

Structure variation in low cordierites

JAMES H. WALLACE AND HANS-RUDOLF WENK

Department of Geology and Geophysics
University of California, Berkeley, California 94720

Abstract

Crystal structures of six metamorphic low cordierites with $Fe/(Fe + Mg)$ ranging from 0.07 to 0.42 (atomic) were refined from X-ray data. No evidence of a superstructure was found, confirming that, in chemically intermediate cordierites, Fe and Mg are located on a single site. Although T-O distances remain nearly constant, increased Fe content causes (1) the M site to enlarge, (2) the channels to move apart, and (3) a and b to increase. In addition, channel rings rotate, change their shape, and move closer together within each channel, causing a decrease in c . Difference Fourier maps confirm that channel water is located in a split location near $(0,0,1/4)$. Its orientation is interpreted as being largely controlled by an excess negative charge on O(4) and O(5). The H-O-H plane is oriented nearly parallel to (100) and the H-H vector may either be close to [001] or [010]. Channel cations may be located at several locations at the channel walls in addition to the well-defined site at $(0,0,0)$. Low framework cation-site occupancies are explained by 3-4 percent vacancies that balance for cation in the channel. Vacancies on T(2) and T(5) sites are inversely correlated, and on these sites an increasing number of vacancies produces an enlargement of tetrahedra. Minor differences in mean T-O distances, usually ascribed to Al-Si substitution, may be caused by tetrahedral distortions and vacancies.

Introduction

Structural aspects of cordierite, $(Mg, Fe)_2Al_4Si_2O_{18} \cdot nH_2O$, have recently been the topic of lively discussions. Although the basic cordierite structure (Fig. 1) has been known for some time, intriguing questions have persisted. The present study is based on X-ray refinements made from six cordierites collected from the Bergell region in the Central Alps. These multiple refinements allowed us to observe trends in several structural parameters and to deduce how a number of them are related.

Although cordierite displays a wide range of Fe-Mg substitution, its effect on the cordierite structure has not been systematically examined. Our study fills this need because the six crystals display $Fe/(Fe + Mg)$ values ranging from 0.07 to 0.42 (atomic). Over this compositional range it was found that the cordierite structure adjusts to Fe-Mg substitution in a regular fashion.

A considerable portion of the recent interest in cordierite relates to the channels formed by the stacking of six-membered tetrahedral rings parallel to (001). There is general agreement that the majority

of the minor constituents found in cordierite are located in these channels, although there is discussion about their precise location and orientation (Miyashiro, 1957; Smith and Schreyer, 1960; Schreyer and Yoder, 1964; Gibbs, 1966; Meagher, 1967; Farrell and Newnham, 1967; Tsang and Ghose, 1972; Cohen *et al.*, 1977; Goldman *et al.*, 1977). Our study presents new information concerning the location and orientation of water, possible locations for channel constituents at the channel walls, and evidence that the net positive charge of cations in the channel is balanced by cation site vacancies within the cordierite structural framework.

Cohen *et al.* (1977) presented a new interpretation of Al-Si distribution on cordierite tetrahedral sites. Adjustments in tetrahedral dimensions that we observed as Fe substitutes for Mg in the cordierite structure support their analysis.

After our paper was submitted the reviewers (G. E. Brown and M. Hochella) informed us that they had submitted a paper (Hochella *et al.*, 1979) on heating experiments, which arrived at similar conclusions but on the basis of different observations. Their work complements our study. We modified our manuscript

BEGIN CLDR2.3B 10 APR 79 18:54:12 , CPU TIME USED IS .009 SECONDS

BLOCK	ORIGIN	LENGTH	DATE	TIME	PROCESSOR	FILE
/A	/ 000100	004554				
/ORD	/ 004654	000004				
/FARM	/ 004660	000001				
LISTER	004661	012260	30 JAN 76	16:30:21	RUN2.3C0	INPUT
ARFILL	017141	000050	30 JAN 76	16:30:21	RUN2.3C0	INPUT
COUNT	017211	000352	30 JAN 76	16:30:21	RUN2.3C0	INPUT
KEEP	017563	000074	30 JAN 76	16:30:21	RUN2.3C0	INPUT
PRINT1	017657	000212	30 JAN 76	16:30:21	RUN2.3C0	INPUT
PRINT2	020071	000523	30 JAN 76	16:30:21	RUN2.3C0	INPUT
REJL	020614	000013	30 JAN 76	16:30:21	RUN2.3C0	INPUT
EOF	020627	000020	30 JAN 76	16:30:21	RUN2.3C0	INPUT
CKBLOKS	020647	000023	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
IFENDF	020672	000025	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
INPUTB	020717	000237	08 JAN 76	16:45:15	CMP2.5B2	SUBRLIB
INPUTC	021156	001025	20 APR 73	19:59:46	CMP1.1A4	SUBRLIB
INPUTS	022203	000103	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
IQMSG\$	022306	000226	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
IO.SUP	022534	001323	01 DEC 76	17:15:17	CMP2.5B2	SUBRLIB
OCT\$	024057	000011	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
OUTPTC	024070	001242	04 APR 74	23:24:20	CMP1.1A4	SUBRLIB
OUTPTS	025332	000075	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
REWIND	025427	000046	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
/SYS.MEM/	025475	000005				
SYSTEM	025502	001024	20 APR 73	19:59:46	CMP1.1A4	SUBRLIB
SYS.MAP	026526	000034	DIAGNOSTIC STORAGE MAP			

REQUIRES 046337B WORDS TO LOAD, 026562B WORDS TO EXECUTE

Sci 552

CORDIERITE

FASTEST VARYING INDEX IS 1

SLOWEST VARYING INDEX IS 3

SCALE = 1.0000

CARDS WILL NOT BE PUNCHED

DATA HAS ALREADY BEEN SORTED

NUMBER OF REFLECTIONS IS 1580

NUMBER OF INDICES IS 19

NUMBER OF PRINTED LINES IS 1637

NUMBER OF JOURNAL PAGES IS 1

COLUMN	1	2	3	4	5	6	7	8	9	10				
PAGE	164	164	164	164	164	164	164	163	163	163	K	H	FO	FC
	K	H	FO	FC	K	H	FO	FC	K	H			FO	FC

					15	17	25	24	2	18			106	105
*****	L =	0	*****		15	17	25	24	2	22			60	60
					16	0	81	78	2	24			47	47
0	4	36	35		16	6	40	39	2	28			33	34
0	6	106	102		16	10	32	30	2	30			39	41
0	8	50	47		16	12	29	28	3	1			86	90
0	10	291	286		16	18	31	30	3	5			102	102
0	12	120	117		16	18	31	30	3	7			15	18
0	14	103	104		17	5	43	41	3	9			114	113
0	16	167	170		17	11	49	44	3	11			25	25
0	18	25	27		17	11	49	44	3	13			67	66
0	20	87	87		17	15	30	28	3	15			44	42
0	24	83	83		17	15	30	28	3	17			35	35
0	26	43	45		18	0	39	34	3	19			97	97
0	32	27	26		18	0	39	34	3	25			42	43
1	3	74	71		18	8	44	40	4	0			109	111
1	7	28	26		18	12	25	27	4	2			118	125
1	9	150	148		19	1	24	22	4	4			61	65
1	13	113	112		19	3	50	48	4	6			82	86
1	15	30	27						4	12			190	189
1	17	56	55	*****	L =	1	*****		4	14			60	59
1	19	109	112						4	18			47	46
1	21	50	50		1	3	15	14	4	20			43	43
1	23	37	38		1	5	189	180	4	22			81	81
1	27	23	23		1	7	55	53	4	24			45	46
2	0	66	64		1	9	53	52	4	26			25	28
2	4	26	26		1	15	78	74	4	32			38	41
2	6	147	143		1	21	71	69	5	1			17	17
2	8	100	96		1	27	41	42	5	3			79	82
2	10	126	124		1	31	50	51	5	7			162	172
2	12	145	142		2	4	171	167	5	9			54	56
2	14	67	67		2	6	28	26	5	11			27	26
2	16	66	65		2	8	68	65	5	13			105	106
2	18	86	84		2	12	108	107	5	15			33	33
2	22	66	67		2	16	19	19	5	21			59	61
2	24	25	25		2	18	42	42	5	23			34	35
2	26	74	76		2	20	42	44	5	25			38	38
2	28	37	39		2	24	36	37	5	29			38	41
2	30	41	44		3	1	182	183	6	0			143	145
2	32	44	47		3	3	14	8	6	2			24	24
3	1	22	21		3	5	52	51	6	4			110	115
3	3	75	72		3	7	22	23	6	6			238	257

3	5	29	28	3	13	36	35	6	8	59	65
3	7	143	138	3	15	54	54	6	10	48	49
3	9	84	81	3	17	110	109	6	12	23	23
3	11	10	16	3	19	54	54	6	14	51	49
3	13	94	92	3	23	32	33	6	16	38	38
3	21	36	35	3	33	27	26	6	22	40	38
3	25	57	59	4	2	38	37	6	26	43	43
3	31	48	52	4	4	25	23	6	28	28	29
4	0	183	177	4	6	87	91	6	30	64	65
4	2	33	28	4	10	33	33	7	1	21	21
4	4	57	54	4	14	88	85	7	3	67	70
4	6	152	147	4	16	20	20	7	7	41	41
4	8	96	96	4	18	27	25	7	9	28	28
4	10	92	93	4	20	73	72	7	13	77	79
4	12	56	53	4	22	62	62	7	15	67	65
4	18	21	22	4	28	29	29	7	17	28	28
4	20	22	22	5	1	40	38	7	19	92	91
4	22	22	21	5	3	80	78	7	21	23	24
4	24	81	82	5	5	27	28	7	25	38	40
4	30	29	30	5	7	29	30	8	0	182	184
5	1	100	95	5	9	115	120	8	2	57	59
5	3	162	157	5	13	52	50	8	4	58	58
5	5	222	215	5	21	30	29	8	6	35	35
5	7	43	41	5	25	43	44	8	8	20	19
5	9	139	134	6	2	17	15	8	10	36	37
5	11	101	104	6	4	66	66	8	12	87	93
5	13	30	30	6	6	19	18	8	14	57	60
5	15	98	98	6	8	27	26	8	16	37	36
5	17	52	53	6	10	35	37	8	18	48	47
5	19	63	63	6	12	59	60	8	20	64	64
5	21	28	28	6	14	30	29	8	22	49	49
5	25	63	65	6	22	23	21	8	24	45	46
6	0	126	123	7	3	117	118	8	28	33	35
6	2	109	107	7	9	72	72	9	1	68	67
6	4	87	84	7	11	29	30	9	3	33	33
6	6	175	166	7	13	86	91	9	5	21	20
6	8	27	24	7	17	24	25	9	7	80	80
6	10	71	72	7	21	30	28	9	9	29	29
6	12	48	46	7	25	30	30	9	13	54	57
6	14	29	30	8	2	39	39	9	19	32	33
6	16	118	117	8	4	59	58	9	23	33	31
6	18	159	159	8	6	40	40	10	0	35	36
6	20	38	40	8	8	40	39	10	2	18	17
6	24	43	44	8	10	24	25	10	4	64	63
6	26	36	36	8	12	60	61	10	6	106	106
6	28	28	29	8	24	29	29	10	12	35	36
7	1	45	44	9	1	78	77	10	14	49	49
7	3	158	155	9	3	62	61	10	16	39	41
7	5	94	90	9	5	60	59	10	18	36	38
7	7	124	121	9	7	30	30	11	1	26	27
7	9	19	21	9	9	20	19	11	3	55	53
7	11	62	61	9	11	27	25	11	5	66	66
7	13	32	31	9	13	87	87	11	7	23	24
7	25	57	59	9	15	68	69	11	11	86	84
7	31	52	54	9	17	41	44	11	13	29	30
8	0	49	46	9	19	46	47	11	15	26	26

3	2	55	53	9	23	42	43	11	17	27	26
8	4	48	47	10	2	48	46	11	19	30	33
8	8	181	178	10	4	72	70	11	21	33	33
8	10	73	72	10	6	26	27	11	25	45	45
8	12	100	98	10	10	24	24	12	0	30	30
8	14	22	21	10	12	45	44	12	4	43	41
8	18	36	37	10	14	41	41	12	8	40	38
8	20	37	36	10	16	37	38	12	10	54	53
8	22	30	29	10	18	28	28	12	12	75	75
8	24	61	64	10	20	51	51	12	18	42	45
8	28	30	30	11	3	35	34	12	22	33	36
9	1	36	37	11	5	23	24	12	24	40	40
9	3	28	28	11	9	78	75	13	1	92	90
9	5	57	56	11	11	26	25	13	3	55	53
9	7	34	33	11	13	26	27	13	5	51	49
9	9	38	38	11	25	40	38	13	7	28	27
9	11	73	72	12	2	31	29	13	9	56	54
9	13	34	31	12	4	38	36	13	19	26	27
9	15	30	30	12	6	66	64	13	21	26	28
9	19	62	66	12	10	29	27	14	2	56	54
9	21	33	34	12	18	30	29	14	4	39	39
9	25	41	41	12	22	30	30	14	6	42	43
10	0	125	122	14	2	25	25	14	14	31	32
10	2	17	16	14	6	50	49	14	16	30	30
10	6	82	80	14	22	30	28	14	18	58	58
10	8	80	77	15	7	26	24	15	3	26	26
10	12	63	61	15	9	30	28	15	5	47	46
10	18	99	97	16	4	36	37	15	11	56	57
10	28	33	35	16	16	32	30	15	13	34	32
11	1	97	93	17	13	31	29	15	15	30	30
11	7	48	46					16	0	22	21
11	9	76	73	*****	L = 2	*****		16	2	38	37
11	11	31	29					16	6	29	28
11	13	57	53	0	0	84	85	16	12	68	65
11	17	34	33	0	2	106	106	17	1	31	30
11	19	49	48	0	4	180	172	17	7	48	46
11	23	33	40	0	6	31	30	18	0	52	50
11	27	29	31	0	8	109	106	18	6	50	47
12	0	171	161	0	10	33	33	18	8	33	31
12	2	46	43	0	12	295	291	19	3	27	24
12	6	44	41	0	14	17	17				
12	10	35	34	0	16	46	46	*****	L = 3	*****	
12	12	54	51	0	18	63	62				
12	16	44	42	0	22	115	115	1	5	64	63
12	20	35	35	0	24	55	55	1	7	106	103
12	22	29	28	0	28	38	38	1	9	121	117
13	3	43	41	0	32	38	40	1	11	43	43
13	9	22	22	1	1	168	170	1	13	42	43
13	13	69	67	1	3	226	219	1	15	58	58
13	19	44	41	1	5	132	127	1	17	50	49
13	21	47	44	1	7	99	95	1	19	32	32
13	21	47	44	1	9	84	83	1	27	40	41
13	25	31	31	1	11	104	104	2	4	56	54
14	4	37	35	1	13	49	47	2	6	17	17
14	6	97	93	1	17	31	32	2	8	76	74
14	8	65	62	1	19	34	34	2	12	43	42

14	10	50	48	1	25	49	49	2	14	72	72
14	12	24	25	1	31	61	62	2	16	63	63
14	14	41	37	2	0	224	237	2	18	27	26
14	16	34	32	2	2	207	211	2	22	30	30
14	18	44	45	2	4	134	132	2	24	32	31
15	1	58	54	2	6	136	133	2	26	34	35
15	3	28	27	2	10	98	96	2	30	41	42
15	7	44	42	2	12	70	72	3	1	52	54
15	9	25	25	2	14	92	90	3	5	130	128
15	13	33	32	2	16	36	36	3	7	21	22

