	58 CE	LY3	2	1.955	1,2,3	17.16	78 PT	LA1	3	1.313	1,2,3
17.03	92 U	MA1	1	3.910	1,2	17.17	92 U	LB6	5	0.786	1,2,3
17.03	69 TM	LL	2	1.955	1,2,3	17.18	45 RH	LY1	1	3.943	1,2,3
17.05	61 PM	LB2	2	1.957	1	17.18	80 HG	LB9	4	0.986	1,2
17.06	38 SR	KB3	5	0.783	1,2	17.19	83 BI	LY3	5	0.789	1,2,3
17.06	38 SR	KB1	5	0.783	1,2,3	17.19	69 TM	LY1	3	1.315	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						17.19 TO 17.56					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
17.19	89 AC	LB1	5	0.789	1	17.31	65 TB	LA2	2	1.986	1,2,3
17.19	68 ER	LY3	3	1.315	1,2,3	17.33	72 HF	LB2	3	1.326	1,2,3
17.19	65 TE	LN	2	1.973	1	17.34	83 BI	LY2	5	0.796	1,2,3
17.20	83 BI	LL	3	1.316	1,2,3	17.35	73 TA	LB1	3	1.327	1,2,3
17.21	65 TE	LA1	2	1.975	1,2,3	17.35	49 IN	LN	1	3.983	1,2,3
17.21	83 BI	LY6	5	0.790	1,2	17.36	80 HG	LB10	4	0.996	1,2
17.21	40 ZR	KA2	5	0.790	1,2,3	17.36	76 OS	LN	3	1.328	1,2,3
17.22	78 PT	LY5	4	0.988	1,2	17.39	76 OS	LY2	4	0.998	1,2,3
17.24	48 CC	LA1	1	3.956	1,2,3	17.40	73 TA	LB6	3	1.331	1,2,3
17.25	81 TL	LB7	4	0.990	1,2	17.41	62 SM	LB1	2	1.998	1,2,3
17.25	98 CF	LA1	5	0.792	1	17.43	62 SM	LB4	2	2.000	1,2,3
17.27	68 ER	LY2	3	1.321	1,2,3	17.45	81 TL	LB3	4	1.001	1,2,3
17.27	77 IR	LY1	4	0.991	1,2,3	17.45	76 OS	LY6	4	1.001	1,2
17.28	48 CC	LA2	1	3.965	1,2,3	17.46	71 LU	LB9	3	1.336	1,2
17.28	90 TH	LB4	5	0.793	1,2,3	17.49	88 RA	LB3	5	0.803	1,2,3
17.28	67 HO	LY4	3	1.322	1,2	17.50	46 PC	LB6	1	4.016	1,2,3
17.28	57 LA	LY4	2	1.983	1,2	17.51	60 ND	LB7	2	2.009	1,2
17.29	34 SE	KB1	4	0.992	1,2,3	17.52	98 CF	LA2	5	0.804	1
17.29	75 RE	LY4	4	0.992	1,2	17.52	88 RA	LA1	4	1.005	1,2,3
17.29	89 AC	LA2	4	0.992	1	17.52	31 GA	KA1	3	1.340	1,2,3
17.29	76 OS	LY3	4	0.992	1,2,3	17.53	91 PA	MA1	1	4.022	1,2
17.30	90 TH	LB2	5	0.794	1,2,3	17.54	92 U	LN	5	0.805	1,2,3
17.31	34 SE	KB3	4	0.993	1,2	17.54	71 LU	LB5	3	1.342	1,2
17.31	83 BI	LB6	4	0.993	1,2,3	17.55	82 PB	LB4	4	1.007	1,2,3
17.31	78 PT	LA2	3	1.324	1,2,3	17.56	71 LU	LB10	3	1.343	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							17.56 TO 17.91						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
17.56	88 RA	LB5	5	0.806	1,2		17.74	50 SN	LL	1	4.071	1,2,3	
17.57	60 ND	LB9	2	2.016	1,2		17.74	46 PC	LB4	1	4.071	1,2,3	
17.57	31 GA	KA2	3	1.344	1,2,3		17.75	60 ND	LB2	2	2.036	1,2,3	
17.58	46 PD	LB3	1	4.034	1,2,3		17.76	82 PB	LY3	5	0.815	1,2,3	
17.58	91 PA	MA2	1	4.035	1,2		17.76	80 HG	LB7	4	1.019	1,2	
17.60	73 TA	LB4	3	1.346	1,2,3		17.78	88 RA	LB7	5	0.815	1,2	
17.60	68 ER	LL	2	2.019	1,2,3		17.78	37 RE	KB2	5	0.816	1,2,3	
17.60	81 TL	LB2	4	1.010	1,2,3		17.79	57 LA	LY3	2	2.041	1,2,3	
17.60	59 PR	LY5	2	2.020	1,2		17.80	82 PB	LB6	4	1.021	1,2,3	
17.60	80 HG	LB5	4	1.010	1,2		17.80	79 AU	LB9	4	1.021	1,2	
17.60	91 PA	LB6	5	0.808	1,2,3		17.80	82 PB	LY6	5	0.817	1,2	
17.63	45 FH	LY5	1	4.045	1,2		17.81	77 IR	LA2	3	1.362	1,2,3	
17.63	60 ND	LB10	2	2.023	1,2		17.82	77 IR	LY5	4	1.022	1,2	
17.64	71 LU	LB7	3	1.349	1,2		17.83	57 LA	LY2	2	2.046	1,2,3	
17.65	97 BK	LA1	5	0.810	1		17.83	68 ER	LY1	3	1.364	1,2,3	
17.65	82 PB	LL	3	1.350	1,2,3		17.83	67 HC	LY3	3	1.364	1,2,3	
17.66	77 IR	LA1	3	1.351	1,2,3		17.83	64 GD	LA1	2	2.046	1,2,3	
17.69	72 HF	LB3	3	1.353	1,2,3		17.85	58 CE	LY1	2	2.048	1,2,3	
17.69	81 TL	LB1	4	1.015	1,2,3		17.86	64 GD	LN	2	2.049	1,2,3	
17.69	81 TL	LY4	5	0.812	1,2		17.87	76 OS	LY1	4	1.025	1,2,3	
17.71	88 RA	LA2	4	1.016	1,2,3		17.89	75 RE	LY3	4	1.026	1,2,3	
17.71	69 TM	LY5	3	1.355	1,2		17.89	82 PB	LY2	5	0.821	1,2,3	
17.71	83 BI	LY1	5	0.813	1,2,3		17.91	67 HC	LY2	3	1.370	1,2,3	
17.74	88 RA	LB1	5	0.814	1,2,3		17.91	97 BK	LA2	5	0.822	1	
17.74	89 AC	LB2	5	0.814	1		17.91	37 RB	KB5	5	0.822	1	

