

## APPENDIX F

### PARAMETERS DERIVED FROM INCREMENTAL HOLDUP DATA

The parameters derived from the incremental holdup data using the error function as described in Chapter 6 are listed in Table 14. The headings can be defined as follows:

1. UL is the liquid velocity in cm/sec,
2. H is the calculated bed height in cm,
3. EGLOW is the gas holdup in the three-phase region of the column,
4. EGUPP is the gas holdup in the two-phase region of the column,
5. IG is the inflection point in the gas holdup curve in cm,
6. CSIG is the standard deviation in the gas holdup curve in cm,
7. ESLOW is the solid holdup in the three-phase region of the column,
8. IS is the inflection point in the solid holdup curve in cm,
9. SSIG is the standard deviation in the solid holdup curve in cm.

The run number and gas velocity (UC in ca/sec) are again given as subheadings in the table.

Table 14. Incremental holdup data and derived parameters

UL	H	EGLOW	EGUPP	IG	GSIG	E5LOW	IS	SSIG
				G67D13	IN	UG = 1.73		
4.77	43.5	0.030	0.118	34.41	10.88	0.536	42.90	4.00
7.16	50.4	0.020	0.102	45.00	3.01	0.430	50.25	5.89
9.54	58.8	0.000	0.044	50.08	5.26	0.350	58.19	5.00
11.93	71.2	0.000	0.071	60.00	14.85	0.250	73.03	2.55
				G68K13	IN	UG = 13.95		
2.39	41.9	0.205	0.270	41.90	1.64	0.560	42.32	4.87
3.58	46.7	0.186	0.280	50.56	5.82	0.476	46.50	2.73
4.77	47.6	0.159	0.287	48.24	3.18	0.459	46.62	6.21
5.96	52.3	0.120	0.286	51.00	5.00	0.426	51.14	6.70
7.16	54.4	0.100	0.295	49.25	11.59	0.414	53.48	15.00
8.35	60.5	0.095	0.289	50.94	9.92	0.400	59.45	15.72
9.54	69.3	0.125	0.272	55.23	13.92	0.331	68.81	13.40
10.74	71.7	0.041	0.228	54.38	15.39	0.220	79.18	9.59
11.93	89.3					0.200		
				G72A13	IN	UG = 0.00		
5.96	43.9	0.000	0.000	0.00	0.00	0.490	41.70	2.29
7.16	48.4	0.000	0.000	0.00	0.00	0.410	46.82	4.99
8.35	52.3	0.000	0.000	0.00	0.00	0.410	52.30	5.00
9.54	55.8	0.000	0.000	0.00	0.00	0.327	55.16	2.60
10.74	60.3	0.000	0.000	0.00	0.00	0.306	59.24	2.46
11.93	65.0	0.000	0.000	0.00	0.00	0.242	64.10	2.58
				G74G13	IN	UG = 7.11		
3.58	43.6	0.100	0.168	41.03	2.94	0.517	41.03	2.53
4.77	46.2	0.100	0.180	46.15	3.50	0.453	46.15	2.60
5.96	49.5	0.095	0.130	43.50	2.00	0.449	48.38	3.13
				G75G13	IN	UG = 7.07		
7.16	51.5	0.030	0.177	47.81	5.00	0.385	51.86	6.19
8.35	57.8	0.015	0.178	51.15	12.91	0.321	59.32	7.06
9.54	65.6	0.081	0.218	65.71	8.17	0.311	65.70	3.16
				G76C13	IN	UG = 0.95		
3.58	39.3	0.015	0.035	36.66	2.50	0.558	36.66	5.53
4.77	42.4	0.010	0.047	35.00	4.50	0.470	42.28	3.88
5.96	46.2	0.000	0.065	44.76	5.00	0.448	44.76	3.73
7.16	49.8	0.000	0.101	49.58	15.00	0.450	49.58	7.15
8.35	53.9	0.000	0.059	52.79	17.00	0.400	52.79	4.00
9.54	57.7	0.000	0.055	56.83	9.00	0.362	56.83	3.21
10.74	64.3	0.000	0.030	63.97	19.90	0.319	63.97	2.53
				G77J13	IN	UG = 12.47		
2.39	40.2	0.175	0.255	41.22	5.00	0.575	41.22	6.35
3.58	45.6	0.141	0.255	34.91	9.37	0.502	43.92	4.94
4.77	48.3	0.145	0.260	46.97	7.00	0.460	46.97	7.37
5.96	51.1	0.096	0.257	44.39	13.75	0.433	50.84	8.49
7.16	55.9	0.094	0.271	47.44	6.93	0.405	54.77	9.49
8.35	61.8	0.089	0.277	51.92	19.52	0.371	60.32	10.45
9.54	68.0	0.100	0.263	57.32	17.58	0.300	67.42	11.39
10.74	73.4	0.111	0.258	61.55	13.36	0.254	77.63	12.08
11.93	86.3					0.240		