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
3	9	22	21	5	21	24	23	10	18	25	27
3	11	145	145	5	25	32	33	10	20	40	40
3	13	53	53	5	29	42	45	11	3	50	50
3	15	25	25	5	31	47	48	11	9	46	46
3	17	68	67	6	2	114	121	11	13	32	31
3	19	73	73	6	10	24	25	11	17	28	30
3	21	64	64	6	12	49	49	11	25	33	32
3	23	39	38	6	14	52	50	12	6	62	63
3	25	31	31	6	16	40	40	12	10	36	35
3	27	24	23	6	18	135	135	12	16	30	31
3	31	26	26	6	22	43	41	14	6	50	50
4	2	121	126	6	28	27	29	14	10	24	26
4	4	18	17	7	1	110	116	15	17	26	25
4	6	150	153	7	3	145	152	16	14	26	23
4	8	51	51	7	5	81	86	16	16	29	28
4	10	82	84	7	7	69	71				
4	14	100	101	7	9	55	60	*****	L =	6	*****
4	20	23	24	7	11	62	65				
4	22	43	44	7	13	37	38	0	0	199	198
4	24	44	46	7	17	29	30	0	2	48	45
5	1	54	56	7	25	25	24	0	4	83	82
5	3	111	117	8	0	98	100	0	6	20	18
5	5	87	88	8	2	32	32	0	8	131	130
5	11	34	34	8	6	62	64	0	10	39	40
5	13	63	64	8	8	67	70	0	12	184	181
5	21	24	23	8	10	57	61	0	16	87	87
5	25	40	41	8	12	102	106	0	18	33	32
6	2	65	68	8	24	50	51	0	22	78	79
6	6	23	25	8	26	35	33	0	24	49	51
6	8	64	68	8	28	34	33	0	28	25	25
6	10	18	20	8	30	43	45	0	32	25	28
6	12	32	31	9	1	33	34	1	1	49	50
6	14	26	24	9	3	34	34	1	3	145	145
6	16	26	26	9	5	60	62	1	5	113	112
6	24	49	49	9	7	22	22	1	7	100	97
7	1	122	127	9	11	60	61	1	11	83	83
7	3	71	71	9	13	39	40	1	13	34	34
7	5	36	40	9	15	43	43	1	15	23	23
7	9	86	93	9	17	31	32	1	25	65	67
7	11	54	57	9	19	43	42	1	31	39	42
7	13	37	38	9	25	48	50	2	0	137	139
7	15	68	69	10	2	65	71	2	2	107	108

7	25	60	58	10	4	35	35	2	4	122	125
8	6	58	62	10	6	90	93	2	6	159	161
8	8	32	34	10	8	60	61	2	10	53	52
8	10	47	48	10	10	45	46	2	12	40	39
8	12	30	31	10	14	37	39	2	14	57	56
8	14	31	33	10	16	45	48	2	16	46	45
8	22	31	31	10	18	75	82	2	18	92	91
9	1	76	77	10	20	52	51	2	22	64	63
9	3	29	29	10	24	52	53	2	24	55	53
9	5	36	38	11	1	38	38	2	28	26	26
9	7	67	69	11	7	60	62	2	30	36	37
9	11	48	50	11	11	44	43	3	1	94	98
9	13	30	30	11	13	49	51	3	3	23	23
9	15	54	58	11	19	30	31	3	5	93	92
9	19	35	34	11	23	28	28	3	7	24	23
9	21	43	43	12	0	123	125	3	9	112	112
9	23	32	34	12	2	71	72	3	11	41	40
9	27	29	27	12	6	73	75	3	13	48	47
10	2	53	54	12	8	24	24	3	15	43	43
10	8	20	20	12	12	57	60	3	17	43	43
10	14	58	60	12	14	31	31	3	19	83	82
10	16	42	45	12	24	41	44	3	25	28	29
10	18	33	35	13	1	26	25	4	0	134	141
10	20	32	33	13	7	51	52	4	2	90	94
11	3	73	72	13	11	53	54	4	4	91	94
11	7	31	33	13	13	47	49	4	10	26	27
11	9	35	35	13	15	53	54	4	12	164	162
11	11	25	26	13	19	32	31	4	14	51	52
11	13	39	39	13	21	55	57	4	16	31	30
11	17	38	40	14	0	39	38	4	18	37	36
11	19	25	25	14	2	33	32	4	20	51	51
11	25	33	35	14	6	75	74	4	22	83	83
12	6	71	71	14	8	24	25	4	24	33	35
12	10	44	42	14	12	55	55	5	1	35	36
12	16	43	44	15	1	43	42	5	5	42	44
13	1	23	24	15	7	39	38	5	7	100	102
13	5	24	22	15	11	27	28	5	9	29	29
13	9	26	26	15	15	29	30	5	13	87	86
13	11	26	27	16	0	79	79	5	15	21	20
14	6	67	67	16	10	49	49	5	19	31	32
14	10	48	47	17	5	35	34	5	21	54	54
14	16	31	32	17	9	31	31	6	0	153	157
15	3	35	35	17	11	35	35	6	4	63	65
15	11	29	27	18	4	31	29	6	6	135	142
15	17	26	27	18	6	40	41	6	8	52	54
15	19	41	40					6	12	19	18
16	2	24	23	****	L =	5	****	6	14	57	56
16	14	31	30					6	26	26	25
16	16	32	31	1	5	50	51	6	28	27	28
17	1	37	35	1	7	55	54	6	30	58	60
17	15	38	37	1	9	81	82	7	1	52	53
				1	15	60	60	7	3	53	55
****	L =	4	****	1	17	27	28	7	9	57	60
				1	19	21	19	7	13	72	71
0	0	327	322	1	21	33	33	7	15	45	45
0	2	20	14	1	27	36	36	7	17	47	48

0	4	77	73	1	31	34	33	7	19	85	86
0	6	170	168	2	4	56	55	7	21	33	32
0	8	46	47	2	8	59	58	8	0	167	168
0	10	70	68	2	12	69	68	8	2	36	37
0	12	37	39	2	14	27	26	8	4	34	34
0	16	42	41	2	16	40	40	8	6	46	49
0	20	81	81	2	18	25	25	8	8	49	52
0	22	35	35	2	20	23	23	8	10	31	31
0	24	64	65	2	24	34	33	8	12	80	83
0	26	35	35	3	1	48	51	8	14	48	51
0	28	47	48	3	5	45	46	8	16	35	34
1	1	24	24	3	7	26	25	8	18	60	62
1	3	45	44	3	11	65	65	8	20	40	39
1	5	15	14	3	13	49	50	8	22	40	39
1	7	98	96	3	17	77	76	8	24	35	37
1	11	17	16	3	19	50	50	9	1	52	53
1	13	103	102	3	21	35	35	9	3	31	31
1	15	72	71	3	23	36	37	9	5	19	20
1	19	71	70	4	2	52	54	9	7	65	65
1	23	33	33	4	6	93	97	9	13	51	53
1	25	50	51	4	8	22	21	10	0	22	22
2	0	41	42	4	10	24	24	10	2	31	30
2	2	68	66	4	14	78	78	10	4	63	64
2	4	60	61	4	20	47	46	10	6	97	99
2	6	291	285	4	22	43	43	10	10	33	35
2	8	125	124	4	24	28	28	10	14	56	58
2	10	157	158	5	1	34	35	10	16	56	58
2	12	157	155	5	3	72	78	10	18	24	24
2	16	92	91	5	5	23	23	10	26	33	31
2	18	97	97	5	5	86	88	11	3	41	42
2	20	38	39	5	13	48	48	11	5	56	57
2	22	32	32	5	21	26	26	11	7	32	33
2	26	62	65	5	25	38	39	11	11	68	69
2	28	27	27	6	2	40	40	11	13	24	25
2	30	42	44	6	4	29	28	11	15	33	34
3	1	73	77	6	8	42	43	11	25	57	59
3	3	164	168	6	12	37	36	12	4	31	31
3	5	53	53	6	14	23	22	12	8	47	46
3	7	150	147	6	24	34	34	12	10	31	32
3	11	83	82	7	1	60	61	12	12	67	70
3	13	74	73	7	3	66	68	12	18	31	33
3	15	31	31	7	9	72	76	12	24	49	51
3	17	30	28	7	13	45	46	13	1	69	69
3	21	60	61	7	15	38	37	13	3	63	63
3	23	28	28	7	25	45	44	13	5	54	54
3	25	33	33	8	2	27	27	13	7	40	40
3	29	28	29	8	4	26	27	13	9	48	48
3	31	37	40	8	6	40	41	14	0	25	26
4	0	286	303	8	8	31	32	14	2	30	29
4	2	38	41	8	10	29	30	14	4	22	22
4	4	56	58	8	12	45	46	14	6	32	32
4	8	129	129	9	1	70	72	14	18	42	43
4	10	172	174	9	3	43	44	15	5	31	31
4	12	93	91	9	7	49	51	15	11	44	45
4	16	51	51	9	11	28	30	16	0	27	27
4	20	57	56	9	13	53	54	16	12	56	55

4	24	76	77	9	15	58	59	17	1	39	39
4	26	41	40	9	17	25	26	17	7	32	32
5	1	112	118	9	19	31	31	18	0	59	57
5	5	78	82	9	23	38	38				
5	7	33	34	10	2	40	41	*****	L =	7	*****
5	9	121	123	10	4	39	41				
5	11	32	33	10	10	24	23	1	5	134	136
5	13	20	21	10	12	22	23	1	9	34	33
5	17	24	24	10	14	44	44	1	15	58	57
5	19	102	104	10	16	37	39	1	21	66	66

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
1	27	34	34	9	13	24	24	6	6	157	159
1	31	47	48	9	19	44	45	6	8	29	30
2	4	120	121	9	25	36	37	6	10	51	51
2	8	36	37	10	0	59	60	6	14	25	25
2	12	84	83	10	6	61	60	6	16	37	37
2	18	33	34	10	8	47	47	6	22	40	37
2	20	41	43	10	12	37	37	6	26	36	35
2	24	29	30	10	18	64	67	7	3	44	45
3	1	126	133	11	1	54	54	7	7	32	31
3	13	22	21	11	7	43	43	7	13	43	44
3	15	52	51	11	9	37	37	7	15	45	43
3	17	91	91	11	13	38	38	7	19	54	55
3	19	37	36	11	19	29	32	7	25	37	38
3	23	23	24	11	23	34	34	8	0	85	85
3	27	28	28	12	0	107	106	8	2	32	32
4	6	51	52	12	2	41	40	8	4	50	49
4	10	36	37	12	6	42	39	8	12	49	50
4	14	62	61	12	12	40	41	8	14	35	35
4	16	21	21	12	20	25	24	8	20	54	54
4	18	26	25	13	3	26	24	8	22	34	35
4	20	65	65	13	7	24	23	8	24	32	34
4	22	52	52	13	13	50	49	9	1	39	39
4	28	31	31	13	19	32	31	9	7	51	50
5	3	44	45	14	6	67	68	9	13	32	32
5	7	31	31	14	8	42	42	9	19	27	27
5	9	87	88	14	10	35	34	10	0	51	50
5	13	35	35	14	14	27	24	10	4	30	30
5	21	24	24	14	18	33	33	10	6	59	58
5	25	33	36	15	1	44	43	10	12	40	40
6	4	51	53	15	7	30	30	10	18	28	28
6	10	36	38	16	0	68	65	11	1	28	28
6	12	48	50	16	10	31	30	11	3	35	33
6	14	24	24	17	5	33	30	11	5	43	41
6	22	24	24					11	9	30	29
7	3	84	85	*****	L =	9	*****	11	11	60	58
7	9	47	48					11	17	28	27
7	11	37	36	1	5	38	39	11	19	26	28
7	13	76	79	1	7	37	36	12	4	29	28
7	17	23	23	1	9	49	50	12	10	42	40
7	21	27	26	1	15	35	35	12	12	46	45
7	27	27	26	1	17	22	23	12	18	35	36
8	2	30	29	1	21	23	23	13	1	63	61

8	4	50	53	1	27	32	32	13	9	52	33
3	6	26	27	2	4	28	28	14	2	51	47
8	8	29	29	2	8	33	33	14	4	35	35
8	12	51	52	2	10	18	16	14	6	33	33
8	20	25	23	2	12	40	38	14	14	34	34
8	24	27	27	2	14	30	30	15	3	28	25
9	1	57	57	2	16	28	27	15	5	38	36
9	3	48	48	2	18	25	24	16	2	30	27
9	5	58	57	3	1	39	41				
9	13	76	78	3	5	55	57	*****	L = 11	*****	
9	15	54	55	3	11	56	55				
9	17	42	41	3	17	57	58	1	7	58	57
9	19	40	40	3	19	49	49	1	9	58	56
9	23	35	37	3	21	36	35	1	15	34	33
10	2	35	34	4	2	53	53	1	17	31	30
10	4	64	64	4	6	71	71	2	8	32	31
10	6	22	24	4	10	23	22	2	12	29	29
10	12	41	42	4	14	65	66	2	14	27	29
10	14	26	27	4	20	23	24	2	16	35	35
10	16	27	29	4	22	38	39	3	5	55	56
10	20	44	45	5	1	22	21	3	11	62	61
11	5	24	25	5	3	54	55	3	13	36	36
11	7	27	29	5	9	62	62	3	17	37	38
11	9	67	66	5	13	41	40	3	19	35	35
11	19	24	22	5	25	29	30	3	21	35	34
12	2	29	28	6	2	30	31	3	23	29	27
12	4	34	34	6	4	26	25	4	2	56	57
12	6	48	47	6	8	31	31	4	6	59	59
12	18	29	30	6	12	30	30	4	8	24	24
12	22	26	26	7	1	40	40	4	10	35	34
13	5	22	21	7	3	58	59	4	14	49	50
14	2	27	27	7	9	49	50	4	24	29	29
14	6	36	35	7	13	45	47	5	1	20	19
15	7	27	26	7	15	25	27	5	3	46	47
15	9	28	27	7	25	32	32	5	9	44	45
16	4	37	36	8	6	38	39	5	13	33	33
				8	8	22	22	5	25	26	25
*****	L = 8	*****		8	10	30	30	6	2	31	32
				8	12	23	24	6	8	31	33
0	0	386	391	9	1	48	47	6	24	31	32
0	2	76	78	9	3	20	19	7	1	58	56
0	6	75	73	9	7	31	30	7	3	27	27
0	10	122	120	9	11	31	30	7	9	50	50
0	12	51	51	9	13	28	31	7	11	30	29
0	14	57	56	9	15	37	39	7	15	40	38
0	16	95	94	9	19	33	33	8	6	29	28
0	20	61	60	10	2	39	38	8	10	24	23
0	24	67	66	10	4	26	26	8	12	24	23
1	1	46	49	10	14	37	38	9	1	46	45
1	3	28	29	10	16	28	28	9	7	44	43
1	7	52	51	10	18	25	25	9	11	23	23
1	9	45	46	10	20	27	27	9	13	35	35
1	13	75	73	11	3	38	37	9	21	25	25
1	15	34	32	11	9	38	36	10	2	26	27
1	17	28	27	12	6	45	45	10	14	34	34
1	19	69	70	12	10	22	22	10	16	30	29