KAP CRYSTAL, D#13.200 ANGSTROMS						17.91 TO 18.23					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
17.91	71 LU	LB2	3	1.370	1,2,3	18.09	90 TH	MA2	1	4.151	1,2
17.92	79 AU	LB10	4	1.028	1,2	18.10	70 YB	LB9	3	1.384	1,2
17.92	74 W	LY4	4	1.028	1,2	18.11	47 AG	LA1	1	4.154	1,2,3
17.93	64 GD	LA2	2	2.057	1,2,3	18.11	81 TL	LL	3	1.385	1,2,3
17.95	75 RE	LN	3	1.373	1,2,3	18.11	81 TL	LB4	4	1.039	1,2,3
17.96	87 FR	LA1	4	1.030	1,2,3	18.13	79 AU	LB5	4	1.040	1,2
17.96	72 HF	LB6	3	1.374	1,2,3	18.13	80 HG	LB2	4	1.040	1,2,3
17.96	72 HF	LB1	3	1.374	1,2,3	18.13	35 BR	KA1	4	1.040	1,2,3
17.96	66 DY	LY4	3	1.374	1,2	18.14	70 YB	LB5	3	1.387	1,2
17.99	75 RE	LY2	4	1.032	1,2,3	18.14	61 PM	LB1	2	2.081	1,2,3
18.00	45 RH	LB2	1	4.131	1,2,3	18.15	47 AG	LA2	1	4.163	1,2,3
18.03	80 HG	LB3	4	1.034	1,2,3	18.15	39 Y	KA2	5	0.833	1,2,3
18.04	90 TH	MA1	1	4.138	1,2	18.17	87 FR	LA2	4	1.042	1
18.04	90 TH	LB6	5	0.828	1,2,3	18.18	24 CR	KB3	2	2.085	1,2
18.05	24 CR	KB5	2	2.071	1,2	18.18	24 CR	KB1	2	2.085	1,2,3
18.06	29 CU	KB2	3	1.381	2,3	18.18	67 HC	LL	2	2.086	1,2,3
18.07	39 Y	KA1	5	0.829	1,2,3	18.19	70 YB	LB10	3	1.391	1,2
18.07	37 RB	KB1	5	0.829	1,2,3	18.19	76 CS	LA1	3	1.391	1,2,3
18.07	96 CM	LA1	5	0.829	1	18.20	88 RA	LB2	5	0.835	1,2,3
18.07	37 RB	KB3	5	0.829	1,2	18.20	35 BR	KA2	4	1.044	1,2,3
18.07	91 PA	LN	5	0.829	1,2,3	18.20	29 CU	KB1	3	1.392	1,2,3
18.07	46 PD	LB1	1	4.146	1,2,3	18.20	72 HF	LB4	3	1.392	1,2,3
18.07	29 CU	KB5	3	1.382	2	18.22	29 CU	KB3	3	1.393	1,2
18.08	75 RE	LY6	4	1.037	1,2	18.22	33 AS	KB2	4	1.045	1,2,3
18.09	56 BA	LY4	2	2.075	1,2	18.23	59 PR	LB7	2	2.091	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							18.23 TC 18.59						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
18.23	44 RU	LY1	1	4.182	1,2,3		18.40	58 CE	LY5	2	2.110	1,2	
18.24	70 YB	LB7	3	1.395	1,2		18.40	81 TL	LY6	5	0.844	1,2	
18.27	18 A	KA1	1	4.192	1,2,3		18.43	33 AS	KB1	4	1.057	1,2,3	
18.28	48 CD	LN	1	4.193	1,3		18.43	86 RA	LA1	4	1.057	1	
18.29	80 HG	LY4	5	0.839	1,2		18.43	76 OS	LY5	4	1.057	1,2	
18.29	18 A	KA2	1	4.195	1,2,3		18.45	33 AS	KB3	4	1.058	1,2	
18.29	83 BI	LY5	5	0.839	1,2		18.47	83 BI	LN	4	1.059	1,2,3	
18.29	33 AS	KB5	4	1.049	1,2		18.47	59 PR	LB2	2	2.119	1,2,3	
18.29	80 HG	LB1	4	1.049	1,2,3		18.48	95 AM	LA1	5	0.848	1,3	
18.31	59 PR	LB9	2	2.100	1,2		18.48	81 TL	LY2	5	0.848	1,2,3	
18.31	87 FR	LB1	5	0.840	1,2,3		18.49	63 EU	LA1	2	2.121	1,2,3	
18.31	79 AU	LB7	4	1.050	1,2		18.49	45 RH	LB6	1	4.242	1,2,3	
18.31	81 TL	LB6	4	1.050	1,2,3		18.50	75 RE	LY1	4	1.061	1,2,3	
18.31	82 PB	LY1	5	0.840	1,2,3		18.51	70 YB	LB2	3	1.415	1,2,3	
18.32	71 LU	LB3	3	1.401	1,2,3		18.52	74 W	LY3	4	1.662	1,2,3	
18.33	25 MN	KA1	2	2.102	1,2,3		18.52	78 PT	LB10	4	1.052	1,2	
18.33	96 CM	LA2	5	0.841	1		18.53	66 DY	LY3	3	1.417	1,2,3	
18.33	81 TL	LY3	5	0.841	1,2,3		18.53	67 HC	LY1	3	1.417	1,2,3	
18.33	88 RA	LB4	5	0.841	1,2,3		18.54	60 NC	LB3	2	2.126	1,2,3	
18.33	76 OS	LA2	3	1.402	1,2,3		18.54	45 RH	LB3	1	4.252	1,2,3	
18.34	60 ND	LB6	2	2.104	1,2,3		18.56	71 LU	LB6	3	1.419	1,2,3	
18.36	25 MN	KA2	2	2.106	1,2,3		18.57	73 TA	LY4	4	1.065	1,2	
18.37	59 PR	LB10	2	2.107	1,2		18.58	63 EU	LN	2	2.131	1	
18.38	78 PT	LB9	4	1.054	1,2		18.58	74 W	LN	3	1.421	1,2,3	
18.39	68 ER	LY5	3	1.406	1,2		18.59	63 EU	LA2	2	2.132	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						18.60 TO 19.05					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
18.60	80 HG	LL	3	1.422	1,2,3	18.84	80 HG	LB6	4	1.080	1,2,3
18.61	56 BA	LY3	2	2.134	1,2,3	18.84	71 LU	LB4	3	1.440	1,2,3
18.61	92 U	LL	4	1.067	2,3	18.85	69 TM	LB10	3	1.441	1
18.61	66 DY	LY2	3	1.423	1,2,3	18.87	78 PT	LB7	4	1.082	1,2
18.61	49 IN	LL	1	4.269	1,2,3	18.88	86 RN	LB1	5	0.866	1
18.62	90 TH	LN	5	0.854	1,2,3	18.88	36 KR	KB2	5	0.866	1,2,3
18.63	71 LU	LB1	3	1.424	1,2,3	18.88	82 PE	LY5	5	0.866	1,2
18.63	79 AU	LB3	4	1.068	1,2,3	18.88	36 KR	KB4	5	0.866	2
18.63	74 W	LY2	4	1.068	1,2,3	18.89	75 RE	LA2	3	1.444	1,2,3
18.64	56 BA	LY2	2	2.138	1,2,3	18.90	63 NC	LB4	2	2.167	1,2,3
18.64	86 RN	LA2	4	1.069	1	18.90	60 ND	LB1	2	2.167	1,2,3
18.66	79 AU	LR2	4	1.070	1,2,3	18.91	79 AU	LB1	4	1.084	1,2,3
18.66	65 TB	LY4	3	1.427	1,2	18.92	94 PU	LA1	5	0.868	1
18.68	57 LA	LY1	2	2.142	1,2,3	18.92	81 TL	LY1	5	0.868	1,2,3
18.69	44 RU	LY5	1	4.287	1,2	18.92	85 AT	LA1	4	1.085	1
18.69	78 PT	LB5	4	1.072	1,2	18.95	80 HG	LY3	5	0.869	1,2,3
18.69	80 HG	LB4	4	1.072	1,2,3	18.96	55 CS	LY4	2	2.174	1,2
18.70	45 RH	LB4	1	4.289	1,2,3	18.99	88 RA	LB6	5	0.871	1,2,3
18.70	87 FR	LB2	5	0.858	1,2,3	18.99	36 KR	KB5	5	0.871	1,2
18.73	74 W	LY6	4	1.074	1,2	18.99	70 YB	LB3	3	1.452	1,2,3
18.74	75 RE	LA1	3	1.433	1,2,3	19.01	58 CE	LB7	2	2.180	1,2
18.75	95 AM	LA2	5	0.860	1,3	19.01	77 IR	LB9	4	1.090	1,2
18.77	30 ZN	KA1	3	1.435	1,2,3	19.03	91 PA	LL	4	1.091	1,2,3
18.82	66 DY	LL	2	2.158	1,2,3	19.03	80 HG	LY6	5	0.873	1,2
18.82	30 ZN	KA2	3	1.439	1,2,3	19.05	46 PD	LA1	1	4.368	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						19.05 TO 19.38					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
19.05	82 PR	LN	4	1.092	1,2,3	19.20	17 CL	KBI	1	4.403	1,2,3
19.06	44 RU	LB2	1	4.372	1,2,3	19.21	86 RN	LB2	5	0.881	1
19.07	45 RH	LB1	1	4.374	1,2,3	19.22	78 PT	LB2	4	1.102	1,2,3
19.08	38 SR	KAI	5	0.875	1,2,3	19.23	57 LA	LY5	2	2.205	1,2
19.08	80 HG	LY2	5	0.875	1,2,3	19.24	72 HF	LY4	4	1.103	1,2
19.08	58 CE	LB9	2	2.188	1,2	19.24	73 TA	LN	3	1.471	1,2,3
19.08	46 PD	LA2	1	4.376	1,2,3	19.24	65 TB	LY3	3	1.471	1,2,3
19.08	75 RE	LY5	4	1.094	1,2	19.26	78 PT	LB3	4	1.104	1,2,3
19.10	42 MO	LY2	1	4.380	1,2,3	19.27	58 CE	LB2	2	2.209	1,2,3
19.10	42 MO	LY3	1	4.380	1,2	19.27	47 AG	LN	1	4.418	1,2,3
19.10	79 AU	LL	3	1.460	1,2,3	19.27	66 OY	LY1	3	1.473	1,2,3
19.10	59 PR	LB6	2	2.190	1,2,3	19.28	73 TA	LY2	4	1.105	1,2,3
19.13	67 HO	LY5	3	1.462	1,2	19.28	62 SM	LA2	2	2.210	1,2,3
19.13	85 AT	LA2	4	1.097	1	19.28	34 SE	KAI	4	1.105	1,2,3
19.13	77 IR	LB10	4	1.097	1,2	19.29	77 IR	LB5	4	1.106	1,2
19.14	69 TM	LB2	3	1.463	1,2,3	19.31	70 YE	LB1	3	1.476	1,2,3
19.14	36 KR	KBI	5	0.878	1,2,3	19.31	74 W	LA1	3	1.476	1,2,3
19.14	58 CE	LB10	2	2.195	1,2	19.31	79 AU	LB4	4	1.107	1,2,3
19.17	38 SR	KA2	5	0.879	1,2,3	19.32	65 TB	LY2	3	1.477	1,2,3
19.17	36 KR	KBI	5	0.879	1,2	19.34	59 PR	LB3	2	2.217	1,2,3
19.17	74 W	LY1	4	1.099	1,2,3	19.34	71 LU	LN	3	1.478	1,2
19.17	73 TA	LY3	4	1.099	1,2,3	19.35	34 SE	KA2	4	1.109	1,2,3
19.18	62 SM	LA1	2	2.199	1,2,3	19.35	62 SM	LN	2	2.218	1,2,3
19.18	70 YB	LB6	3	1.466	1,2,3	19.36	43 TC	LY1	1	4.440	1
19.19	94 PU	LA2	5	0.880	1	19.38	79 AU	LB6	4	1.111	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						19.39 TO 19.80					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
19.39	93 NP	LA1	5	0.889	1,2,3	19.57	44 RU	LB6	1	4.487	1,2,3
19.43	64 GD	LY4	3	1.485	1,2	19.57	44 RU	LB3	1	4.487	1,2,3
19.43	68 ER	LB9	3	1.485	1,2	19.58	83 BI	LB9	5	0.898	1,2
19.43	84 PO	LA1	4	1.114	1,2,3	19.58	79 AU	LY3	5	0.898	1,2,3
19.43	73 TA	LY6	4	1.114	1,2	19.61	84 PC	LB5	5	0.899	1,2
19.45	77 IR	LB7	4	1.115	1,2	19.61	78 PT	LL	3	1.499	1,2,3
19.45	90 TH	LL	4	1.115	1,2,3	19.63	28 NI	KB1	3	1.500	1,2,3
19.46	74 W	LA2	3	1.487	1,2,3	19.65	76 OS	LB9	4	1.126	1,2
19.48	55 CS	LY3	2	2.233	1,2,3	19.65	84 PC	LA2	4	1.126	1,2,3
19.48	28 NI	KB5	3	1.489	1,2	19.65	93 NP	LA2	5	0.901	1
19.48	28 NI	KB2	3	1.489	1,2,3	19.67	59 PR	LB4	2	2.255	1,2,3
19.49	65 TB	LL	2	2.234	1,2,3	19.68	81 TL	LN	4	1.128	1,2,3
19.49	32 GE	KB2	4	1.117	1,2,3	19.69	79 AU	LY6	5	0.903	1,2
19.50	85 AT	LB1	5	0.894	1	19.69	69 TM	LB3	3	1.505	1,2,3
19.51	70 YB	LB4	3	1.491	1,2,3	19.70	59 PR	LB1	2	2.258	1,2,3
19.51	55 CS	LY2	2	2.237	1,2,3	19.70	32 GE	KB3	4	1.129	1,2
19.52	81 TL	LY5	5	0.895	1,2	19.70	32 GE	KB1	4	1.129	1,2,3
19.52	32 GE	KB5	4	1.119	1,2	19.72	79 AU	LY2	5	0.904	1,2,3
19.54	48 CD	LL	1	4.485	1,2,3	19.73	44 RU	LB4	1	4.523	1,2,3
19.54	78 PT	LB1	4	1.120	1,2,3	19.74	85 AT	LB2	5	0.905	1
19.55	68 ER	LB10	3	1.494	1,2	19.74	83 BI	LB10	5	0.905	1,2
19.55	56 BA	LY1	2	2.241	1,2,3	19.75	74 W	LY5	4	1.132	1,2
19.55	68 ER	LB7	3	1.494	1,2	19.77	76 OS	LB10	4	1.133	1,2
19.56	78 PT	LY4	5	0.897	1,2	19.78	88 RA	LN	5	0.907	1,2,3
19.56	80 HG	LY1	5	0.897	1,2,3	19.80	23 V	KB5	2	2.269	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						19.80 TO 20.20					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
19.80	77 IR	LB2	4	1.135	1,2,3	20.00	61 PM	LA2	2	2.292	1
19.81	68 ER	LB2	3	1.514	1,2,3	20.01	64 GD	LY3	3	1.529	1,2,3
19.83	69 TM	LB6	3	1.515	1,2,3	20.02	24 CR	KA2	2	2.294	1,2,3
19.83	84 PO	LB3	5	0.949	1,2,3	20.02	65 TB	LY1	3	1.530	1,2,3
19.85	57 LA	LB7	2	2.275	1,2	20.02	69 TM	LB1	3	1.530	1,2,3
19.86	72 HF	LY3	4	1.138	1,2,3	20.05	76 OS	LB7	4	1.149	1,2
19.86	73 TA	LY1	4	1.138	1,2,3	20.06	45 RH	LA1	1	4.597	1,2,3
19.87	66 DY	LY5	3	1.518	1,2	20.06	73 TA	LA2	3	1.533	1,2,3
19.87	92 U	LA1	5	0.911	1,2,3	20.08	64 GD	LY2	3	1.534	1,2,3
19.89	76 OS	LB5	4	1.140	1,2	20.09	35 BR	KB2	5	0.921	1,2,3
19.90	58 CE	LB6	2	2.281	1,2,3	20.09	45 RH	LA2	1	4.605	1,2,3
19.91	77 IR	LB3	4	1.141	1,2,3	20.10	57 LA	LB2	2	2.303	1,2,3
19.91	57 LA	LB9	2	2.282	1,2	20.11	92 U	LA2	5	0.922	1,2,3
19.92	73 TA	LA1	3	1.522	1,2,3	20.11	84 PO	LB1	5	0.922	1,2,3
19.92	61 PM	LA1	2	2.283	1,2,3	20.14	56 BA	LY5	2	2.308	1,2
19.93	23 V	KB3	2	2.284	1,2	20.16	72 HF	LY6	4	1.155	1,2
19.93	23 V	KB1	2	2.284	1,2,3	20.16	80 HG	LY5	5	0.924	1,2
19.93	78 PT	LB4	4	1.142	1,2,3	20.16	44 RU	LB1	1	4.620	1,2,3
19.93	72 HF	LN	3	1.523	1,2,3	20.16	83 BI	LA2	4	1.155	1,2,3
19.95	71 LU	LY4	4	1.143	1	20.17	58 CE	LB3	2	2.311	1,2,3
19.96	72 HF	LY2	4	1.144	1,2,3	20.17	77 IR	LL	3	1.541	1,2,3
19.96	83 BI	LA1	4	1.144	1,2,3	20.17	29 CU	KA1	3	1.541	1,2,3
19.96	78 PT	LB5	4	1.144	1,2,3	20.17	64 GD	LL	2	2.312	1,2,3
19.98	24 CR	KA1	2	2.290	1,2,3	20.18	35 BR	KB5	5	0.925	1,2
19.98	57 LA	LB10	2	2.290	1,2	20.20	37 RB	KA1	5	0.926	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						20.20 TO 20.63					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
20.20	83 BI	LH5	5	0.926	1,2	20.40	83 BI	LB7	5	0.935	1,2
20.21	29 CU	KA2	3	1.544	1,2,3	20.42	76 OS	LB2	4	1.170	1,2,3
20.21	63 EU	LY4	3	1.544	1,2	20.43	68 ER	LB3	3	1.561	1,2,3
20.21	69 TM	LB4	3	1.544	1,2,3	20.46	75 RE	LB10	4	1.172	1,2
20.21	77 IR	LB1	4	1.158	1,2,3	20.47	73 TA	LY5	4	1.173	1,2
20.22	79 AU	LY1	5	0.927	1,2,3	20.49	83 BI	LB3	5	0.939	1,2,3
20.22	77 IR	LY4	5	0.927	1,2	20.49	55 CS	LY1	2	2.348	1,2,3
20.22	82 PB	LB9	5	0.927	1,2	20.50	58 CE	LB4	2	2.349	1,2,3
20.23	43 TC	LB2	1	4.636	1	20.51	82 PB	LA1	4	1.175	1,2,3
20.25	78 PT	LY3	5	0.928	1,2,3	20.51	67 HC	LB2	3	1.567	1,2,3
20.27	84 PC	LB2	5	0.929	1,2,3	20.51	68 ER	LB6	3	1.567	1,2,3
20.28	67 HQ	LB10	3	1.549	1	20.53	33 AS	KA1	4	1.176	1,2,3
20.29	37 RB	KA2	5	0.930	1,2,3	20.54	72 HF	LA1	3	1.569	1,2,3
20.31	41 NB	LY2	1	4.654	1,2,3	20.54	47 AG	LL	1	4.707	1,2,3
20.31	41 NB	LY3	1	4.654	1,2	20.54	75 RE	LB5	4	1.177	1,2
20.32	80 HG	LN	4	1.164	1,2,3	20.56	77 IR	LB6	4	1.178	1,2,3
20.33	46 PD	LN	1	4.660	1,2,3	20.56	58 CE	LB1	2	2.356	1,2,3
20.33	75 RE	LB9	4	1.165	1,2	20.58	72 HF	LY1	4	1.179	1,2,3
20.36	35 BR	KB1	5	0.933	1,2,3	20.58	71 LU	LY3	4	1.179	1,2,3
20.36	35 BR	KB3	5	0.933	1,2	20.60	77 IR	LB4	4	1.180	1,2,3
20.36	91 PA	LA1	5	0.933	1,2,3	20.60	33 AS	KA2	4	1.180	1,2,3
20.37	88 RA	LL	4	1.167	1,2,3	20.60	76 OS	LB3	4	1.180	1,2,3
20.38	78 PT	LY2	5	0.934	1,2,3	20.62	91 PA	LA2	5	0.945	1,2,3
20.38	82 PB	LB10	5	0.934	1,2	20.63	42 MC	LY1	1	4.726	1,2,3
20.38	78 PT	LY6	5	0.934	1,2	20.63	17 CL	KA1	1	4.728	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							20.64 TC 21.07						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
20.64	17 CL	KA2	1	4.730	1,2,3		20.88	81 TL	LB9	5	0.957	1,2	
20.65	65 TB	LB5	3	1.577	2		20.90	31 GA	KB5	4	1.197	1,2	
20.65	65 TB	LY5	3	1.577	1		20.90	76 CS	LB1	4	1.197	1,2,3	
20.66	84 PO	LB4	5	0.947	1,2,3		20.91	78 PT	LY1	5	0.958	1,2,3	
20.69	70 YB	LY4	4	1.185	1,2		20.91	63 EU	LL	2	2.395	1,2,3	
20.69	71 LU	LY2	4	1.185	1,2,3		20.91	63 EU	LY2	3	1.597	1,2,3	
20.69	60 ND	LA1	2	2.370	1,2,3		20.92	71 LU	LY6	4	1.193	1,2	
20.69	72 HF	LA2	3	1.580	1,2,3		20.93	77 IR	LY3	5	0.959	1,2,3	
20.70	82 PB	LA2	4	1.186	1,2,3		20.93	76 OS	LY4	5	0.959	1,2	
20.70	75 RE	LB7	4	1.186	1,2		20.94	66 DY	LB7	3	1.599	1,2	
20.74	56 BA	LB9	2	2.376	1,2		20.95	66 DY	LB9	3	1.600	1	
20.75	76 OS	LL	3	1.585	1,2,3		20.96	68 ER	LB4	3	1.601	1,2,3	
20.77	57 LA	LB6	2	2.379	1,2,3		20.99	56 BA	LB2	2	2.404	1,2,3	
20.77	83 BI	LB1	5	0.952	1,2,3		21.00	82 PB	LB7	5	0.962	1,2	
20.77	60 ND	LA2	2	2.380	1,3		21.00	79 AU	LN	4	1.203	1,2,3	
20.78	68 ER	LB1	3	1.587	1,2,3		21.02	74 W	LB9	4	1.204	1,2	
20.80	82 PB	LB5	5	0.953	1,2		21.03	60 ND	LN	2	2.409	1,2,3	
20.83	63 EU	LY3	3	1.591	1,2,3		21.03	62 SP	LY4	3	1.606	1,2	
20.84	56 BA	LB10	2	2.387	1,2		21.04	81 TL	LB10	5	0.964	1,2	
20.84	83 BI	LB2	5	0.955	1,2,3		21.04	57 LA	LB3	2	2.410	1,2,3	
20.84	64 GD	LY1	3	1.592	1,2,3		21.04	66 DY	LB10	3	1.607	1	
20.86	79 AU	LY5	5	0.956	1,2		21.06	77 IR	LY2	5	0.965	1,2,3	
20.86	90 TH	LA1	5	0.956	1,2,3		21.07	27 CC	KB5	3	1.609	1,2	
20.87	53 I	LY4	2	2.391	1,2		21.07	81 TL	LA1	4	1.207	1,2,3	
20.88	31 GA	KB2	4	1.196	1,2,3		21.07	75 RE	LB2	4	1.207	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						21.09 TC 21.52					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
21.09	31 GA	K83	4	1.208	1,2	21.34	71 LU	LY1	4	1.222	1,2,3
21.09	31 GA	K81	4	1.208	1,2,3	21.35	71 LU	LA2	3	1.630	1,2,3
21.10	55 CS	LY5	2	2.417	1,2	21.35	75 RE	LL	3	1.630	1,2,3
21.11	84 PO	LB6	5	0.967	1,2,3	21.37	53 I	LY3	2	2.447	1,2
21.11	77 IR	LY6	5	0.967	1,2	21.37	53 I	LY2	2	2.447	1,2,3
21.11	42 MO	LY5	1	4.837	1,2	21.38	74 W	LB7	4	1.224	1,2
21.13	90 TH	LA2	5	0.968	1,2,3	21.38	57 LA	LB4	2	2.449	1,2,3
21.15	82 PB	LB3	5	0.969	1,2,3	21.39	89 AC	LA1	5	0.980	1
21.15	44 RU	LA1	1	4.846	1,2,3	21.39	34 SE	K82	5	0.980	1,2,3
21.16	74 W	LB10	4	1.212	1,2	21.39	36 KR	KA1	5	0.980	1,2,3
21.18	76 OS	LB6	4	1.213	1,2,3	21.41	81 TL	LB5	5	0.981	1,2
21.18	44 RU	LA2	1	4.853	1,2,3	21.43	70 YB	LN	3	1.636	1,2,3
21.20	67 HO	LB3	3	1.619	1,2,3	21.44	82 PB	LB1	5	0.982	1,2,3
21.20	71 LU	LA1	3	1.619	1,2,3	21.46	82 PB	LB2	5	0.983	1,2,3
21.22	74 W	LB5	4	1.215	1,2	21.46	69 TM	LY4	4	1.229	1
21.22	72 HF	LY5	4	1.215	1,2	21.46	70 YB	LY2	4	1.229	1,2,3
21.23	27 CO	K81	3	1.621	1,2,3	21.46	57 LA	LB1	2	2.458	1,2,3
21.24	67 HO	LB6	3	1.622	1,2,3	21.48	36 KR	KA2	5	0.984	1,2,3
21.26	66 DY	LB2	3	1.623	1,2,3	21.48	34 SE	K85	5	0.984	1,2
21.27	76 OS	LB4	4	1.218	1,2,3	21.49	45 RH	LN	1	4.922	1,2,3
21.29	81 TL	LA2	4	1.219	1,2,3	21.49	42 MC	LB2	1	4.923	1,2,3
21.30	75 RE	LB3	4	1.220	1,2,3	21.49	64 GC	LY5	3	1.641	1
21.32	43 TC	LB1	1	4.884	1	21.50	54 XE	LY1	2	2.462	1
21.33	83 RI	LB4	5	0.977	1,2,3	21.51	59 PR	LA1	2	2.463	1,2,3
21.34	70 YB	LY3	4	1.222	1,2,3	21.52	80 HG	LB9	5	0.986	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							21.57 TO 21.94						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
21.57	78 PT	LY5	5	0.988	1,2		21.73	65 TB	LB7	3	1.659	1,2	
21.57	67 HC	LB1	3	1.647	1,2,3		21.73	67 HC	LB4	3	1.659	1,2,3	
21.60	59 PR	LA2	2	2.473	1,2,3		21.73	62 SM	LY2	3	1.659	1,2,3	
21.61	81 TL	LB7	5	0.990	1,2		21.75	74 W	LB2	4	1.245	1,2,3	
21.62	46 PD	LL	1	4.952	1,2,3		21.75	80 HG	LB10	5	0.996	1,2	
21.63	40 IR	LY2	1	4.953	1,2,3		21.76	55 CS	LB10	2	2.492	1,2	
21.63	40 IR	LY3	1	4.953	1,2		21.76	73 TA	LB9	4	1.246	1,2	
21.64	77 IR	LY1	5	0.991	1,2,3		21.77	28 NI	KA2	3	1.662	1,2,3	
21.64	75 RE	LB1	4	1.239	1,2,3		21.79	76 OS	LY2	5	0.998	1,2,3	
21.64	55 CS	LB9	2	2.478	1,2		21.82	22 TI	KB5	2	2.498	1,2	
21.66	34 SE	KB1	5	0.992	1,2,3		21.84	65 TB	LB10	3	1.667	1,2	
21.66	76 DS	LY3	5	0.992	1,2,3		21.85	75 RE	LB6	4	1.251	1,2,3	
21.66	75 RE	LY4	5	0.992	1,2		21.86	81 TL	LB3	5	1.001	1,2,3	
21.66	89 AC	LA2	5	0.992	1		21.86	76 OS	LY6	5	1.001	1,2	
21.68	80 HG	LA1	4	1.241	1,2,3		21.86	23 V	KA1	2	2.503	1,2,3	
21.68	62 SM	LL	2	2.482	1,2,3		21.89	80 HG	LA2	4	1.253	1,2,3	
21.68	56 BA	LB6	2	2.482	1,2,3		21.89	42 MC	LB3	1	5.013	1,2,3	
21.68	62 SM	LY3	3	1.655	1,2,3		21.90	23 V	KA2	2	2.507	1,2,3	
21.68	34 SE	KB3	5	0.993	1,2		21.91	73 TA	LB10	4	1.254	1,2	
21.68	83 BI	LB6	5	0.993	1,2,3		21.91	32 GE	KA1	4	1.254	1,2,3	
21.70	55 CS	LB7	2	2.485	1,2		21.91	70 YB	LA1	3	1.672	1,2,3	
21.71	70 YB	LY6	4	1.243	1,2		21.92	73 TA	LB5	4	1.255	1,2	
21.71	78 PT	LN	4	1.243	1,2,3		21.93	55 CS	LB2	2	2.511	1,2,3	
21.72	28 NI	KA1	3	1.658	1,2,3		21.93	52 TE	LY4	2	2.511	1,2	
21.72	63 EU	LY1	3	1.658	1,2,3		21.94	59 PR	LN	2	2.512	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS						21.94 TO 22.44					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
21.94	88 RA	LA1	5	1.005	1,2,3	22.22	69 TM	LN	3	1.696	1,2,3
21.96	22 TI	KB1	2	2.514	1,2,3	22.25	80 HG	LB7	5	1.019	1,2
21.96	22 TI	KB3	2	2.514	1,2	22.26	69 TM	LY2	4	1.274	1,2,3
21.98	16 S	KB1	1	5.032	1,2,3	22.29	79 AU	LA1	4	1.276	1,3
21.98	56 BA	LB3	2	2.516	1,2,3	22.29	68 ER	LY4	4	1.276	1,2
21.98	32 GE	KA2	4	1.258	1,2,3	22.30	82 PB	LB6	5	1.021	1,2,3
21.98	74 W	LL	3	1.678	1,2,3	22.30	79 AU	LB9	5	1.021	1,2
21.99	82 PB	LB4	5	1.007	1,2,3	22.32	56 BA	LB4	2	2.555	1,2,3
21.99	41 NB	LY1	1	5.036	1,2,3	22.32	77 IR	LY5	5	1.022	1,2
21.99	75 RE	LB4	4	1.259	1,2,3	22.34	43 TC	LA1	1	5.114	1
22.01	71 LU	LY5	4	1.260	1,2	22.36	83 BI	MA1	1	5.118	1,2
22.02	66 DY	LB3	3	1.681	1,2,3	22.37	58 CE	LA1	2	2.561	1,2,3
22.02	66 DY	LB6	3	1.681	1,2,3	22.38	43 TC	LA2	1	5.123	1
22.04	65 TB	LB2	3	1.682	1,2,3	22.38	63 EU	LY5	3	1.708	1,2
22.05	70 YB	LA2	3	1.683	1,2,3	22.39	76 CS	LY1	5	1.025	1,2,3
22.05	42 MO	LB6	1	5.049	1,2,3	22.40	74 W	LB1	4	1.282	1,2,3
22.05	42 MO	LB4	1	5.049	1,2,3	22.40	83 BI	MA2	1	5.129	1,2
22.06	80 HG	LB5	5	1.010	1,2	22.41	75 RE	LY3	5	1.026	1,2,3
22.06	81 TL	LB2	5	1.010	1,2,3	22.41	66 DY	LB1	3	1.710	1,2,3
22.06	74 W	LB3	4	1.263	1,2,3	22.43	52 TE	LY3	2	2.567	1,2
22.08	73 TA	LB7	4	1.264	1,2	22.43	52 TE	LY2	2	2.567	1,3
22.15	69 TM	LY3	4	1.268	1,2,3	22.43	56 BA	LB1	2	2.567	1,2,3
22.15	70 YB	LY1	4	1.268	1,2,3	22.44	30 ZN	K82	4	1.284	1,2,3
22.17	81 TL	LB1	5	1.015	1,2,3	22.44	77 IR	LN	4	1.284	1,2,3
22.19	88 RA	LA2	5	1.016	1,2,3	22.44	73 TA	LB2	4	1.284	1,2,3