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- G79L13 IN UG = 15.65 -----								
2.39	42.0	0.183	0.307	42.30	10.00	0.550	42.30	5.89
3.58	46.8	0.163	0.317	37.97	14.39	0.492	45.63	6.07
4.77	49.9	0.131	0.312	46.00	15.95	0.470	49.02	8.07
5.96	54.0	0.129	0.315	42.00	30.00	0.420	52.57	10.03
7.16	59.6	0.126	0.321	51.80	12.97	0.413	56.77	11.86
8.35	62.8	0.110	0.334	52.12	11.98	0.359	63.36	19.48
9.54	68.5	0.089	0.305	55.48	18.00	0.314	70.61	11.39
10.74	72.5	0.112	0.255	55.11	10.34	0.273	81.02	20.24
11.93	92.3					0.223		
----- G80B13 IN UG = 0.44 -----								
4.77	41.1	0.003	0.025	41.75	2.96	0.535	41.75	4.57
5.96	45.0	0.000	0.022	43.15	5.00	0.521	43.15	3.50
7.16	48.4	0.000	0.013	46.94	7.50	0.472	46.94	7.81
8.35	52.6	0.000	0.019	50.19	11.69	0.415	50.19	2.50
9.54	56.7	0.000	0.013	54.92	5.00	0.386	54.92	5.04
10.74	61.8	0.000	0.005	59.11	10.00	0.355	59.11	2.50
11.93	65.7	0.000	0.018	64.12	10.00	0.317	64.12	5.42
----- G82E13 IN UG = 3.58 -----								
2.39	37.2	0.100	0.170	28.00	10.00	0.589	36.00	5.77
3.58	41.4	0.073	0.129	21.72	9.07	0.547	41.26	4.56
4.77	44.7	0.100	0.143	44.41	10.00	0.506	44.41	3.04
5.96	48.9	0.041	0.162	44.62	7.98	0.468	47.73	3.17
7.16	52.0	0.016	0.171	34.50	25.12	0.420	52.16	5.73
8.35	56.7	0.070	0.182	54.83	25.28	0.370	54.83	7.04
9.54	64.3	0.050	0.201	64.14	20.00	0.330	63.15	4.70
10.74	71.0	0.036	0.175	60.55	28.93	0.317	70.67	5.36
11.93	76.4	0.035	0.146	59.24	62.72	0.273	77.70	7.26
----- G85F13 IN UG = 5.31 -----								
2.39	38.6	0.122	0.212	37.94	4.99	0.600	37.94	4.46
3.58	42.1	0.125	0.165	42.61	3.03	0.520	42.61	4.79
4.77	46.6	0.083	0.183	47.49	10.00	0.489	46.18	4.00
5.96	49.0	0.063	0.198	41.16	11.46	0.466	48.61	7.63
7.16	54.2	0.038	0.211	41.59	34.94	0.400	52.60	5.72
8.35	58.6	0.100	0.209	58.79	10.00	0.370	58.79	6.96
9.54	65.1	0.100	0.219	64.71	17.27	0.320	64.71	2.80
10.74	74.7	0.090	0.192	73.90	5.00	0.290	73.98	6.16
11.93	83.3	0.100	0.166	82.59	40.00	0.264	82.59	2.76
----- G86H13 IN UG = 8.81 -----								
2.39	39.0	0.145	0.229	39.17	3.14	0.600	39.17	8.03
3.58	43.6	0.145	0.231	43.38	8.39	0.528	43.38	5.02
4.77	47.4	0.112	0.220	48.66	3.03	0.502	45.47	5.59
5.96	47.9	0.096	0.219	49.80	7.70	0.462	49.80	7.70
7.16	54.6	0.085	0.219	44.66	7.03	0.434	52.83	7.45
8.35	57.0	0.096	0.226	48.64	10.62	0.372	57.22	10.86
9.54	64.4	0.075	0.251	59.36	12.63	0.323	65.16	6.00
10.74	73.4	0.091	0.237	63.08	27.05	0.280	74.30	6.00
11.93	86.3					0.242		

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- G87I13 IN UG = 10.54 -----								
2.39	39.8	0.165	0.247	40.51	3.02	0.600	40.51	6.64
3.58	44.7	0.175	0.240	44.06	5.00	0.503	44.50	3.88
4.77	48.1	0.135	0.239	47.00	3.10	0.488	46.93	5.00
5.96	50.3	0.108	0.250	45.84	9.92	0.466	49.27	10.29
7.16	54.8	0.089	0.246	46.49	15.30	0.411	53.57	6.97
8.35	61.4	0.059	0.250	47.61	20.91	0.376	59.97	8.45
9.54	65.7	0.100	0.271	66.09	15.00	0.329	66.09	11.22
10.74	71.7	0.120	0.239	65.00	15.00	0.255	74.92	10.00
11.93	87.3					0.250		
----- G88M13 IN UG = 17.26 -----								
1.19	37.6	0.260	0.330	37.76	2.27	0.600	37.76	7.91
2.39	44.7	0.230	0.324	42.98	2.80	0.533	42.98	6.60
3.58	48.2	0.200	0.332	48.25	3.18	0.495	48.25	10.50
4.77	53.8	0.180	0.334	45.37	15.00	0.470	49.46	13.26
5.96	59.2	0.138	0.340	50.00	10.00	0.431	53.82	14.51
7.16	60.6	0.122	0.340	48.11	26.69	0.400	58.05	15.57
8.35	68.9	0.092	0.310	52.28	11.86	0.372	63.09	12.77
9.54	81.3	0.091	0.286	54.70	17.34	0.319	71.81	20.88
10.74	88.3					0.264		
11.93	93.3					0.246		
----- G67D13 AB UG = 1.78 -----								
4.77	41.6	0.030	0.118	42.16	2.85	0.535	42.16	5.14
7.16	48.0	0.020	0.102	48.75	2.90	0.420	48.75	6.00
9.54	56.5	0.000	0.044	57.22	2.95	0.340	57.22	5.00
11.93	69.8	0.030	0.076	70.00	5.00	0.242	70.77	4.39
----- G68K13 AB UG = 13.95 -----								
2.39	40.5	0.192	0.279	41.38	2.62	0.570	41.38	6.19
3.58	45.5	0.166	0.280	43.78	6.00	0.495	43.78	7.08
4.77	46.1	0.134	0.287	42.91	9.58	0.487	44.97	7.41
5.96	50.9	0.108	0.286	41.97	12.61	0.458	48.62	8.82
7.16	53.8	0.116	0.295	47.10	4.13	0.410	51.67	11.29
8.35	59.7	0.101	0.289	56.05	10.00	0.390	56.05	13.82
9.54	67.9	0.099	0.280	49.94	19.75	0.359	66.66	13.73
10.74	71.1	0.036	0.243	53.66	13.41	0.205	77.54	8.33
11.93	89.3					0.205		
----- G72A13 AB UG = 0.00 -----								
5.96	43.1	0.000	0.000	0.00	0.00	0.504	41.25	2.45
7.16	46.7	0.000	0.000	0.00	0.00	0.465	45.32	5.28
8.35	50.3	0.000	0.000	0.00	0.00	0.410	49.35	5.00
9.54	54.1	0.000	0.000	0.00	0.00	0.349	53.83	2.12
10.74	58.4	0.000	0.000	0.00	0.00	0.310	58.21	2.83
11.93	65.2	0.000	0.000	0.00	0.00	0.249	64.31	2.66
----- G74G13 AB UG = 7.11 -----								
3.58	41.7	0.080	0.168	40.57	2.70	0.523	40.57	2.70
4.77	45.2	0.050	0.180	44.88	8.00	0.480	44.88	3.71
5.96	47.6	0.084	0.126	39.68	3.03	0.472	46.99	6.51