1	21	30	30	14	6	46	46	11	3	44	42
1	23	32	31	14	10	26	26	11	13	26	25
2	0	36	37					11	17	27	26
2	6	116	113	***** L = 10 *****				12	6	47	45
2	8	52	62					12	10	30	28
2	10	95	94	0	0	29	28	12	16	32	31
2	12	90	89	0	2	54	53	14	6	42	39
2	14	31	31	0	4	80	81	14	10	31	29
2	16	51	50	0	6	24	24				
2	18	60	58	0	8	47	47	***** L = 12 *****			
2	22	42	44	0	10	46	45				
2	26	57	59	0	12	175	175	0	0	192	188
2	28	27	28	0	14	27	27	0	6	45	45
2	30	32	34	0	18	50	49	0	10	58	56
3	1	22	24	0	22	83	82	0	16	48	47
3	3	51	50	0	24	40	40	0	20	44	44
3	7	89	88	0	26	33	30	0	24	30	31
3	9	36	35	0	28	35	33	1	1	30	29
3	11	25	24	1	1	79	80	1	3	27	28
3	13	61	61	1	3	78	76	1	7	30	30
3	21	30	29	1	5	63	62	1	13	53	51
3	25	41	41	1	7	32	32	1	19	50	49
4	0	135	137	1	9	51	51	2	6	86	86
4	6	52	53	1	11	60	59	2	8	55	54
4	8	67	68	1	13	23	22	2	10	65	64
4	10	70	77	1	17	28	28	2	12	62	62
4	12	39	40	1	19	28	29	2	16	34	35
4	24	55	56	2	0	86	86	2	18	51	51
5	1	80	82	2	2	93	92	3	3	46	45
5	3	47	49	2	4	58	58	3	5	21	19
5	5	104	107	2	6	49	48	3	7	60	60
5	9	87	89	2	10	55	54	3	11	33	31
5	11	56	55	2	12	39	40	3	13	39	38
5	15	41	42	2	14	65	65	4	0	97	95
5	17	40	41	2	16	59	57	4	8	65	64
5	19	54	55	2	22	30	30	4	10	61	60
5	25	38	40	3	1	46	48	4	12	41	40
6	0	45	48	3	3	21	22	4	20	26	23
6	2	86	85	3	5	37	39	4	24	51	51
6	4	30	31	3	9	37	37	5	1	40	41
6	6	71	72	3	13	35	35	5	5	57	56
6	8	29	28	3	19	58	59	5	9	39	41
6	10	23	24	3	25	35	35	5	11	29	29
6	12	34	32	4	0	36	35	5	19	43	45
6	14	28	28	4	2	43	45	6	0	32	30
6	16	66	67	4	4	33	32	6	2	48	47
6	18	118	119	4	5	54	55	6	6	25	25
6	20	24	22	4	10	26	25	6	12	27	27
7	1	48	49	4	12	92	92	6	16	43	41
7	3	95	94	4	14	30	30	6	18	71	70
7	5	58	59	4	16	34	34	7	1	36	36
7	7	65	66	4	22	40	41	7	3	68	67
7	11	39	40	4	24	30	32	7	5	44	43
7	13	23	24	4	26	27	27				
7	25	38	38	5	3	55	54	7	11	34	34
8	0	43	41	5	7	102	103	8	0	38	37

8	2	32	32	5	9	32	32	8	6	25	24
8	8	107	109	5	11	26	26	8	8	53	53
8	10	49	49	5	13	64	64	8	10	29	28
8	12	69	70	5	15	44	43	8	12	51	52
8	24	48	48	5	21	38	37	9	5	33	31
9	1	20	21	5	23	34	33	9	11	36	35
9	5	41	42	5	25	35	35	9	19	32	31
9	7	21	22	6	0	57	55	10	2	33	33
9	9	20	20	6	4	74	75	10	6	42	41
9	11	49	51								

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
10	8	42	42								
10	18	56	57								
11	1	38	37								
11	7	28	26								
11	11	25	25								
11	13	32	31								
12	0	83	77								
12	2	32	29								
12	6	31	30								
12	12	32	32								
13	11	26	24								
14	6	48	46								

***** L = 13 *****

1	5	57	57
1	9	28	26
1	15	32	32
1	21	34	34
2	4	55	54
2	12	43	43
3	1	57	56
3	15	23	22
3	17	49	48
4	6	25	26
4	14	32	31
4	20	40	39
4	22	28	27
5	3	24	23
5	9	45	44
6	4	22	21
7	3	34	35
7	9	30	29
7	13	34	34
8	4	32	30
8	12	32	32
9	1	36	34
9	3	28	28
9	5	29	27
9	13	45	45
9	15	35	34
9	17	25	23

10	4	37	35
11	9	37	35
12	6	33	30

***** L = 14 *****

0	0	76	75
0	4	28	28
0	8	48	48
0	10	22	22
0	12	65	62
0	16	48	48
0	22	37	37
1	3	45	45
1	5	43	43
1	7	33	33
1	11	31	32
2	0	52	51
2	2	39	38
2	4	51	51
2	6	70	68
2	16	23	22
2	18	48	48
3	1	41	41
3	5	39	39
3	9	48	47
3	11	25	23
3	15	24	23
3	17	25	25
3	19	40	40
4	0	58	56
4	2	40	39
4	4	48	47
4	12	75	75
4	14	30	28
4	20	30	31
5	7	44	44
5	13	41	40
6	0	67	65
6	4	22	22
6	6	50	50
6	14	27	27
7	1	26	26
7	9	33	32
7	13	34	35
7	17	29	28
8	0	82	78
8	6	32	30
8	8	36	35
8	12	45	42
8	14	24	26
9	1	29	28
9	7	29	29
9	13	29	29
10	2	27	23
10	4	36	35

10	6	51	48
11	5	26	27

***** L = 15 *****

1	5	41	40
2	4	31	30
2	12	25	25
3	1	42	41
3	17	40	40
3	19	26	24
4	6	27	27
4	14	33	33
5	9	35	34
7	3	41	39
7	13	42	40
10	4	26	23

***** L = 10 *****

0	0	98	97
0	2	24	23
0	6	36	37
0	10	24	24
1	7	29	29
1	13	30	30
2	6	56	54
2	8	26	24
2	10	41	42
2	12	40	39
3	3	25	24
3	7	36	36
3	13	26	26
4	0	66	64
4	8	29	29
4	10	42	41
5	1	42	39
5	5	29	30
5	9	41	40
6	2	40	39
7	1	34	32
7	3	40	38
8	0	29	27
8	6	36	35

***** L = 17 *****

1	7	29	28
1	9	27	26
3	5	33	33
3	11	36	34
4	2	33	31
4	6	31	30
5	3	25	23
7	1	32	29

***** L = 18 *****

0	2	29	26
0	4	32	29
1	1	25	23
1	3	29	29
1	5	28	25
2	0	29	27
2	2	31	29

BEST COPY AVAILABLE

GIN CLDR2.3B 9 APR

LOCK	ORIGIN	LENGTH	DATE			
/	000100	004554				
RD /	004654	000004				
ARM /	004660	000001				
ISTER	004661	012260	30 JAN 76	16:30:21	RUN2.3C0	INPUT
RFILL	017141	000050	30 JAN 76	16:30:21	RUN2.3C0	INPUT
QUNT	017211	000352	30 JAN 76	16:30:21	RUN2.3C0	INPUT
EEP	017563	000074	30 JAN 76	16:30:21	RUN2.3C0	INPUT
RINT1	017657	000212	30 JAN 76	16:30:21	RUN2.3C0	INPUT
RINT2	020071	000523	30 JAN 76	16:30:21	RUN2.3C0	INPUT
EJL	020614	000013	30 JAN 76	16:30:21	RUN2.3C0	INPUT
OF	020627	000020	30 JAN 76	16:30:21	RUN2.3C0	INPUT
KBLOK\$	020647	000023	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
FENDF	020672	000025	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
NPUTB	020717	000237	08 JAN 76	16:45:15	CMP2.5B2	SUBRLIB
NPUTC	021156	001025	20 APR 73	19:59:46	CMP1.1A4	SUBRLIB
NPUTS	022203	000103	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
OMSG\$	022306	000226	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
D.SUP	022534	001323	01 DEC 76	17:15:17	CMP2.5B2	SUBRLIB
CT\$	024057	000011	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
UTPTC	024070	001242	04 APR 74	23:24:20	CMP1.1A4	SUBRLIB
UTPTS	025332	000075	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
EWINM	025427	000046	12 NOV 70	12:32:16	CMP1.1A4	SUBRLIB
YS.MEM/	025475	000005				
YSTEM	025502	001024	20 APR 73	19:59:46	CMP1.1A4	SUBRLIB
YS.MAP	026526	000034	DIAGNOSTIC STORAGE MAP			

QUIRES 046337B WORDS TO LOAD, 026562B WORDS TO EXECUTE

CORDIERITE

Sci 1104

FASTEST VARYING INDEX IS 1

SLOWEST VARYING INDEX IS 3

SCALE = 1.0000

CARDS WILL NOT BE PUNCHED

DATA HAS ALREADY BEEN SORTED

NUMBER OF REFLECTIONS IS 1324

NUMBER OF INDICES IS 35

NUMBER OF PRINTED LINES IS 1429

NUMBER OF JOURNAL PAGES IS 1

COLUMN	1	2	3	4	5	6	7	8	9	10		
PAGE	1	143	143	143	143	143	143	143	143	143	142	
	K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
					-3	11	15	17	11	5	64	66
					-3	13	90	90	11	13	35	30
					-3	21	33	34	11	15	31	26
0	4	38	37		-3	25	59	56	11	21	33	33
0	6	101	97		-3	31	51	49	11	25	44	44
0	8	48	47		-2	10	127	124	12	4	41	42
0	10	289	283		-2	26	75	75	12	8	37	38
0	12	118	115		-2	30	44	42	12	-24	42	40
0	14	100	101		-1	3	76	74	13	1	91	90
0	16	170	168		-1	5	15	15	13	9	51	53
0	18	22	25		-1	7	27	26	13	19	32	26
0	20	85	86		-1	9	148	143	14	0	30	19
0	24	81	81		-1	13	110	110	14	6	41	44
0	26	44	44		-1	17	55	55	14	14	34	33
0	34	50	50		-1	21	45	48	14	18	56	58
1	15	29	27		-1	23	35	36	17	7	46	47
1	19	108	107						18	0	43	50
2	0	67	65		***** L = 1 *****				18	6	44	48
2	2	12	10						18	-8	46	32
2	4	28	28		1	3	14	13				
2	6	139	137		1	5	180	180	***** L = 3 *****			
2	8	97	94		1	13	14	14				
2	12	140	139		1	21	65	67	1	5	64	63
2	14	67	67		1	27	39	42	1	7	106	103
2	16	62	63		2	4	165	166	1	9	118	115
2	18	83	83		2	8	65	64	1	11	43	42
2	22	65	64		2	16	22	20	1	13	40	42
2	24	31	24		2	24	32	36	1	15	56	57
2	28	38	38		3	1	177	181	1	17	50	49
4	0	175	172		3	3	10	8	1	19	32	31
4	6	143	142		3	5	52	52	1	27	34	40
4	8	97	96		3	7	22	21	2	4	55	55
4	12	52	51		3	13	34	35	2	6	16	16
4	14	17	15		3	15	48	52	2	8	76	75
4	20	24	22		3	17	105	108	2	10	10	9
5	1	94	93		3	23	24	31	2	24	30	32
5	3	152	152		4	20	67	69	2	26	33	33
5	11	102	104		4	22	56	60	3	7	21	21
5	13	29	28		4	-16	19	19	3	9	20	21
5	15	96	95		5	1	38	38	3	11	143	144
5	17	51	51		5	5	26	27	3	13	54	53
5	19	62	62		5	7	30	30	3	19	71	71

5	21	27	26	5	9	116	119	3	21	62	61
5	25	62	62	5	-25	44	41	3	-23	32	37
6	0	123	123	5	-11	12	10	4	10	81	83
6	2	106	107	6	12	58	59	4	-16	22	19
6	6	166	165	6	14	29	30	5	1	57	58
6	8	26	25	7	3	115	118	5	3	118	117
6	14	28	30	7	9	71	72	5	5	14	14
6	16	115	115	7	11	29	30	5	9	88	88
6	18	161	158	7	13	88	91	5	13	62	63
6	20	40	40	7	17	28	24	5	25	35	39
6	-32	51	22	7	25	37	29	6	6	24	25
6	-24	46	43	8	6	39	39	6	12	34	31
7	1	43	43	8	10	24	24	6	14	24	25
7	3	152	152	9	1	76	77	7	1	126	128
7	13	31	30	9	3	60	62	8	10	51	49
7	17	22	20	9	11	22	25	8	12	32	31
7	31	48	52	9	13	85	87	8	14	33	32
8	0	46	45	9	15	66	67	9	1	76	77
8	2	53	52	9	17	43	44	9	3	31	30
8	4	47	48	10	4	68	71	9	5	38	38
8	8	172	177	10	6	27	27	9	7	69	69
8	14	24	21	10	16	39	38	9	15	58	56
8	18	35	37	10	18	29	28	9	19	37	34
8	20	26	35	11	3	36	35	9	21	44	42
8	24	58	61	11	9	74	76	10	2	53	54
9	7	31	32	12	2	31	30	10	4	18	19
9	11	72	71	12	4	34	36	10	8	25	20
9	13	34	31	14	6	49	49	10	18	44	34
9	15	30	28	14	20	37	3	10	20	36	33
9	19	64	64	14	22	44	28	11	7	33	33
9	21	38	32	16	16	41	31	11	11	25	25
9	25	40	41	16	-14	46	22	12	0	24	0
10	0	120	120					12	6	71	72
10	2	18	16	*****	L =	2	*****	14	6	66	68
10	8	77	77					15	3	40	34
10	12	61	60	0	0	88	86	15	19	44	40
10	18	55	96	0	2	102	102	16	16	45	31
11	7	46	46	0	4	173	172	17	1	40	36
11	13	56	53	0	6	34	33				
12	0	162	162	0	14	18	17	*****	L =	4	*****
12	10	34	34	0	18	59	61				
12	12	51	51	1	7	95	94	0	0	323	321
12	16	39	43	1	6	79	78	0	2	21	19
12	20	34	34	1	25	42	48	0	4	75	71
12	-22	40	28	1	31	55	60	0	6	169	165
13	3	45	42	2	0	232	237	0	8	47	48
13	9	25	23	2	2	213	213	0	10	71	66
13	13	65	67	2	4	131	129	0	12	39	41
13	21	43	44	2	6	131	130	0	16	43	41
14	8	60	61	2	12	70	72	0	20	81	81
14	10	51	50	2	14	89	89	0	22	39	33
14	12	33	22	2	16	34	35	0	24	65	63
14	16	37	32	2	18	100	102	0	26	40	34
14	18	40	43	3	1	88	88	0	28	50	46
15	1	55	55	3	3	13	13	2	0	46	44
15	3	31	27	3	5	102	102	2	2	67	64

15	7	42	43	3	13	64	55	2	4	60	59
16	0	79	78	3	15	40	40	2	6	284	281
16	6	46	38	3	17	32	34	2	8	124	122
17	11	46	47	3	-25	34	42	2	10	158	159
17	13	16	17	4	0	108	109	2	12	155	152
18	0	44	35	4	2	122	122	2	14	15	11
18	8	44	40	4	12	184	186	2	16	88	89
-17	5	37	42	4	14	58	59	2	18	94	96
-14	4	35	35	4	18	45	45	2	20	36	38
-14	6	91	91	4	22	77	79	2	22	29	30
-14	14	35	38	4	24	42	45	2	26	63	64
-13	19	38	40	4	-10	14	13	2	30	48	43
-12	2	46	44	5	7	171	171	3	23	29	27
-12	6	41	40	5	5	56	57	4	0	294	303
-11	1	95	94	5	13	103	105	4	2	38	39
-11	9	70	72	5	25	37	36	4	4	60	60
-11	17	39	34	6	0	141	143	4	6	16	14
-11	19	46	47	6	2	22	22	4	8	129	129
-10	6	79	78	6	4	111	113	4	10	172	172
-9	1	33	35	6	12	21	21	4	12	91	90
-9	3	27	24	6	14	50	50	4	16	53	51
-9	5	55	55	6	16	35	38	4	20	57	56
-9	9	35	34	6	-16	41	38	4	24	77	75
-8	10	70	71	7	1	20	20	5	17	28	23
-8	12	96	96	7	7	41	41	6	2	120	122
-7	5	90	90	7	9	28	26	6	4	12	12
-7	7	119	120	7	13	77	77	6	6	10	7
-7	9	21	22	7	-25	40	39	6	10	25	24
-7	11	59	60	8	0	176	181	6	12	49	48
-7	25	54	56	8	2	56	57	6	14	51	50
-6	4	83	83	8	6	34	33	6	16	41	39
-6	10	71	72	8	12	90	90	6	18	133	133
-6	12	47	45	8	14	57	59	6	22	44	39
-5	5	212	214	8	16	36	36	8	0	101	100
-5	7	41	41	8	18	43	45	8	2	33	32
-5	9	132	131	8	22	44	48	8	6	65	65
-4	2	33	33	8	-20	65	64	8	8	72	71
-4	4	53	51	9	3	30	32	8	10	58	60
-4	10	90	91	10	0	35	35	8	12	105	106
-4	24	78	79	10	2	20	18	8	14	24	14
-3	1	20	18	10	4	61	62	8	24	50	50
-3	3	68	67	10	6	104	105	8	30	49	42
-3	5	28	27	10	18	39	37	8	-26	44	34
-3	7	141	137	10	-28	44	5	9	13	40	39
-3	9	85	84	11	1	23	25	9	21	33	20