KAP CRYSTAL, D#13.2CC ANGSTROMS						22.45 TO 22.94					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
22.45	79 AU	LB10	5	1.028	1,2	22.69	64 GC	LB10	3	1.731	1,2
22.45	30 ZN	KB5	4	1.285	1,2	22.70	81 TL	LB4	5	1.039	1,2,3
22.45	58 CE	LA2	2	2.570	1,2,3	22.72	35 BR	KA1	5	1.040	1,2,3
22.45	74 W	LY4	5	1.028	1,2	22.72	80 HG	LB2	5	1.040	1,2,3
22.50	87 FR	LA1	5	1.030	1,2,3	22.72	79 AU	LB5	5	1.040	1,2
22.50	41 NB	LY5	1	5.151	1,2	22.74	44 RU	LN	1	5.205	1,2,3
22.51	79 AU	LA2	4	1.288	1,2,3	22.75	74 W	LB4	4	1.302	1,2,3
22.54	66 DY	LB4	3	1.720	1,2,3	22.76	87 FR	LA2	5	1.042	1
22.54	75 RE	LY2	5	1.032	1,2,3	22.77	69 TM	LA2	3	1.737	1,2,3
22.54	72 HF	LB9	4	1.290	1,2	22.79	45 RH	LL	1	5.217	1,2,3
22.54	69 TM	LY6	4	1.290	1	22.81	35 BR	KA2	5	1.044	1,2,3
22.54	74 W	LB6	4	1.290	1,2,3	22.82	65 TB	LB6	3	1.741	1,2,3
22.56	53 I	LY1	2	2.582	1,2,3	22.83	70 YB	LY5	4	1.306	1,2
22.58	64 GC	LB7	3	1.723	1,2	22.83	72 HF	LB7	4	1.306	1,2
22.59	80 HG	LB3	5	1.034	1,2,3	22.83	33 AS	KB2	5	1.045	1,2,3
22.60	64 GC	LB9	3	1.724	1	22.84	73 TA	LB3	4	1.307	1,2,3
22.62	42 MC	LB1	1	5.177	1,2,3	22.86	60 NC	LY4	3	1.744	1,2
22.62	69 TM	LA1	3	1.726	1,2,3	22.86	26 FE	KB5	3	1.744	1,2
22.63	30 ZN	KB1	4	1.295	1,2,3	22.88	64 GC	LB2	3	1.745	1,2,3
22.64	62 SM	LY1	3	1.727	1,2,3	22.89	41 NB	LB2	1	5.238	1,2,3
22.65	73 TA	LL	3	1.728	1,2,3	22.89	65 TB	LB3	3	1.746	1,2,3
22.65	75 RE	LY6	5	1.037	1,2	22.90	58 CE	LN	2	2.620	1,2,3
22.66	55 CS	LB6	2	2.593	1,2,3	22.92	33 AS	KB5	5	1.049	1,2
22.68	72 HF	LB10	4	1.298	1,2	22.92	80 HG	LB1	5	1.049	1,2,3
22.68	72 HF	LB5	4	1.298	1,2	22.94	81 TL	LB6	5	1.050	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS.						22.94 TO 23.41					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
22.94	79 AU	LB7	5	1.050	1,2	23.20	73 TA	LB1	4	1.327	1,2,3
22.95	54 XE	LB2	2	2.626	1	23.21	41 NB	LB3	1	5.310	1,2,3
22.95	78 PT	LA1	4	1.313	1,2,3	23.21	78 PT	LB10	5	1.062	1,2
22.97	55 CS	LB3	2	2.628	1,2,3	23.21	74 W	LY3	5	1.062	1,2,3
22.98	69 TM	LY1	4	1.315	1,2,3	23.22	76 OS	LN	4	1.328	1,2,3
22.98	68 ER	LY3	4	1.315	1,2,3	23.22	53 I	LY5	2	2.657	1,2
23.00	83 BI	LL	4	1.316	1,2,3	23.27	73 TA	LB6	4	1.331	1,2,3
23.02	68 ER	LN	3	1.756	1,2,3	23.27	73 TA	LY4	5	1.065	1,2
23.03	78 PT	LB9	5	1.054	1,2	23.29	65 TB	LB1	3	1.776	1,2,3
23.03	26 FE	KB1	3	1.757	1,2,3	23.29	57 LA	LA1	2	2.665	1,2,3
23.06	51 SB	LY4	2	2.639	1,2	23.30	55 CS	LB4	2	2.666	1,2,3
23.09	39 Y	LY2	1	5.283	1,2,3	23.32	92 U	LL	5	1.067	2,3
23.09	39 Y	LY3	1	5.283	2	23.33	62 SM	LY5	3	1.779	1
23.09	68 ER	LY2	4	1.321	1,2,3	23.33	62 SM	LB5	3	1.779	2
23.10	33 AS	KB1	5	1.057	1,2,3	23.34	74 W	LY2	5	1.068	1,2,3
23.10	82 PB	MA1	1	5.285	1,2	23.34	79 AU	LB3	5	1.068	1,2,3
23.10	86 RN	LA1	5	1.057	1	23.35	72 HF	LL	3	1.781	1,2,3
23.10	76 OS	LY5	5	1.057	1,2	23.36	71 LU	LB9	4	1.336	1,2
23.11	67 HC	LY4	4	1.322	1,2	23.36	41 NB	LB4	1	5.345	1,2,3
23.12	33 AS	KB3	5	1.058	1,2	23.36	86 RN	LA2	5	1.069	1
23.14	83 BI	LN	5	1.059	1,2,3	23.38	57 LA	LA2	2	2.674	1,2,3
23.14	78 PT	LA2	4	1.324	1,2,3	23.38	79 AU	LB2	5	1.070	1,2,3
23.16	82 PB	MA2	1	5.299	1,2	23.39	68 ER	LA1	3	1.784	1,2,3
23.18	72 HF	LB2	4	1.326	1,2,3	23.39	60 NC	LL	2	2.676	1,2,3
23.18	75 RE	LY1	5	1.061	1,2,3	23.41	65 TB	LB4	3	1.785	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						23.43 TO 23.88					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
23.43	78 PT	LB5	5	1.072	1,2	23.62	60 NC	LY2	3	1.801	1,2,3
23.43	31 GA	KA1	4	1.340	1,2,3	23.62	77 IR	LA1	4	1.351	1,2,3
23.43	80 HG	LB4	5	1.072	1,2,3	23.63	42 MC	LA1	1	5.456	1,2,3
23.43	41 NB	LB6	1	5.361	1,2,3	23.65	78 PT	LB7	5	1.082	1,2
23.45	63 EU	LB7	3	1.788	1,2	23.66	72 HF	LB3	4	1.353	1,2,3
23.45	55 CS	LB1	2	2.683	1,2,3	23.67	42 MC	LA2	1	5.414	1,2,3
23.46	27 CC	KA1	3	1.789	1,2,3	23.69	79 AU	LB1	5	1.084	1,2,3
23.46	71 LU	LB5	4	1.342	1,2	23.69	69 TM	LY5	4	1.355	1,2
23.47	74 W	LY6	5	1.074	1,2	23.70	64 GC	LB6	3	1.807	1,2,3
23.48	16 S	KA1	1	5.372	1,2,3	23.71	52 TE	LY1	2	2.712	1,2,3
23.48	71 LU	LB10	4	1.343	1,2	23.72	85 AT	LA1	5	1.085	1
23.49	16 S	KA2	1	5.375	1,2,3	23.72	53 I	LB9	2	2.713	1,2
23.50	63 EU	LB9	3	1.792	1,2	23.76	63 EU	LB2	3	1.812	1,2,3
23.50	31 GA	KA2	4	1.344	1,2,3	23.78	53 I	LB10	2	2.720	1,2
23.51	27 CC	KA2	3	1.793	1,2,3	23.80	64 GC	LB3	3	1.815	1,2,3
23.53	73 TA	LB4	4	1.346	1,2,3	23.82	61 PM	LY1	3	1.816	1
23.53	40 ZR	LY1	1	5.384	1,2,3	23.82	77 IR	LA2	4	1.362	1,2,3
23.55	68 ER	LA2	3	1.796	1,2,3	23.83	77 IR	LB9	5	1.090	1,2
23.55	60 NC	LY3	3	1.796	1,2,3	23.85	91 PA	LL	5	1.091	1,2,3
23.56	51 SB	LY2	2	2.695	1,2,3	23.85	68 ER	LY1	4	1.364	1,2,3
23.56	51 SB	LY3	2	2.695	1,2	23.85	67 HC	LY3	4	1.364	1,2,3
23.59	71 LU	LB7	4	1.340	1,2	23.86	59 PR	LY4	3	1.819	1,2
23.61	82 PB	LL	4	1.350	1,2,3	23.87	82 PB	LN	5	1.092	1,2,3
23.61	80 HG	LB6	5	1.080	1,2,3	23.87	53 I	LB7	2	2.730	1,2
23.61	63 EU	LB10	3	1.800	1,2	23.88	81 TL	MA1	1	5.461	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							23.92 TO 24.35					
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF
23.92	75 RE	LY5	5	1.094	1,2		24.16	73 TA	LY2	5	1.105	1,2,3
23.92	81 TL	MA2	1	5.472	1,2		24.16	34 SE	KA1	5	1.105	1,2,3
23.95	67 HC	LN	3	1.826	1,2,3		24.17	21 SC	KB5	2	2.764	1,2
23.96	71 LU	LB2	4	1.370	1,2,3		24.17	29 CU	KB5	4	1.382	2
23.96	57 LA	LN	2	2.740	1,2,3		24.18	77 IR	LB5	5	1.106	1,2
23.96	67 HC	LY2	4	1.370	1,2,3		24.20	67 HC	LA1	3	1.845	1,2,3
23.98	77 IR	LB1J	5	1.697	1,2		24.20	79 AU	LB4	5	1.107	1,2,3
23.98	85 AT	LA2	5	1.097	1		24.21	70 YB	LB9	4	1.384	1,2
24.01	41 NB	LB1	1	5.492	1,2,3		24.22	64 GD	LB1	3	1.846	1,2,3
24.01	75 RE	LN	4	1.373	1,2,3		24.23	81 TL	LL	4	1.385	1,2,3
24.03	73 TA	LY3	5	1.099	1,2,3		24.25	34 SE	KA2	5	1.109	1,2,3
24.03	74 W	LY1	5	1.099	1,2,3		24.26	70 YB	LB5	4	1.387	1,2
24.03	66 DY	LY4	4	1.374	1,2		24.27	56 BA	LA1	2	2.775	1,2,3
24.03	72 HF	LB6	4	1.374	1,2,3		24.29	50 SN	LY4	2	2.777	1,2
24.03	72 HF	LB1	4	1.374	1,2,3		24.29	79 AU	LB6	5	1.111	1,2,3
24.03	22 TI	KA1	2	2.748	1,2,3		24.31	64 GC	LB4	3	1.853	1,2,3
24.04	40 ZR	LY5	1	5.497	1,2		24.32	21 SC	KB1	2	2.780	1,2,3
24.05	53 I	LB2	2	2.750	1,2,3		24.33	76 OS	LA1	4	1.391	1,2,3
24.06	44 RU	LL	1	5.513	1,2,3		24.33	70 YB	LB10	4	1.391	1,2
24.07	22 TI	KA2	2	2.752	1,2,3		24.34	60 NC	LY6	3	1.855	2
24.08	71 LU	LL	3	1.836	1,2,3		24.35	72 HF	LB4	4	1.392	1,2,3
24.09	78 PT	LB2	5	1.102	1,2,3		24.35	59 PR	LL	2	2.784	1,2,3
24.12	72 HF	LY4	5	1.103	1,2		24.35	62 SM	LB7	3	1.856	1,2
24.14	78 PT	LB3	5	1.104	1,2,3		24.35	67 HC	LA2	3	1.856	1,2,3
24.16	29 CU	KB2	4	1.381	2,3		24.35	29 CU	KB1	4	1.392	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							24.36 TO 24.89						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
24.36	56 BA	LA2	2	2.785	1,2,3		24.67	81 TL	LN	5	1.128	1,2,3	
24.36	84 PO	LA1	5	1.114	1,2,3		24.69	38 SR	LY2	1	5.644	1,2,3	
24.36	73 TA	LY6	5	1.114	1,2		24.69	38 SR	LY3	1	5.644	1,2	
24.37	29 CU	KB3	4	1.393	1,2		24.69	32 GE	KB3	5	1.129	1,2	
24.38	77 IR	LB7	5	1.115	1,2		24.69	32 GE	KB1	5	1.129	1,2,3	
24.38	90 TH	LL	5	1.115	1,2,3		24.70	62 SM	LB2	3	1.832	1,2,3	
24.40	52 TE	LY5	2	2.790	1,2		24.76	74 W	LY5	5	1.132	1,2	
24.40	70 YB	LB7	4	1.395	1,2		24.76	70 YB	LB2	4	1.415	1,2,3	
24.42	62 SM	LB9	3	1.861	1,2		24.76	63 EU	LB3	3	1.887	1,2,3	
24.43	32 GE	KB2	5	1.117	1,2,3		24.78	76 CS	LB10	5	1.133	1,2	
24.43	40 ZR	LB2	1	5.586	2,3		24.79	80 HG	MA2	1	5.666	1,2	
24.47	32 GE	KB5	5	1.119	1,2		24.79	80 HG	MA1	1	5.666	1,2	
24.49	78 PT	LB1	5	1.120	1,2,3		24.79	50 SN	LY2	2	2.833	1,3	
24.51	71 LU	LB3	4	1.431	1,2,3		24.80	67 HC	LY1	4	1.417	1,2,3	
24.52	54 KE	LB1	2	2.803	1		24.80	66 CY	LY3	4	1.417	1,2,3	
24.52	62 SM	LB10	3	1.869	1,2		24.80	40 ZR	LB4	1	5.668	1,2,3	
24.53	76 JS	LA2	4	1.402	1,2,3		24.82	53 I	LB6	2	2.837	1,2,3	
24.59	59 PR	LY3	3	1.874	1,2,3		24.83	77 IR	LB2	5	1.135	1,2,3	
24.59	63 EU	LB6	3	1.874	1,2,3		24.83	71 LU	LB6	4	1.419	1,2,3	
24.60	68 ER	LY5	4	1.406	1,2		24.84	52 TE	LB9	2	2.839	1,2	
24.63	84 PO	LA2	5	1.126	1,2,3		24.86	70 YB	LL	3	1.894	1,2,3	
24.63	76 JS	LB9	5	1.126	1,2		24.87	74 W	LN	4	1.421	1,2,3	
24.64	40 ZR	LB3	1	5.633	1,2,3		24.88	80 HG	LL	4	1.422	1,2,3	
24.64	60 ND	LY1	3	1.878	1,2,3		24.89	72 HF	LY3	5	1.138	1,2,3	
24.66	59 PR	LY2	3	1.879	1,2,3		24.89	73 TA	LY1	5	1.138	1,2,3	

KAP CRYSTAL, D#13.2CC ANGSTROMS						24.90 TO 25.54					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
24.90	25 MN	KB5	3	1.897	1,2	25.15	53 I	LB3	2	2.874	1,2,3
24.90	66 DY	LN	3	1.897	1,2,3	25.19	30 ZN	KA2	4	1.439	1,2,3
24.90	66 DY	LY2	4	1.423	1,2,3	25.20	63 EU	LB1	3	1.920	1,2,3
24.91	52 TE	LB10	2	2.847	1,2	25.20	66 DY	LA2	3	1.920	1,2,3
24.92	71 LU	LB1	4	1.424	1,2,3	25.20	71 LU	LB4	4	1.440	1,2,3
24.92	58 CE	LY4	3	1.899	1,2	25.22	52 TE	LB2	2	2.882	1,2,3
24.94	76 OS	LB5	5	1.140	1,2	25.22	69 TM	LB10	4	1.441	1
24.95	51 SB	LY1	2	2.851	1,2,3	25.27	72 HF	LY6	5	1.155	1,2
24.96	77 IR	LB3	5	1.141	1,2,3	25.27	83 BI	LA2	5	1.155	1,2,3
24.97	65 TB	LY4	4	1.427	1,2	25.28	75 RE	LA2	4	1.444	1,2,3
24.98	78 PT	LB4	5	1.142	1,2,3	25.28	63 EU	LB4	3	1.926	1,2,3
24.98	40 ZR	LB6	1	5.710	1,2,3	25.31	58 CE	LL	2	2.892	1,2,3
25.00	71 LU	LY4	5	1.143	1	25.31	55 CS	LA1	2	2.892	1,2,3
25.03	78 PT	LB6	5	1.144	1,2,3	25.34	77 IR	LB1	5	1.158	1,2,3
25.03	83 BI	LA1	5	1.144	1,2,3	25.40	55 CS	LA2	2	2.902	1,2,3
25.03	72 HF	LY2	5	1.144	1,2,3	25.40	15 P	KB1	1	5.804	1,2,3
25.04	56 BA	LN	2	2.862	1,2,3	25.40	60 ND	LY5	3	1.935	1,2
25.04	41 NB	LA1	1	5.724	1,2,3	25.42	70 YB	LB3	4	1.452	1,2,3
25.05	52 TE	LB7	2	2.863	1,2	25.42	26 FE	KA1	3	1.936	1,2,3
25.06	66 DY	LA1	3	1.909	1,2,3	25.47	26 FE	KA2	3	1.940	1,2,3
25.07	25 MN	KB1	3	1.910	1,2,3	25.47	80 HG	LN	5	1.164	1,2,3
25.08	41 NB	LA2	1	5.732	2,3	25.49	53 I	LB4	2	2.912	1,2,3
25.08	75 RE	LA1	4	1.433	1,2,3	25.49	75 RE	LB9	5	1.165	1,2
25.12	30 ZN	KA1	4	1.435	1,2,3	25.54	88 RA	LL	5	1.167	1,2,3
25.14	76 OS	LB7	5	1.149	1,2	25.54	40 ZR	LB1	1	5.836	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						25.55 TO 26.08					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
25.55	62 SM	LB6	3	1.946	1,2,3	25.76	62 SM	LB3	3	1.962	1,2,3
25.56	79 AU	MA1	1	5.840	1,2	25.78	77 IR	LB6	5	1.178	1,2,3
25.56	79 AU	LL	4	1.460	1,2,3	25.79	66 DY	LY1	4	1.473	1,2,3
25.59	42 MC	LN	1	5.847	1,2,3	25.80	72 HF	LY1	5	1.179	1,2,3
25.60	67 HO	LY5	4	1.462	1,2	25.80	71 LU	LY3	5	1.179	1,2,3
25.60	76 OS	LB2	5	1.170	1,2,3	25.83	33 AS	KA2	5	1.180	1,2,3
25.61	69 TM	LB2	4	1.463	1,2,3	25.83	77 IR	LB4	5	1.180	1,2,3
25.61	49 IN	LY4	2	2.926	1,2	25.83	76 CS	LB3	5	1.180	1,2,3
25.62	79 AU	MA2	1	5.854	1,2	25.84	74 W	LA1	4	1.476	1,2,3
25.65	75 RE	LB10	5	1.172	1,2	25.84	70 YB	LB1	4	1.476	1,2,3
25.67	51 SB	LY5	2	2.932	1,2	25.86	65 TB	LY2	4	1.477	1,2,3
25.67	70 YB	LB6	4	1.466	1,2,3	25.88	71 LU	LN	4	1.478	1,2
25.67	58 CE	LY3	3	1.955	1,2,3	25.91	65 TB	LN	3	1.973	1
25.67	69 TM	LL	3	1.955	1,2,3	25.94	71 LU	LY2	5	1.185	1,2,3
25.67	73 TA	LY5	5	1.173	1,2	25.94	65 TB	LA1	3	1.975	1,2,3
25.70	61 PM	LB2	3	1.957	1	25.94	70 YB	LY4	5	1.185	1,2
25.71	53 I	LB1	2	2.937	1,2,3	25.96	75 RE	LB7	5	1.186	1,2
25.72	39 Y	LY5	1	5.875	1,2	25.96	82 PB	LA2	5	1.186	1,2,3
25.72	82 PB	LA1	5	1.175	1,2,3	26.01	64 GD	LY4	4	1.485	1,2
25.74	58 CE	LY2	3	1.960	1,2,3	26.01	68 ER	LB9	4	1.485	1,2
25.74	33 AS	KA1	5	1.176	1,2,3	26.01	52 TE	LB6	2	2.971	1,2,3
25.75	59 PR	LY1	3	1.961	1,2,3	26.02	51 SB	LB9	2	2.972	1,2
25.76	73 TA	LN	4	1.471	1,2,3	26.04	74 W	LA2	4	1.487	1,2,3
25.76	65 TB	LY3	4	1.471	1,2,3	26.05	57 LA	LY4	3	1.983	1,2
25.76	75 RE	LB5	5	1.177	1,2	26.08	28 NI	KB5	4	1.489	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							26.08 TO 26.59						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
26.08	28 NI	K82	4	1.489	1,2,3		26.36	74 W	L89	5	1.204	1,2	
26.09	65 TB	LA2	3	1.986	1,2,3		26.39	63 NC	L87	3	2.039	1,2	
26.09	51 SB	L810	2	2.979	1,2		26.41	54 XE	LA1	2	3.015	1	
26.09	49 IN	LY2	2	2.980	1,2,3		26.43	81 TL	LA1	5	1.207	1,2,3	
26.09	49 IN	LY3	2	2.980	1,2		26.43	75 RE	L82	5	1.207	1,2,3	
26.11	70 YB	L84	4	1.491	1,2,3		26.45	31 GA	K81	5	1.208	1,2,3	
26.17	68 ER	L810	4	1.494	1,2		26.45	31 GA	K83	5	1.208	1,2	
26.17	68 ER	L87	4	1.494	1,2		26.47	37 RB	LY3	1	6.045	1,2	
26.18	31 GA	K82	5	1.196	1,2,3		26.48	78 PT	MA1	1	6.046	1,2	
26.20	39 Y	L83	1	5.983	1,2,3		26.48	37 RB	LY2	1	6.046	1,2,3	
26.21	76 OS	L81	5	1.197	1,2,3		26.48	51 SB	L82	2	3.023	1,2,3	
26.21	31 GA	K85	5	1.197	1,2		26.49	60 NC	L89	3	2.016	1,2	
26.21	55 CS	LN	2	2.993	1,2,3		26.50	54 XE	LA2	2	3.025	1	
26.23	71 LU	LY6	5	1.198	1,2		26.52	68 ER	L82	4	1.514	1,2,3	
26.25	62 SM	L81	3	1.998	1,2,3		26.53	68 ER	LL	3	2.019	1,2,3	
26.25	78 PT	LL	4	1.499	1,2,3		26.53	78 PT	MA2	1	6.057	1,2	
26.27	62 SM	L84	3	2.000	1,2,3		26.54	59 PR	LY5	3	2.020	1,2	
26.27	28 NI	K81	4	1.500	1,2,3		26.54	69 TM	L86	4	1.515	1,2,3	
26.28	50 SN	LY1	2	3.001	1,2,3		26.54	74 W	L810	5	1.212	1,2	
26.32	51 SB	L87	2	3.005	1		26.55	21 SC	KA1	2	3.031	1,2,3	
26.33	57 LA	LL	2	3.006	1,2,3		26.56	76 CS	L86	5	1.213	1,2,3	
26.34	79 AU	LN	5	1.203	1,2,3		26.58	60 NC	L810	3	2.023	1,2	
26.35	52 TE	L83	2	3.009	1,2,3		26.58	21 SC	KA2	2	3.035	1,2,3	
26.35	39 Y	L84	1	6.018	1,2,3		26.58	40 ZR	LA1	1	6.070	1,2,3	
26.36	69 TM	L83	4	1.505	1,2,3		26.59	66 DY	LY5	4	1.518	1,2	