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- G75G13 AB UG = 7.07 -----								
7.16	50.4	0.024	0.177	44.66	6.94	0.390	50.67	6.69
8.35	56.2	0.030	0.178	56.77	7.50	0.346	56.77	7.72
9.54	62.8	0.075	0.218	60.00	10.00	0.330	63.55	5.33
----- G76C13 AB UG = 0.95 -----								
3.58	37.8	0.035	0.035	37.36	2.68	0.545	37.36	2.68
4.77	41.0	0.000	0.047	41.53	4.80	0.481	41.53	4.83
5.96	44.8	0.000	0.065	43.00	12.00	0.440	43.18	3.31
7.16	47.9	0.010	0.101	45.00	2.92	0.471	47.93	7.03
8.35	53.0	0.000	0.059	46.00	7.50	0.400	51.56	4.48
9.54	56.0	0.000	0.055	55.42	5.50	0.373	55.42	5.25
10.74	62.2	0.000	0.022	60.08	38.41	0.326	60.08	2.15
----- G77J13 AB UG = 12.47 -----								
2.39	39.3	0.155	0.255	40.61	7.00	0.580	40.61	6.90
3.58	45.0	0.131	0.255	37.00	10.00	0.512	43.25	5.47
4.77	46.7	0.120	0.257	42.00	7.50	0.478	45.25	7.83
5.96	48.7	0.098	0.257	40.97	5.83	0.437	49.22	11.19
7.16	53.1	0.090	0.271	44.43	10.02	0.414	52.64	9.18
8.35	59.9	0.082	0.277	50.03	9.86	0.382	58.19	11.21
9.54	66.8	0.057	0.266	49.61	22.87	0.313	64.66	7.94
10.74	70.2	0.094	0.278	60.19	11.20	0.275	73.57	12.07
11.93	86.3					0.250		
----- G79L13 AB UG = 15.65 -----								
2.39	41.0	0.178	0.307	41.98	7.50	0.570	41.98	6.19
3.58	45.9	0.160	0.317	41.00	7.15	0.520	44.60	6.12
4.77	48.4	0.150	0.312	47.00	8.01	0.468	47.57	7.05
5.96	52.9	0.123	0.315	42.59	7.41	0.450	50.82	12.37
7.16	58.3	0.120	0.310	50.00	17.00	0.430	55.41	19.17
8.35	61.7	0.102	0.334	50.60	19.45	0.356	61.99	12.76
9.54	67.1	0.105	0.319	57.00	16.06	0.321	67.69	11.93
10.74	70.5	0.112	0.293	54.06	13.89	0.273	76.09	17.70
11.93	92.3					0.233		
----- G80B13 AB UG = 0.44 -----								
4.77	40.2	0.000	0.025	41.25	2.70	0.534	41.25	5.29
5.96	44.5	0.000	0.022	42.67	3.23	0.500	42.67	3.85
7.16	47.3	0.000	0.013	46.18	3.09	0.475	46.18	6.57
8.35	51.4	0.000	0.019	50.43	2.96	0.410	50.43	3.93
9.54	55.3	0.000	0.013	54.50	19.94	0.380	53.89	4.86
10.74	60.6	0.000	0.005	58.56	2.71	0.351	58.56	2.71
11.93	64.1	0.000	0.018	63.35	5.00	0.319	63.35	4.52
----- G82E13 AB UG = 3.58 -----								
2.39	37.0	0.103	0.170	26.02	8.27	0.601	36.41	4.22
3.58	40.2	0.085	0.129	40.46	5.00	0.549	40.46	4.52
4.77	44.3	0.046	0.143	29.13	23.79	0.512	42.96	4.25
5.96	46.8	0.080	0.162	46.36	2.50	0.460	46.36	5.94
7.16	49.0	0.080	0.171	50.22	6.00	0.430	50.22	6.06
8.35	54.9	0.070	0.182	54.00	6.00	0.380	54.00	5.96
9.54	62.5	0.050	0.201	58.54	16.53	0.359	61.75	4.70
10.74	69.8	0.080	0.175	63.00	8.61	0.310	69.32	6.95