K	H	FC	FC	K	H	FO	FC	K	H	FO	FC
10	0	20	11	10	6	100	99	3	21	37	34
10	2	73	72	10	8	28	19	3	-13	26	18
10	4	34	35	10	10	37	35	5	1	22	22
10	6	93	93	10	14	60	59	5	3	56	57
10	8	64	63	10	16	56	57	5	9	65	63
10	10	48	48	11	-19	36	18	5	13	39	41
10	14	42	38	12	4	35	32	7	1	43	41
10	16	48	48	12	8	48	47	7	3	61	61
10	18	81	82	12	10	32	32	7	9	50	52
10	26	48	51	12	12	68	70	7	13	46	48
10	28	60	52	12	24	60	51	7	25	37	32
11	27	45	22	14	2	35	30	9	1	52	49
12	0	125	124	14	6	32	33	9	7	32	31
12	2	72	71	16	12	57	56	9	13	29	32
12	6	76	73	18	0	44	57	9	15	39	38
12	8	30	25	18	6	46	49	10	-16	40	29
12	12	51	59					11	3	41	39
12	14	31	30	*****	L =	7	*****	11	9	39	38
12	24	43	42								
13	-1	31	25	1	5	137	137	*****	L =	10	*****
14	0	35	37	1	7	13	14				
14	2	27	32	1	9	34	33	0	0	30	27
14	6	76	73	1	15	57	57	0	2	52	52
14	10	32	26	1	21	64	65	0	4	81	83
14	12	55	54	1	27	41	35	0	6	24	27
14	-8	36	26	1	31	40	45	0	8	48	47
16	0	79	79	2	12	86	83	0	10	46	46
16	10	51	51	2	-12	86	83	0	12	175	178
17	9	47	30	3	1	132	134	0	18	52	50
				3	5	13	14	0	22	82	84
*****	L =	5	*****	3	7	14	12	2	0	86	88
				3	13	21	22	2	2	93	95
1	5	51	51	3	15	52	50	2	4	57	59
1	7	55	54	3	17	52	51	2	6	50	49
1	9	81	82	3	19	38	36	2	10	53	55
1	11	17	17	5	1	15	16	2	12	40	41
1	13	15	11	5	3	47	46	2	14	65	66
1	15	61	60	5	5	20	23	2	18	55	57
1	17	28	28	5	7	34	32	2	22	39	30
1	21	32	31	5	9	89	89	4	0	37	35
1	27	37	35	5	13	37	36	4	2	47	46
2	24	35	33	5	21	30	24	4	4	33	34

2	-24	34	33	7	1	18	17	4	6	55	55
3	1	50	50	7	3	88	87	4	10	31	26
3	3	12	12	7	5	21	20	4	12	92	94
3	5	46	46	7	9	50	49	4	14	31	32
3	7	26	25	7	11	38	36	4	18	38	33
3	9	14	12	7	13	79	79	4	22	48	43
3	11	65	64	8	12	52	52	4	-4	33	34
3	13	49	51	8	-20	36	22	5	11	28	27
3	17	74	76	9	1	59	59	6	0	56	56
3	19	48	49	9	3	47	49	6	4	76	77
3	21	35	33	9	5	58	58	6	6	162	163
3	23	33	35	9	13	79	79	6	8	32	30
5	1	35	36	9	15	55	54	6	10	54	53
5	3	76	78	9	17	43	42	6	26	38	35
5	5	25	24	9	19	37	42	6	-16	34	38
5	7	13	10	11	7	31	28	8	0	85	87
5	9	87	88	11	9	68	68	8	2	35	32
5	11	18	18	12	2	32	29	8	4	52	52
5	13	48	48	12	4	34	35	8	12	47	50
5	25	38	38	12	18	41	30	8	14	36	37
5	-31	47	19	14	-2	35	28	8	20	18	55
6	24	41	33	16	4	47	36	8	22	47	35
7	1	64	63					9	-13	37	32
7	3	68	68	*****	L =	8	*****	10	0	49	50
7	9	75	76					10	6	58	59
7	13	46	46	0	0	384	396	10	12	41	40
7	25	40	43	0	2	75	78	10	14	30	20
7	-15	42	38	0	6	75	74	11	3	41	34
9	1	73	73	0	10	120	121	12	12	46	47
9	3	45	45	0	12	50	50	12	-18	45	36
9	7	50	52	0	14	57	57	14	2	49	50
9	11	31	29	0	16	97	95	14	14	44	35
9	13	56	55	0	20	63	61				
9	15	61	58	0	24	67	65	*****	L =	11	*****
9	19	37	32	1	-23	35	31				
10	10	31	24	1	-21	35	29	1	7	57	59
11	3	53	51	2	0	40	40	1	9	59	58
11	9	49	47	2	6	116	114	1	15	27	34
				2	8	63	61	2	-14	38	29
*****	L =	6	*****	2	10	99	96	2	-12	32	30
				2	12	91	89	3	5	58	58
0	0	204	202	2	14	33	32	3	11	60	62
0	2	47	45	2	16	50	50	3	13	37	37
0	4	85	84	2	18	58	58	3	17	44	39
0	6	19	17	2	22	42	43	3	23	41	27
0	8	131	131	2	26	59	59	4	16	32	12
0	10	40	41	4	0	139	137	5	3	47	48
0	12	183	180	4	6	52	52	5	9	45	47
0	16	84	85	4	8	71	70	5	13	37	33
0	18	34	31	4	10	76	77	7	1	58	59
0	22	75	77	4	12	40	40	7	9	55	52
0	24	46	50	4	24	55	55	9	1	43	47
1	-31	52	41	4	-4	16	16	9	7	46	44
1	-19	27	10	6	0	47	48	9	21	42	26
2	0	141	139	6	2	87	88	9	-15	44	36
2	2	111	111	6	4	32	31				

2	4	124	124	6	6	74	72	***** L = 12 *****			
2	6	161	160	6	8	29	30				
2	10	52	52	6	12	33	33	0	0	195	196
2	12	41	41	6	14	28	28	0	6	45	46
2	14	57	56	6	16	65	66	0	10	58	58
2	16	46	46	6	18	121	121	0	16	47	49
2	18	90	90	7	-13	29	23	0	20	45	45
2	20	30	19	8	0	37	42	1	7	28	29
2	22	62	62	8	2	29	32	2	6	88	89
2	24	53	51	8	8	111	111	2	8	55	57
4	0	138	141	8	10	50	50	2	10	67	67
4	2	94	93	8	12	73	71	2	12	63	63
4	4	94	96	8	14	25	18	2	16	36	34
4	10	27	26	8	24	49	47	2	18	53	52
4	12	163	160	8	-4	24	20	4	0	98	99
4	14	51	52	9	5	28	19	4	8	69	67
4	16	31	31	9	15	34	25	4	10	59	62
4	18	32	35	10	0	57	60	4	12	42	41
4	20	52	50	10	6	60	60	4	24	54	52
4	22	83	82	10	8	47	48	6	0	38	34
4	24	30	35	10	18	63	67	6	2	52	50
5	21	47	52	10	-12	40	37	6	16	44	44
5	21	55	52	12	0	107	108	6	18	71	72
6	0	156	157	12	2	44	41	8	0	37	37
6	4	66	64	12	6	39	40	8	8	58	56
6	6	142	140	12	12	43	41	8	12	54	54
6	8	52	54	14	6	71	68	9	-5	36	32
6	14	58	57	14	8	40	42	10	6	37	43
6	30	52	59	14	10	40	36	10	8	51	44
6	-30	47	59	16	0	69	67	10	18	65	59
7	-23	36	16					11	1	42	38
8	0	169	169	***** L = 9 *****				12	0	77	82
8	2	36	35					12	-2	47	30
8	4	36	36	1	5	40	40	14	-6	48	48
8	6	48	47	1	7	37	36				
8	8	51	52	1	9	49	49	***** L = 13 *****			
8	10	30	31	1	15	38	39				
8	12	83	82	1	17	25	24	1	5	62	60
8	14	49	50	1	27	40	33	1	21	41	34
8	16	38	35	2	-6	18	14	1	-9	31	28
8	18	57	60	3	1	40	41	3	1	58	59
8	20	40	39	3	5	52	58	3	17	50	51
8	22	38	40	3	11	57	57	4	-14	36	33
10	2	35	31	3	17	58	59	5	9	48	47
10	4	65	65	3	19	49	50	7	3	32	37

K	H	FC	FC	K	H	FC	FC	K	H	FO	FC
7	9	39	31	-6	22	47	37	-5	5	43	44
7	-13	40	35	-5	3	55	55	-5	7	102	102
9	1	36	38	-5	7	105	106	-5	9	31	30
9	13	47	47	-5	9	34	34	-5	13	87	86
				-5	13	64	66	-5	15	25	21
*****	L = 14	*****		-5	15	44	43	-5	19	29	31
				-3	1	47	49	-3	1	96	97
0	0	78	81	-3	3	21	25	-3	3	21	20
0	8	48	51	-3	5	40	40	-3	5	93	93
0	12	64	66	-3	9	34	37	-3	7	23	23
2	0	53	53	-3	13	33	35	-3	9	110	110
2	2	41	41	-3	15	29	14	-3	11	41	40
2	4	49	54	-3	19	61	59	-3	13	48	47
2	6	70	71	-1	1	80	82	-3	15	44	43
2	-18	54	49	-1	3	77	77	-3	17	41	42
3	19	47	45	-1	5	64	64	-3	19	82	81
3	-11	38	24	-1	7	32	32	-3	25	30	29
4	0	59	58	-1	9	50	51	-1	1	48	48
4	2	43	41	-1	11	57	60	-1	3	147	144
4	4	52	50	-1	17	28	28	-1	5	112	112
4	12	74	78					-1	7	101	98
4	14	34	31	*****	L = -9	*****		-1	11	84	83
6	0	72	68					-1	13	33	33
6	6	51	53	-12	6	48	47	-1	15	23	21
7	-13	42	37	-10	2	39	40	-1	25	66	65
7	-9	43	33	-8	6	39	40				
8	0	81	81	-8	8	25	23	*****	L = -5	*****	
8	6	38	31	-8	10	31	31				
8	8	40	37	-6	2	35	31	-14	6	53	52
8	12	36	44	-6	4	25	26	-12	6	64	64
10	6	50	51	-6	8	30	32	-12	10	40	36
				-6	12	33	30	-10	2	40	41
*****	L = 15	*****		-4	2	55	54	-10	4	41	41
				-4	6	74	73	-10	12	26	23
1	5	43	43	-4	14	66	66	-10	14	47	44
3	1	42	44	-2	2	15	11	-10	16	40	40
3	-17	52	42	-2	4	27	28	-8	2	28	26
4	14	43	36	-2	8	34	34	-8	4	29	28
5	9	42	37	-2	12	38	38	-8	6	40	41
7	3	43	42	-2	14	29	31	-8	8	31	32
				-2	16	31	28	-8	10	29	30
*****	L = 16	*****						-8	12	45	46

***** L = -8 ***** -8 28 36 19

0	0	99	104					-6	2	42	40
0	6	46	40	-13	13	52	50	-6	4	30	30
1	13	45	31	-11	1	59	55	-6	6	16	17
1	-15	42	27	-11	7	43	44	-6	8	44	43
2	6	56	59	-11	9	35	38	-6	12	38	36
2	10	42	46	-11	13	40	39	-4	2	54	54
2	12	46	42	-9	1	22	20	-4	6	96	98
4	0	61	68	-9	5	41	42	-4	8	22	21
4	8	45	31	-9	11	52	51	-4	10	24	23
4	10	44	44	-9	13	27	24	-4	14	79	78
5	-1	49	42	-9	19	43	45	-4	20	49	45
6	2	45	43	-9	25	40	37	-4	22	44	42

				-7	1	48	50	-2	2	11	11
***** L = 17 *****				-7	3	94	95	-2	4	56	56
				-7	5	59	59	-2	8	58	59
3	5	45	36	-7	7	66	66	-2	12	67	67
				-7	11	40	41	-2	14	25	25
***** L = 18 *****				-7	25	42	37	-2	16	38	40

				-5	1	83	83				
2	2	44	32	-5	3	47	48	***** L = -4 *****			
				-5	5	108	108				

***** L = -16 *****				-5	9	90	89	-15	1	44	44
				-5	11	56	57	-15	7	40	38
-7	1	40	35	-5	15	43	41	-13	7	50	52
-5	9	41	44	-5	17	40	41	-13	11	56	55
-3	7	36	39	-5	19	52	54	-13	13	45	50

***** L = -15 *****				-3	1	22	23	-13	15	54	54
				-3	3	51	49	-13	21	54	58
-2	4	37	31	-3	7	91	89	-11	1	37	39
				-3	9	36	37	-11	7	61	62
***** L = -14 *****				-3	11	25	24	-11	11	45	44

				-3	13	62	62	-11	13	53	50
				-3	25	43	40	-9	1	34	33
-5	7	48	46	-1	1	48	48	-9	3	33	33
-3	1	44	43	-1	3	30	31	-9	5	63	63
-3	5	42	41	-1	7	53	51	-9	7	22	22
-1	3	45	47	-1	9	46	45	-9	9	19	24
-1	5	44	46	-1	13	73	72	-9	11	64	62
-1	7	39	35	-1	15	34	33	-9	15	45	43
-1	11	31	34	-1	19	66	68	-9	19	43	41

***** L = -13 *****				***** L = -7 *****				-9	25	51	49
								-7	1	113	115
-10	4	33	37	-14	6	37	36	-7	3	146	149
-8	4	37	32	-12	6	50	49	-7	5	83	85
-4	20	45	41	-10	2	36	36	-7	7	70	70
-2	4	54	57	-10	4	66	65	-7	9	55	56
-2	12	40	45	-10	4	66	65	-7	11	63	63
				-10	12	44	42	-7	13	37	38
***** L = -12 *****				-10	20	46	44	-7	17	30	29

				-9	7	28	16	-5	1	115	117
				-8	2	29	30	-5	3	20	18
-9	11	34	36	-8	4	55	53	-5	5	83	83
-7	1	38	36	-8	6	28	27	-5	7	35	35
-7	3	67	70	-8	8	30	30	-5	9	121	119
-7	5	40	45	-6	2	15	11	-5	11	33	32

-7	7	44	46	-6	4	53	53	-5	13	18	20
-7	21	35	2	-6	10	38	38	-5	19	99	10
-5	1	40	42	-6	12	51	50	-5	29	37	44
-5	5	59	58	-6	14	21	24	-5	31	44	45
-5	9	39	42	-4	6	54	53	-3	1	76	76
-5	19	46	46	-4	10	39	37	-3	3	169	167
-3	3	48	47	-4	14	63	62	-3	5	53	54
-3	7	59	62	-4	16	27	21	-3	7	149	146
-3	13	39	38	-4	18	27	26	-3	9	16	14
-1	1	30	30	-4	20	65	64	-3	11	81	83
-1	3	30	30	-4	22	52	52	-3	13	72	72
-1	13	48	53	-2	4	122	122	-3	15	32	30
-1	19	50	50	-2	8	36	37	-3	17	28	29
				-2	18	29	33	-3	21	62	59
***** L = -11 *****				-2	20	43	42	-1	1	27	26
				-2	24	35	29	-1	3	50	47
-12	6	43	46					-1	5	13	13
-10	14	35	35	***** L = -6 *****				-1	7	96	95
-8	6	29	30					-1	11	16	16
-6	2	28	33	-15	5	32	32	-1	13	100	100
-6	8	33	34	-15	11	45	46	-1	15	69	69
-4	2	59	58	-13	1	72	70	-1	19	70	69
-4	6	61	62	-13	3	64	63	-1	23	36	32
-4	8	22	24	-13	5	55	54				
-4	10	38	35	-13	7	46	40	***** L = -3 *****			
-4	14	53	51	-13	9	46	47				
-2	8	32	32	-11	3	46	41	-14	10	50	47
-2	16	39	36	-11	5	59	58	-12	10	43	43
				-11	7	31	32	-12	16	47	45
***** L = -10 *****				-11	11	74	70	-11	3	75	73
				-11	15	32	33	-11	9	36	36
0	26	41	31	-9	1	53	54	-11	13	40	39
-15	5	38	37	-9	3	29	31	-11	17	39	39
-13	1	64	63	-9	5	23	20	-10	14	59	60
-13	9	35	33	-9	7	66	65	-10	16	45	45
-11	5	40	43	-9	13	55	53	-9	11	52	50
-11	9	31	29	-7	1	52	53	-8	2	17	16
-11	11	55	60	-7	3	58	57	-8	6	61	62
-9	1	39	40	-7	5	57	59	-8	8	33	34
-9	7	48	51	-7	13	71	72	-8	24	31	17
-7	3	46	47	-7	15	41	45	-7	3	72	71
-7	13	42	45	-7	17	47	48	-7	5	38	39
-7	15	41	45	-7	19	83	84	-7	9	91	5
-7	19	54	55	-7	21	41	32	-7	11	58	
-6	16	42	38	-5	1	36	35	-7	13	37	