CAP CRYSTAL, D#13.20E ANGSTROMS						26.61 TO 27.30					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
26.61	72 HF	LY5	5	1.215	1,2	26.93	64 GC	LN	3	2.049	1,2,3
26.61	74 W	LB5	5	1.215	1,2	26.93	20 CA	K85	2	3.074	1,2
26.62	40 ZR	LA2	1	6.073	1,2,3	26.94	42 MC	LL	1	6.150	1,2,3
26.67	73 TA	LA1	4	1.522	1,2,3	26.96	52 TE	LB1	2	3.077	1,2,3
26.67	76 OS	LB4	5	1.213	1,2,3	26.96	15 P	KA2	1	6.155	1,2,3
26.68	72 HF	LN	4	1.523	1,2,3	26.96	15 P	KA1	1	6.155	1,2,3
26.68	52 TE	LB4	2	3.045	1,2,3	27.00	29 CU	KA1	4	1.541	1,2,3
26.69	39 Y	LB6	1	6.094	1,2,3	27.00	77 IR	LL	4	1.541	1,2,3
26.70	81 TL	LA2	5	1.219	1,2,3	27.03	50 SN	LY5	2	3.085	1,2
26.72	75 RE	LB3	5	1.220	1,2,3	27.04	64 GC	LA2	3	2.057	1,2,3
26.75	60 NC	LB2	3	2.035	1,2,3	27.06	63 EU	LY4	4	1.544	1,2
26.76	70 YB	LY3	5	1.222	1,2,3	27.06	69 TM	LB4	4	1.544	1,2,3
26.76	71 LU	LY1	5	1.222	1,2,3	27.06	29 CU	KA2	4	1.544	1,2,3
26.79	64 GC	LY3	4	1.529	1,2,3	27.08	20 CA	K81	2	3.090	1,2,3
26.81	74 W	LB7	5	1.224	1,2	27.14	75 RE	LB1	5	1.239	1,2,3
26.81	65 TB	LY1	4	1.530	1,2,3	27.15	67 HC	LB10	4	1.549	1
26.81	69 TM	LB1	4	1.530	1,2,3	27.19	80 HG	LA1	5	1.241	1,2,3
26.82	57 LA	LY3	3	2.041	1,2,3	27.21	41 NE	LN	1	6.211	1,2,3
26.86	73 TA	LA2	4	1.533	1,2,3	27.22	39 Y	LB1	1	6.212	1,2,3
26.88	64 GC	LY2	4	1.534	1,2,3	27.22	24 CR	K85	3	2.071	1,2
26.89	57 LA	LY2	3	2.046	1,2,3	27.23	70 YB	LY6	5	1.243	1,2
26.89	64 GC	LA1	3	2.045	1,2,3	27.23	78 PT	LN	5	1.243	1,2,3
26.91	58 CE	LY1	3	2.043	1,2,3	27.28	74 W	LB2	5	1.245	1,2,3
26.92	70 YB	LY2	5	1.229	1,2,3	27.28	56 BA	LY4	3	2.075	1,2
26.92	69 TM	LY4	5	1.229	1	27.30	51 SB	LB6	2	3.115	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						27.30 TO 27.90					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
27.30	73 TA	LB9	5	1.246	1,2	27.59	53 I	LA1	2	3.148	1,2,3
27.30	50 SN	LB9	2	3.115	1,2	27.61	71 LU	LY5	5	1.260	1,2
27.35	50 SN	LB10	2	3.121	1,2	27.61	59 PR	LB9	3	2.100	1,2
27.36	61 PM	LB1	3	2.081	1,2,3	27.63	51 SE	LB3	2	3.152	1,2,3
27.36	68 ER	LB3	4	1.561	1,2,3	27.64	25 MN	KA1	3	2.102	1,2,3
27.41	24 CR	KB1	3	2.085	1,2,3	27.65	65 TB	LB5	4	1.577	2
27.41	24 CR	KB3	3	2.085	1,2	27.65	65 TB	LY5	4	1.577	1
27.41	75 RE	LB6	5	1.251	1,2,3	27.66	50 SN	LB7	2	3.155	1,2
27.42	67 HC	LL	3	2.086	1,2,3	27.67	60 ND	LB6	3	2.104	1,2,3
27.44	77 IR	MA1	1	6.261	1,2	27.68	74 W	LB3	5	1.263	1,2,3
27.46	80 HG	LA2	5	1.253	1,2,3	27.68	53 I	LA2	2	3.158	1,2,3
27.47	67 HC	LB2	4	1.567	1,2,3	27.69	25 MN	KA2	3	2.106	1,2,3
27.47	68 ER	LB6	4	1.567	1,2,3	27.70	72 HF	LA2	4	1.580	1,2,3
27.48	73 TA	LB10	5	1.254	1,2	27.70	73 TA	LB7	5	1.264	1,2
27.48	56 BA	LL	2	3.135	1,2,3	27.71	59 PR	LB10	3	2.107	1,2
27.48	32 GE	KA1	5	1.254	1,2,3	27.72	49 IN	LY1	2	3.162	1,2,3
27.49	59 PR	LB7	3	2.091	1,2	27.75	58 CE	LY5	3	2.110	1,2
27.50	48 CD	LY3	2	3.137	1,2	27.79	76 OS	LL	4	1.585	1,2,3
27.50	73 TA	LB5	5	1.255	1,2	27.79	70 YE	LY1	5	1.268	1,2,3
27.50	77 IR	MA2	1	6.275	1,2	27.79	69 TM	LY3	5	1.268	1,2,3
27.50	48 CD	LY2	2	3.138	1,2,3	27.83	68 ER	LB1	4	1.587	1,2,3
27.50	72 HF	LA1	4	1.569	1,2,3	27.84	50 SN	LB2	2	3.175	1,2,3
27.57	32 GE	KA2	5	1.258	1,2,3	27.87	59 PR	LB2	3	2.119	1,2,3
27.59	75 RE	LB4	5	1.259	1,2,3	27.89	63 EU	LA1	3	2.121	1,2,3
27.59	38 SR	LY5	1	6.296	1,2	27.90	63 EU	LY3	4	1.591	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS												27.91	TC	28.60
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF			
27.91	38 SR	LB3	1	6.367	1,2,3	28.24	79 AU	LA2	5	1.288	1,2,3			
27.92	64 GC	LY1	4	1.592	1,2,3	28.28	39 Y	LA1	1	6.449	1,2,3			
27.92	69 TM	LY2	5	1.274	1,2,3	28.28	74 W	LB6	5	1.290	1,2,3			
27.96	60 NC	LB3	3	2.126	1,2,3	28.28	69 TM	LY6	5	1.290	1			
27.97	79 AU	LA1	5	1.276	1,3	28.28	72 HF	LB9	5	1.290	1,2			
27.97	68 ER	LY4	5	1.276	1,2	28.29	51 SB	LB1	2	3.226	1,2,3			
27.97	51 SB	LB4	2	3.190	1,2,3	28.31	39 Y	LA2	1	6.456	1,2,3			
28.01	63 EU	LY2	4	1.597	1,2,3	28.39	66 DY	LL	3	2.158	1,2,3			
28.03	63 EU	LN	3	2.131	1	28.39	30 ZN	KB1	5	1.295	1,2,3			
28.04	63 EU	LA2	3	2.132	1,2,3	28.40	71 LU	LA1	4	1.619	1,2,3			
28.04	66 DY	LB7	4	1.599	1,2	28.40	67 HC	LB3	4	1.619	1,2,3			
28.06	66 DY	LB9	4	1.600	1	28.43	27 CC	KB1	4	1.621	1,2,3			
28.07	56 BA	LY3	3	2.134	1,2,3	28.45	67 HC	LB6	4	1.622	1,2,3			
28.07	38 SR	LB4	1	6.403	1,2,3	28.46	76 OS	MA2	1	6.490	1,2			
28.08	68 ER	LB4	4	1.60	1,2,3	28.46	72 HF	LB5	5	1.298	1,2			
28.10	74 W	LB1	5	1.282	1,2,3	28.46	76 CS	MA1	1	6.490	1,2			
28.12	56 BA	LY2	3	2.138	1,2,3	28.46	72 HF	LB10	5	1.293	1,2			
28.15	73 TA	LB2	5	1.284	1,2,3	28.47	66 DY	LB2	4	1.623	1,2,3			
28.15	77 IR	LN	5	1.284	1,2,3	28.50	49 IN	LY5	2	3.249	1,2			
28.15	30 ZN	KB2	5	1.284	1,2,3	28.51	60 NC	LB4	3	2.167	1,2,3			
28.17	62 SM	LY4	4	1.605	1,2	28.51	60 NC	LB1	3	2.167	1,2,3			
28.17	30 ZN	KB5	5	1.285	1,2	28.55	74 W	LB4	5	1.302	1,2,3			
28.18	57 LA	LY1	3	2.142	1,2,3	28.58	41 NE	LL	1	6.517	1,2,3			
28.18	66 DY	LB10	4	1.607	1	28.59	38 SR	LB6	1	6.519	1,2,3			
28.22	27 CC	KB5	4	1.609	1,2	28.60	75 RE	LL	4	1.630	1,2,3			

KAP CRYSTAL, D#13.2CC ANGSTROMS						28.60 TO 29.26					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
28.60	71 LU	LA2	4	1.630	1,2,3	28.98	68 ER	LY2	5	1.321	1,2,3
28.61	55 CS	LY4	3	2.174	1,2	28.99	40 ZR	LN	1	6.607	1,2,3
28.63	75 RE	MA1	1	6.528	1,2	29.00	67 HC	LY4	5	1.322	1,2
28.64	70 YB	LY5	5	1.306	1,2	29.01	47 AG	LY3	2	3.306	1,2
28.64	72 HF	LB7	5	1.306	1,2	29.01	50 SA	LB3	2	3.306	1,2,3
28.66	55 CS	LL	2	3.267	1,2,3	29.01	47 AG	LY2	2	3.306	1,3
28.66	73 TA	LB3	5	1.307	1,2,3	29.02	57 LA	LY5	3	2.205	1,2
28.67	49 IN	LB9	2	3.268	1,2	29.04	78 PT	LA2	5	1.324	1,2,3
28.68	50 SN	LB6	2	3.269	1,2,3	29.04	62 SM	LY3	4	1.655	1,2,3
28.69	58 CE	LB7	3	2.180	1,2	29.06	38 SR	LB1	1	6.624	1,2,3
28.70	70 YB	LN	4	1.636	1,2,3	29.08	58 CE	LB2	3	2.209	1,2,3
28.72	49 IN	LB10	2	3.274	1,2	29.09	72 HF	LB2	5	1.326	1,2,3
28.78	53 I	LN	2	3.280	1,2,3	29.09	62 SM	LA2	3	2.210	1,2,3
28.79	58 CE	LB9	3	2.188	1,2	29.10	28 NI	KA1	4	1.658	1,2,3
28.79	64 GC	LY5	4	1.641	1	29.10	63 EU	LY1	4	1.658	1,2,3
28.80	78 PT	LA1	5	1.313	1,2,3	29.11	73 TA	LB1	5	1.327	1,2,3
28.82	59 PR	LB6	3	2.190	1,2,3	29.12	62 SM	LY2	4	1.659	1,2,3
28.84	68 ER	LY3	5	1.315	1,2,3	29.12	65 TB	LB7	4	1.659	1,2
28.84	69 TM	LY1	5	1.315	1,2,3	29.12	67 HC	LB4	4	1.659	1,2,3
28.86	52 TE	LA1	2	3.289	1,2,3	29.13	76 CS	LN	5	1.328	1,2,3
28.86	83 BI	LL	5	1.316	1,2,3	29.17	28 NI	KA2	4	1.662	1,2,3
28.89	58 CE	LB10	3	2.195	1,2	29.18	59 PR	LB3	3	2.217	1,2,3
28.93	67 HO	LB1	4	1.647	1,2,3	29.20	62 SM	LN	3	2.218	1,2,3
28.94	52 TE	LA2	2	3.298	1,2,3	29.20	73 TA	LB6	5	1.331	1,2,3
28.94	62 SM	LA1	3	2.199	1,2,3	29.26	65 TB	LB10	4	1.667	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						29.28 TO 30.00					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
29.28	48 CC	LY1	2	3.336	1,2,3	29.69	72 HF	LB3	5	1.353	1,2,3
29.30	49 IN	LB2	2	3.338	1,2,3	29.69	59 PR	LB4	3	2.255	1,2,3
29.31	71 LU	LB9	5	1.336	1,2	29.71	14 SI	KB1	1	6.768	1,2,3
29.34	50 SN	LB4	2	3.343	1,2,3	29.72	50 SN	LB1	2	3.385	1,2,3
29.35	70 YB	LA1	4	1.672	1,2,3	29.74	59 PR	LB1	3	2.258	1,2,3
29.40	55 CS	LY3	3	2.233	1,2,3	29.74	69 TP	LY5	5	1.355	1,2
29.40	31 GA	KA1	5	1.340	1,2,3	29.78	69 TP	LN	4	1.696	1,2,3
29.41	65 TB	LL	3	2.234	1,2,3	29.79	37 RE	LB3	1	6.797	1,2,3
29.45	71 LU	LB5	5	1.342	1,2	29.88	23 V	KB5	3	2.259	1,2
29.45	55 CS	LY2	3	2.237	1,2,3	29.90	77 IR	LA2	5	1.362	1,2,3
29.46	74 W	LL	4	1.678	1,2,3	29.94	37 RE	LB4	1	6.820	1,2,3
29.47	71 LU	LB10	5	1.343	1,2	29.94	68 ER	LY1	5	1.364	1,2,3
29.47	20 CA	KA1	2	3.358	1,2,3	29.94	67 HC	LY3	5	1.364	1,2,3
29.49	31 GA	KA2	5	1.344	1,2,3	29.96	57 LA	LB7	3	2.275	1,2
29.51	56 BA	LY1	3	2.241	1,2,3	30.00	63 EU	LY5	4	1.708	1,2
29.51	66 DY	LB6	4	1.681	1,2,3						
29.51	66 DY	LB3	4	1.681	1,2,3						
29.51	20 CA	KA2	2	3.362	1,2,3						
29.53	65 TB	LB2	4	1.682	1,2,3						
29.54	73 TA	LB4	5	1.346	1,2,3						
29.55	70 YB	LA2	4	1.683	1,2,3						
29.61	71 LU	LB7	5	1.349	1,2						
29.63	82 PB	LL	5	1.350	1,2,3						
29.65	37 RB	LY5	1	6.754	1,2						
29.65	77 IR	LA1	5	1.351	1,2,3						

KAP CRYSTAL, D#13.200 ANGSTROMS						30.03 TC 30.57					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
30.03	66 DY	LB1	4	1.710	1,2,3	30.22	19 K	KB5	2	3.441	1,2
30.05	58 CE	LB6	3	2.281	1,2,3	30.27	64 GC	LB7	4	1.723	1,2
30.06	57 LA	LB9	3	2.282	1,2	30.28	51 SE	LA2	2	3.448	1,2,3
30.07	61 PM	LA1	3	2.283	1,2,3	30.28	64 GC	LB9	4	1.724	1
30.08	67 HC	LY2	5	1.370	1,2,3	30.32	69 TM	LA1	4	1.726	1,2,3
30.08	71 LU	LB2	5	1.370	1,2,3	30.32	29 CU	KB2	5	1.381	2,3
30.08	48 CC	LY5	2	3.425	1,2	30.34	19 K	KB1	2	3.454	1,2,3
30.09	23 V	KB3	3	2.284	1,2	30.34	62 SM	LY1	4	1.727	1,2,3
30.09	23 V	KB1	3	2.284	1,2,3	30.34	57 LA	LB2	3	2.303	1,2,3
30.12	48 CC	LB9	2	3.430	1,2	30.35	29 CU	KB5	5	1.382	2
30.14	38 SR	LA1	1	6.863	1,2,3	30.36	73 TA	LL	4	1.728	1,2,3
30.14	75 RE	LN	5	1.373	1,2,3	30.38	40 ZR	LL	1	6.918	1,2,3
30.16	38 SR	LA2	1	6.869	1,2,3	30.39	70 YB	LB9	5	1.384	1,2
30.17	57 LA	LB10	3	2.290	1,2	30.41	56 BA	LY5	3	2.308	1,2
30.17	66 DY	LY4	5	1.374	1,2	30.41	64 GC	LB10	4	1.731	1,2
30.17	72 HF	LB1	5	1.374	1,2,3	30.41	81 TL	LL	5	1.385	1,2,3
30.17	72 HF	LB6	5	1.374	1,2,3	30.45	58 CE	LB3	3	2.311	1,2,3
30.17	24 CR	KA1	3	2.290	1,2,3	30.46	70 YB	LB5	5	1.387	1,2
30.18	49 IN	LB6	2	3.436	1,2,3	30.46	64 GC	LL	3	2.312	1,2,3
30.18	48 CC	LB10	2	3.437	1,2	30.48	49 IA	LB3	2	3.470	1,2,3
30.19	61 PM	LA2	3	2.292	1	30.52	69 TM	LA2	4	1.737	1,2,3
30.19	52 TE	LN	2	3.438	1,2,3	30.55	76 OS	LA1	5	1.391	1,2,3
30.20	51 SE	LA1	2	3.439	1,2,3	30.55	70 YB	LB10	5	1.391	1,2
30.21	66 DY	LB4	4	1.720	1,2,3	30.57	29 CU	KB1	5	1.392	1,2,3
30.22	24 CR	KA2	3	2.294	1,2,3	30.57	72 HF	LB4	5	1.392	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						30.59 TO 31.45					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
30.59	65 TB	LB6	4	1.741	1,2,3	31.09	37 RB	LB1	1	7.076	1,2,3
30.59	29 CU	KB3	5	1.393	1,2	31.13	66 DY	LY3	5	1.417	1,2,3
30.64	70 YB	LR7	5	1.395	1,2	31.13	67 HC	LY1	5	1.417	1,2,3
30.64	26 FE	KB5	4	1.744	1,2	31.18	71 LU	LB6	5	1.419	1,2,3
30.64	60 ND	LY4	4	1.744	1,2	31.22	65 TE	LB1	4	1.776	1,2,3
30.65	46 PD	LY3	2	3.489	1,2	31.22	74 W	LN	5	1.421	1,2,3
30.65	46 PD	LY2	2	3.489	1,2,3	31.25	80 HG	LL	5	1.422	1,2,3
30.66	64 GD	LB2	4	1.745	1,2,3	31.25	60 NC	LA1	3	2.370	1,2,3
30.67	74 W	MA1	1	6.983	1,2	31.25	49 IN	LB1	2	3.555	1,2,3
30.68	65 TB	LB3	4	1.746	1,2,3	31.26	53 I	LL	2	3.557	1,2,3
30.68	37 RB	LB6	1	6.984	1,2,3	31.27	66 DY	LY2	5	1.423	1,2,3
30.71	74 W	MA2	1	6.990	1,2	31.27	62 SM	LB5	4	1.779	2
30.77	71 LU	LB3	5	1.401	1,2,3	31.27	62 SM	LY5	4	1.779	1
30.80	76 OS	LA2	5	1.402	1,2,3	31.29	71 LU	LB1	5	1.424	1,2,3
30.81	49 IN	LB4	2	3.507	1,2,3	31.31	72 HF	LL	4	1.781	1,2,3
30.86	68 ER	LN	4	1.756	1,2,3	31.31	14 SI	KA1	1	7.125	1,2,3
30.88	26 FE	KB1	4	1.757	1,2,3	31.33	56 BA	LB9	3	2.376	1,2
30.88	48 CD	LB2	2	3.514	1,2,3	31.33	14 SI	KA2	1	7.128	1,2,3
30.89	68 ER	LY5	5	1.406	1,2	31.36	65 TE	LY4	5	1.427	1,2
30.93	39 Y	LN	1	7.040	1,2,3	31.36	68 ER	LA1	4	1.784	1,2,3
30.95	55 CS	LY1	3	2.348	1,2,3	31.37	57 LA	LB6	3	2.379	1,2,3
30.96	47 AG	LY1	2	3.523	1,2,3	31.38	60 NC	LA2	3	2.380	1,3
30.96	58 CE	LB4	3	2.349	1,2,3	31.38	65 TE	LB4	4	1.785	1,2,3
31.06	58 CE	LB1	3	2.356	1,2,3	31.44	63 EU	LB7	4	1.788	1,2
31.09	70 YB	LB2	5	1.415	1,2,3	31.45	27 CC	KA1	4	1.789	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						31.48 TO 32.39					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
31.48	56 BA	LB10	3	2.387	1,2	31.80	47 AG	LY5	2	3.616	1,2
31.49	75 RE	LA1	5	1.433	1,2,3	31.87	63 EU	LB2	4	1.812	1,2,3
31.51	63 EU	LB9	4	1.792	1,2	31.88	55 CS	LY5	3	2.417	1,2
31.53	27 CC	KA2	4	1.793	1,2,3	31.88	73 TA	MA1	1	7.251	1,2
31.53	53 I	LY4	3	2.391	1,2	31.91	73 TA	MA2	1	7.258	1,2
31.54	30 ZN	KA1	5	1.435	1,2,3	31.92	70 YB	LB3	5	1.452	1,2,3
31.58	60 ND	LY3	4	1.796	1,2,3	31.92	64 GC	LB3	4	1.815	1,2,3
31.58	68 ER	LA2	4	1.796	1,2,3	31.94	61 PM	LY1	4	1.816	1
31.59	63 EU	LL	3	2.395	1,2,3	32.00	59 PR	LY4	4	1.819	1,2
31.63	30 ZN	KA2	5	1.439	1,2,3	32.06	48 CC	LB3	2	3.645	1,2,3
31.65	50 SN	LA1	2	3.600	1,2,3	32.10	79 AU	LL	5	1.460	1,2,3
31.65	63 EU	LB10	4	1.800	1,2	32.12	67 HC	LN	4	1.826	1,2,3
31.65	71 LU	LB4	5	1.440	1,2,3	32.15	67 HC	LY5	5	1.462	1,2
31.67	60 ND	LY2	4	1.801	1,2,3	32.17	69 TM	LB2	5	1.463	1,2,3
31.68	69 TM	LB10	5	1.441	1	32.19	37 RB	LA1	1	7.318	1,2,3
31.70	47 AG	LB9	2	3.605	1,2	32.22	37 RB	LA2	1	7.325	1,2,3
31.71	56 BA	LB2	3	2.404	1,2,3	32.24	70 YB	LB6	5	1.466	1,2,3
31.72	51 SB	LN	2	3.608	1,2,3	32.29	53 I	LY2	3	2.447	1,2,3
31.73	50 SN	LA2	2	3.609	1,2,3	32.29	53 I	LY3	3	2.447	1,2
31.74	75 RE	LA2	5	1.444	1,2,3	32.30	71 LU	LL	4	1.836	1,2,3
31.75	47 AG	LB10	2	3.611	1,2	32.32	57 LA	LB4	3	2.449	1,2,3
31.77	60 ND	LN	3	2.409	1,2,3	32.35	65 TE	LY3	5	1.471	1,2,3
31.78	64 GC	LB6	4	1.807	1,2,3	32.35	73 TA	LN	5	1.471	1,2,3
31.78	48 CD	LB6	2	3.614	1,2,3	32.36	39 Y	LL	1	7.356	1,2,3
31.79	57 LA	LB3	3	2.410	1,2,3	32.39	48 CC	LB4	2	3.682	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						32.40 TO 33.14					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
32.40	66 DY	LY1	5	1.473	1,2,3	32.76	28 NI	KB5	5	1.489	1,2
32.42	45 RF	LY2	2	3.685	1,2,3	32.76	56 BA	LB6	3	2.482	1,2,3
32.42	45 RF	LY3	2	3.685	1,2	32.76	62 SM	LL	3	2.482	1,2,3
32.44	57 LA	LB1	3	2.458	1,2,3	32.77	46 PC	LY1	2	3.724	1,2,3
32.47	70 YB	LB1	5	1.476	1,2,3	32.80	70 YB	LB4	5	1.491	1,2,3
32.47	74 W	LA1	5	1.476	1,2,3	32.80	55 CS	LB7	3	2.485	1,2
32.47	67 HC	LA1	4	1.845	1,2,3	32.87	68 ER	LB10	5	1.494	1,2
32.48	64 GC	LB1	4	1.846	1,2,3	32.87	68 ER	LB7	5	1.494	1,2
32.49	65 TB	LY2	5	1.477	1,2,3	32.90	62 SM	LB10	4	1.869	1,2
32.49	54 XE	LY1	3	2.462	1	32.90	55 CS	LB10	3	2.492	1,2
32.51	59 PR	LA1	3	2.463	1,2,3	32.90	48 CC	LB1	2	3.738	1,2,3
32.51	71 LU	LN	5	1.478	1,2	32.93	19 K	KA1	2	3.741	1,2,3
32.58	47 AG	LB2	2	3.703	1,2,3	32.96	19 K	KA2	2	3.745	1,2,3
32.61	64 GC	LB4	4	1.853	1,2,3	32.98	22 TI	KB5	3	2.498	1,2
32.64	59 PR	LA2	3	2.473	1,2,3	32.99	78 PT	LL	5	1.499	1,2,3
32.65	60 NC	LY6	4	1.855	2	32.99	59 PR	LY3	4	1.874	1,2,3
32.66	67 HQ	LA2	4	1.856	1,2,3	32.99	63 EU	LB6	4	1.674	1,2,3
32.66	62 SM	LB7	4	1.856	1,2	33.01	28 NI	KB1	5	1.500	1,2,3
32.67	64 GC	LY4	5	1.485	1,2	33.05	23 V	KA1	3	2.503	1,2,3
32.67	68 ER	LB9	5	1.485	1,2	33.06	60 ND	LY1	4	1.878	1,2,3
32.71	52 TE	LL	2	3.717	1,2,3	33.08	59 PR	LY2	4	1.879	1,2,3
32.71	55 CS	LB9	3	2.478	1,2	33.09	38 SR	LN	1	7.517	1,2,3
32.71	74 W	LA2	5	1.487	1,2,3	33.10	23 V	KA2	3	2.507	1,2,3
32.76	62 SM	LB9	4	1.86	1,2	33.12	69 TM	LB3	5	1.505	1,2,3
32.76	28 NI	KB2	5	1.488	1,2,3	33.14	62 SM	LB2	4	1.882	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						33.16 TO 34.10					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
33.16	55 CS	LB2	3	2.511	1,2,3	33.63	66 DY	LA1	4	1.909	1,2,3
33.16	52 TE	LY4	3	2.511	1,2	33.64	25 MN	KB1	4	1.910	1,2,3
33.17	59 PR	LN	3	2.512	1,2,3	33.66	46 PC	LY5	2	3.822	1,2
33.19	72 HF	MA1	1	7.539	1,2	33.67	64 GC	LY3	5	1.529	1,2,3
33.20	22 TI	KB3	3	2.514	1,2	33.69	65 TB	LY1	5	1.530	1,2,3
33.20	22 TI	KB1	3	2.514	1,2,3	33.69	69 TM	LB1	5	1.530	1,2,3
33.21	49 IN	LA1	2	3.772	1,3	33.76	73 TA	LA2	5	1.533	1,2,3
33.22	72 HF	MA2	1	7.546	1,2	33.76	56 BA	LB4	3	2.555	1,2,3
33.23	56 BA	LB3	3	2.516	1,2,3	33.76	47 AG	LB3	2	3.833	1,2,3
33.23	63 EU	LB3	4	1.887	1,2,3	33.78	64 GC	LY2	5	1.534	1,2,3
33.29	49 IN	LA2	2	3.781	1,2,3	33.82	66 DY	LA2	4	1.920	1,2,3
33.32	36 KR	LB1	1	7.568	1	33.82	63 EU	LB1	4	1.920	1,2,3
33.33	68 ER	LB2	5	1.514	1,2,3	33.84	58 CE	LA1	3	2.561	1,2,3
33.35	69 TM	LB6	5	1.515	1,2,3	33.92	52 TE	LY2	3	2.567	1,3
33.35	70 YB	LL	4	1.894	1,2,3	33.92	56 BA	LB1	3	2.567	1,2,3
33.36	50 SN	LN	2	3.789	1,2,3	33.92	52 TE	LY3	3	2.567	1,2
33.39	46 PC	LB9	2	3.792	1,2	33.93	63 EU	LB4	4	1.926	1,2,3
33.41	66 DY	LN	4	1.897	1,2,3	33.94	77 IR	LL	5	1.541	1,2,3
33.41	25 MN	KB5	4	1.897	1,2	33.94	29 CU	KA1	5	1.541	1,2,3
33.42	66 DY	LY5	5	1.518	1,2	33.96	58 CE	LA2	3	2.570	1,2,3
33.44	58 CE	LY4	4	1.899	1,2	34.01	69 TM	LB4	5	1.544	1,2,3
33.45	46 PC	LB10	2	3.799	1,2	34.01	29 CU	KA2	5	1.544	1,2,3
33.51	73 TA	LA1	5	1.522	1,2,3	34.01	63 EU	LY4	5	1.544	1,2
33.53	72 HF	LN	5	1.523	1,2,3	34.10	60 NC	LY5	4	1.935	1,2
33.53	47 AG	LB6	2	3.808	1,2,3	34.10	47 AG	LB4	2	3.870	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						34.11 TO 35.21					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
34.11	26 FE	KA1	4	1.936	1,2,3	34.59	62 SM	LB3	4	1.962	1,2,3
34.12	67 HC	LB1	5	1.549	1	34.59	92 U	MA2	2	3.924	1,2
34.12	53 I	LY1	3	2.582	1,2,3	34.64	58 CE	LN	3	2.620	1,2,3
34.19	26 FE	KA2	4	1.940	1,2,3	34.68	47 AG	LB1	2	3.934	1,2,3
34.22	18 A	KB1	2	3.884	1	34.72	54 XE	LB2	3	2.626	1
34.26	51 SB	LL	2	3.888	1,2,3	34.75	55 CS	LB3	3	2.628	1,2,3
34.27	55 CS	LB6	3	2.503	1,2,3	34.76	65 TB	LB5	5	1.577	2
34.30	62 SM	LB6	4	1.946	1,2,3	34.76	65 TB	LY5	5	1.577	1
34.34	44 RU	LY2	2	3.897	1,2,3	34.76	45 RH	LY1	2	3.943	1,2,3
34.34	44 RU	LY3	2	3.897	1,2	34.79	65 TB	LN	4	1.973	1
34.39	68 ER	LB3	5	1.561	1,2,3	34.82	65 TB	LA1	4	1.975	1,2,3
34.42	36 KR	LA2	1	7.811	1	34.82	72 HF	LA2	5	1.580	1,2,3
34.42	36 KR	LA1	1	7.811	1	34.88	48 CC	LA1	2	3.956	1,2,3
34.45	46 PD	LB2	2	3.909	1,2,3	34.90	51 SE	LY4	3	2.639	1,2
34.46	58 CE	LY3	4	1.955	1,2,3	34.94	76 OS	LL	5	1.585	1,2,3
34.46	92 U	MA1	2	3.910	1,2	34.96	48 CC	LA2	2	3.965	1,2,3
34.46	69 TM	LL	4	1.955	1,2,3	34.97	57 LA	LY4	4	1.983	1,2
34.50	61 PM	LB2	4	1.957	1	34.98	68 ER	LB1	5	1.587	1,2,3
34.53	67 HC	LB2	5	1.567	1,2,3	35.02	65 TB	LA2	4	1.986	1,2,3
34.53	68 ER	LB6	5	1.567	1,2,3	35.07	63 EU	LY3	5	1.591	1,2,3
34.53	38 SR	LL	1	7.836	1,2,3	35.10	64 GC	LY1	5	1.592	1,2,3
34.55	58 CE	LY2	4	1.960	1,2,3	35.13	49 IN	LN	2	3.983	1,2,3
34.55	71 LU	MA1	1	7.840	1,2	35.15	53 I	LY5	3	2.657	1,2
34.57	59 PR	LY1	4	1.961	1,2,3	35.19	13 AL	KB1	1	7.981	1,2,3
34.57	72 HF	LA1	5	1.569	1,2,3	35.21	63 EU	LY2	5	1.597	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							35.24 TO 36.21						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
35.24	62 SM	LB1	4	1.998	1,2,3		35.70	60 NC	LB10	4	2.023	1,2	
35.26	66 DY	LB7	5	1.599	1,2		35.71	71 LU	LA1	5	1.619	1,2,3	
35.26	57 LA	LA1	3	2.665	1,2,3		35.71	67 HC	LB3	5	1.619	1,2,3	
35.27	55 CS	LB4	3	2.666	1,2,3		35.76	27 CC	KB1	5	1.621	1,2,3	
35.28	66 DY	LB9	5	1.600	1		35.78	67 HC	LB6	5	1.622	1,2,3	
35.28	62 SM	LB4	4	2.000	1,2,3		35.80	66 DY	LB2	5	1.623	1,2,3	
35.30	68 ER	LB4	5	1.601	1,2,3		35.85	35 BR	LB1	1	8.125	2,3	
35.38	57 LA	LA2	3	2.674	1,2,3		35.90	52 TE	LY1	3	2.712	1,2,3	
35.41	60 NC	LL	3	2.676	1,2,3		35.91	70 YB	MA1	1	8.138	1,2	
35.42	62 SM	LY4	5	1.606	1,2		35.91	53 I	LB9	3	2.713	1,2	
35.42	46 PC	LB6	2	4.016	1,2,3		35.93	50 SN	LL	2	4.071	1,2,3	
35.44	66 DY	LB10	5	1.607	1		35.93	46 PC	LB4	2	4.071	1,2,3	
35.44	60 NC	LB7	4	2.009	1,2		35.94	60 NC	LB2	4	2.036	1,2,3	
35.47	37 RB	LN	1	8.041	1,2,3		35.96	71 LU	LA2	5	1.630	1,2,3	
35.48	91 PA	MA1	2	4.022	1,2		35.96	75 RE	LL	5	1.630	1,2,3	
35.48	27 CC	KB5	5	1.609	1,2		35.98	70 YB	MA2	1	8.154	1,2	
35.50	55 CS	LB1	3	2.683	1,2,3		36.01	53 I	LB10	3	2.720	1,2	
35.57	60 NC	LB9	4	2.016	1,2		36.03	57 LA	LY3	4	2.041	1,2,3	
35.59	46 PC	LB3	2	4.034	1,2,3		36.10	70 YB	LN	5	1.636	1,2,3	
35.60	91 PA	MA2	2	4.035	1,2		36.12	57 LA	LY2	4	2.046	1,2,3	
35.63	68 ER	LL	4	2.019	1,2,3		36.12	64 GC	LA1	4	2.046	1,2,3	
35.64	59 PR	LY5	4	2.020	1,2		36.15	53 I	LB7	3	2.730	1,2	
35.67	51 SB	LY2	3	2.695	1,2,3		36.15	58 CE	LY1	4	2.048	1,2,3	
35.67	51 SB	LY3	3	2.695	1,2		36.17	64 GC	LN	4	2.049	1,2,3	
35.69	45 RH	LY5	2	4.045	1,2		36.21	64 GC	LY5	5	1.641	1	