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
				G82E13	AB	UG = 3.58		
11.93	74.6	0.060	0.166	70.00	20.00	0.275	75.70	8.06
				G85F13	AB	UG = 5.31		
2.39	37.2	0.116	0.212	30.31	8.70	0.592	37.38	3.85
3.58	41.2	0.106	0.165	41.82	5.00	0.523	41.82	4.87
4.77	44.6	0.085	0.183	38.06	17.31	0.487	44.67	3.52
5.96	47.5	0.075	0.198	47.73	2.84	0.462	47.73	4.00
7.16	53.4	0.080	0.211	41.48	10.43	0.425	51.62	6.61
8.35	55.9	0.075	0.209	57.00	6.50	0.382	57.00	6.41
9.54	62.3	0.080	0.219	62.44	6.00	0.341	62.44	4.79
10.74	72.0	0.100	0.217	73.69	7.50	0.300	73.69	2.79
11.93	83.3	0.120	0.181	80.98	5.00	0.275	80.98	3.81
				G86H13	AB	UG = 8.81		
2.39	38.5	0.129	0.229	29.55	9.24	0.576	38.87	3.22
3.58	42.0	0.138	0.231	42.13	6.00	0.533	42.13	5.29
4.77	45.5	0.114	0.220	41.27	17.62	0.500	44.87	5.00
5.96	47.9	0.101	0.219	48.33	5.00	0.459	48.33	8.38
7.16	53.7	0.096	0.219	44.86	5.08	0.420	52.57	6.94
8.35	56.2	0.065	0.226	47.41	13.51	0.377	56.86	8.14
9.54	62.9	0.100	0.251	58.00	10.00	0.320	64.90	5.00
10.74	70.9	0.096	0.249	62.47	14.46	0.290	72.77	5.68
11.93	86.3					0.247		
				G87I13	AB	UG = 10.54		
2.39	39.3	0.170	0.247	39.81	6.00	0.581	39.81	5.58
3.58	42.4	0.140	0.243	42.96	5.50	0.518	42.96	5.29
4.77	46.2	0.129	0.239	41.42	13.51	0.485	45.24	4.99
5.96	47.6	0.115	0.250	42.88	4.64	0.459	47.78	6.11
7.16	53.3	0.083	0.246	42.32	7.66	0.422	52.02	10.00
8.35	59.7	0.095	0.250	53.00	10.00	0.370	58.27	10.00
9.54	62.9	0.100	0.271	58.00	12.00	0.325	64.85	8.39
10.74	70.7	0.079	0.254	60.29	25.82	0.259	73.83	4.74
11.93	87.3					0.260		
				G88M13	AB	UG = 17.26		
1.19	37.2	0.203	0.343	36.26	8.38	0.644	36.26	8.38
2.39	44.1	0.200	0.324	41.59	7.40	0.549	41.59	7.37
3.58	47.0	0.190	0.332	43.00	13.46	0.509	45.11	7.26
4.77	51.0	0.145	0.334	42.97	8.54	0.458	47.43	7.06
5.96	52.9	0.131	0.340	42.88	10.00	0.435	50.42	11.61
7.16	59.1	0.112	0.340	50.00	15.00	0.425	56.35	20.00
8.35	65.1	0.100	0.332	46.17	28.91	0.368	61.47	15.24
9.54	81.3	0.086	0.306	49.32	21.16	0.323	69.23	18.65
10.74	88.3					0.265		
11.93	93.3					0.257		
				G13A16	IN	UG = 0.00		
5.14	42.0	0.000	0.000	0.00	0.00	0.543	42.93	2.15
5.87	44.4	0.000	0.000	0.00	0.00	0.499	44.43	2.70
6.60	46.6	0.000	0.000	0.00	0.00	0.468	46.95	3.00
7.34	48.8	0.000	0.000	0.00	0.00	0.431	49.00	1.45

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- G14D16 IN UG = 0.44 -----								
4.40	40.6	0.004	0.004	40.34	1.70	0.561	40.34	1.69
5.14	42.0	0.005	0.025	42.00	2.20	0.525	42.99	2.18
5.87	44.5	0.000	0.026	44.34	2.70	0.497	44.34	2.67
6.60	46.5	0.000	0.025	47.00	4.20	0.464	47.72	4.16
7.34	49.2	0.000	0.022	50.00	2.00	0.429	50.36	1.95
----- G15E16 IN UG = 0.88 -----								
4.40	40.9	0.010	0.037	41.00	3.00	0.547	41.58	1.67
5.14	42.9	0.000	0.043	42.16	4.00	0.520	42.16	4.00
5.87	45.1	0.007	0.044	45.00	2.83	0.490	44.90	2.87
6.60	47.7	0.015	0.059	51.73	15.74	0.451	48.28	3.46
7.34	49.9	0.000	0.084	50.00	2.20	0.435	51.00	2.18
----- G16F16 IN UG = 1.32 -----								
4.40	40.8	0.020	0.067	41.00	2.70	0.558	41.33	2.69
5.14	43.5	0.010	0.079	43.66	2.50	0.510	43.66	2.42
5.87	46.1	0.012	0.093	46.00	5.00	0.480	47.34	4.54
6.60	48.6	0.015	0.117	53.00	4.00	0.450	50.61	2.04
7.34	51.1	0.000	0.117	51.61	2.40	0.420	51.61	2.40
----- G17G16 IN UG = 1.74 -----								
4.40	42.0	0.034	0.094	43.00	2.33	0.538	43.03	2.19
5.14	44.2	0.028	0.109	44.09	2.47	0.495	44.09	2.58
5.87	47.1	0.031	0.122	47.00	3.70	0.470	48.38	3.72
6.60	50.1	0.037	0.146	58.80	11.56	0.450	51.13	4.50
7.34	52.9	0.052	0.153	52.70	3.00	0.430	52.69	2.80
----- G18H16 IN UG = 2.18 -----								
3.67	39.7	0.046	0.086	40.00	3.40	0.564	40.40	3.36
4.40	42.2	0.043	0.088	43.00	2.16	0.532	43.03	2.19
5.14	44.3	0.036	0.120	44.20	2.43	0.503	44.20	2.62
5.87	47.3	0.054	0.136	45.00	3.70	0.466	45.00	3.70
6.60	50.2	0.060	0.173	53.00	7.60	0.450	51.34	2.31
7.34	53.5	0.044	0.188	55.00	8.00	0.410	53.74	8.00
----- G19I16 IN UG = 2.61 -----								
3.67	39.9	0.059	0.100	40.64	3.55	0.565	40.64	3.55
4.40	42.3	0.047	0.111	43.08	2.49	0.535	43.08	2.21
5.14	44.4	0.051	0.116	44.17	3.00	0.506	44.17	2.61
5.87	47.6	0.041	0.148	43.04	6.20	0.465	48.80	3.78
6.60	50.9	0.060	0.181	52.00	6.23	0.430	51.64	2.41
7.34	53.6	0.041	0.199	51.38	16.27	0.413	55.62	6.78
----- G20J16 IN UG = 3.03 -----								
3.67	39.6	0.064	0.101	40.37	3.90	0.564	40.37	3.89
4.40	42.7	0.056	0.118	42.84	2.49	0.533	42.84	2.85
5.14	45.3	0.054	0.138	45.00	3.00	0.495	44.70	2.80
5.87	47.8	0.050	0.155	42.39	5.83	0.458	49.20	4.29
6.60	51.9	0.070	0.178	52.10	2.35	0.420	52.10	2.58
7.34	54.0	0.060	0.223	52.10	10.62	0.403	56.14	6.94
----- G21K16 IN UG = 3.45 -----								
3.67	41.4	0.058	0.084	42.43	2.18	0.545	42.43	1.97
4.40	43.6	0.061	0.086	43.51	2.52	0.533	43.51	2.37
5.14	45.0	0.051	0.101	49.20	3.07	0.498	44.52	2.73