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
-7	15	69	68								
-7	25	62	58								
-6	2	67	68								
-6	4	17	16								
-6	8	67	68								
-6	16	24	26								
-6	24	49	47								
-5	11	34	35								
-4	2	126	126								
-4	4	18	18								
-4	6	155	154								
-4	8	51	51								
-4	14	99	99								
-4	22	42	43								
-4	24	41	43								
-3	1	55	54								
-3	5	130	128								
-3	15	27	26								
-3	17	64	66								
-2	12	41	40								
-2	14	71	71								
-2	16	62	63								

***** L = -2 *****

0	8	105	105
0	10	31	32
0	12	276	287
0	16	43	44
0	22	110	113
0	24	52	54
-16	2	38	37
-16	12	65	66
-15	5	48	46
-15	11	58	57
-15	13	35	32
-14	2	55	56
-14	4	42	39
-13	3	53	52
-13	5	47	48
-13	7	28	26
-12	10	52	52

-12	12	74	75
-12	18	39	44
-12	22	40	36
-11	3	51	52
-11	7	25	23
-11	11	63	85
-11	19	35	31
-10	12	28	34
-10	14	53	50
-10	16	37	41
-9	1	66	67
-9	5	21	20
-9	7	78	79
-9	9	28	29
-9	13	54	56
-9	19	31	32
-8	4	60	61
-8	8	19	17
-8	10	34	36
-8	20	58	64
-8	24	43	45
-7	3	68	72
-7	15	62	64
-7	17	26	28
-7	19	88	89
-6	6	251	254
-6	8	62	63
-6	10	51	51
-6	22	38	37
-6	30	57	63
-5	1	17	16
-5	3	78	79
-5	11	26	26
-5	15	33	31
-5	21	58	59
-5	29	46	39
-4	4	67	67
-4	6	83	83
-4	20	44	42
-3	7	16	17
-3	9	110	109
-3	11	24	25
-3	19	91	95
-2	10	93	94
-2	22	61	60
-2	24	44	44
-1	1	164	168
-1	3	215	214
-1	5	127	126
-1	11	100	103
-1	13	45	47
-1	17	31	31
-1	19	31	33

***** L = -1 *****

-14	2	26	25
-12	6	63	65
-11	13	33	27
-10	2	46	48
-10	12	44	43
-10	14	40	41
-10	20	51	50
-9	5	58	59
-9	7	30	30
-9	9	20	20
-9	19	47	48
-9	23	44	41
-8	2	38	40
-8	4	56	57
-8	8	38	39
-8	12	59	60
-7	5	14	16
-6	2	16	16
-6	4	65	66
-6	6	18	19
-6	8	26	27
-6	10	36	37
-6	18	22	21
-5	3	76	79
-5	13	49	50
-5	17	18	15
-5	21	28	28
-4	2	36	37
-4	4	25	25
-4	6	89	91
-4	8	14	14
-4	10	33	33
-4	14	84	85
-4	18	24	26
-3	9	12	13
-3	19	52	53
-2	6	27	27
-2	12	104	106
-2	18	37	40
-2	20	42	42
-1	7	52	52
-1	9	50	50
-1	15	73	73
-1	31	48	47

Sci 1018

CORDIERITE

FASTEST VARYING INDEX IS 1
SLOWEST VARYING INDEX IS 3
SCALE = 1.0000

CARDS WILL NOT BE PUNCHED
DATA HAS ALREADY BEEN SORTED
NUMBER OF REFLECTIONS IS 2270

NUMBER OF INDICES IS 36
NUMBER OF PRINTED LINES IS 2378
NUMBER OF JOURNAL PAGES IS 2

COLUMN	1	2	3	4	5	6	7	8	9	10				
PAGE	1	200	200	200	200	200	200	200	200	200				
PAGE	2	38	38	38	38	38	38	38	38	37				
	K	H	FC	FC	K	H	FC	FC	K	H	FC	FC		
					-3	7	133	130	-13	3	50	50		
	***** L =	0	*****		-3	11	15	13	-13	5	48	48		
					-3	11	16	13	-13	7	24	23		
	0	2	175	170	-3	13	81	83	-13	9	53	52		
	0	4	42	41	-3	17	10	9	-13	15	19	20		
	0	6	91	92	-3	19	13	13	-13	17	15	14		
	0	8	46	40	-3	21	30	31	-13	19	25	26		
	0	10	285	272	-3	25	52	52	-13	21	31	31		
	0	10	354	272	-3	29	14	13	-13	25	18	17		
	0	12	112	113	-3	31	45	45	-12	10	49	50		
	0	14	94	96	-2	8	92	89	-12	20	24	23		
	0	16	171	175	-2	8	92	89	-12	26	18	17		
	0	18	20	21	-2	10	125	131	-11	1	11	24		
	0	20	85	87	-2	10	125	131	-11	3	51	51		
	0	24	78	77	-2	12	130	136	-11	5	64	65		
	0	26	45	43	-2	14	65	70	-11	7	21	21		
	0	28	14	13	-2	16	56	57	-11	9	15	14		
	0	30	17	16	-2	18	76	80	-11	11	63	65		
	0	32	26	26	-2	24	25	25	-11	13	26	28		
	0	34	48	46	-2	26	73	74	-11	15	24	23		
	1	1	153	157	-2	28	34	33	-11	17	24	26		
	1	3	79	81	-2	32	44	44	-11	21	30	31		
	1	5	18	19	-1	7	21	17	-11	23	19	21		
	1	9	136	141	-1	7	20	17	-11	25	42	43		
	1	15	26	24	-1	13	105	107	-10	0	32	32		
	1	27	20	20	-1	17	56	56	-10	4	60	61		
	2	0	71	75	-1	19	101	102	-10	6	102	102		
	2	2	15	11	-1	21	44	45	-10	8	12	12		
	2	4	32	32	-1	23	34	35	-10	10	11	11		
	2	6	130	134	-1	29	19	18	-10	12	28	29		
	2	22	60	60	-1	31	18	17	-10	14	49	50		
	2	30	39	40					-10	16	37	38		
	3	1	15	19	***** L =	1	*****		-10	18	35	32		
	3	3	59	58					-10	20	18	23		
	3	5	31	32	6	4	66	68	-9	1	64	65		
	3	9	86	85	-18	12	28	26	-9	3	27	27		
	4	0	166	163	-17	9	19	21	-9	5	18	19		
	4	4	48	46	-17	11	24	22	-9	9	28	26		
	4	6	135	139	-17	13	28	20	-9	13	52	53		
	4	16	12	10	-16	2	20	20	-9	19	28	30		
	5	3	146	147	-16	14	24	23	-8	0	175	177		

5	5	208	209	-16	16	33	32	-8	4	63	64
5	15	86	89	-15	1	18	17	-8	6	28	29
5	27	18	17	-15	7	25	23	-8	8	19	17
6	4	79	79	-15	9	26	27	-8	10	32	32
6	6	161	163	-15	17	24	25	-8	12	85	87
6	10	70	77	-14	2	27	26	-8	14	57	58
6	16	109	110	-14	6	49	49	-8	16	40	39
7	11	57	57	-14	8	19	17	-8	18	42	42
7	21	16	15	-14	12	20	19	-8	20	64	64
8	14	21	21	-14	18	23	22	-8	22	47	46
8	22	21	23	-14	22	30	29	-8	24	41	41
8	30	23	24	-13	3	14	15	-8	26	22	21
9	9	29	28	-13	5	17	19	-8	28	31	32
9	29	23	22	-13	7	14	15	-8	30	18	17
10	8	73	75	-13	15	14	12	-7	5	10	9
10	22	15	13	-13	21	24	21	-7	13	75	75
11	1	91	92	-12	2	30	30	-7	15	60	60
11	19	43	44	-12	4	34	35	-7	17	29	29
12	22	27	25	-12	6	65	65	-7	19	84	85
13	11	17	16	-12	8	11	10	-7	21	21	20
14	2	19	18	-12	10	29	26	-7	23	23	24
17	11	47	46	-12	14	19	18	-7	25	34	35
17	13	15	15	-12	18	28	28	-6	4	110	110
19	5	19	18	-12	22	32	30	-6	6	253	252
-19	1	22	22	-11	3	35	35	-6	10	55	55
-19	7	41	40	-11	5	22	22	-6	12	17	17
-18	0	40	40	-11	7	20	21	-6	16	35	35
-18	6	17	17	-11	9	76	77	-6	20	14	13
-18	8	43	42	-11	13	27	27	-6	22	40	41
-18	10	16	16	-11	17	19	20	-6	26	41	41
-18	12	26	25	-11	19	17	16	-6	28	24	26
-17	5	42	42	-11	25	37	38	-6	30	61	61
-17	15	30	29	-10	2	45	46	-5	5	12	12
-16	0	79	78	-10	4	71	71	-5	7	169	167
-16	6	36	36	-10	6	24	26	-5	9	59	60
-16	10	28	31	-10	10	24	24	-5	11	26	24
-16	12	24	24	-10	12	44	45	-5	15	28	28
-16	14	18	19	-10	14	40	40	-5	21	53	54
-16	18	27	27	-10	16	36	38	-5	23	35	36
-15	1	52	54	-10	18	27	27	-5	25	33	34
-15	7	40	40	-10	20	50	50	-5	31	25	24
-15	9	22	22	-9	3	60	62	-4	4	71	70
-15	11	21	22	-9	5	58	59	-4	10	15	18
-15	13	29	28	-9	7	28	29	-4	12	180	182
-15	17	24	24	-9	9	19	20	-4	14	57	58
-15	19	14	14	-9	11	24	25	-4	18	43	42
-14	6	88	89	-9	13	87	89	-4	20	42	42
-14	8	61	62	-9	15	66	67	-4	22	74	75
-14	10	54	53	-9	17	45	45	-4	24	40	41
-14	12	21	19	-9	19	46	47	-4	26	28	26
-14	14	42	40	-9	23	40	41	-4	32	39	37
-14	16	31	30	-9	27	23	23	-3	5	101	99
-14	18	41	41	-8	2	39	41	-3	7	14	12
-13	1	22	21	-8	4	55	55	-3	11	23	22
-13	3	46	46	-8	6	39	39	-3	15	35	34
-13	5	20	19	-8	8	38	39	-3	17	34	34

-13	7	18	18	-8	10	27	22	-3	19	90	91
-13	9	24	25	-8	12	58	60	-3	21	23	22
-13	13	64	64	-8	20	21	20	-3	25	37	38
-13	15	17	17	-8	22	20	19	-3	27	16	13
-13	19	38	37	-8	24	27	28	-3	31	17	16
-13	21	42	43	-8	28	20	19	-2	4	130	126
-13	23	21	20	-7	3	117	119	-2	8	8	10
-13	25	27	25	-7	5	14	16	-2	10	92	88
-12	0	163	163	-7	5	72	72	-2	12	74	74
-12	2	44	43	-7	11	29	30	-2	14	90	91
-12	6	39	39	-7	13	90	92	-2	16	31	30
-12	10	31	32	-7	17	22	24	-2	18	99	99
-12	12	50	49	-7	21	29	28	-2	24	42	41
-12	16	46	45	-7	27	22	20	-2	28	28	28
-12	20	34	34	-7	31	15	13	-2	30	38	36
-12	24	18	18	-6	2	16	15	-2	32	20	20
-11	7	43	43	-6	4	66	68	-1	1	168	171
-11	9	70	70	-6	5	18	19	-1	5	127	124
-11	11	30	31	-6	8	27	27	-1	11	101	100
-11	13	50	51	-6	10	34	35	-1	13	42	41
-11	17	30	33	-6	12	59	59	-1	17	29	30
-11	23	38	39	-6	14	26	29	-1	19	31	30
-11	25	16	14	-6	18	23	22	-1	23	13	11
-11	27	28	28	-6	20	17	15	-1	25	45	46
-10	0	112	115	-6	22	20	20	-1	31	57	57
-10	6	73	75	-6	24	20	22				
-10	10	12	11	-6	26	17	16	*****	L =	3	*****
-10	12	57	59	-5	3	79	79				
-10	14	12	11	-5	9	119	121	3	9	20	20
-10	18	91	93	-5	11	10	10	-18	2	14	14
-10	24	23	23	-5	13	50	50	-18	5	15	14
-10	28	29	30	-5	17	14	16	-18	8	22	20
-9	1	31	31	-5	21	30	29	-17	1	36	36
-9	3	24	22	-5	25	40	42	-16	2	25	25
-9	5	51	52	-5	31	22	20	-16	14	33	32
-9	7	28	29	-4	6	92	91	-16	16	33	32
-9	11	68	69	-6	10	32	32	-16	18	22	21
-9	13	27	28	-4	14	84	85	-15	11	31	29
-9	15	23	24	-4	16	20	20	-15	17	28	29
-9	17	15	15	-4	18	26	26	-15	19	43	42
-9	19	60	59	-4	20	68	68	-14	6	67	67
-9	21	30	29	-4	22	59	60	-14	10	48	47
-9	25	39	38	-4	26	14	14	-14	14	21	20
-8	0	41	41	-3	9	14	14	-14	16	31	31
-8	2	49	50	-3	11	8	8	-14	20	22	19
-8	4	47	51	-3	13	36	36	-13	1	22	24
-8	8	178	180	-3	19	53	55	-13	5	23	21
-8	10	67	67	-3	21	17	17	-12	6	71	72
-8	12	92	94	-3	23	29	30	-12	10	45	44
-8	16	14	12	-3	27	17	20	-12	12	18	15
-8	18	40	40	-3	33	27	26	-11	3	73	74
-8	20	36	35	-2	6	27	28	-11	5	10	10
-8	24	59	61	-2	8	64	63	-11	7	30	33
-8	28	35	34	-2	10	10	8	-11	9	37	37
-7	1	39	41	-2	12	105	106	-11	11	24	26
-7	3	145	149	-2	18	37	38	-11	13	41	42