KAP CRYSTAL, D#13.200 ANGSTROMS							36.23 TO 37.15						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
36.28	57 LA	LN	3	2.740	1,2,3		36.81	65 TB	LB10	5	1.667	1,2	
36.32	64 GC	LA2	4	2.057	1,2,3		36.82	13 AL	KA1	1	8.338	1,2,3	
36.35	67 HC	LB1	5	1.647	1,2,3		36.83	24 CR	KB1	4	2.085	1,2,3	
36.39	22 TI	KA1	3	2.748	1,2,3		36.83	24 CR	KB3	4	2.085	1,2	
36.42	53 I	LB2	3	2.750	1,2,3		36.83	13 AL	KA2	1	8.340	1,2,3	
36.45	22 TI	KA2	3	2.752	1,2,3		36.83	21 SC	KB1	3	2.780	1,2,3	
36.47	45 RH	LB2	2	4.131	1,2,3		36.85	67 HC	LL	4	2.036	1,2,3	
36.53	62 SM	LY3	5	1.655	1,2,3		36.89	59 PR	LL	3	2.734	1,2,3	
36.54	90 TH	MA1	2	4.138	1,2		36.90	56 BA	LA2	3	2.795	1,2,3	
36.57	24 CR	KB5	4	2.071	1,2		36.92	70 YB	LA1	5	1.672	1,2,3	
36.60	28 NI	KA1	5	1.658	1,2,3		36.94	37 RB	LL	1	8.363	1,2,3	
36.60	63 EU	LY1	5	1.658	1,2,3		36.94	59 PR	LB7	4	2.091	1,2	
36.61	21 SC	KB5	3	2.764	1,2		36.94	44 RU	LY1	2	4.182	1,2,3	
36.61	46 PD	LB1	2	4.146	1,2,3		36.97	52 TE	LY5	3	2.790	1,2	
36.63	62 SM	LY2	5	1.659	1,2,3		36.99	35 BR	LA2	1	8.375	1,2	
36.63	65 TB	LB7	5	1.659	1,2		36.99	35 BR	LA1	1	8.375	1,2,3	
36.63	67 HO	LB4	5	1.659	1,2,3		37.03	18 A	KA1	2	4.192	1,2,3	
36.65	56 BA	LY4	4	2.075	1,2		37.04	48 CC	LN	2	4.193	1,3	
36.66	90 TH	MA2	2	4.151	1,2		37.06	18 A	KA2	2	4.195	1,2,3	
36.68	47 AG	LA1	2	4.154	1,2,3		37.06	74 W	LL	5	1.678	1,2,3	
36.69	28 NI	KA2	5	1.662	1,2,3		37.11	59 PR	LB9	4	2.100	1,2	
36.76	61 PM	LB1	4	2.081	1,2,3		37.13	66 DY	LB3	5	1.681	1,2,3	
36.76	56 BA	LA1	3	2.775	1,2,3		37.13	66 DY	LB6	5	1.681	1,2,3	
36.77	47 AG	LA2	2	4.163	1,2,3		37.14	25 MA	KA1	4	2.102	1,2,3	
36.79	50 SN	LY4	3	2.777	1,2		37.15	54 XE	LB1	3	2.853	1	

KAP CRYSTAL, D#13.200 ANGSTROMS						37.15 TO 38.57					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
37.15	65 TB	LB2	5	1.682	1,2,3	37.81	51 SB	LY1	3	2.851	1,2,3
37.17	70 YB	LA2	5	1.683	1,2,3	37.88	57 LA	LY1	4	2.142	1,2,3
37.18	60 ND	LB6	4	2.104	1,2,3	37.90	44 RU	LY5	2	4.287	1,2
37.22	25 MN	KA2	4	2.106	1,2,3	37.92	45 RH	LB4	2	4.289	1,2,3
37.23	59 PR	LB10	4	2.107	1,2	37.96	56 BA	LN	3	2.862	1,2,3
37.29	58 CE	LY5	4	2.110	1,2	37.97	52 TE	LB7	3	2.863	1,2
37.38	69 TM	MA1	1	8.460	1,2	38.02	66 DY	LB4	5	1.720	1,2,3
37.38	69 TM	MA2	1	8.460	1,2	38.09	64 GC	LB7	5	1.723	1,2
37.45	59 PR	LB2	4	2.119	1,2,3	38.11	64 GC	LB9	5	1.724	1
37.47	69 TM	LN	5	1.696	1,2,3	38.12	53 I	LB3	3	2.874	1,2,3
37.49	45 RH	LB6	2	4.242	1,2,3	38.16	69 TM	LA1	5	1.726	1,2,3
37.49	63 EU	LA1	4	2.121	1,2,3	38.17	66 DY	LL	4	2.158	1,2,3
37.56	50 SN	LY2	3	2.833	1,3	38.18	62 SM	LY1	5	1.727	1,2,3
37.58	60 ND	LB3	4	2.126	1,2,3	38.21	73 TA	LL	5	1.728	1,2,3
37.58	45 RH	LB3	2	4.252	1,2,3	38.23	52 TE	LB2	3	2.882	1,2,3
37.61	53 I	LB6	3	2.837	1,2,3	38.28	64 GC	LB10	5	1.731	1,2
37.64	52 TE	LB9	3	2.839	1,2	38.33	60 ND	LB1	4	2.167	1,2,3
37.67	63 EU	LN	4	2.131	1	38.33	60 ND	LB4	4	2.167	1,2,3
37.69	63 EU	LA2	4	2.132	1,2,3	38.37	55 CS	LA1	3	2.892	1,2,3
37.73	56 BA	LY3	4	2.134	1,2,3	38.37	58 CE	LL	3	2.892	1,2,3
37.74	49 IN	LL	2	4.269	1,2,3	38.41	69 TM	LA2	5	1.737	1,2,3
37.75	63 EU	LY5	5	1.708	1,2	38.46	55 CS	LY4	4	2.174	1,2
37.75	52 TE	LB10	3	2.847	1,2	38.50	65 TB	LB6	5	1.741	1,2,3
37.79	66 DY	LB1	5	1.710	1,2,3	38.51	55 CS	LA2	3	2.902	1,2,3
37.80	56 BA	LY2	4	2.138	1,2,3	38.57	26 FE	KB5	5	1.744	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						38.57 TO 39.70					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
38.57	60 ND	LY4	5	1.744	1,2	39.13	62 SM	LA2	4	2.210	1,2,3
38.57	58 CE	LB7	4	2.180	1,2	39.26	59 PR	LB3	4	2.217	1,2,3
38.60	64 GD	LB2	5	1.745	1,2,3	39.27	62 SM	LN	4	2.218	1,2,3
38.62	65 TB	LB3	5	1.746	1,2,3	39.31	65 TE	LB1	5	1.776	1,2,3
38.65	53 I	LB4	3	2.912	1,2,3	39.31	43 TC	LY1	2	4.440	1
38.65	46 PD	LA1	2	4.368	1,2,3	39.38	62 SM	LY5	5	1.779	1
38.65	34 SE	LB1	1	8.736	1,2,3	39.38	62 SM	LB5	5	1.779	2
38.68	44 RU	LB2	2	4.372	1,2,3	39.43	72 HF	LL	5	1.781	1,2,3
38.70	45 RH	LB1	2	4.374	1,2,3	39.46	52 TE	LB6	3	2.971	1,2,3
38.72	46 PD	LA2	2	4.376	1,2,3	39.48	51 SE	LB9	3	2.972	1,2
38.72	58 CE	LB9	4	2.188	1,2	39.49	68 ER	LA1	5	1.784	1,2,3
38.76	42 MO	LY3	2	4.380	1,2	39.52	65 TB	LB4	5	1.785	1,2,3
38.76	42 MO	LY2	2	4.380	1,2,3	39.54	33 AS	LB3	1	8.930	1,2,3
38.76	59 PR	LB6	4	2.190	1,2,3	39.54	33 AS	LB4	1	8.930	1,2
38.84	49 IN	LY4	3	2.926	1,2	39.55	55 CS	LY3	4	2.233	1,2,3
38.85	58 CE	LB10	4	2.195	1,2	39.57	65 TE	LL	4	2.234	1,2,3
38.85	68 ER	LN	5	1.756	1,2,3	39.57	51 SE	LB10	3	2.979	1,2
38.87	26 FE	KB1	5	1.757	1,2,3	39.59	49 IN	LY3	3	2.980	1,2
38.92	62 SM	LA1	4	2.195	1,2,3	39.59	49 IN	LY2	3	2.980	1,2,3
38.92	51 SB	LY5	3	2.932	1,2	39.59	63 EU	LB7	5	1.788	1,2
38.97	17 CL	KB1	2	4.403	1,2,3	39.61	27 CC	KA1	5	1.789	1,2,3
38.99	53 I	LB1	3	2.937	1,2,3	39.63	55 CS	LY2	4	2.237	1,2,3
39.03	57 LA	LY5	4	2.205	1,2	39.68	48 CD	LL	2	4.480	1,2,3
39.11	47 AG	LN	2	4.418	1,2,3	39.68	63 EU	LB9	5	1.792	1,2
39.11	58 CE	LB2	4	2.209	1,2,3	39.70	56 BA	LY1	4	2.241	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							39.70 TC 40.97						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
39.70	27 CO	KA2	5	1.793	1,2,3		40.29	21 SC	KA1	3	3.031	1,2,3	
39.74	44 RU	LB3	2	4.487	1,2,3		40.30	59 PR	LY4	5	1.819	1,2	
39.74	44 RU	LB6	2	4.487	1,2,3		40.33	57 LA	LB7	4	2.275	1,2	
39.77	55 CS	LN	3	2.993	1,2,3		40.35	21 SC	KA2	3	3.035	1,2,3	
39.77	68 ER	LA2	5	1.796	1,2,3		40.44	58 CE	LB6	4	2.281	1,2,3	
39.77	68 ND	LY3	5	1.796	1,2,3		40.46	57 LA	LB9	4	2.282	1,2	
39.82	34 SE	LA1	1	8.990	1,2,3		40.46	67 HC	LN	5	1.826	1,2,3	
39.82	34 SE	LA2	1	8.990	1,2		40.47	61 PM	LA1	4	2.283	1,2,3	
39.86	63 EU	LB10	5	1.800	1,2		40.49	23 V	KB1	4	2.284	1,2,3	
39.88	50 SN	LY1	3	3.001	1,2,3		40.49	23 V	KB3	4	2.284	1,2	
39.89	60 ND	LY2	5	1.801	1,2,3		40.50	52 TE	LB4	3	3.046	1,2,3	
39.93	51 SB	LB7	3	3.005	1		40.60	24 CR	KA1	4	2.290	1,2,3	
39.95	57 LA	LL	3	3.006	1,2,3		40.60	57 LA	LB10	4	2.290	1,2	
39.96	59 PR	LB4	4	2.255	1,2,3		40.64	61 PM	LA2	4	2.292	1	
39.99	52 TE	LB3	3	3.009	1,2,3		40.68	24 CR	KA2	4	2.294	1,2,3	
40.01	59 PR	LB1	4	2.258	1,2,3		40.70	71 LU	LL	5	1.836	1,2,3	
40.03	64 GD	LB6	5	1.807	1,2,3		40.76	45 RH	LA1	2	4.597	1,2,3	
40.07	54 XE	LA1	3	3.015	1		40.84	45 RH	LA2	2	4.605	1,2,3	
40.08	44 RU	LB4	2	4.523	1,2,3		40.84	57 LA	LB2	4	2.303	1,2,3	
40.14	63 EU	LB2	5	1.812	1,2,3		40.89	20 CA	KB5	3	3.074	1,2	
40.18	51 SB	LB2	3	3.023	1,2,3		40.90	67 HC	LA1	5	1.845	1,2,3	
40.21	64 GD	LB3	5	1.815	1,2,3		40.93	64 GD	LB1	5	1.846	1,2,3	
40.21	54 XE	LA2	3	3.025	1		40.93	52 TE	LB1	3	3.077	1,2,3	
40.22	23 V	KB5	4	2.269	1,2		40.94	56 BA	LY5	4	2.308	1,2	
40.23	61 PM	LY1	5	1.816	1		40.97	44 RU	LB1	2	4.620	1,2,3	