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG	
					G21K16 IN UG = 3.45				
5.87	48.5	0.063	0.135	41.86	6.13	0.459	49.72	3.66	
6.60	52.3	0.075	0.186	54.11	4.70	0.433	51.90	4.73	
7.34	55.3	0.097	0.232	56.06	5.18	0.406	57.04	5.93	
					G22L16 IN UG = 3.86				
3.67	41.0	0.086	0.114	41.45	3.30	0.563	41.45	3.32	
4.40	42.8	0.080	0.127	43.41	2.32	0.538	43.41	2.33	
5.14	45.2	0.080	0.129	45.00	3.00	0.508	44.95	2.89	
5.87	49.2	0.101	0.159	56.70	4.46	0.465	50.29	3.58	
6.60	52.6	0.095	0.192	54.86	2.23	0.433	52.64	2.78	
7.34	55.3	0.063	0.239	52.34	15.54	0.409	56.89	6.24	
					G23M16 IN UG = 4.26				
3.67	40.4	0.088	0.117	35.92	2.52	0.548	40.82	3.12	
4.40	42.9	0.084	0.122	43.40	2.30	0.525	43.40	2.33	
5.14	45.1	0.074	0.133	45.00	3.00	0.497	44.80	2.84	
5.87	48.8	0.099	0.155	56.45	4.60	0.464	49.93	3.68	
6.60	53.0	0.110	0.181	53.00	3.00	0.440	52.91	2.88	
7.34	55.4	0.096	0.232	53.00	13.48	0.390	58.01	4.97	
					G13A16 AB UG = 0.00				
5.14	41.7	0.000	0.000	0.00	0.00	0.541	42.77	2.10	
5.87	43.9	0.000	0.000	0.00	0.00	0.499	44.23	2.63	
6.60	45.9	0.000	0.000	0.00	0.00	0.470	46.64	3.15	
7.34	48.1	0.000	0.000	0.00	0.00	0.437	48.69	2.58	
					G14D16 AB UG = 0.44				
4.40	40.0	0.000	0.004	39.31	2.00	0.558	39.31	2.07	
5.14	41.7	0.000	0.030	42.65	2.10	0.525	42.65	2.06	
5.87	44.2	0.000	0.026	44.24	2.63	0.497	44.24	2.63	
6.60	46.4	0.000	0.025	47.00	4.10	0.463	47.31	4.06	
7.34	48.5	0.000	0.022	48.70	2.91	0.433	48.70	2.84	
					G15E16 AB UG = 0.88				
4.40	40.0	0.010	0.037	40.00	3.00	0.552	40.25	3.01	
5.14	42.3	0.000	0.043	50.00	7.50	0.513	42.52	2.52	
5.87	44.6	0.007	0.044	44.68	2.80	0.490	44.68	2.79	
6.60	47.2	0.010	0.059	43.59	2.39	0.456	47.79	3.80	
7.34	49.2	0.000	0.084	53.00	6.00	0.433	50.56	2.02	
					G16F16 AB UG = 1.32				
4.40	40.4	0.035	0.067	49.78	5.13	0.556	41.00	3.14	
5.14	42.6	0.000	0.079	43.38	2.32	0.520	43.38	2.32	
5.87	45.5	0.015	0.093	45.50	7.00	0.480	47.02	4.80	
6.60	48.1	0.010	0.117	49.63	8.50	0.455	49.00	4.50	
7.34	50.5	0.000	0.117	51.40	2.32	0.425	51.40	2.32	
					G17G16 AB UG = 1.74				
4.40	41.6	0.033	0.094	48.12	7.04	0.538	42.82	2.12	
5.14	43.6	0.027	0.109	43.89	2.46	0.505	43.89	2.50	
5.87	46.0	0.028	0.122	46.00	5.00	0.456	48.10	4.28	
6.60	49.4	0.031	0.146	55.99	22.22	0.460	50.87	2.13	
7.34	52.2	0.041	0.153	57.30	6.13	0.430	52.45	2.71	



Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- G18H16 AB UG = 2.13 -----								
3.67	38.8	0.040	0.086	39.00	4.00	0.561	39.78	3.51
4.40	41.4	0.042	0.088	45.67	7.65	0.532	42.49	2.00
5.14	43.7	0.037	0.120	44.00	3.00	0.510	43.95	2.53
5.87	46.5	0.045	0.136	44.85	2.85	0.485	44.85	2.85
6.60	49.5	0.046	0.173	53.77	10.49	0.460	51.05	2.20
7.34	52.7	0.039	0.188	56.37	7.10	0.408	52.83	2.84
----- G19I16 AB UG = 2.61 -----								
3.67	39.1	0.058	0.100	40.00	3.80	0.575	40.09	3.75
4.40	41.7	0.050	0.111	49.99	6.97	0.532	42.80	2.11
5.14	43.9	0.049	0.116	43.97	2.26	0.507	43.97	2.53
5.87	46.8	0.043	0.148	41.12	3.84	0.459	48.50	4.35
6.60	50.0	0.050	0.181	52.46	8.00	0.430	51.29	2.29
7.34	52.7	0.043	0.199	49.87	3.90	0.410	54.41	8.76
----- G20J16 AB UG = 3.03 -----								
3.67	39.0	0.066	0.101	40.00	4.20	0.561	40.03	4.18
4.40	41.7	0.051	0.118	48.25	9.46	0.539	41.81	3.03
5.14	44.1	0.049	0.138	49.95	5.10	0.500	44.37	2.68
5.87	47.2	0.057	0.155	43.42	2.33	0.470	48.75	4.09
6.60	51.2	0.075	0.178	52.00	2.73	0.440	51.83	2.48
7.34	53.4	0.064	0.223	51.71	4.05	0.410	55.89	7.47
----- G21K16 AB UG = 3.45 -----								
3.67	39.8	0.061	0.084	40.51	3.50	0.560	40.51	3.46
4.40	42.4	0.055	0.086	43.00	2.20	0.535	42.96	2.17
5.14	44.6	0.049	0.101	44.60	3.00	0.498	44.37	2.68
5.87	47.7	0.070	0.135	48.00	4.20	0.465	49.23	4.22
6.60	51.9	0.070	0.186	52.50	2.48	0.430	52.26	2.64
7.34	54.5	0.105	0.232	56.12	5.24	0.397	57.00	5.72
----- G22L16 AB UG = 3.86 -----								
3.67	40.3	0.087	0.114	40.50	3.50	0.562	40.54	3.50
4.40	42.4	0.077	0.127	43.30	2.26	0.540	43.30	2.29
5.14	44.7	0.072	0.129	45.73	2.64	0.511	44.78	2.83
5.87	48.1	0.090	0.159	43.98	5.21	0.477	49.22	4.46
6.60	51.7	0.090	0.192	53.29	2.80	0.440	52.31	2.66
7.34	54.9	0.100	0.239	54.00	4.37	0.415	57.01	5.57
----- G23H16 AB UG = 4.26 -----								
3.67	40.4	0.089	0.117	40.66	3.50	0.546	40.66	3.47
4.40	42.4	0.079	0.122	42.00	3.82	0.531	42.00	3.82
5.14	44.3	0.069	0.133	46.91	6.07	0.499	44.53	2.74
5.87	48.0	0.091	0.155	43.26	7.33	0.472	48.99	4.05
6.60	52.0	0.101	0.181	53.96	2.56	0.435	52.46	4.64
7.34	54.4	0.098	0.232	50.40	12.33	0.387	57.47	5.24
----- P12A13 IN UG = 0.00 -----								
2.39	33.4	0.000	0.000	0.00	0.00	0.453	32.57	2.34
3.58	43.4	0.000	0.000	0.00	0.00	0.320	41.66	3.77
4.77	49.1	0.000	0.000	0.00	0.00	0.231	50.11	2.50
5.96	63.4	0.000	0.000	0.00	0.00	0.160	61.50	1.64
7.16	82.3	0.000	0.000	0.00	0.00	0.080	79.50	1.64
8.35	106.3					0.049		