-7	5	87	90	-2	20	40	42	-11	17	39	38
-7	7	112	115	-2	28	14	14	-11	19	25	24
-7	9	25	24	-1	13	16	14	-11	25	32	33
-7	13	28	25	-1	15	74	72	-10	2	51	52
-7	15	9	6	-1	21	69	69	-10	8	22	22
-7	17	22	22	-1	25	19	19	-10	14	60	61
-7	19	15	12	-1	27	39	40	-10	16	46	47
-7	25	56	55	-1	31	49	48	-10	18	32	33
-7	31	47	48					-10	20	33	32
-6	0	126	128	*****	L =	2	*****	-10	22	26	25
-6	2	108	111					-10	26	16	14
-6	2	109	111	0	0	96	100	-9	1	76	77
-6	8	25	22	0	2	99	104	-9	5	37	38
-6	12	43	43	0	8	109	110	-9	13	34	33
-6	14	29	30	0	12	280	283	-9	15	56	56
-6	18	153	157	0	14	18	16	-9	17	14	15
-6	20	38	39	0	16	40	40	-9	19	34	35
-6	24	38	40	0	18	58	58	-9	21	41	41
-6	26	32	34	0	20	12	10	-9	23	32	34
-6	28	26	24	0	22	106	107	-9	25	22	20
-6	32	25	22	0	24	50	51	-9	27	30	28
-5	1	89	91	0	26	16	15	-8	2	15	15
-5	1	90	91	0	30	14	13	-8	4	10	10
-5	7	38	36	0	32	36	37	-8	6	61	61
-5	7	37	36	-18	0	51	49	-8	8	33	34
-5	9	124	128	-18	6	49	47	-8	10	48	47
-5	11	96	101	-18	8	32	32	-8	12	30	29
-5	13	23	23	-17	1	29	29	-8	14	30	32
-5	17	48	49	-17	7	45	45	-8	16	13	17
-5	19	60	59	-17	11	16	15	-8	22	30	30
-5	21	29	29	-16	0	17	18	-8	24	18	17
-5	23	15	17	-16	2	36	37	-8	26	24	22
-5	25	56	57	-16	8	22	21	-8	30	26	29
-4	2	36	35	-16	12	64	64	-7	3	71	71
-4	8	96	101	-15	5	45	45	-7	5	37	37
-4	8	96	101	-15	11	55	56	-7	7	13	13
-4	10	82	84	-15	13	31	30	-7	9	90	93
-4	12	83	84	-15	15	27	26	-7	13	36	36
-4	12	45	47	-15	19	22	20	-7	15	68	69
-4	14	17	19	-15	21	19	18	-7	27	20	19
-4	18	16	17	-14	0	18	16	-6	4	15	16
-4	20	22	23	-14	2	57	58	-6	6	26	25
-4	22	24	26	-14	6	39	40	-6	8	65	66
-4	24	76	75	-14	16	27	27	-6	10	17	18
-4	26	15	13	-14	18	58	55	-6	12	33	31
-4	30	26	27	-14	22	16	14	-6	14	24	23
-3	7	132	130	-13	1	89	90	-6	16	26	26

K	H	FG	FC	K	H	FC	FC	K	H	FC	FC
-6	18	13	12	-3	13	68	67	-11	9	20	20
-6	24	44	46	-3	15	30	29	-11	11	68	69
-5	3	120	119	-3	17	28	28	-11	13	21	22
-5	5	14	14	-3	19	11	8	-11	15	30	31
-5	7	11	10	-3	21	55	55	-11	21	15	15
-5	11	35	35	-3	23	27	27	-11	23	19	19
-5	13	61	63	-3	25	31	29	-11	25	57	56
-5	19	17	17	-3	29	29	28	-10	2	26	25
-5	21	26	23	-3	31	30	33	-10	2	32	33
-5	27	20	20	-2	0	52	52	-10	4	62	64
-5	31	19	20	-2	2	63	62	-10	6	97	97
-4	2	129	126	-2	4	56	54	-10	8	22	21
-4	6	159	155	-2	10	162	165	-10	10	39	37
-4	10	81	83	-2	14	13	13	-10	14	59	59
-4	12	8	7	-2	16	85	84	-10	18	21	21
-4	14	98	99	-2	18	93	92	-10	20	20	21
-4	16	16	17	-2	20	36	35	-10	22	21	19
-4	18	12	13	-2	22	26	26	-10	26	34	31
-4	20	24	22	-2	26	62	64	-9	1	53	52
-4	22	42	44	-2	30	40	40	-9	5	19	19
-4	24	40	41	-1	1	33	27	-9	9	16	15
-3	5	132	128	-1	3	55	54	-9	11	11	9
-3	7	22	23	-1	5	10	9	-9	13	50	50
-3	9	19	20	-1	11	17	18	-9	19	17	18
-3	11	144	145	-1	13	95	95	-9	23	26	25
-3	13	53	53	-1	15	66	66	-9	27	19	18
-3	15	26	26	-1	23	34	33	-8	0	167	166
-3	17	62	63	-1	25	44	44	-8	2	35	34
-3	19	73	73	-1	27	15	14	-8	4	40	39
-3	21	60	61	-1	29	15	13	-8	8	50	51
-3	23	37	36					-8	10	27	28
-3	27	27	25	*****	L =	5	*****	-8	12	80	80
-3	31	26	26					-8	14	48	49
-3	33	19	19	-18	6	14	14	-8	16	38	38
-2	4	55	55	-18	8	17	16	-8	18	58	58
-2	6	17	16	-17	1	22	20	-8	20	40	40
-2	8	77	77	-17	7	14	13	-8	24	35	33
-2	12	41	39	-16	2	21	20	-8	28	28	26
-2	14	68	70	-16	14	25	25	-7	1	51	51
-2	16	62	63	-16	16	31	29	-7	3	60	60
-2	22	30	30	-15	9	15	14	-7	9	55	55

-2	24	33	34	-15	17	27	27	-7	13	70	70
-2	30	41	39	-15	19	27	26	-7	15	40	40
-2	32	14	14	-14	6	51	51	-7	17	48	49
-1	3	9	8	-14	10	24	25	-7	19	80	81
-1	5	63	63	-14	12	16	18	-7	21	30	29
-1	7	105	102	-14	16	22	22	-7	27	15	15
-1	11	42	43	-13	19	16	13	-6	0	152	154
-1	13	40	40	-12	2	12	11	-6	4	63	62
-1	15	57	56	-12	4	16	16	-6	6	137	137
-1	17	50	49	-12	6	64	64	-6	8	51	52
-1	19	33	31	-12	10	36	36	-6	10	10	11
-1	27	40	40	-12	16	29	30	-6	12	15	13
-1	31	24	22	-11	3	52	51	-6	14	58	59
-1	32	29	25	-11	9	47	48	-6	16	13	8
				-11	11	22	21	-6	18	11	9
*****	L =	4	*****	-11	13	32	33	-6	22	16	15
				-11	17	29	29	-6	26	26	25
0	0	305	311	-11	25	34	32	-6	28	24	24
0	2	24	21	-10	2	40	40	-6	30	58	57
0	4	70	66	-10	4	41	41	-5	5	45	46
0	6	161	162	-10	6	17	17	-5	7	100	98
0	12	43	44	-10	8	16	15	-5	9	35	33
0	14	9	3	-10	10	25	24	-5	15	24	22
0	16	45	45	-10	12	25	24	-5	19	26	28
0	18	13	12	-10	14	45	44	-5	21	50	49
0	20	80	82	-10	16	40	40	-5	29	20	23
0	22	38	38	-10	18	25	25	-5	31	41	42
0	24	60	60	-10	20	42	39	-4	0	138	136
0	26	34	35	-9	1	73	73	-4	2	93	91
0	28	45	43	-9	3	45	45	-4	4	97	99
4	6	19	16	-9	5	10	9	-4	10	23	21
-18	0	16	16	-9	7	50	50	-4	12	158	158
-18	2	21	21	-9	11	30	29	-4	14	50	51
-18	6	38	38	-9	15	58	58	-4	16	35	34
-18	10	14	15	-9	17	26	27	-4	18	32	33
-17	1	15	13	-9	19	33	32	-4	20	52	50
-17	5	33	33	-9	23	37	38	-4	22	80	79
-17	9	29	29	-9	27	21	20	-4	24	33	32
-17	13	22	20	-8	2	29	27	-4	26	13	11
-16	0	78	77	-8	4	28	28	-3	1	94	95
-16	12	16	16	-8	6	42	40	-3	3	18	17
-15	1	42	42	-8	8	32	32	-3	5	91	90
-15	7	35	37	-8	10	28	26	-3	7	20	19
-15	11	28	29	-8	12	44	45	-3	9	105	106
-15	13	20	18	-8	24	19	22	-3	11	39	38
-15	19	28	26	-8	28	19	18	-3	13	45	44
-14	0	33	34	-7	1	65	65	-3	15	38	38
-14	2	33	33	-7	3	69	68	-3	23	22	22
-14	6	73	72	-7	5	9	6	-3	25	25	26
-14	8	27	26	-7	7	9	6	-3	27	15	15
-14	10	30	29	-7	9	76	76	-3	31	14	12
-14	12	54	54	-7	13	45	45	-2	0	137	133
-14	16	14	13	-7	15	39	39	-2	2	116	113
-14	18	19	18	-7	21	17		-2	4	122	121
-13	1	30	29	-6	2	41	39	-2	6	156	158
-13	5	13	13	-6	6	18	17	-2	10	49	47

-13	7	51	51	-6	8	43	42	-2	12	43	43
-13	9	14	13	-6	12	38	36	-2	14	58	57
-13	11	53	54	-6	14	23	22	-2	16	41	42
-13	13	47	47	-6	16	17	16	-2	18	87	87
-13	15	52	52	-6	18	15	13	-2	28	23	22
-13	21	53	54	-6	24	31	32	-2	30	33	33
-13	23	23	21	-5	1	36	36	-2	32	28	31
-11	3	15	14	-5	3	77	79	-1	1	46	46
-11	7	58	58	-5	5	24	24	-1	5	110	109
-11	11	46	47	-5	7	11	10	-1	9	12	9
-11	19	30	29	-5	9	88	88	-1	13	27	28
-11	21	18	21	-5	17	16	14	-1	15	18	18
-11	23	28	27	-5	21	26	26	-1	21	12	9
-11	25	18	22	-5	25	36	38	-1	25	64	63
-11	27	16	19	-5	31	21	20	-1	31	37	38
-10	0	14	15	-4	2	55	53				
-10	2	75	75	-4	6	97	98	*****	L =	7	*****
-10	4	33	32	-4	8	21	20				
-10	6	90	90	-4	10	25	24	-17	9	23	22
-10	8	62	63	-4	12	10	9	-16	2	16	16
-10	10	51	50	-4	14	78	77	-16	12	21	20
-10	12	12	11	-4	28	14	13	-16	14	18	17
-10	14	39	39	-3	1	52	51	-15	1	19	17
-10	16	45	45	-3	7	26	26	-15	7	28	26
-10	18	81	81	-3	9	11	12	-15	9	26	27
-10	26	49	49	-3	13	50	51	-15	17	21	20
-9	1	31	32	-3	17	73	74	-14	2	28	28
-9	3	31	32	-3	19	50	50	-14	6	37	36
-9	5	61	60	-3	21	34	33	-14	8	18	18
-9	7	17	20	-3	23	32	34	-14	12	17	17
-9	9	23	22	-3	25	20	21	-14	18	23	22
-9	11	61	61	-3	31	21	18	-13	7	15	16
-9	13	36	36	-2	2	11	11	-13	15	16	15
-9	15	37	38	-2	4	56	55	-13	21	27	23
-9	17	30	30	-2	8	60	59	-12	2	30	29
-9	21	19	18	-2	12	67	67	-12	6	47	48
-9	23	15	14	-2	14	25	26	-12	8	12	10
-9	25	43	45	-2	16	39	40	-12	10	18	16
-8	0	99	98	-2	18	25	23	-12	14	21	20
-8	2	31	29	-2	22	16	14	-12	18	29	29
-8	6	60	62	-2	26	17	15	-12	22	28	26
-8	8	73	73	-2	28	17	17	-11	3	19	18
-8	10	57	57	-2	30	19	18	-11	5	22	23
-8	12	103	103	-1	5	52	50	-11	7	28	29
-8	14	16	15	-1	9	81	83	-11	9	69	69
-8	18	14	16	-1	11	17	17	-11	11	21	21
-8	26	32	32	-1	13	11	10	-11	17	14	11
-8	28	37	37	-1	15	59	59	-11	19	22	22
-8	30	39	41	-1	17	27	27	-11	25	34	33
-7	1	111	112	-1	21	33	33	-10	2	35	35
-7	3	145	144	-1	27	37	35	-10	6	22	23
-7	5	83	83	-1	31	33	31	-10	10	19	18
-7	9	53	54					-10	12	43	43
-7	11	60	60	*****	L =	6	*****	-10	16	28	28
-7	13	33	34					-10	18	20	20
-7	15	21	22	0	0	204	206	-10	20	46	45

-7	17	27	27	0	2	44	43	-9	1	59	59
-7	25	22	22	0	4	88	88	-9	3	49	49
-7	27	15	13	0	6	14	15	-9	5	58	58
-7	29	14	12	0	8	132	134	-9	7	14	15
-6	0	13	13	0	10	42	45	-9	9	19	18
-6	2	125	126	0	12	175	177	-9	11	15	13
-6	4	16	16	0	16	82	82	-9	13	79	80
-6	6	14	11	0	22	69	71	-9	15	54	54
-6	10	20	20	0	24	47	47	-9	17	43	43
-6	12	47	46	0	26	23	20	-9	19	42	41
-6	14	51	52	0	28	27	27	-9	21	18	18
-6	16	35	34	0	30	26	26	-9	23	33	36
-6	18	129	131	-18	0	59	57	-9	27	18	18
-6	20	11	10	-18	2	18	17	-8	2	30	30
-6	22	38	37	-18	6	49	48	-8	4	51	51
-6	24	16	17	-17	1	36	37	-8	6	28	27
-6	26	22	23	-17	7	31	31	-8	8	30	29
-5	1	116	114	-17	11	18	17	-8	12	51	51
-5	3	22	20	-16	0	25	23	-8	14	12	14
-5	7	38	40	-16	2	27	28	-8	22	13	13
-5	9	115	115	-16	8	24	22	-8	24	26	26
-5	11	32	30	-15	12	56	55	-8	28	19	17
-5	13	19	18	-15	5	32	32	-7	1	18	17
-5	17	26	24	-15	11	45	45	-7	3	88	88
-5	19	97	96	-15	13	22	23	-7	5	21	19
-5	21	26	25	-14	0	24	24	-7	11	36	37
-5	23	22	23	-14	2	32	31	-7	13	80	81
-5	25	29	29	-14	6	32	31	-7	17	22	23
-5	29	40	41	-14	8	19	18	-7	21	26	27
-5	31	41	42	-14	10	22	20	-7	23	21	21
-4	2	37	38	-14	16	13	20	-7	27	28	25
-4	6	19	16	-13	1	59	69	-6	2	12	10
-4	8	131	133	-13	5	53	54	-6	4	53	54
-4	12	89	89	-13	7	38	38	-6	8	12	13
-4	16	55	56	-13	9	46	45	-6	10	35	36
-4	20	54	56	-13	11	15	14	-6	12	49	49
-4	22	14	12	-13	15	19	19	-6	14	24	24
-4	24	72	73	-13	21	23	22	-6	18	17	18
-4	28	22	21	-12	8	48	48	-6	20	17	16
-4	30	17	18	-12	12	68	68	-6	22	24	23
-4	32	20	19	-12	14	17	17	-6	26	16	15
-3	1	73	74	-12	16	21	20	-5	1	15	15
-3	3	166	162	-12	18	31	30	-5	3	47	46
-3	5	52	52	-12	20	16	15	-5	5	23	22
-3	7	145	141	-12	24	47	47	-5	7	32	32
-3	9	10	11	-11	5	56	56	-5	9	89	89
-3	11	80	80	-11	7	32	31	-5	13	36	36