KAP CRYSTAL, D#13.20E ANGSTROMS						40.99 TO 42.39					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
40.99	58 CE	LB3	4	2.311	1,2,3	41.76	62 SM	LB2	5	1.882	1,2,3
41.01	64 GD	LL	4	2.312	1,2,3	41.77	48 CC	LY3	3	3.137	1,2
41.04	35 BR	LN	1	9.254	1,3	41.78	48 CC	LY2	3	3.138	1,2,3
41.04	50 SN	LY5	3	3.085	1,2	41.78	33 AS	LB1	1	9.414	1,3
41.09	64 GD	LB4	5	1.853	1,2,3	41.78	47 AG	LL	2	4.707	1,2,3
41.11	20 CA	KB1	3	3.090	1,2,3	41.83	58 CE	LB1	4	2.356	1,2,3
41.12	43 TC	LB2	2	4.636	1	41.88	63 EU	LB3	5	1.887	1,2,3
41.14	60 NC	LY6	5	1.855	2	41.92	53 I	LA1	3	3.148	1,2,3
41.16	67 HO	LA2	5	1.856	1,2,3	41.96	42 MC	LY1	2	4.726	1,2,3
41.16	62 SM	LB7	5	1.856	1,2	41.98	51 SB	LB3	3	3.152	1,2,3
41.28	62 SM	LB9	5	1.861	1,2	41.98	17 CL	KA1	2	4.728	1,2,3
41.29	41 NB	LY2	2	4.654	1,2,3	42.00	17 CL	KA2	2	4.730	1,2,3
41.29	41 NB	LY3	2	4.654	1,2	42.02	50 SA	LB7	3	3.155	1,2
41.35	46 PD	LN	2	4.660	1,2,3	42.04	70 YE	LL	5	1.894	1,2,3
41.46	50 SN	LB9	3	3.115	1,2	42.06	53 I	LA2	3	3.158	1,2,3
41.46	62 SM	LB11	5	1.869	1,2	42.09	60 NC	LA1	4	2.370	1,2,3
41.46	51 SB	LB6	3	3.115	1,2,3	42.11	66 DY	LN	5	1.897	1,2,3
41.54	50 SN	LB10	3	3.121	1,2	42.11	25 MN	KB5	5	1.897	1,2
41.58	63 EU	LB6	5	1.874	1,2,3	42.12	49 IN	LY1	3	3.162	1,2,3
41.58	59 PR	LY3	5	1.874	1,2,3	42.16	58 CE	LY4	5	1.899	1,2
41.67	60 NC	LY1	5	1.878	1,2,3	42.20	56 BA	LB9	4	2.376	1,2
41.68	55 CS	LY1	4	2.348	1,2,3	42.26	57 LA	LB6	4	2.379	1,2,3
41.69	59 PR	LY2	5	1.879	1,2,3	42.27	60 NC	LA2	4	2.380	1,3
41.70	58 CE	LB4	4	2.349	1,2,3	42.30	50 SA	LB2	3	3.175	1,2,3
41.74	56 BA	LL	3	3.135	1,2,3	42.39	66 DY	LA1	5	1.909	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							42.40 TO 44.00						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
42.40	56 BA	LB10	4	2.387	1,2		43.43	43 TC	LB1	2	4.884	1	
42.41	25 MN	KB1	5	1.910	1,2,3		43.46	58 CE	LY3	5	1.955	1,2,3	
42.45	12 MG	KB1	1	9.558	1,2,3		43.46	69 TP	LL	5	1.955	1,2,3	
42.48	53 I	LY4	4	2.391	1,2		43.51	61 PP	LB2	5	1.957	1	
42.51	51 SB	LB4	3	3.190	1,2,3		43.52	53 I	LY2	4	2.447	1,2,3	
42.55	63 EU	LL	4	2.395	1,2,3		43.52	53 I	LY3	4	2.447	1,2	
42.57	35 BR	LL	1	9.583	1,2,3		43.56	57 LA	LB4	4	2.449	1,2,3	
42.65	66 DY	LA2	5	1.920	1,2,3		43.58	58 CE	LY2	5	1.960	1,2,3	
42.65	63 EU	LB1	5	1.920	1,2,3		43.58	55 CS	LL	3	3.267	1,2,3	
42.72	56 BA	LB2	4	2.404	1,2,3		43.60	49 IN	LB9	3	3.268	1,2	
42.79	63 EU	LB4	5	1.926	1,2,3		43.60	59 PR	LY1	5	1.961	1,2,3	
42.81	60 ND	LN	4	2.409	1,2,3		43.61	50 SA	LB6	3	3.269	1,2,3	
42.83	57 LA	LB3	4	2.410	1,2,3		43.63	62 SM	LB3	5	1.962	1,2,3	
42.96	55 CS	LY5	4	2.417	1,2		43.68	49 IN	LB10	3	3.274	1,2	
42.98	33 AS	LA2	1	9.671	1,2		43.73	57 LA	LB1	4	2.458	1,2,3	
42.98	33 AS	LA1	1	9.671	1,2,3		43.77	53 I	LN	3	3.280	1,2,3	
42.99	42 MC	LY5	2	4.837	1,2		43.79	45 RH	LN	2	4.922	1,2,3	
43.00	60 ND	LY5	5	1.935	1,2		43.80	42 MC	LB2	2	4.923	1,2,3	
43.01	51 SB	LB1	3	3.226	1,2,3		43.80	54 XE	LY1	4	2.462	1	
43.02	26 FE	KA1	5	1.936	1,2,3		43.82	59 PR	LA1	4	2.463	1,2,3	
43.08	44 RU	LA1	2	4.846	1,2,3		43.88	65 TB	LN	5	1.973	1	
43.11	26 FE	KA2	5	1.940	1,2,3		43.89	52 TE	LA1	3	3.289	1,2,3	
43.14	44 RU	LA2	2	4.853	1,2,3		43.93	65 TB	LA1	5	1.975	1,2,3	
43.25	62 SM	LB6	5	1.946	1,2,3		44.00	12 MG	KA2	1	9.889	1,2,3	
43.33	49 IN	LY5	3	3.249	1,2		44.00	12 MG	KA1	1	9.889	1,2,3	

KAP CRYSTAL, D#13.266 ANGSTROMS						44.01 TO 45.59					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
44.01	59 PR	LA2	4	2.473	1,2,3	44.65	23 V	KA2	4	2.507	1,2,3
44.02	52 TE	LA2	3	3.298	1,2,3	44.65	50 SN	LB4	3	3.343	1,2,3
44.07	46 PD	LL	2	4.952	1,2,3	44.72	55 CS	LB2	4	2.511	1,2,3
44.08	40 ZR	LY3	2	4.953	1,2	44.72	52 TE	LY4	4	2.511	1,2
44.08	40 ZR	LY2	2	4.953	1,2,3	44.73	60 ND	LB7	5	2.009	1,2
44.10	55 CS	LB9	4	2.478	1,2	44.74	59 PR	LN	4	2.512	1,2,3
44.12	57 LA	LY4	5	1.983	1,2	44.78	22 TI	KBI	4	2.514	1,2,3
44.13	47 AG	LY3	3	3.366	1,2	44.78	22 TI	KB3	4	2.514	1,2
44.13	50 SN	LB3	3	3.366	1,2,3	44.82	16 S	KBI	2	5.032	1,2,3
44.13	47 AG	LY2	3	3.366	1,3	44.82	56 BA	LB3	4	2.516	1,2,3
44.18	62 SM	LL	4	2.482	1,2,3	44.85	41 NE	LY1	2	5.036	1,2,3
44.18	56 BA	LB6	4	2.482	1,2,3	44.86	20 CA	KAI	3	3.358	1,2,3
44.19	65 TB	LA2	5	1.986	1,2,3	44.89	60 ND	LB9	5	2.016	1,2
44.24	55 CS	LB7	4	2.485	1,2	44.92	20 CA	KA2	3	3.362	1,2,3
44.32	34 SE	LN	1	9.959	1,2,3	44.96	68 ER	LL	5	2.019	1,2,3
44.37	55 CS	LB10	4	2.492	1,2	44.98	42 MC	LB4	2	5.049	1,2,3
44.47	62 SM	LB1	5	1.998	1,2,3	44.98	42 MC	LB6	2	5.049	1,2,3
44.48	22 TI	KB5	4	2.498	1,2	44.99	59 PR	LY5	5	2.020	1,2
44.52	62 SM	LB4	5	2.000	1,2,3	45.06	60 ND	LB10	5	2.023	1,2
44.55	48 CD	LY1	3	3.336	1,2,3	45.24	50 SN	LB1	3	3.385	1,2,3
44.57	23 V	KAI	4	2.563	1,2,3	45.36	60 ND	LB2	5	2.036	1,2,3
44.58	49 IN	LB2	3	3.338	1,2,3	45.43	32 GE	LB1	1	10.194	2,3
44.63	65 TB	MA2	1	10.023	2	45.48	57 LA	LY3	5	2.041	1,2,3
44.63	65 TB	MA1	1	10.023	2	45.55	56 BA	LB4	4	2.555	1,2,3
44.64	42 MC	LB3	2	5.013	1,2,3	45.59	43 TC	LAI	2	5.114	1

KAP CRYSTAL, D#13.200 ANGSTROMS							45.60 TO 47.01						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
45.63	64 GC	LA1	5	2.046	1,2,3		46.19	24 CR	KB5	5	2.071	1,2	
45.60	57 LA	LY2	5	2.046	1,2,3		46.22	19 K	KB1	3	3.454	1,2,3	
45.63	83 BI	MA1	2	5.118	1,2		46.27	55 CS	LB6	4	2.593	1,2,3	
45.64	58 CE	LY1	5	2.048	1,2,3		46.28	56 BA	LY4	5	2.075	1,2	
45.66	58 CF	LA1	4	2.561	1,2,3		46.42	61 PM	LB1	5	2.081	1,2,3	
45.67	64 GC	LN	5	2.049	1,2,3		46.45	44 RU	LN	2	5.205	1,2,3	
45.67	43 TC	LA2	2	5.123	1		46.45	49 IN	LB3	3	3.470	1,2,3	
45.73	83 BI	MA2	2	5.129	1,2		46.52	24 CR	KB3	5	2.085	1,2	
45.78	52 TE	LY2	4	2.567	1,3		46.52	24 CR	KB1	5	2.085	1,2,3	
45.78	56 BA	LB1	4	2.567	1,2,3		46.54	67 HC	LL	5	2.086	1,2,3	
45.78	52 TE	LY3	4	2.567	1,2		46.56	45 RH	LL	2	5.217	1,2,3	
45.81	48 CC	LY5	3	3.425	1,2		46.66	59 PR	LB7	5	2.091	1,2	
45.83	58 CE	LA2	4	2.570	1,2,3		46.66	32 GE	LA1	1	10.456	2,3	
45.86	64 GC	LA2	5	2.057	1,2,3		46.66	32 GE	LA2	1	10.456	2	
45.88	48 CC	LB9	3	3.430	1,2		46.72	46 PC	LY2	3	3.489	1,2,3	
45.89	34 SE	LL	1	10.293	1,2,3		46.72	46 PC	LY3	3	3.489	1,2	
45.94	41 NR	LY5	2	5.151	1,2		46.76	41 NB	LB2	2	5.238	1,2,3	
45.97	49 IN	LB6	3	3.436	1,2,3		46.78	58 CE	LN	4	2.620	1,2,3	
45.98	48 CC	LB10	3	3.437	1,2		46.87	59 PR	LB9	5	2.100	1,2	
45.99	52 TE	LN	3	3.438	1,2,3		46.89	54 XE	LB2	4	2.626	1	
46.01	51 SB	LA1	3	3.439	1,2,3		46.92	25 MN	KA1	5	2.102	1,2,3	
46.04	19 K	KB5	3	3.441	1,2		46.93	55 CS	LB3	4	2.628	1,2,3	
46.06	53 I	LY1	4	2.582	1,2,3		46.97	60 ND	LB6	5	2.104	1,2,3	
46.13	51 SB	LA2	3	3.448	1,2,3		46.97	49 IN	LB4	3	3.507	1,2,3	
46.18	42 MC	LB1	2	5.177	1,2,3		47.01	25 MN	KA2	5	2.106	1,2,3	

KAP CRYSTAL, D#13.200 ANGSTROMS							47.04 TO 48.68						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
47.04	59 PR	LB10	5	2.107	1,2		47.87	57 LA	LY1	5	2.142	1,2,3	
47.07	48 CC	LB2	3	3.514	1,2,3		47.92	41 NB	LB6	2	5.361	1,2,3	
47.11	58 CE	LY5	5	2.110	1,2		47.97	55 CS	LB1	4	2.683	1,2,3	
47.14	51 SB	LY4	4	2.639	1,2		47.98	33 AS	LN	1	10.733	1,3	
47.18	39 Y	LY2	2	5.283	1,2,3		48.03	16 S	KA1	2	5.372	1,2,3	
47.18	39 Y	LY3	2	5.283	2		48.06	16 S	KA2	2	5.375	1,2,3	
47.20	47 AG	LY1	3	3.523	1,2,3		48.14	40 ZR	LY1	2	5.384	1,2,3	
47.20	82 PB	MA1	2	5.285	1,2		48.20	51 SE	LY2	4	2.695	1,2,3	
47.32	59 PR	LB2	5	2.119	1,2,3		48.20	51 SE	LY3	4	2.695	1,2	
47.34	82 PB	MA2	2	5.299	1,2		48.25	66 CY	LL	5	2.158	1,2,3	
47.37	63 EU	LA1	5	2.121	1,2,3		48.29	50 SN	LA1	3	3.600	1,2,3	
47.44	41 NB	LB3	2	5.310	1,2,3		48.35	42 MC	LA1	2	5.406	1,2,3	
47.48	53 I	LY5	4	2.657	1,2		48.37	47 AG	LB9	3	3.605	1,2	
47.49	60 NC	LB3	5	2.126	1,2,3		48.41	51 SE	LN	3	3.608	1,2,3	
47.61	63 EU	LN	5	2.131	1		48.42	50 SN	LA2	3	3.609	1,2,3	
47.63	63 EU	LA2	5	2.132	1,2,3		48.43	42 MC	LA2	2	5.414	1,2,3	
47.63	57 LA	LA1	4	2.665	1,2,3		48.45	47 AG	LB10	3	3.611	1,2	
47.65	55 CS	LB4	4	2.666	1,2,3		48.46	60 ND	LB4	5	2.167	1,2,3	
47.65	49 IN	LB1	3	3.555	1,2,3		48.46	60 NC	LB1	5	2.167	1,2,3	
47.68	56 BA	LY3	5	2.134	1,2,3		48.49	48 CC	LB6	3	3.614	1,2,3	
47.68	53 I	LL	3	3.557	1,2,3		48.52	47 AG	LY5	3	3.616	1,2	
47.77	56 BA	LY2	5	2.138	1,2,3		48.52	52 TE	LY1	4	2.712	1,2,3	
47.77	41 NB	LB4	2	5.345	1,2,3		48.54	53 I	LB9	4	2.713	1,2	
47.80	57 LA	LA2	4	2.674	1,2,3		48.63	55 CS	LY4	5	2.174	1,2	
47.84	60 NC	LL	4	2.676	1,2,3		48.68	53 I	LB10	4	2.720	1,2	

KAP CRYSTAL, D#13.20C ANGSTROMS						48.77 TO 50.63					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
48.77	58 CE	LB7	5	2.180	1,2	49.58	33 AS	LL	1	11.069	1,3
48.87	53 I	LB7	4	2.730	1,2	49.65	59 PR	LB3	5	2.217	1,2,3
48.88	81 TL	MA1	2	5.461	1,2	49.68	62 SM	LN	5	2.218	1,2,3
48.94	48 CD	LB3	3	3.645	1,2,3	49.73	56 BA	LA1	4	2.775	1,2,3
48.96	58 CE	LB9	5	2.188	1,2	49.76	50 SA	LY4	4	2.777	1,2
48.98	81 TL	MA2	2	5.472	1,2	49.77	47 AG	LB2	3	3.703	1,2,3
49.01	59 PR	LB6	5	2.190	1,2,3	49.82	21 SC	KB1	4	2.780	1,2,3
49.03	63 EU	MA1	1	10.954	1	49.90	59 PR	LL	4	2.784	1,2,3
49.06	57 LA	LN	4	2.740	1,2,3	49.92	56 BA	LA2	4	2.785	1,2,3
49.13	58 CE	LB10	5	2.195	1,2	49.97	52 TE	LL	3	3.717	1,2,3
49.17	41 NB	LB1	2	5.492	1,2,3	50.01	52 TE	LY5	4	2.790	1,2
49.21	22 TI	KA1	4	2.748	1,2,3	50.04	55 CS	LY3	5	2.233	1,2,3
49.22	40 ZR	LY5	2	5.497	1,2	50.06	65 TB	LL	5	2.234	1,2,3
49.22	62 SM	LA1	5	2.199	1,2,3	50.07	40 ZR	LB2	2	5.586	2,3
49.25	53 I	LB2	4	2.750	1,2,3	50.07	46 PD	LY1	3	3.724	1,2,3
49.28	44 RU	LL	2	5.503	1,2,3	50.13	55 CS	LY2	5	2.237	1,2,3
49.29	22 TI	KA2	4	2.752	1,2,3	50.23	56 BA	LY1	5	2.241	1,2,3
49.37	57 LA	LY5	5	2.205	1,2	50.26	54 XE	LB1	4	2.803	1
49.46	58 CE	LB2	5	2.209	1,2,3	50.27	48 CC	LB1	3	3.738	1,2,3
49.46	31 GA	LB1	1	11.045	3	50.32	19 K	KA1	3	3.741	1,2,3
49.47	48 CD	LB4	3	3.682	1,2,3	50.32	30 ZN	LB3	1	11.225	3
49.49	62 SM	LA2	5	2.210	1,2,3	50.37	19 K	KA2	3	3.745	1,2,3
49.51	45 RH	LY2	3	3.685	1,2,3	50.52	40 ZR	LB3	2	5.633	1,2,3
49.51	45 RH	LY3	3	3.685	1,2	50.56	59 PR	LB4	5	2.255	1,2,3
49.52	21 SC	KB5	4	2.764	1,2	50.63	38 SR	LY2	2	5.644	1,2,3

KAP CRYSTAL, D#13.2CC ANGSTROMS							50.63 TC 52.38						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
50.63	38 SR	LY3	2	5.644	1,2		51.4C	56 BA	LN	4	2.862	1,2,3	
50.64	59 PR	LB1	5	2.258	1,2,3		51.4C	41 NB	LA1	2	5.724	1,2,3	
50.75	31 GA	LA1	1	11.313	3		51.41	24 CR	KA1	5	2.290	1,2,3	
50.76	49 IN	LA1	3	3.772	1,3		51.41	57 LA	LB10	5	2.290	1,2	
50.84	50 SN	LY2	4	2.833	1,3		51.42	52 TE	LB7	4	2.863	1,2	
50.84	80 HG	MA2	2	5.666	1,2		51.45	61 PM	LA2	5	2.292	1	
50.84	80 HG	MA1	2	5.666	1,2		51.47	41 NB	LA2	2	5.732	2,3	
50.86	40 ZR	LB4	2	5.668	1,2,3		51.48	46 PC	LY5	3	3.822	1,2	
50.89	49 IN	LA2	3	3.781	1,2,3		51.5C	24 CR	KA2	5	2.294	1,2,3	
50.90	23 V	KB5	5	2.269	1,2		51.63	53 I	LB3	4	2.874	1,2,3	
50.92	53 I	LB6	4	2.837	1,2,3		51.64	47 AG	LB3	3	3.833	1,2,3	
50.95	52 TE	LB9	4	2.839	1,2		51.72	57 LA	LB2	5	2.303	1,2,3	
51.01	50 SN	LN	3	3.789	1,2,3		51.78	52 TE	LB2	4	2.862	1,2,3	
51.05	57 LA	LB7	5	2.275	1,2		51.84	56 BA	LY5	5	2.308	1,2	
51.05	46 PC	LB9	3	3.792	1,2		51.91	58 CE	LB3	5	2.311	1,2,3	
51.11	52 TE	LB10	4	2.847	1,2		51.94	64 GC	LL	5	2.312	1,2,3	
51.15	46 PC	LB10	3	3.799	1,2		51.98	55 CS	LA1	4	2.892	1,2,3	
51.18	51 SB	LY1	4	2.851	1,2,3		51.98	58 CE	LL	4	2.892	1,2,3	
51.19	58 CE	LB6	5	2.281	1,2,3		52.17	15 P	KB1	2	5.854	1,2,3	
51.21	57 LA	LB9	5	2.282	1,2		52.17	32 GE	LN	1	11.678	3	
51.24	61 PM	LA1	5	2.283	1,2,3		52.17	55 CS	LA2	4	2.902	1,2,3	
51.26	40 ZR	LB6	2	5.710	1,2,3		52.18	47 AG	LB4	3	3.870	1,2,3	
51.26	23 V	KB3	5	2.284	1,2		52.21	11 NA	KB1	1	11.617	1,3	
51.26	23 V	KB1	5	2.284	1,2,3		52.36	53 I	LB4	4	2.912	1,2,3	
51.28	47 AG	LB6	3	3.808	1,2,3		52.38	18 A	KB1	3	3.884	1	

KAP CRYSTAL, D#13.200 ANGSTROMS						52.44 TO 54.39					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
52.44	51 SB	LL	3	3.888	1,2,3	53.56	57 LA	LB6	5	2.379	1,2,3
52.48	40 ZR	LB1	2	5.836	1,2,3	53.58	60 NC	LA2	5	2.380	1,3
52.52	79 AU	MA1	2	5.840	1,2	53.63	11 NA	KA1	1	11.909	1,3
52.57	44 RU	LY3	3	3.897	1,2	53.63	11 NA	KA2	1	11.909	1,3
52.57	44 RU	LY2	3	3.897	1,2,3	53.66	51 SB	LB10	4	2.979	1,2
52.58	42 MO	LN	2	5.847	1,2,3	53.68	49 IN	LY2	4	2.980	1,2,3
52.63	49 IN	LY4	4	2.926	1,2	53.68	49 IN	LY3	4	2.980	1,2
52.65	79 AU	MA2	2	5.854	1,2	53.75	56 BA	LB10	5	2.387	1,2
52.74	46 PC	LB2	3	3.909	1,2,3	53.80	32 GE	LL	1	11.944	3
52.75	51 SB	LY5	4	2.932	1,2	53.82	49 IN	LN	3	3.983	1,2,3
52.76	92 U	MA1	3	3.910	1,2	53.85	53 I	LY4	5	2.391	1,2
52.81	55 CS	LY1	5	2.348	1,2,3	53.91	39 Y	LB3	2	5.983	1,2,3
52.83	58 CE	LB4	5	2.349	1,2,3	53.93	55 CS	LN	4	2.993	1,2,3
52.85	53 I	LB1	4	2.937	1,2,3	53.95	63 EU	LL	5	2.395	1,2,3
52.86	39 Y	LY5	2	5.875	1,2	54.09	50 SA	LY1	4	3.001	1,2,3
52.96	92 U	MA2	3	3.924	1,2	54.17	56 BA	LB2	5	2.404	1,2,3
53.00	58 CE	LB1	5	2.356	1,2,3	54.17	51 SB	LB7	4	3.005	1
53.11	47 AG	LB1	3	3.934	1,2,3	54.19	57 LA	LL	4	3.006	1,2,3
53.24	45 RH	LY1	3	3.943	1,2,3	54.25	52 TE	LB3	4	3.009	1,2,3
53.34	60 NC	LA1	5	2.370	1,2,3	54.25	39 Y	LB4	2	6.018	1,2,3
53.43	48 CD	LA1	3	3.956	1,2,3	54.29	60 ND	LN	5	2.409	1,2,3
53.49	56 BA	LB9	5	2.376	1,2	54.30	46 PC	LB6	3	4.016	1,2,3
53.51	52 TE	LB6	4	2.971	1,2,3	54.31	57 LA	LB3	5	2.410	1,2,3
53.53	51 SB	LB9	4	2.972	1,2	54.36	54 XE	LA1	4	3.015	1
53.56	48 CD	LA2	3	3.965	1,2,3	54.39	91 PA	MA1	3	4.022	1,2