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- P13B13 IN UG = 0.44 -----								
2.39	33.6	0.021	0.021	33.66	4.52	0.445	33.66	4.52
3.58	43.9	0.003	0.003	41.44	2.38	0.268	41.44	2.38
4.77	59.4	0.000	0.003	52.50	3.16	0.201	54.38	2.32
5.96	75.6	0.000	0.007	72.55	3.04	0.125	72.55	2.38
----- P14C13 IN UG = 0.93 -----								
1.19	31.4	0.051	0.040	27.65	2.65	0.520	27.65	4.08
2.39	39.2	0.019	0.045	34.60	2.25	0.431	34.60	5.05
3.58	46.2	0.000	0.035	42.82	2.96	0.295	42.82	6.65
4.77	55.3	0.003	0.027	55.00	15.50	0.200	59.83	15.52
5.96	98.3					0.123		
----- P15D13 IN UG = 1.77 -----								
1.19	35.5	0.082	0.055	29.51	1.64	0.482	29.51	3.09
2.39	48.6	0.040	0.065	55.17	2.60	0.400	35.84	15.00
2.98	53.5	0.011	0.060	30.31	12.83	0.384	36.20	21.68
3.58	69.3	0.010	0.051	35.00	30.00	0.300	48.39	21.27
4.77	101.3					0.165		
----- P16E13 IN UG = 3.51 -----								
1.19	43.4	0.090	0.103	33.00	3.16	0.470	31.06	19.35
2.39	58.8	0.000	0.098	17.09	7.38	0.437	35.00	30.00
2.98	70.7	0.093	0.093	40.00	40.00	0.378	40.00	40.00
3.58	91.3					0.330		
4.77	116.3					0.140		
----- P17F13 IN UG = 5.27 -----								
1.19	60.2	0.089	0.151	29.07	6.19	0.475	29.07	22.00
2.39	66.8	0.100	0.144	42.00	10.15	0.341	42.00	24.00
2.98	91.3					0.280		
3.58	101.3					0.200		
4.77	134.3					0.115		
----- P22G13 IN UG = 7.09 -----								
1.19	53.8	0.113	0.177	45.00	5.90	0.460	35.00	17.45
1.79	69.6	0.083	0.190	35.00	14.97	0.437	35.00	25.00
2.39	81.3	0.076	0.150	27.57	9.48	0.420	34.45	41.98
2.98	89.3					0.299		
3.58	91.3					0.212		
----- P23H13 IN UG = 8.86 -----								
1.19	62.6	0.121	0.200	40.00	10.00	0.450	40.00	30.00
1.79	82.3	0.103	0.213	45.00	30.00	0.386	45.00	30.00
2.39	86.3					0.334		
2.98	101.3					0.275		
3.58	105.3					0.181		
----- P24I13 IN UG = 10.88 -----								
1.19	81.3	0.190	0.241	50.06	20.00	0.445	40.00	50.00
1.79	86.3					0.385		
2.39	111.3					0.352		
2.98	121.3					0.231		
3.58	134.3					0.198		