K	H	FC	FC	K	H	FC	FC	K	H	FC	FC
-5	17	13	11	-12	10	23	23	-1	13	22	20
-5	19	16	13	-12	16	23	24	-1	15	19	18
-5	21	25	24	-11	9	38	39	-1	17	29	28
-5	25	32	34	-11	11	21	22	-1	19	24	26
-4	4	9	8	-11	13	25	25	-1	21	16	14
-4	6	53	53	-11	17	21	20	-1	25	18	17
-4	8	13	13	-10	2	39	39				
-4	10	36	37	-10	12	12	12	*****	L =	11	*****
-4	14	61	62	-10	14	39	39				
-4	16	22	22	-10	16	29	29	-14	6	41	41
-4	18	28	27	-10	18	25	26	-14	10	30	29
-4	20	62	63	-10	20	27	26	-13	1	15	14
-4	22	52	52	-9	1	48	49	-13	11	15	14
-4	26	30	30	-9	3	21	20	-12	6	44	47
-3	1	134	134	-9	7	32	31	-12	10	30	31
-3	3	9	10	-9	9	12	9	-12	16	31	32
-3	5	11	15	-9	11	30	31	-11	7	18	21
-3	11	11	12	-9	13	33	33	-11	11	14	14
-3	13	23	22	-9	17	18	18	-11	13	25	27
-3	15	49	50	-9	19	36	35	-11	17	28	26
-3	17	91	91	-9	21	16	18	-11	19	18	18
-3	19	76	38	-8	2	11	10	-10	2	27	27
-3	23	30	22	-8	8	21	23	-10	8	13	13
-3	27	29	27	-8	10	30	30	-10	14	37	35
-2	2	8	3	-8	12	24	23	-10	16	32	31
-2	4	121	122	-8	14	18	16	-10	18	19	18
-2	8	36	36	-8	22	20	22	-10	20	24	23
-2	12	84	84	-8	24	17	16	-9	1	46	47
-2	14	13	12	-7	1	41	41	-9	7	43	45
-2	16	10	7	-7	3	62	61	-9	15	37	36
-2	18	29	31	-7	7	11	8	-9	19	17	16
-2	20	41	41	-7	9	51	51	-8	2	12	12
-2	24	27	29	-7	11	17	17	-8	6	30	29
-1	5	136	137	-7	13	46	48	-8	8	19	18
-1	7	15	16	-7	15	28	27	-8	10	24	24
-1	9	36	33	-7	23	14	13	-8	12	24	23
-1	13	14	14	-7	25	32	31	-8	14	14	14
-1	15	57	56	-6	2	31	30	-8	22	18	16
-1	19	13	12	-6	4	25	27	-7	1	60	60
-1	21	65	66	-6	8	30	31	-7	3	29	28
-1	25	17	19	-6	12	30	30	-7	9	51	52

-1	31	47	46	-6	18	13	12	-7	11	31	31
				-6	24	26	26	-7	15	40	40
*****	L =	8	*****	-5	1	22	23	-6	2	33	32
				-5	3	52	52	-6	8	32	33
0	0	379	392	-5	7	11	12	-6	12	15	15
0	4	13	12	-5	9	62	63	-6	14	12	12
0	6	69	70	-5	11	20	19	-6	16	14	16
0	8	11	10	-5	13	41	41	-6	24	29	31
0	10	116	116	-5	25	30	29	-5	1	22	20
0	12	47	48	-5	27	14	13	-5	3	48	49
0	14	54	55	-4	4	14	14	-5	5	16	14
0	16	97	99	-4	6	74	74	-5	9	45	46
0	24	63	62	-4	8	18	16	-5	11	19	16
0	26	23	21	-4	10	24	23	-5	13	33	33
-17	5	30	32	-4	14	65	66	-5	25	26	26
-16	0	66	66	-4	20	22	22	-4	10	37	36
-16	6	21	20	-4	22	39	40	-4	14	52	50
-16	12	19	19	-4	24	22	20	-4	20	18	16
-15	1	43	43	-3	3	19	19	-3	1	14	11
-15	7	31	29	-3	5	58	57	-3	5	57	57
-15	9	17	19	-3	11	57	57	-3	7	14	15
-15	11	20	19	-3	13	19	18	-3	9	15	14
-15	13	22	22	-3	17	57	57	-3	11	62	63
-14	6	67	66	-3	21	35	34	-3	13	37	37
-14	8	42	43	-3	23	22	20	-3	15	13	14
-14	10	38	39	-2	4	29	28	-3	17	36	37
-14	12	18	17	-2	8	34	34	-3	19	35	35
-14	14	28	27	-2	10	18	16	-3	23	27	27
-14	16	24	23	-2	12	37	37	-3	25	23	22
-14	18	31	30	-2	14	30	30	-3	27	18	15
-13	7	24	22	-2	16	28	28	-2	4	16	14
-13	9	20	20	-2	18	24	24	-2	8	33	33
-13	11	18	19	-2	22	17	16	-2	12	28	29
-13	13	49	48	-2	24	21	22	-2	16	37	36
-13	15	17	21	-2	26	20	20	-2	22	17	16
-13	19	28	29	-1	3	11	12	-2	26	18	18
-12	0	109	108	-1	7	38	35	-1	5	13	11
-12	2	39	40	-1	9	50	50	-1	7	60	59
-12	6	39	39	-1	13	17	18	-1	9	58	59
-12	10	14	16	-1	15	38	39	-1	11	14	13
-12	12	39	38	-1	17	23	23	-1	15	33	33
-12	16	27	26	-1	21	23	24	-1	17	31	30
-12	20	25	24	-1	27	30	33	-1	27	25	25
-12	22	18	15								
-11	1	53	54	*****	L =	10	*****	*****	L =	12	*****
-11	7	42	41								
-11	11	23	22	0	0	25	26	0	6	42	42
-11	13	37	36	0	2	52	51	0	10	54	55
-11	17	18	17	0	4	83	85	0	20	46	46
-11	19	29	29	0	6	26	27	0	24	29	28
-11	23	35	34	0	10	43	43	-14	0	17	18
-10	0	56	56	0	12	175	177	-14	6	45	46
-10	2	19	16	0	14	26	26	-14	8	23	23
-10	6	57	58	0	18	47	47	-13	7	19	20
-10	8	46	47	0	22	80	80	-13	11	25	25
-10	12	36	36	0	26	32	30	-12	0	80	81

-10	18	62	65	-16	2	28	28	-12	2	29	29
-9	1	21	18	-16	6	33	31	-12	6	27	27
-9	3	13	13	-15	5	33	36	-12	10	15	13
-9	5	40	40	-15	11	42	42	-11	1	37	37
-9	7	20	20	-14	2	53	52	-11	7	22	24
-9	9	14	14	-14	6	30	30	-11	11	28	28
-9	11	49	50	-14	12	17	15	-11	13	30	31
-9	13	23	22	-13	1	60	62	-10	0	19	18
-9	15	20	21	-13	5	23	22	-10	2	37	36
-9	17	12	11	-13	9	32	32	-10	6	40	41
-9	19	43	42	-13	11	14	14	-10	8	42	44
-9	25	38	34	-13	15	24	25	-10	10	14	13
-8	0	40	39	-12	0	25	23	-10	14	18	18
-8	2	30	30	-12	6	25	24	-10	18	57	57
-8	4	23	22	-12	8	19	18	-9	1	20	18
-8	8	114	114	-12	10	39	40	-9	11	36	36
-8	10	47	48	-12	12	48	46	-9	13	20	18
-8	12	68	68	-12	18	35	34	-9	15	16	17
-8	14	20	17	-11	5	42	42	-9	17	18	17
-8	18	23	22	-11	9	26	26	-9	19	28	29
-8	22	20	19	-11	11	60	59	-8	0	35	36
-8	24	47	46	-11	13	12	19	-8	2	20	20
-8	26	14	13	-11	17	28	27	-8	6	23	25
-7	3	92	91	-11	19	25	25	-8	8	57	56
-7	5	59	58	-11	21	29	29	-8	10	28	27
-7	7	64	63	-10	0	48	48	-7	1	35	35
-7	11	39	39	-10	12	35	37	-7	7	44	44
-7	13	17	20	-10	14	20	20	-7	11	35	34
-7	15	15	14	-10	18	25	25	-7	13	14	13
-7	25	37	35	-10	20	15	16	-6	0	36	36
-6	0	51	51	-9	1	37	38	-6	2	50	51
-6	2	89	90	-9	7	49	48	-6	12	24	25
-6	4	29	29	-9	9	14	16	-6	14	17	16
-6	6	69	70	-9	13	31	30	-6	18	69	70
-6	8	30	29	-9	15	23	25	-5	1	40	40
-6	10	28	27	-9	23	27	26	-5	3	12	10
-6	12	32	31	-8	0	83	83	-5	9	37	38
-6	14	28	28	-8	2	32	31	-5	11	28	28
-6	16	62	63	-8	4	54	54	-5	15	15	14
-6	18	119	119	-8	10	17	16	-5	19	43	43
-6	20	26	23	-8	12	47	48	-5	21	18	18
-6	24	23	22	-8	16	24	23	-4	2	20	18
-6	26	20	20	-8	18	14	13	-4	6	15	16
-6	28	23	21	-8	20	56	56	-4	8	67	68
-5	1	81	81	-8	22	33	33	-4	10	60	61
-5	5	105	105	-8	24	33	32	-4	12	39	39
-5	9	85	86	-7	3	46	48	-4	16	15	15
-5	11	55	55	-7	5	10	5	-4	20	25	25
-5	13	12	13	-7	7	33	31	-4	24	51	50
-5	15	36	36	-7	13	43	43	-3	1	20	20
-5	17	41	40	-7	15	42	43	-3	3	44	44
-5	19	52	52	-7	19	51	52	-3	5	21	19
-5	25	35	35	-7	23	19	17	-3	7	60	60
-5	27	14	13	-7	25	36	34	-3	11	30	32
-4	4	15	13	-6	0	55	54	-3	21	22	25
-4	12	37	37	-6	2	16	16	-3	25	20	22

-4	14	17	17	-6	4	75	74	-2	0	18	17
-4	18	12	14	-6	6	161	161	-2	22	23	21
-4	20	18	20	-6	8	29	29	-1	1	28	29
-4	22	16	13	-6	10	55	56	-1	3	31	32
-4	30	24	23	-6	14	27	26	-1	7	29	28
-3	1	21	20	-6	16	34	36	-1	9	21	20
-3	3	47	44	-6	20	22	21	-1	13	50	51
-3	7	88	85	-6	22	41	40	-1	17	17	19
-3	9	40	39	-6	26	36	35	-1	19	46	48
-3	11	25	23	-5	3	51	52	-1	21	15	14
-3	13	58	58	-5	5	13	12	-1	23	16	16
-3	19	14	11	-5	7	104	103				
-3	21	27	26	-5	11	26	26	*****	L =	13	*****
-3	25	36	38	-5	13	62	62				
-2	0	42	44	-5	15	41	41	-12	6	34	32
-2	6	110	110	-5	23	35	35	-11	9	38	37
-2	8	60	58	-5	25	31	32	-11	13	15	14
-2	10	100	100	-4	4	36	37	-10	2	15	17
-2	14	33	33	-4	6	53	52	-10	6	15	16
-2	16	46	46	-4	10	28	29	-10	12	25	25
-2	22	42	40	-4	12	89	90	-10	14	16	15
-2	24	15	12	-4	14	31	30	-10	16	21	21
-2	26	58	58	-4	16	12	11	-9	1	38	38
-2	28	26	25	-4	18	32	32	-9	7	16	16
-2	30	31	31	-4	20	17	19	-9	13	47	47
-1	3	33	33	-4	22	37	39	-9	15	34	35
-1	7	48	48	-4	24	28	29	-9	17	28	26
-1	9	41	42	-4	26	28	27	-8	2	18	18
-1	13	70	70	-3	5	37	37	-8	6	14	14
-1	15	30	31	-3	13	33	33	-8	8	17	16
-1	17	29	28	-3	15	12	10	-7	9	31	31
-1	19	64	65	-3	17	15	14	-7	11	15	14
-1	21	26	26	-3	19	57	56	-7	13	35	35
-1	23	33	32	-3	25	30	32	-7	21	19	17
-1	27	14	13	-2	0	87	86	-6	10	19	17
-1	29	14	14	-2	4	57	56	-6	14	14	13
				-2	6	46	47	-5	7	17	16
*****	L =	9	*****	-2	10	52	52	-5	9	45	47
				-2	12	42	42	-5	13	20	19
-17	1	15	15	-2	14	67	67	-5	21	18	18
-16	2	19	19	-2	18	54	55	-4	6	28	28
-15	11	18	20	-2	22	32	33	-4	10	15	14
-14	6	47	47	-2	28	23	22	-4	14	34	33
-14	10	28	26	-1	3	75	74	-4	20	38	40
-14	16	18	19	-1	7	29	28	-4	22	29	28
-12	2	12	12	-1	9	46	47	-3	1	60	59
-12	6	46	47	-1	11	58	58	-3	15	24	22

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
-3	17	49	50								
-3	23	16	17								
-2	8	21	20								
-2	12	45	45								
-2	18	14	13								
-2	20	26	26								
-2	24	23	22								
-1	7	13	12								
-1	9	26	28								
-1	15	32	32								
-1	21	36	35								

***** L = 14 *****

0	0	79	82
0	8	52	53
0	10	24	25
0	12	62	63
0	14	16	14
0	16	48	48
0	18	19	19
0	22	33	36
-11	7	14	13
-11	9	16	15
-11	11	32	32
-10	0	23	22
-10	2	28	27
-10	10	26	25
-10	14	43	43
-9	1	30	29
-9	7	25	29
-9	13	29	28
-8	0	79	80
-8	6	30	29
-8	8	35	37
-8	12	43	42
-8	14	27	26
-8	16	21	20
-7	1	26	25
-7	9	30	31
-7	13	35	35

-7	15	24	23
-6	0	65	65
-6	6	49	50
-6	8	13	11
-6	14	30	29
-5	7	44	44
-5	9	19	21
-5	13	38	40
-4	0	56	56
-4	2	40	40
-4	12	76	76
-4	14	31	30
-4	16	20	21
-4	20	32	32
-3	1	41	42
-3	9	47	47
-3	11	22	23
-3	13	18	18
-3	15	22	22
-2	0	52	52
-2	2	42	43
-2	6	69	70
-2	10	19	19
-2	12	15	14
-2	14	26	25
-2	16	18	21
-2	20	17	15
-2	22	38	38
-1	1	20	19
-1	7	33	32
-1	11	29	32
-1	13	14	13

***** L = 15 *****

-10	2	23	23
-9	1	24	24
-8	10	14	14
-8	12	16	16
-7	9	22	20
-7	13	45	44
-6	12	24	23
-5	7	14	14
-5	9	34	37
-4	2	14	14
-4	6	26	29
-4	14	32	35
-3	1	44	44
-3	15	17	16
-3	19	29	27
-2	12	27	26
-2	18	17	18
-1	9	15	14
-1	15	20	22

***** L = 16 *****

0	0	100	102
0	8	17	17
0	10	23	23
0	14	17	17
-8	0	28	28
-8	8	38	38
-8	10	26	24
-7	1	30	34
-7	7	19	19
-7	9	16	13
-6	2	45	44
-6	12	16	16
-5	1	40	41
-5	9	39	40
-5	11	15	16
-4	0	66	66
-4	8	31	31
-4	10	43	42
-4	12	21	21
-3	1	13	12
-2	0	18	19
-2	10	47	47
-2	12	38	39
-2	16	28	29
-1	13	30	30
-1	15	23	25

***** L = 17 *****

-6	2	16	18
-6	8	19	19
-5	9	23	23
-4	2	33	34
-4	6	32	33
-4	8	15	14
-4	10	23	22
-3	11	34	37
-2	6	15	15
-1	7	30	30
-1	9	26	28

***** L = 18 *****

0	8	28	27
-4	0	15	14
-3	1	19	18
-2	0	26	27
-2	2	30	33
-2	6	18	18
-1	7	17	17

***** L = -18 *****

0	2	27	29
1	1	25	23

***** L = -16 *****

0	6	37	37
0	16	26	25
1	7	31	30
2	6	55	56
2	8	25	24
3	7	36	37
3	11	17	18
3	13	27	26
6	8	19	18

***** L = -15 *****

3	17	40	41
5	13	21	21
6	14	14	13
8	6	21	20

***** L = -14 *****

2	18	47	48
3	7	12	11
3	17	27	26
3	19	37	38
5	15	16	17
5	19	19	19
7	17	32	29
8	2	14	12
10	6	45	49

***** L = -13 *****

3	13	20	22
3	19	17	17
6	12	25	25
8	12	33	33
10	10	15	14
11	7	14	13
12	2	14	13

***** L = -12 *****

0	2	12	9
0	16	50	51
2	6	85	86

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
2	8	55	55	0	8	49	50	4	6	49	50
2	10	68	70	0	24	37	38	4	8	72	71
2	12	59	61	0	28	38	36	4	10	74	73
2	14	15	14	1	5	62	62	4	24	52	52
2	16	32	32	2	24	21	20	5	3	45	46
2	18	47	49	3	3	27	27	5	21	19	20
3	13	36	36	3	9	33	34	7	1	48	47
4	0	96	97	3	21	23	22	8	20	23	21
6	6	23	23	4	0	33	32	9	21	19	19
6	16	40	41	5	9	34	35	10	24	20	20
8	12	52	52	5	21	33	35	11	9	35	36
9	9	16	16	8	14	35	35	13	1	20	20
10	16	15	15	10	6	56	57	16	10	29	30
11	9	18	18	11	1	29	26				
12	12	30	30	14	14	38	36	***** L = -7 *****			