KAP CRYSTAL, D#13.20C ANGSTRMS							54.49 TO 56.59						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
54.49	55 CS	LY5	5	2.417	1,2		55.59	15 P	KA1	2	6.155	1,2,3	
54.51	37 RB	LY3	2	6.045	1,2		55.59	54 XE	LY1	5	2.462	1	
54.52	78 PT	MA1	2	6.046	1,2		55.59	15 P	KA2	2	6.155	1,2,3	
54.52	51 SB	LB2	4	3.023	1,2,3		55.61	59 PR	LA1	5	2.463	1,2,3	
54.52	37 RB	LY2	2	6.046	1,2,3		55.73	50 SA	LY5	4	3.085	1,2	
54.56	54 XE	LA2	4	3.025	1		55.83	20 CA	KB1	4	3.090	1,2,3	
54.57	46 PC	LB3	3	4.034	1,2,3		55.86	59 PR	LA2	5	2.473	1,2,3	
54.58	91 PA	MA2	3	4.035	1,2		55.98	55 CS	LB9	5	2.478	1,2	
54.63	78 PT	MA2	2	6.057	1,2		55.99	45 RH	LB2	3	4.131	1,2,3	
54.68	21 SC	KA1	4	3.031	1,2,3		56.08	56 BA	LB6	5	2.482	1,2,3	
54.73	45 RH	LY5	3	4.045	1,2		56.08	62 SP	LL	5	2.482	1,2,3	
54.75	21 SC	KA2	4	3.035	1,2,3		56.10	90 TH	MA1	3	4.138	1,2	
54.75	40 ZR	LA1	2	6.070	1,2,3		56.14	41 NE	LN	2	6.211	1,2,3	
54.83	40 ZR	LA2	2	6.078	1,2,3		56.15	39 Y	LB1	2	6.212	1,2,3	
54.97	52 TE	LB4	4	3.046	1,2,3		56.15	55 CS	LB7	5	2.485	1,2	
54.99	39 Y	LB6	2	6.094	1,2,3		56.22	46 PC	LB1	3	4.146	1,2,3	
55.11	50 SN	LL	3	4.071	1,2,3		56.29	90 TH	MA2	3	4.151	1,2	
55.11	46 PC	LB4	3	4.071	1,2,3		56.32	50 SA	LB9	4	3.115	1,2	
55.22	53 I	LY3	5	2.447	1,2		56.32	51 SB	LB6	4	3.115	1,2,3	
55.22	53 I	LY2	5	2.447	1,2,3		56.32	55 CS	LB10	5	2.492	1,2	
55.27	57 LA	LB4	5	2.449	1,2,3		56.33	47 AG	LA1	3	4.154	1,2,3	
55.49	57 LA	LB1	5	2.458	1,2,3		56.44	50 SA	LB10	4	3.121	1,2	
55.52	20 CA	KB5	4	3.074	1,2		56.47	47 AG	LA2	3	4.163	1,2,3	
55.54	42 MC	LL	2	6.150	1,2,3		56.47	22 TI	KB5	5	2.498	1,2	
55.58	52 TE	LB1	4	3.077	1,2,3		56.59	23 V	KA1	5	2.503	1,2,3	

KAP CRYSTAL, C#13.200 ANGSTROMS							56.63 TO 59.36						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
56.63	77 IR	MA1	2	6.261	1,2		57.79	45 RH	LB3	3	4.252	1,2,3	
56.69	23 V	KA2	5	2.507	1,2,3		57.81	51 SB	LB4	4	3.190	1,2,3	
56.72	56 BA	LL	4	3.135	1,2,3		57.88	56 BA	LB4	5	2.555	1,2,3	
56.75	44 RU	LY1	3	4.182	1,2,3		58.03	58 CE	LA1	5	2.561	1,2,3	
56.76	48 CC	LY3	4	3.137	1,2		58.03	38 SR	LB4	2	6.403	1,2,3	
56.77	77 IR	MA2	2	6.275	1,2		58.04	49 IN	LL	3	4.269	1,2,3	
56.78	48 CC	LY2	4	3.138	1,2,3		58.18	52 TE	LY2	5	2.567	1,3	
56.79	52 TE	LY4	5	2.511	1,2		58.18	52 TE	LY3	5	2.567	1,2	
56.79	55 CS	LB2	5	2.511	1,2,3		58.18	56 BA	LB1	5	2.567	1,2,3	
56.82	59 PR	LN	5	2.512	1,2,3		58.25	58 CE	LA2	5	2.570	1,2,3	
56.87	22 TI	KB1	5	2.514	1,2,3		58.31	44 RU	LY5	3	4.287	1,2	
56.87	22 TI	KB3	5	2.514	1,2		58.34	45 RH	LB4	3	4.289	1,2,3	
56.90	18 A	KA1	3	4.192	1,2,3		58.49	39 Y	LA1	2	6.449	1,2,3	
56.91	48 CC	LN	3	4.193	1,3		58.52	51 SB	LB1	4	3.226	1,2,3	
56.92	56 BA	LB3	5	2.516	1,2,3		58.55	53 I	LY1	5	2.582	1,2,3	
56.94	18 A	KA2	3	4.195	1,2,3		58.56	39 Y	LA2	2	6.456	1,2,3	
56.97	38 SR	LY5	2	6.296	1,2		58.83	55 CS	LB6	5	2.593	1,2,3	
56.97	53 I	LA1	4	3.148	1,2,3		58.90	76 CS	MA2	2	6.490	1,2	
57.05	51 SB	LB3	4	3.152	1,2,3		58.90	76 CS	MA1	2	6.490	1,2	
57.11	50 SN	LB7	4	3.155	1,2		58.98	49 IN	LY5	4	3.249	1,2	
57.17	53 I	LA2	4	3.158	1,2,3		59.17	41 NE	LL	2	6.517	1,2,3	
57.25	49 IN	LY1	4	3.162	1,2,3		59.19	38 SR	LB6	2	6.519	1,2,3	
57.51	50 SN	LB2	4	3.175	1,2,3		59.28	75 RE	MA1	2	6.528	1,2	
57.64	45 RH	LB6	3	4.242	1,2,3		59.34	55 CS	LL	4	3.267	1,2,3	
57.68	38 SR	LB3	2	6.367	1,2,3		59.36	49 IN	LB9	4	3.268	1,2	

KAP CRYSTAL, D#12.200 ANGSTROMS						59.38 TO 62.52					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
59.38	50 SN	LB6	4	3.269	1,2,3	60.65	55 CS	LB4	5	2.666	1,2,3
59.48	49 IN	LB10	4	3.274	1,2	60.72	48 CC	LY1	4	3.336	1,2,3
59.50	58 CE	LN	5	2.625	1,2,3	60.76	49 IN	LB2	4	3.338	1,2,3
59.52	46 PC	LA1	3	4.368	1,2,3	60.85	57 LA	LA2	5	2.674	1,2,3
59.58	44 RU	LB2	3	4.372	1,2,3	60.86	50 SN	LB4	4	3.343	1,2,3
59.60	53 I	LN	4	3.280	1,2,3	60.90	60 NC	LL	5	2.676	1,2,3
59.61	45 RH	LB1	3	4.374	1,2,3	61.08	55 CS	LB1	5	2.683	1,2,3
59.64	46 PC	LA2	3	4.375	1,2,3	61.17	20 CA	KA1	4	3.358	1,2,3
59.65	54 XE	LB2	5	2.625	1	61.21	48 CC	LL	3	4.480	1,2,3
59.70	42 MC	LY3	3	4.380	1,2	61.25	20 CA	KA2	4	3.362	1,2,3
59.70	42 MC	LY2	3	4.380	1,2,3	61.31	44 RU	LB6	3	4.487	1,2,3
59.70	55 CS	LB3	5	2.623	1,2,3	61.31	44 RU	LB3	3	4.487	1,2,3
59.78	52 TE	LA1	4	3.289	1,2,3	61.38	51 SE	LY2	5	2.695	1,2,3
59.96	52 TE	LA2	4	3.293	1,2,3	61.38	51 SE	LY3	5	2.695	1,2
59.97	51 SE	LY4	5	2.639	1,2	61.55	37 RE	LY5	2	6.754	1,2
60.04	17 CL	KB1	3	4.403	1,2,3	61.69	14 SI	KB1	2	6.768	1,2,3
60.07	40 ZR	LN	2	6.607	1,2,3	61.71	50 SN	LB1	4	3.385	1,2,3
60.12	50 SN	LB3	4	3.355	1,2,3	61.81	52 TE	LY1	5	2.712	1,2,3
60.12	47 AG	LY3	4	3.355	1,2	61.84	53 I	LB9	5	2.713	1,2
60.12	47 AG	LY2	4	3.355	1,3	61.86	44 RU	LB4	3	4.523	1,2,3
60.24	38 SR	LB1	2	6.624	1,2,3	61.88	37 RE	LB3	2	6.787	1,2,3
60.27	47 AG	LN	3	4.413	1,2,3	62.01	53 I	LB10	5	2.720	1,2
60.43	53 I	LY5	5	2.657	1,2	62.22	37 RE	LB4	2	6.820	1,2,3
60.60	43 TC	LY1	3	4.440	1	62.27	53 I	LB7	5	2.730	1,2
60.63	57 LA	LA1	5	2.665	1,2,3	62.52	57 LA	LN	5	2.740	1,2,3

KAP CRYSTAL, C#13.200 ANGSTROMS						62.52 TO 65.22					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
62.52	48 CC	LY5	4	3.425	1,2	63.67	56 BA	LA2	5	2.785	1,2,3
62.62	48 CC	LB9	4	3.430	1,2	63.80	52 TE	LY5	5	2.790	1,2
62.65	38 SR	LA1	2	6.863	1,2,3	63.83	46 PC	LY3	4	3.489	1,2
62.71	38 SR	LA2	2	6.869	1,2,3	63.83	46 PC	LY2	4	3.489	1,2,3
62.73	22 TI	KA1	5	2.748	1,2,3	63.86	41 NE	LY2	3	4.654	1,2,3
62.75	49 IN	LB6	4	3.436	1,2,3	63.86	41 NE	LY3	3	4.654	1,2
62.77	48 CC	LB10	4	3.437	1,2	63.88	74 W	PA1	2	6.983	1,2
62.78	53 I	LB2	5	2.750	1,2,3	63.89	37 RE	LB6	2	6.984	1,2,3
62.79	52 TE	LN	4	3.438	1,2,3	63.95	74 W	PA2	2	6.990	1,2
62.81	51 SB	LA1	4	3.439	1,2,3	63.95	46 PC	LN	3	4.660	1,2,3
62.83	22 TI	KA2	5	2.752	1,2,3	64.13	54 XE	LB1	5	2.803	1
62.85	19 K	KB5	4	3.441	1,2	64.19	49 IN	LB4	4	3.507	1,2,3
62.98	45 RH	LA1	3	4.597	1,2,3	64.34	48 CC	LB2	4	3.514	1,2,3
62.99	51 SB	LA2	4	3.448	1,2,3	64.46	39 Y	LN	2	7.040	1,2,3
63.11	45 RH	LA2	3	4.605	1,2,3	64.52	47 AG	LY1	4	3.523	1,2,3
63.11	19 K	KB1	4	3.454	1,2,3	64.67	47 AG	LL	3	4.707	1,2,3
63.13	21 SC	KB5	5	2.764	1,2	64.83	37 RE	LB1	2	7.076	1,2,3
63.21	45 ZR	LL	2	6.918	1,2,3	64.90	50 SN	LY2	5	2.833	1,3
63.34	44 RU	LB1	3	4.620	1,2,3	64.96	42 MC	LY1	3	4.726	1,2,3
63.41	56 BA	LA1	5	2.775	1,2,3	65.00	17 CL	KA1	3	4.728	1,2,3
63.44	49 IN	LB3	4	3.475	1,2,3	65.00	53 I	LB6	5	2.837	1,2,3
63.46	50 SN	LY4	5	2.777	1,2	65.03	17 CL	KA2	3	4.730	1,2,3
63.54	21 SC	KB1	5	2.780	1,2,3	65.05	52 TE	LB9	5	2.839	1,2
63.58	43 TC	LB2	3	4.636	1	65.18	49 IN	LB1	4	3.555	1,2,3
63.64	59 PR	LL	5	2.784	1,2,3	65.22	53 I	LL	4	3.557	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS							65.26 TO 67.46						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
65.26	52 TE	LB10	5	2.847	1,2		67.31	49 IA	LY4	5	2.926	1,2	
65.34	14 SI	KA1	2	7.125	1,2,3		67.34	37 RE	LA1	2	7.318	1,2,3	
65.36	51 SB	LY1	5	2.851	1,2,3		67.41	37 RE	LA2	2	7.325	1,2,3	
65.37	14 SI	KA2	2	7.128	1,2,3		67.42	43 TC	LB1	3	4.884	1	
65.65	56 BA	LN	5	2.862	1,2,3		67.46	51 SE	LY5	5	2.932	1,2	
65.67	52 TE	LB7	5	2.863	1,2								
65.96	53 I	LB3	5	2.874	1,2,3								
66.11	50 SN	LA1	4	3.600	1,2,3								
66.16	52 TE	LB2	5	2.882	1,2,3								
66.21	47 AG	LB9	4	3.605	1,2								
66.28	51 SB	LN	4	3.608	1,2,3								
66.30	50 SN	LA2	4	3.609	1,2,3								
66.34	47 AG	LB10	4	3.611	1,2								
66.40	48 CD	LB6	4	3.614	1,2,3								
66.42	58 CE	LL	5	2.892	1,2,3								
66.42	55 CS	LA1	5	2.892	1,2,3								
66.44	47 AG	LY5	4	3.616	1,2								
66.64	73 TA	MA1	2	7.251	1,2								
66.68	55 CS	LA2	5	2.902	1,2,3								
66.69	42 MC	LY5	3	4.837	1,2								
66.71	73 TA	MA2	2	7.258	1,2								
66.83	44 RU	LA1	3	4.846	1,2,3								
66.94	44 RU	LA2	3	4.853	1,2,3								
66.94	53 I	LB4	5	2.912	1,2,3								
67.05	48 CD	LB3	4	3.645	1,2,3								

KAP CRYSTAL, D#13.200 ANGSTROMS						67.59 TO 71.06					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
67.59	53 I	LBI	5	2.937	1,2,3	69.43	38 SR	LN	2	7.517	1,2,3
67.73	39 Y	LL	2	7.356	1,2,3	69.45	42 MC	LB3	3	5.013	1,2,3
67.82	48 CC	LB4	4	3.682	1,2,3	69.48	52 TE	LB3	5	3.009	1,2,3
67.88	45 RF	LY2	4	3.685	1,2,3	69.64	54 XE	LA1	5	3.015	1
67.88	45 RH	LY3	4	3.685	1,2	69.66	72 HF	MA1	2	7.539	1,2
68.02	45 RH	LN	3	4.922	1,2,3	69.71	49 IN	LA1	4	3.772	1,3
68.03	42 MC	LB2	3	4.923	1,2,3	69.73	72 HF	MA2	2	7.546	1,2
68.26	47 AG	LB2	4	3.703	1,2,3	69.75	16 S	KBI	3	5.032	1,2,3
68.48	52 TE	LB6	5	2.971	1,2,3	69.82	41 NB	LY1	3	5.036	1,2,3
68.49	46 PC	LL	3	4.952	1,2,3	69.85	51 SE	LB2	5	3.023	1,2,3
68.50	40 ZR	LY2	3	4.953	1,2,3	69.90	49 IN	LA2	4	3.781	1,2,3
68.50	40 ZR	LY3	3	4.953	1,2	69.91	54 XE	LA2	5	3.025	1
68.51	51 SE	LB9	5	2.972	1,2	69.97	36 KR	LBI	2	7.568	1
68.55	52 TE	LL	4	3.717	1,2,3	70.02	42 MC	LB4	3	5.049	1,2,3
68.69	51 SR	LB10	5	2.979	1,2	70.02	42 MC	LB6	3	5.049	1,2,3
68.70	46 PC	LY1	4	3.724	1,2,3	70.07	21 SC	KA1	5	3.031	1,2,3
68.72	49 IN	LY3	5	2.980	1,2	70.07	50 SA	LN	4	3.789	1,2,3
68.72	49 IN	LY2	5	2.980	1,2,3	70.14	46 PC	LB9	4	3.792	1,2
68.99	48 CC	LBI	4	3.738	1,2,3	70.17	21 SC	KA2	5	3.035	1,2,3
69.06	19 K	KA1	4	3.741	1,2,3	70.28	46 PC	LB10	4	3.799	1,2
69.06	55 CS	LN	5	2.993	1,2,3	70.46	52 TE	LB4	5	3.046	1,2,3
69.14	19 K	KA2	4	3.745	1,2,3	70.47	47 AG	LB6	4	3.808	1,2,3
69.27	50 SN	LY1	5	3.001	1,2,3	70.77	46 PC	LY5	4	3.822	1,2
69.38	51 SE	LB7	5	3.005	1	71.01	47 AG	LB3	4	3.833	1,2,3
69.40	57 LA	LL	5	3.006	1,2,3	71.06	43 TC	LA1	3	5.114	1