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- P25J13 IN UG = 12.38 -----								
1.19	84.3					0.382		
1.79	97.3					0.386		
2.39	104.3					0.335		
----- P12A13 AB UG = 0.00 -----								
2.39	33.5	0.000	0.000	0.00	0.00	0.458	32.48	2.37
3.58	43.2	0.000	0.000	0.00	0.00	0.344	40.84	2.60
4.77	48.5	0.000	0.000	0.00	0.00	0.238	49.95	2.56
5.96	63.4	0.000	0.000	0.00	0.00	0.155	61.50	1.64
7.16	82.3	0.000	0.000	0.00	0.00	0.090	79.50	1.64
8.35	106.3					0.049		
----- P13B13 AB UG = 0.44 -----								
2.39	32.4	0.021	0.021	33.30	4.21	0.442	33.30	4.21
3.58	41.5	0.000	0.009	31.38	10.00	0.270	41.21	2.47
4.77	61.1	0.000	0.002	54.80	2.47	0.201	54.80	2.47
5.96	74.1	0.000	0.012	72.55	0.72	0.123	72.55	2.38
7.16	95.3					0.066		
----- P14C13 AB UG = 0.93 -----								
1.19	28.6	0.060	0.040	27.46	10.00	0.521	27.46	4.09
2.39	35.6	0.008	0.041	16.34	4.62	0.442	35.00	7.00
3.58	44.4	0.000	0.040	42.22	7.00	0.300	42.22	7.40
4.77	62.7	0.035	0.035	61.04	9.75	0.200	61.04	9.75
5.96	98.3					0.128		
----- P15D13 AB UG = 1.77 -----								
1.19	32.7	0.071	0.050	32.70	2.00	0.493	32.70	6.00
2.39	39.2	0.027	0.061	25.50	1.64	0.413	33.73	11.26
2.98	52.3	0.029	0.062	37.97	2.90	0.365	37.38	18.26
3.58	72.2	0.010	0.069	33.95	17.21	0.300	49.40	20.41
4.77	101.3					0.170		
----- P16E13 AB UG = 3.51 -----								
1.19	48.9	0.088	0.127	48.90	30.00	0.464	29.00	20.00
2.39	59.0	0.000	0.111	25.55	10.00	0.435	28.91	20.00
2.98	40.4	0.098	0.098	40.40	40.00	0.368	40.40	40.00
3.58	91.3					0.250		
4.77	116.3					0.130		
----- P17F13 AB UG = 5.27 -----								
1.19	62.2	0.100	0.140	34.50	4.00	0.437	35.00	25.00
2.39	73.6	0.065	0.130	42.14	9.00	0.341	42.14	27.57
2.98	91.3					0.314		
3.58	101.3					0.200		
4.18	121.3					0.170		
4.77	134.3					0.098		
----- P22G13 AB UG = 7.09 -----								
1.19	54.7	0.096	0.150	34.50	3.00	0.441	34.50	30.00
1.79	64.5	0.079	0.180	40.34	13.72	0.439	27.91	22.92
2.39	81.3	0.100	0.169	55.00	20.00	0.374	36.77	34.13
2.98	89.3					0.230		
3.58	91.3					0.190		
4.77	134.3					0.107		

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- P23H13 AB UG = 8.86 -----								
1.19	61.3	0.128	0.215	46.37	2.68	0.443	40.24	13.10
1.79	82.3	0.122	0.217	50.00	10.00	0.382	39.31	22.28
2.39	86.3					0.270		
2.98	101.3					0.200		
3.58	105.3					0.150		
4.77	134.3					0.110		
----- P24I13 AB UG = 10.88 -----								
1.19	81.3	0.150	0.260	55.00	20.00	0.444	50.00	30.00
1.79	86.3					0.300		
2.39	111.3					0.250		
2.98	121.3					0.200		
3.58	134.3					0.170		
4.77	134.3					0.100		
----- P25J13 AB UG = 12.33 -----								
1.19	84.3					0.250		
1.79	97.3					0.200		
2.39	104.3					0.150		
3.58	134.3					0.130		
4.77	134.3					0.107		
----- P13A16 IN UG = 0.00 -----								
2.20	24.9	0.000	0.000	0.00	0.00	0.477	25.00	1.45
2.94	31.0	0.000	0.000	0.00	0.00	0.384	28.37	2.68
3.67	33.5	0.000	0.000	0.00	0.00	0.301	33.00	1.45
4.40	37.3	0.000	0.000	0.00	0.00	0.247	36.57	2.75
5.14	46.9	0.000	0.000	0.00	0.00	0.226	42.38	4.47
5.87	51.8	0.000	0.000	0.00	0.00	0.200	49.00	3.00
----- P14B16 IN UG = 0.11 -----								
2.20	25.2	0.001	0.009	25.57	2.64	0.490	25.57	2.64
2.94	30.3	0.000	0.007	27.66	2.59	0.380	27.66	2.42
3.67	35.6	0.008	0.005	33.00	1.45	0.287	33.00	1.45
4.40	38.8	0.000	0.010	38.51	2.40	0.240	38.51	2.36
5.14	43.5	0.000	0.004	43.27	2.30	0.200	43.27	2.28
5.87	51.2	0.000	0.005	49.00	1.50	0.165	49.00	1.45
6.60	59.5	0.000	0.005	57.00	2.50	0.145	57.00	2.50
7.34	68.1	0.000	0.005	65.00	2.50	0.110	65.00	2.50
----- P15C16 IN UG = 0.24 -----								
2.20	23.7	0.010	0.016	23.16	2.12	0.488	23.16	2.12
2.94	26.8	0.000	0.010	26.40	4.20	0.385	26.40	4.18
3.67	34.4	0.000	0.012	32.46	3.40	0.260	32.46	3.43
4.40	39.1	0.000	0.013	40.98	4.20	0.266	40.98	5.00
5.14	47.6	0.000	0.012	46.79	5.00	0.185	46.79	5.00
5.87	53.0	0.000	0.013	51.79	5.00	0.170	51.79	5.00
6.60	61.9	0.000	0.011	58.67	3.00	0.145	58.67	3.00
7.34	65.0	0.000	0.010	67.89	3.00	0.115	67.89	3.00
----- P16D16 IN UG = 0.44 -----								
2.20	23.1	0.004	0.013	17.00	1.45	0.508	23.53	3.68
2.94	27.4	0.013	0.013	26.33	5.30	0.413	26.33	5.27
3.67	30.6	0.010	0.013	33.00	4.50	0.341	33.32	4.54