***** L = -11 *****

***** L = -9 *****

1	13	20	19	1	5	39	39	1	27	34	33
1	15	22	23	1	11	14	15	2	6	15	10
2	14	29	29	2	6	13	13	4	26	17	16
2	24	24	24	3	1	42	42	6	6	10	9
3	21	33	33	3	19	51	51	7	9	47	48
4	2	59	59	6	6	11	10	7	25	16	17
4	6	62	62	6	14	20	19	8	20	24	23
4	8	24	24	7	5	14	12	10	4	67	66
4	22	23	22	8	6	40	40	10	14	25	26
4	24	26	27	9	15	38	38	11	13	20	18
5	21	18	17	14	14	16	16	13	5	23	24
9	11	25	24					17	7	16	17
9	13	21	22	***** L = -8 *****				***** L = -6 *****			
9	21	25	25								
10	10	17	16								
11	9	17	19								
13	9	23	21								

***** L = -10 *****

2	12	85	86	0	2	74	76	0	2	44	43
2	16	55	55	0	20	62	62	0	4	88	88
				1	1	46	46	0	18	32	30
				1	25	13	12	1	3	140	138
				1	25	13	12	1	7	97	94
				2	12	85	86	1	11	82	81
				2	16	55	55	2	20	18	18

K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
2	22	66	66	6	4	31	30	7	7	65	65
2	24	49	49	7	11	16	16	8	24	46	48
3	17	41	42	7	25	44	44	9	19	40	39
3	19	77	77	8	22	21	19	10	28	51	49
5	13	84	84	9	12	57	57	11	13	46	47
7	7	14	11	9	21	17	15	12	6	70	71
7	25	14	15	11	7	10	9	12	8	28	27
8	6	42	43	11	21	15	14	12	12	54	55
8	22	36	37	12	12	13	11	12	14	31	30
9	3	28	27	12	22	24	23	12	16	16	15
9	7	64	63	13	9	21	20	12	18	15	15
10	16	57	55	15	11	16	16	12	20	21	23
11	3	39	39	-4	2	54	53	12	24	42	41
11	19	18	16	-3	1	51	51	13	19	27	26
12	4	34	35	-2	2	12	11	16	8	25	23
12	10	27	29	-2	4	56	55	16	10	48	49
12	22	16	21	-1	5	51	50	16	16	23	20
14	18	41	41					17	11	38	36
-3	1	94	95	*****	L =	-4	*****	-5	1	113	114
-2	2	115	113					-5	3	20	20
-2	4	121	121	0	2	24	21	-4	2	36	38
-1	1	45	46	0	4	70	66	-3	1	72	74
-1	5	110	109	0	6	162	162	-3	3	163	162
				0	8	49	52	-3	5	52	52
*****	L =	-5	*****	0	10	63	58	-3	7	144	141
				1	7	93	91	-2	2	63	62
1	7	55	54	1	9	18	15	-2	4	55	54
1	19	19	19	1	15	65	65	-2	8	121	117
2	20	22	22	2	6	279	278	-1	1	32	27
2	24	34	34	2	8	121	117	-1	3	55	54
3	3	13	13	2	12	148	149	-1	5	11	9
3	5	46	45	2	28	22	23				
3	11	67	65	4	0	301	298	*****	L =	-3	*****
4	20	44	44	4	4	63	64				
4	22	42	43	4	10	169	167	0	6	6	0
4	24	25	26	4	26	40	40	1	9	117	116
5	11	21	18	5	5	80	79	2	2	6	5
5	13	47	47	5	16	16	16	2	10	8	7

K	H	FO	FC	K	H	FC	FC	K	H	FO	FC
2	18	27	25	-1	7	104	102	10	24	13	13
2	26	30	32	-1	11	43	43	11	19	30	29
2	28	18	16					12	2	11	8
3	1	55	54	***** L = -2 *****				12	4	46	45
3	25	29	29					12	6	21	21
4	4	19	18	0	2	100	104	12	8	39	39
4	8	49	49	0	4	184	174	12	12	72	73
5	1	59	59	0	6	41	38	12	18	42	42
5	9	87	88	0	8	109	110	12	22	33	34
5	17	14	15	0	10	28	26	12	24	36	36
5	25	39	39	1	3	209	203	14	14	35	33
6	2	66	66	1	7	91	87	16	6	27	26
7	11	57	58	1	9	72	74	17	13	21	21
7	25	58	57	2	0	233	224	-6	4	109	110
9	3	31	30	2	2	223	211	-5	5	12	12
9	7	69	68	2	6	125	126	-5	7	165	167
9	11	50	51	2	22	62	62	-4	2	118	121
10	4	16	17	3	1	86	89	-4	4	70	70
10	10	23	22	3	3	20	20	-3	5	99	99
11	21	21	20	3	9	105	105	-3	7	13	12
12	16	44	44	3	13	59	61	-2	4	127	126
12	22	21	20	4	0	103	101	-2	10	91	88
13	9	28	28	4	6	76	78	-1	1	161	171
13	11	28	26	5	1	12	14	-1	5	127	124
14	22	24	23	5	3	72	71	-1	11	100	100
17	15	40	38	5	13	98	100				
-5	3	117	119	5	29	39	40	***** L = -1 *****			
-5	5	14	14	6	0	137	138				
-4	0	6	0	6	2	21	21	1	1	10	9
-4	2	126	126	6	8	60	60	1	3	14	13
-4	6	155	155	6	14	50	51	1	5	184	179
-3	5	129	128	6	18	13	10	1	7	54	55
-3	7	22	23	7	3	72	75	1	9	51	51
-2	4	55	55	7	7	41	38	1	11	6	7
-2	6	17	16	7	9	24	22	2	2	4	3
-2	8	76	77	9	7	76	76	2	4	170	165
-1	3	9	8	9	23	33	33	2	16	21	21
-1	5	63	63	9	25	18	18				

Sci 1542 filter

ORDIERITE

ASTEST VARYING INDEX IS 1

LOWEST VARYING INDEX IS 3

SCALE = 1.0000

ARDS WILL NOT BE PUNCHED

DATA HAS ALREADY BEEN SORTED

NUMBER OF REFLECTIONS IS 1452

NUMBER OF INDICES IS 31

NUMBER OF PRINTED LINES IS 1545

NUMBER OF JOURNAL PAGES IS 1

COLUMN	1	2	3	4	5	6	7	8	9	10		
PAGE	155	155	155	155	155	154	154	154	154	154		
	K	H	FO	FC	K	H	FO	FC	K	H	FO	FC
					3	13	39	39	-13	5	46	46
*****	L =	0	*****		3	17	106	107	-13	9	43	44
					3	19	59	58	-13	15	28	28
0	4	52	51		4	2	42	41	-13	19	24	23
0	6	62	60		4	4	27	27	-12	4	51	52
0	8	44	42		4	6	94	93	-12	6	30	30
0	10	268	253		4	8	18	18	-12	8	41	41
0	12	98	94		4	10	31	32	-12	10	43	43
0	14	86	90		4	14	86	84	-12	12	70	70
0	16	183	182		4	16	21	23	-12	18	37	37
0	20	85	86		4	18	31	32	-12	20	23	23
1	9	117	117		4	20	63	62	-11	3	43	42
2	2	21	20		5	1	36	33	-11	5	61	61
2	20	10	6		5	3	83	80	-11	7	16	18
3	3	34	34		5	5	27	27	-11	11	79	79
3	7	126	126		5	7	30	30	-11	13	22	22
4	0	143	143		5	9	121	121	-11	15	17	15
4	6	117	115		5	11	11	10	-11	17	24	24
4	14	20	19		5	13	50	49	-11	19	22	22
5	7	29	30		5	17	13	15	-10	2	25	25
5	13	11	11		5	19	11	9	-10	6	95	94
5	15	71	73		6	4	70	69	-10	8	14	16
6	0	148	144		6	6	20	19	-10	10	17	18
8	0	29	24		6	10	29	29	-10	12	22	20
10	0	100	101		6	12	57	57	-10	14	52	52
12	0	163	162		6	14	27	28	-10	16	33	31
14	18	37	39		6	18	24	21	-10	18	24	24
15	7	37	36		6	20	14	12	-10	20	23	22
16	0	76	78		7	3	121	120	-9	1	57	57
-17	5	40	40		7	5	16	17	-9	3	14	14
-16	6	33	33		7	7	12	12	-9	5	13	13
-16	10	24	25		7	9	73	73	-9	7	68	69
-16	12	16	18		7	11	29	30	-9	9	15	16
-15	1	47	49		7	13	93	93	-9	11	11	9
-15	9	14	17		7	17	22	21	-9	13	48	49
-15	11	23	24		7	19	12	10	-9	19	23	24
-14	2	24	25		8	2	39	41	-8	2	50	49
-14	4	26	24		8	4	51	51	-8	4	74	73
-14	6	78	79		8	6	36	36	-8	6	17	16
-14	8	60	61		8	8	39	39	-8	8	15	15
-14	10	62	64		8	10	17	17	-8	10	22	22
-14	14	45	46		8	12	57	57	-8	12	77	76

-14	16	29	24	8	20	22	20	-8	14	52	54
-14	18	39	39	9	1	81	80	-8	16	50	49
-13	1	23	23	9	3	62	63	-8	18	34	34
-13	3	55	54	9	5	59	60	-8	20	65	65
-13	5	24	24	9	7	25	25	-7	7	35	34
-13	7	18	16	9	9	22	23	-7	13	67	68
-13	9	31	31	9	11	23	25	-7	15	52	52
-13	11	17	13	9	13	94	93	-7	19	76	74
-13	13	58	57	9	15	66	65	-6	10	65	64
-13	19	32	30	9	17	47	47	-5	15	20	20
-12	2	44	42	9	19	50	49	-3	13	47	50
-12	6	29	31	10	2	45	45	-3	15	23	23
-12	10	30	29	10	4	74	75	-3	17	32	32
-12	12	41	44	10	6	23	25	-3	19	85	82
-12	16	54	54	10	10	25	24	-2	6	108	105
-12	20	35	35	10	12	44	44	-2	10	82	82
-11	1	88	88	10	14	39	39	-2	12	81	85
-11	7	35	35	10	16	38	37	-2	14	93	92
-11	9	61	63	10	18	25	24	-2	16	19	20
-11	11	28	28	10	20	50	49	-1	5	122	117
-11	13	48	47	11	1	15	13	-1	7	75	73
-11	17	37	35	11	3	38	37	-1	9	51	52
-11	19	38	36	11	5	18	18	-1	11	94	95
-10	2	24	23	11	9	80	79	-1	13	31	31
-10	6	60	62	11	11	29	27	-1	15	15	17
-10	8	72	71	11	13	27	25	-1	17	26	26
-10	12	52	52	11	17	18	18	-1	19	23	22
-10	16	13	12	12	2	28	28				
-10	18	86	87	12	4	34	35	*****	L =	3	*****
-9	1	24	25	12	6	65	66				
-9	5	49	49	12	10	25	25	1	3	8	7
-9	7	23	22	12	16	30	30	1	5	62	61
-9	11	62	62	13	3	17	16	1	7	102	100
-9	13	21	21	13	5	23	23	1	9	110	110
-9	17	15	13	13	7	19	17	1	11	43	43
-9	19	51	49	14	2	26	26	1	13	33	34
-8	2	43	43	14	6	49	50	1	15	55	55
-8	4	52	55	14	18	23	21	1	17	48	47
-8	6	16	17	15	1	18	20	1	19	33	31
-8	8	185	187	15	9	26	24	2	4	55	53
-8	10	61	62	16	2	19	19	2	6	17	16
-8	12	83	83	16	4	36	35	2	8	81	81
-8	14	21	21	-17	7	19	18	2	12	33	33
-8	18	49	48	-16	12	19	18	2	14	65	67
-8	20	36	36	-15	7	25	23	2	16	66	65
-7	1	31	32	-14	10	14	9	2	18	24	25
-7	3	135	135	-6	2	13	12	3	1	55	54
-7	5	89	90	-6	8	27	26	3	5	130	128
-7	7	104	107	-3	3	8	8	3	7	24	25
-7	9	37	38	-3	15	44	45	3	9	17	18
-7	11	57	58	-2	16	24	26	3	11	141	147
-7	13	17	16	-1	13	18	19	3	13	55	56
-7	17	23	23	-1	15	70	71	3	15	29	29
-7	19	14	15					3	17	56	58
-6	2	120	117	*****	L =	2	*****	3	19	76	75
-6	4	75	74					4	4	19	20

-6	6	153	150	0	6	61	58	4	6	158	156
-6	8	25	24	0	8	114	113	4	8	41	43
-6	10	78	81	0	18	49	48	4	10	80	83
-6	12	31	32	2	18	89	89	4	14	96	96
-6	14	29	29	3	1	77	73	4	16	14	13
-6	16	100	102	3	5	91	89	4	20	18	17
-6	18	151	150	3	9	89	89	5	1	63	63
-6	20	42	42	3	11	18	19	5	3	120	118
-5	1	85	85	4	0	87	85	5	5	15	15
-5	3	129	125	4	4	85	82	5	7	13	13
-5	5	206	202	4	6	60	59	5	9	87	88
-5	9	111	113	4	8	13	13	5	11	36	39
-5	11	95	98	4	10	25	26	5	13	50	59
-5	17	44	44	4	12	164	167	5	17	15	13
-5	19	55	57	4	14	53	54	5	19	19	19
-4	2	48	47	4	18	34	34	6	2	62	61
-4	4	38	38	4	20	44	44	6	4	16	16
-4	8	104	103	5	3	56	56	6	6	25	26
-4	10	75	78	5	5	22	18	6	8	61	62
-4	12	30	29	5	7	159	160	6	10	19	18
-4	20	22	23	5	9	71	72	6	12	33	32
-3	5	38	37	5	11	22	23	6	14	19	19
-3	9	105	103	5	13	89	89	7	1	132	134
-3	11	12	13	6	0	126	126	7	3	72	71
-3	13	74	74	6	2	15	13	7	5	33	34
-3	15	18	18	6	4	101	101	7	7	14	15
-3	17	12	10	6	6	234	237	7	9	91	93
-2	4	47	44	6	8	54	56	7	11	59	60
-2	6	105	103	6	14	55	54	7	13	35	35
-2	8	90	90	6	16	29	30	7	15	70	69
-2	10	141	139	7	1	12	11	8	2	11	11
-2	12	115	119	7	3	85	86	8	6	60	61
-2	14	67	68	7	17	30	29	8	8	33	34
-2	16	42	50	8	0	163	163	8	10	44	44
-2	18	67	68	10	4	54	55	8	12	26	27
-1	5	24	24	11	1	20	20	8	14	30	31
-1	7	10	9	13	7	18	16	9	1	78	77
-1	11	8	7	14	18	50	50	9	3	31	33
-1	13	100	104	-17	1	24	26	9	5	38	40
-1	15	16	15	-17	7	39	42	9	7	68	68
-1	17	59	59	-16	2	36	34	9	11	54	54
-1	19	87	88	-16	4	20	20	9	13	38	39
				-16	6	19	19	9	15	53	52
*****	L =	1	*****	-16	8	22	23	9	17	14	14
				-16	12	61	63	9	19	37	37
1	7	56	56	-15	5	43	43	10	2	48	48
1	9	51	50	-15	11	53	54	10	4	14	15
2	6	29	30	-15	13	24	23	10	8	25	25
2	8	61	59	-15	15	17	18	10	10	23	23
2	10	13	12	-14	2	64	65	10	14	62	62
2	12	104	105	-14	4	38	37	10	16	52	52
2	18	30	31	-14	6	33	35	10	18	29	29
2	20	40	40	-14	12	19	18	10	20	27	29
3	5	57	56	-14	14	40	37	11	3	77	78
3	7	16	16	-14	16	17	22	11	7	29	30
3	9	15	15	-13	1	83	85	11	9	38	39