KAP CRYSTAL, D#13.200 ANGSTROMS						71.13 TC 74.96					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
71.13	83 EI	MA1	3	5.118	1,2	72.87	71 LU	MA1	2	7.840	1,2
71.20	43 TC	LA2	3	5.123	1	72.90	48 CC	LY3	5	3.137	1,2
71.21	20 CA	KB5	5	3.074	1,2	72.93	48 CC	LY2	5	3.138	1,2,3
71.29	52 TE	LB1	5	3.077	1,2,3	72.96	92 U	MA2	4	3.924	1,2
71.30	83 EI	MA2	3	5.129	1,2	73.06	41 NE	LB2	3	5.238	1,2,3
71.50	50 SN	LY5	5	3.085	1,2	73.10	47 AG	LB1	4	3.934	1,2,3
71.64	20 CA	KB1	5	3.090	1,2,3	73.20	53 I	LA1	5	3.148	1,2,3
71.65	41 NE	LY5	3	5.151	1,2	73.31	51 SE	LB3	5	3.152	1,2,3
71.80	47 AG	LB4	4	3.870	1,2,3	73.37	45 RH	LY1	4	3.943	1,2,3
72.07	42 MC	LB1	3	5.177	1,2,3	73.39	50 SN	LB7	5	3.155	1,2
72.10	18 A	KB1	4	3.884	1	73.47	53 I	LA2	5	3.158	1,2,3
72.18	51 SB	LL	4	3.888	1,2,3	73.58	49 IN	LY1	5	3.162	1,2,3
72.31	50 SN	LB9	5	3.115	1,2	73.65	48 CC	LA1	4	3.956	1,2,3
72.31	51 SB	LB6	5	3.115	1,2,3	73.79	39 Y	LY3	3	5.263	2
72.38	44 RU	LY2	4	3.897	1,2,3	73.79	39 Y	LY2	3	5.263	1,2,3
72.38	44 RU	LY3	4	3.897	1,2	73.82	82 PB	MA1	3	5.285	1,2
72.47	50 SN	LB10	5	3.121	1,2	73.85	48 CC	LA2	4	3.965	1,2,3
72.52	44 RU	LN	3	5.205	1,2,3	73.93	50 SN	LB2	5	3.175	1,2,3
72.56	36 KR	LA2	2	7.811	1	74.05	82 PB	MA2	3	5.299	1,2
72.56	36 KR	LA1	2	7.811	1	74.23	41 NE	LB3	3	5.310	1,2,3
72.64	46 PC	LB2	4	3.909	1,2,3	74.24	49 IN	LN	4	3.983	1,2,3
72.66	92 J	MA1	4	3.910	1,2	74.34	51 SE	LB4	5	3.190	1,2,3
72.72	45 RH	LL	3	5.217	1,2,3	74.40	13 AL	KB1	2	7.981	1,2,3
72.83	38 SR	LL	2	7.836	1,2,3	74.80	41 NE	LB4	3	5.345	1,2,3
72.85	56 BA	LL	5	3.135	1,2,3	74.96	46 PC	LB6	4	4.016	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						75.06 TO 78.86					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
75.06	37 RB	LN	2	8.041	1,2,3	77.06	52 TE	LA1	5	3.289	1,2,3
75.06	41 NB	LB6	3	5.361	1,2,3	77.23	41 NB	LB1	3	5.492	1,2,3
75.09	91 PA	MA1	4	4.022	1,2	77.31	52 TE	LA2	5	3.298	1,2,3
75.24	16 S	KA1	3	5.372	1,2,3	77.31	40 ZR	LY5	3	5.497	1,2
75.29	16 S	KA2	3	5.375	1,2,3	77.41	44 RU	LL	3	5.503	1,2,3
75.32	51 SB	LB1	5	3.226	1,2,3	77.50	45 RH	LB2	4	4.131	1,2,3
75.35	46 PC	LB3	4	4.034	1,2,3	77.53	47 AG	LY3	5	3.306	1,2
75.38	91 PA	MA2	4	4.035	1,2	77.53	47 AG	LY2	5	3.306	1,3
75.44	40 ZR	LY1	3	5.384	1,2,3	77.53	50 SA	LB3	5	3.306	1,2,3
75.60	45 RH	LY5	4	4.045	1,2	77.65	90 TH	MA1	4	4.138	1,2
75.80	42 MC	LA1	3	5.406	1,2,3	77.83	46 PC	LB1	4	4.146	1,2,3
75.94	42 MC	LA2	3	5.414	1,2,3	77.94	90 TH	MA2	4	4.151	1,2
75.95	49 IN	LY5	5	3.249	1,2	78.01	47 AG	LA1	4	4.154	1,2,3
75.98	35 BR	LB1	2	8.125	2,3	78.21	47 AG	LA2	4	4.163	1,2,3
76.12	70 YB	MA1	2	8.138	1,2	78.35	13 AL	KA1	2	8.338	1,2,3
76.17	46 PC	LB4	4	4.071	1,2,3	78.37	13 AL	KA2	2	8.343	1,2,3
76.17	50 SN	LL	4	4.071	1,2,3	78.37	48 CD	LY1	5	3.336	1,2,3
76.30	70 YB	MA2	2	8.154	1,2	78.42	49 IN	LB2	5	3.338	1,2,3
76.45	55 CS	LL	5	3.267	1,2,3	78.56	50 SN	LB4	5	3.343	1,2,3
76.48	49 IN	LB9	5	3.268	1,2	78.63	37 RB	LL	2	8.363	1,2,3
76.50	50 SN	LB6	5	3.269	1,2,3	78.64	44 RU	LY1	4	4.182	1,2,3
76.64	49 IN	LB10	5	3.274	1,2	78.76	35 BR	LA2	2	8.375	1,2
76.71	81 TL	MA1	3	5.461	1,2	78.76	35 BR	LA1	2	8.375	1,2,3
76.81	53 I	LN	5	3.280	1,2,3	78.81	40 ZR	LB2	3	5.586	2,3
76.90	81 TL	MA2	3	5.472	1,2	78.86	18 A	KA1	4	4.192	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						78.88 TO 83.77					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
78.88	48 CC	LN	4	4.193	1,3	81.28	51 SE	LA1	5	3.439	1,2,3
78.93	18 A	KA2	4	4.195	1,2,3	81.29	41 NE	LA2	3	5.732	2,3
78.99	20 CA	KA1	5	3.35E	1,2,3	81.34	19 K	K85	5	3.441	1,2
79.10	20 CA	KA2	5	3.362	1,2,3	81.54	51 SE	LA2	5	3.446	1,2,3
79.60	40 ZR	LB3	3	5.632	1,2,3	81.71	19 K	K81	5	3.454	1,2,3
79.72	69 TM	MA2	2	8.46C	1,2	82.17	49 IN	LB3	5	3.470	1,2,3
79.72	69 TM	MA1	2	8.46C	1,2	82.53	15 P	K81	3	5.804	1,2,3
79.75	50 SN	LB1	5	3.38E	1,2,3	82.72	46 PC	LY2	5	3.489	1,2,3
79.79	38 SR	LY2	3	5.644	1,2,3	82.72	46 PC	LY3	5	3.489	1,2
79.79	38 SR	LY3	3	5.644	1,2	82.88	46 PC	LA1	4	4.368	1,2,3
79.99	45 RH	LB6	4	4.242	1,2,3	82.88	34 SE	LB1	2	8.736	1,2,3
80.16	80 HG	MA2	3	5.666	1,2	82.97	44 RU	LB2	4	4.372	1,2,3
80.16	80 HG	MA1	3	5.666	1,2	83.02	45 RH	LB1	4	4.374	1,2,3
80.19	40 ZR	LB4	3	5.668	1,2,3	83.06	46 PC	LA2	4	4.376	1,2,3
80.22	45 RH	LB3	4	4.252	1,2,3	83.09	40 ZR	LB1	3	5.636	1,2,3
80.60	49 IN	LL	4	4.260	1,2,3	83.16	42 MC	LY2	4	4.380	1,2,3
80.88	48 CD	LY5	5	3.425	1,2	83.16	42 MC	LY3	4	4.380	1,2
80.91	40 ZR	LB6	3	5.710	1,2,3	83.16	79 AU	PA1	3	5.840	1,2
81.01	44 RU	LY5	4	4.287	1,2	83.24	49 IN	LB4	5	3.507	1,2,3
81.03	48 CC	LB9	5	3.430	1,2	83.28	42 MC	LN	3	5.847	1,2,3
81.06	45 RH	LB4	4	4.289	1,2,3	83.40	79 AU	PA2	3	5.854	1,2
81.15	41 NE	LA1	3	5.724	1,2,3	83.45	48 CC	LB2	5	3.514	1,2,3
81.20	49 IN	LB6	5	3.435	1,2,3	83.69	17 CL	K81	4	4.403	1,2,3
81.23	48 CC	LB10	5	3.437	1,2	83.71	47 AG	LY1	5	3.523	1,2,3
81.25	52 TE	LN	5	3.433	1,2,3	83.77	39 Y	LY5	3	5.875	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS						84.04 TO 89.83					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
84.54	47 AG	LN	4	4.418	1,2,3	87.22	40 ZR	LA1	3	6.070	1,2,3
84.56	43 TC	LY1	4	4.440	1	87.31	48 CD	LB3	5	3.645	1,2,3
84.64	49 IN	LR1	5	3.555	1,2,3	87.37	40 ZR	LA2	3	6.078	1,2,3
84.70	53 I	LL	5	3.557	1,2,3	87.66	39 Y	LB6	3	6.094	1,2,3
85.14	33 AS	LB4	2	8.930	1,2	88.30	45 RH	LA1	4	4.597	1,2,3
85.14	33 AS	LB3	2	8.930	1,2,3	88.43	48 CD	LB4	5	3.682	1,2,3
85.50	48 CD	LL	4	4.480	1,2,3	88.49	45 RH	LA2	4	4.605	1,2,3
85.66	44 RU	LB3	4	4.487	1,2,3	88.52	45 RH	LY3	5	3.685	1,2
85.66	44 RU	LB6	4	4.487	1,2,3	88.52	45 RH	LY2	5	3.685	1,2,3
85.67	39 Y	LB3	3	5.983	1,2,3	88.67	42 MC	LL	3	6.150	1,2,3
85.85	34 SE	LA2	2	8.990	1,2	88.76	15 P	KA2	3	6.155	1,2,3
85.85	34 SE	LA1	2	8.990	1,2,3	88.76	15 P	KA1	3	6.155	1,2,3
85.97	50 SN	LA1	5	3.600	1,2,3	88.85	44 RU	LB1	4	4.620	1,2,3
86.12	47 AG	LB9	5	3.605	1,2	89.02	35 BR	LN	2	9.254	1,3
86.21	51 SB	LN	5	3.608	1,2,3	89.07	47 AG	LB2	5	3.703	1,2,3
86.24	50 SN	LA2	5	3.609	1,2,3	89.24	43 TC	LB2	4	4.636	1
86.29	39 Y	LB4	3	6.018	1,2,3	89.49	52 TE	LL	5	3.717	1,2,3
86.30	47 AG	LB10	5	3.611	1,2	89.68	41 NE	LY3	4	4.654	1,2
86.39	48 CD	LB6	5	3.614	1,2,3	89.68	41 NE	LY2	4	4.654	1,2,3
86.45	47 AG	LY5	5	3.616	1,2	89.71	46 PC	LY1	5	3.724	1,2,3
86.52	44 RU	LB4	4	4.523	1,2,3	89.79	41 NE	LN	3	6.211	1,2,3
86.77	37 RB	LY3	3	6.045	1,2	89.81	39 Y	LB1	3	6.212	1,2,3
86.79	78 PT	MA1	3	6.046	1,2	89.83	46 PC	LN	4	4.660	1,2,3
86.79	37 RB	LY2	3	6.046	1,2,3						
86.99	78 PT	MA2	3	6.057	1,2						

KAP CRYSTAL, D#13.200 ANGSTROMS						90.14 TO 97.04					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
90.14	48 CC	LBI	5	3.73E	1,2,3	94.25	39 Y	LA1	3	6.449	1,2,3
90.23	19 K	KA1	5	3.741	1,2,3	94.26	42 MC	LY5	4	4.837	1,2
90.35	19 K	KA2	5	3.745	1,2,3	94.27	47 AG	LB4	5	3.87C	1,2,3
90.71	77 IR	MA1	3	6.2611	1,2	94.38	39 Y	LA2	3	6.456	1,2,3
90.97	77 IR	MA2	3	6.275	1,2	94.49	44 RU	LA1	4	4.846	1,2,3
90.99	33 AS	LBI	2	9.414	1,3	94.67	44 RU	LA2	4	4.853	1,2,3
90.99	47 AG	LL	4	4.707	1,2,3	94.72	18 A	KBI	5	3.884	1
91.19	49 IN	LA1	5	3.772	1,3	94.84	51 SB	LL	5	3.888	1,2,3
91.36	38 SR	LY5	3	6.296	1,2	95.04	76 OS	MA2	3	6.490	1,2
91.46	42 MC	LY1	4	4.726	1,2,3	95.04	76 OS	MA1	3	6.490	1,2
91.47	49 IN	LA2	5	3.781	1,2,3	95.13	44 RU	LY2	5	3.897	1,2,3
91.51	17 CL	KA1	4	4.72F	1,2,3	95.13	44 RU	LY3	5	3.897	1,2
91.56	17 CL	KA2	4	4.73C	1,2,3	95.46	43 TC	LBI	4	4.884	1
91.72	50 SN	LN	5	3.789	1,2,3	95.52	46 PC	LB2	5	3.909	1,2,3
91.81	46 PC	LB7	5	3.792	1,2	95.55	92 U	MA1	5	3.910	1,2
92.03	46 PC	LBI	5	3.790	1,2	95.56	41 NB	LL	3	6.517	1,2,3
92.31	47 AG	LB6	5	3.808	1,2,3	95.60	38 SR	LB6	3	6.519	1,2,3
92.69	38 SR	LB3	3	6.367	1,2,3	95.77	75 RE	MA1	3	6.528	1,2
92.75	46 PC	LY5	5	3.822	1,2	96.01	92 U	MA2	5	3.924	1,2
92.79	12 MG	KBI	2	9.558	1,2,3	96.33	47 AG	LBI	5	3.934	1,2,3
93.09	47 AG	LB3	5	3.833	1,2,3	96.45	45 RH	LN	4	4.922	1,2,3
93.10	35 BR	LL	2	9.583	1,2,3	96.47	42 MC	LB2	4	4.923	1,2,3
93.37	38 SR	LB4	3	6.403	1,2,3	96.63	45 RH	LY1	5	3.943	1,2,3
94.22	33 AS	LA1	2	9.671	1,2,3	97.04	12 MG	KA1	2	9.889	1,2,3
94.22	33 AS	LA2	2	9.671	1,2	97.04	12 MG	KA2	2	9.889	1,2,3

KAP CRYSTAL, D#13.200 ANGSTROMS						97.05 TO 105.03					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
97.05	48 CD	LA1	5	3.956	1,2,3	100.93	37 RB	LB3	3	6.787	1,2,3
97.23	46 PD	LL	4	4.952	1,2,3	101.12	32 GE	LB1	2	10.194	2,3
97.26	40 ZR	LY2	4	4.953	1,2,3	101.58	43 TC	LA1	4	5.114	1
97.26	40 ZR	LY3	4	4.953	1,2	101.61	37 RB	LB4	3	6.820	1,2,3
97.32	40 ZR	LN	3	6.607	1,2,3	101.69	83 BI	MA1	4	5.118	1,2
97.34	48 CD	LA2	5	3.965	1,2,3	101.83	43 TC	LA2	4	5.123	1
97.65	38 SR	LB1	3	6.624	1,2,3	102.00	83 BI	MA2	4	5.129	1,2
97.94	49 IN	LN	5	3.983	1,2,3	102.48	34 SE	LL	2	10.293	1,2,3
97.96	34 SE	LN	2	9.959	1,2,3	102.50	38 SR	LA1	3	6.863	1,2,3
98.81	65 TB	MA1	2	10.023	2	102.60	41 NE	LY5	4	5.151	1,2
98.81	65 TB	MA2	2	10.023	2	102.63	38 SR	LA2	3	6.869	1,2,3
98.85	42 MC	LB3	4	5.013	1,2,3	102.96	45 RH	LB2	5	4.131	1,2,3
99.03	46 PD	LB6	5	4.016	1,2,3	103.20	90 TH	MA1	5	4.138	1,2
99.24	91 PA	MA1	5	4.022	1,2	103.33	42 MC	LB1	4	5.177	1,2,3
99.36	16 S	KB1	4	5.032	1,2,3	103.48	46 PD	LB1	5	4.146	1,2,3
99.46	41 NE	LY1	4	5.036	1,2,3	103.65	40 ZR	LL	3	6.918	1,2,3
99.64	46 PD	LB3	5	4.034	1,2,3	103.66	90 TH	MA2	5	4.151	1,2
99.67	91 PA	MA2	5	4.035	1,2	103.76	47 AG	LA1	5	4.154	1,2,3
99.81	42 MC	LB4	4	5.049	1,2,3	104.08	47 AG	LA2	5	4.163	1,2,3
99.81	42 MC	LB6	4	5.049	1,2,3	104.12	44 RU	LN	4	5.205	1,2,3
100.01	45 RH	LY5	5	4.045	1,2	104.46	45 RH	LL	4	5.217	1,2,3
100.26	37 RB	LY5	3	6.754	1,2	104.75	44 RU	LY1	5	4.182	1,2,3
100.54	14 SI	KB1	3	6.768	1,2,3	104.77	32 GE	LA1	2	10.456	2,3
100.89	46 PD	LB4	5	4.071	1,2,3	104.77	32 GE	LA2	2	10.456	2
100.89	50 SN	LL	5	4.071	1,2,3	105.03	74 W	MA1	3	6.983	1,2

KAP CRYSTAL, D#13.200 ANGSTROMS							105.05 TO 112.17						
ANGLE	ELEM	LINE	N	LAMBDA	REF		ANGLE	ELEM	LINE	N	LAMBDA	REF	
105.05	41 NB	LB2	4	5.238	1,2,3		109.32	40 ZR	LY1	4	5.384	1,2,3	
105.05	37 RB	LB6	3	6.984	1,2,3		109.99	42 MC	LA1	4	5.406	1,2,3	
105.11	18 A	KA1	5	4.192	1,2,3		110.23	42 MC	LA2	4	5.414	1,2,3	
105.15	48 CC	LN	5	4.193	1,3		110.97	73 TA	MA1	3	7.251	1,2	
105.18	74 W	MA2	3	6.990	1,2		111.13	73 TA	MA2	3	7.258	1,2	
105.22	18 A	KA2	5	4.195	1,2,3		111.64	46 PC	LA1	5	4.368	1,2,3	
106.26	39 Y	LN	3	7.040	1,2,3		111.67	81 TL	MA1	4	5.461	1,2	
106.35	39 Y	LY3	4	5.283	2		111.79	44 RU	LB2	5	4.372	1,2,3	
106.35	39 Y	LY2	4	5.283	1,2,3		111.87	45 RH	LB1	5	4.374	1,2,3	
106.40	82 PB	MA1	4	5.285	1,2		111.95	46 PC	LA2	5	4.376	1,2,3	
106.81	82 PB	MA2	4	5.299	1,2		112.01	81 TL	MA2	4	5.472	1,2	
106.91	45 RH	LB6	5	4.242	1,2,3		112.10	42 MC	LY2	5	4.380	1,2,3	
107.04	37 RB	LB1	3	7.076	1,2,3		112.10	42 MC	LY3	5	4.380	1,2	
107.13	41 NB	LB3	4	5.310	1,2,3		112.17	63 EU	MA1	2	10.954	1	
107.28	45 RH	LB3	5	4.252	1,2,3								
107.90	49 IN	LL	5	4.269	1,2,3								
108.13	14 SI	KA1	3	7.125	1,2,3								
108.16	41 NB	LB4	4	5.345	1,2,3								
108.19	14 SI	KA2	3	7.128	1,2,3								
108.57	44 RU	LY5	5	4.287	1,2								
108.64	41 NB	LB6	4	5.361	1,2,3								
108.64	45 RH	LB4	5	4.289	1,2,3								
108.80	33 AS	LN	2	10.733	1,3								
108.96	16 S	KA1	4	5.372	1,2,3								
109.05	16 S	KA2	4	5.375	1,2,3								

KAP CRYSTAL, D#13.20C ANGSTROMS						112.52 TO 125.97					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
112.52	37 RB	LA1	3	7.318	1,2,3	118.29	80 HG	MA2	4	5.666	1,2
112.63	41 NE	LB1	4	5.492	1,2,3	118.36	40 ZR	LB4	4	5.668	1,2,3
112.69	37 RB	LA2	3	7.325	1,2,3	118.63	36 KR	LB1	3	7.568	1
112.79	40 ZR	LY5	4	5.497	1,2	119.80	40 ZR	LB6	4	5.710	1,2,3
112.98	44 RU	LL	4	5.533	1,2,3	120.29	41 NE	LA1	4	5.724	1,2,3
113.00	17 CL	KB1	5	4.403	1,2,3	120.57	41 NE	LA2	4	5.732	2,3
113.42	39 Y	LL	3	7.356	1,2,3	121.37	45 RH	LA1	5	4.597	1,2,3
113.59	31 GA	LB1	2	11.045	3	121.42	45 RH	LA2	5	4.605	1,2,3
113.59	47 AG	LN	5	4.418	1,2,3	122.09	44 RU	LB1	5	4.620	1,2,3
113.98	33 AS	LL	2	11.069	1,3	122.81	43 TC	LB2	5	4.636	1
114.47	43 TC	LY1	5	4.440	1	123.14	15 P	KB1	4	5.804	1,2,3
115.64	40 ZR	LB2	4	5.586	2,3	123.14	32 GE	LN	2	11.608	3
116.09	48 CC	LL	5	4.480	1,2,3	123.30	11 NA	KB1	2	11.617	1,3
116.38	44 RU	LB6	5	4.487	1,2,3	123.63	41 NE	LY2	5	4.654	1,2,3
116.38	44 RU	LB3	5	4.487	1,2,3	123.63	41 NE	LY3	5	4.654	1,2
116.51	30 ZN	LB3	2	11.225	3	123.91	46 PC	LN	5	4.660	1,2,3
117.19	40 ZR	LB3	4	5.633	1,2,3	124.32	40 ZR	LB1	4	5.836	1,2,3
117.34	38 SR	LN	3	7.517	1,2,3	124.47	79 AU	MA1	4	5.840	1,2
117.55	38 SR	LY2	4	5.644	1,2,3	124.73	42 MC	LN	4	5.847	1,2,3
117.55	38 SR	LY3	4	5.644	1,2	124.99	79 AU	MA2	4	5.854	1,2
117.88	44 RU	LB4	5	4.523	1,2,3	125.15	36 KR	LA1	3	7.811	1
117.90	72 HF	MA1	3	7.539	1,2	125.15	36 KR	LA2	3	7.811	1
117.97	31 GA	LA1	2	11.313	3	125.78	39 Y	LY5	4	5.875	1,2
118.07	72 HF	MA2	3	7.546	1,2	125.86	38 SR	LL	3	7.836	1,2,3
118.29	80 HG	MA1	4	5.666	1,2	125.97	71 LL	MA1	3	7.840	1,2

KAP CRYSTAL, D#13.2CC ANGSTROMS						126.12 TO 134.84					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
126.12	47 AG	LL	5	4.707	1,2,3						
127.04	42 MC	LY1	5	4.726	1,2,3						
127.13	17 CL	KA1	5	4.728	1,2,3						
127.23	17 CL	KA2	5	4.730	1,2,3						
128.90	11 NA	KA1	2	11.909	1,3						
128.90	11 NA	KA2	2	11.909	1,3						
129.61	32 GE	LL	2	11.944	3						
130.06	39 Y	LB3	4	5.983	1,2,3						
130.17	13 AL	KB1	3	7.981	1,2,3						
131.52	39 Y	LB4	4	6.018	1,2,3						
132.06	37 RB	LN	3	6.041	1,2,3						
132.67	37 RB	LY3	4	6.045	1,2						
132.71	37 RB	LY2	4	6.046	1,2,3						
132.71	78 PT	MA1	4	6.046	1,2						
132.72	42 MC	LY5	5	4.837	1,2						
133.19	78 PT	MA2	4	6.057	1,2						
133.21	44 RU	LA1	5	4.846	1,2,3						
133.60	44 RU	LA2	5	4.853	1,2,3						
133.76	40 ZR	LA1	4	6.070	1,2,3						
134.12	40 ZR	LA2	4	6.078	1,2,3						
134.82	35 BR	LB1	3	8.125	2,3						
134.84	39 Y	LB6	4	6.094	1,2,3						

KAP CRYSTAL, D#13.200 ANGSTROMS						135.27 TO 149.46					
ANGLE	ELEM	LINE	N	LAMBDA	REF	ANGLE	ELEM	LINE	N	LAMBDA	REF
135.27	70 YB	MA1	3	8.138	1,2	145.98	42 MC	LB6	5	5.049	1,2,3
135.34	43 TC	LB1	5	4.884	1	148.04	69 TM	MA1	3	8.460	1,2
135.82	70 YB	MA2	3	8.154	1,2	148.04	69 TM	MA2	3	8.460	1,2
137.44	42 MC	LL	4	6.150	1,2,3	149.46	38 SR	LB3	4	6.367	1,2,3
137.56	45 RH	LN	5	4.922	1,2,3						
137.62	42 MC	LB2	5	4.923	1,2,3						
137.68	15 P	KA1	4	6.155	1,2,3						
137.68	15 P	KA2	4	6.155	1,2,3						
139.40	46 PD	LL	5	4.952	1,2,3						
139.46	40 ZR	LY3	5	4.953	1,2						
139.46	40 ZR	LY2	5	4.953	1,2,3						
140.46	41 NE	LN	4	6.211	1,2,3						
140.51	39 Y	LB1	4	6.212	1,2,3						
142.70	13 AL	KA1	3	8.338	1,2,3						
142.78	13 AL	KA2	3	8.340	1,2,3						
143.11	77 IR	MA1	4	6.261	1,2						
143.40	42 MC	LB3	5	5.013	1,2,3						
143.74	37 RB	LL	3	8.363	1,2,3						
143.89	77 IR	MA2	4	6.275	1,2						
144.24	35 BR	LA2	3	8.375	1,2						
144.24	35 BR	LA1	3	8.375	1,2,3						
144.74	16 S	KB1	5	5.032	1,2,3						
145.03	41 NB	LY1	5	5.036	1,2,3						
145.08	38 SR	LY5	4	6.296	1,2						
145.98	42 MO	LB4	5	5.049	1,2,3						