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- P16D16 IN UG = 0.44 -----								
4.40	44.2	0.010	0.012	49.24	9.00	0.262	49.24	9.08
5.14	47.6	0.010	0.010	49.91	6.70	0.180	49.91	6.66
5.87	56.0	0.010	0.015	56.02	4.90	0.150	56.02	4.90
6.60	66.7	0.010	0.016	67.60	9.00	0.150	67.60	9.00
7.34	76.6	0.010	0.010	75.86	8.00	0.125	75.86	8.00
----- P17E16 IN UG = 0.88 -----								
2.20	28.5	0.019	0.025	19.90	9.00	0.500	19.90	10.00
2.94	39.6	0.013	0.023	39.60	1.45	0.347	23.28	16.72
3.67	48.2	0.022	0.028	46.51	2.36	0.328	37.20	37.43
4.40	54.7	0.024	0.026	49.00	1.45	0.193	52.74	18.76
5.14	63.7	0.020	0.023	63.70	9.07	0.144	68.78	24.10
5.87	64.5	0.030	0.035	67.75	11.00	0.135	67.75	14.00
6.60	73.0	0.020	0.021	73.00	10.00	0.125	73.00	10.00
----- P18F16 IN UG = 1.33 -----								
1.47	26.2	0.047	0.047	19.35	4.50	0.492	19.35	4.51
2.20	36.0	0.026	0.056	19.20	9.90	0.422	19.20	9.87
2.94	51.9	0.013	0.046	52.00	10.00	0.130	52.00	10.00
3.67	61.4	0.019	0.051	65.00	7.00	0.140	62.43	17.70
4.40	50.4	0.020	0.049	50.00	6.00	0.157	50.00	15.00
5.14	77.0	0.054	0.057	62.79	2.26	0.122	77.00	14.59
----- P19G16 IN UG = 1.77 -----								
1.47	36.4	0.058	0.061	18.94	12.00	0.500	18.94	12.00
2.20	40.2	0.031	0.061	38.59	15.00	0.312	38.59	15.00
2.94	56.8	0.033	0.060	59.08	4.11	0.214	54.25	35.32
3.67	62.0	0.029	0.066	49.86	8.17	0.192	54.84	66.51
4.40	73.0	0.044	0.077	58.26	5.96	0.139	73.00	15.00
5.14	82.0					0.100		
----- P20H16 IN UG = 2.21 -----								
0.73	39.6	0.060	0.073	18.52	5.30	0.469	18.52	5.30
1.47	43.0	0.040	0.071	25.00	12.00	0.391	25.00	15.00
2.20	57.0	0.042	0.075	41.87	7.39	0.345	42.00	17.26
2.94	62.8	0.025	0.078	55.10	11.97	0.200	55.00	20.00
3.67	73.0	0.030	0.077	45.53	9.29	0.165	73.00	25.00
4.40	81.0					0.112		
----- P21I16 IN UG = 2.65 -----								
0.73	40.2	0.040	0.088	19.18	6.00	0.462	19.18	5.97
1.47	48.6	0.051	0.092	44.41	10.00	0.330	44.41	15.00
2.20	42.2	0.036	0.079	23.54	5.56	0.300	27.02	25.67
2.94	44.5	0.040	0.080	25.21	5.17	0.222	52.33	40.00
3.67	80.0					0.147		
----- P22J16 IN UG = 3.09 -----								
0.73	40.8	0.080	0.083	30.00	10.00	0.397	30.00	20.00
1.47	45.5	0.054	0.099	43.90	20.00	0.332	20.44	35.19
2.20	66.3	0.055	0.097	55.99	29.12	0.200	56.00	28.07
2.94	74.0	0.050	0.100	61.62	50.00	0.185	61.62	52.01
----- P23K16 IN UG = 3.51 -----								
0.73	51.8	0.084	0.101	20.02	9.60	0.427	20.02	9.58
1.47	57.5	0.065	0.104	42.13	9.19	0.338	42.13	30.00

Table 14 (continued)

UL	H	ESLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- P23K16 IN UG = 3.51 -----								
2.20	65.0	0.047	0.094	52.27	26.19	0.220	65.00	40.00
----- P24L16 IN UG = 3.93 -----								
0.73	52.9	0.060	0.102	41.00	10.00	0.300	41.00	19.27
1.47	51.7	0.062	0.098	51.00	19.00	0.210	51.00	19.47
2.20	62.5	0.058	0.093	62.00	19.00	0.190	62.00	30.00
----- P25M16 IN UG = 4.34 -----								
0.73	31.2	0.055	0.092	31.00	13.00	0.260	31.00	15.00
1.47	63.9	0.051	0.090	64.00	30.00	0.200	64.00	30.00
----- P13A16 AB UG = 0.00 -----								
2.20	24.9	0.000	0.000	0.00	0.00	0.472	25.00	1.45
2.94	29.9	0.000	0.000	0.00	0.00	0.384	28.37	2.68
3.67	33.2	0.000	0.000	0.00	0.00	0.301	33.00	1.45
4.40	36.7	0.000	0.000	0.00	0.00	0.247	36.38	2.68
5.14	44.0	0.000	0.000	0.00	0.00	0.231	41.41	4.11
5.87	55.6	0.000	0.000	0.00	0.00	0.200	50.70	2.07
----- P14B16 AB UG = 0.11 -----								
2.20	25.1	0.000	0.009	25.00	3.20	0.495	24.89	3.15
2.94	27.5	0.000	0.002	27.35	2.79	0.380	27.35	2.31
3.67	33.2	0.002	0.005	31.50	2.00	0.291	31.50	2.00
4.40	38.8	0.000	0.005	38.51	2.40	0.250	38.51	3.00
5.14	43.3	0.000	0.001	43.24	3.00	0.195	43.24	3.00
5.87	50.6	0.000	0.005	49.00	2.00	0.150	49.00	2.00
6.60	55.0	0.000	0.000	57.00	3.00	0.130	57.00	3.00
7.34	67.0	0.000	0.005	65.00	3.00	0.110	65.00	3.00
----- P15C16 AB UG = 0.24 -----								
2.20	24.5	0.006	0.011	23.24	2.00	0.483	23.24	2.09
2.94	27.8	0.005	0.016	27.02	3.60	0.375	27.02	3.62
3.67	33.9	0.010	0.012	32.13	3.70	0.260	32.13	3.69
4.40	34.5	0.000	0.013	34.50	10.00	0.280	39.35	4.40
5.14	45.3	0.000	0.004	45.82	3.00	0.190	45.82	4.00
5.87	51.2	0.000	0.013	51.49	6.00	0.175	51.49	6.00
6.60	59.4	0.000	0.009	59.75	3.00	0.140	59.75	3.00
7.34	66.0	0.000	0.021	67.37	3.00	0.120	67.37	2.32
----- P16D16 AB UG = 0.44 -----								
2.20	22.6	0.000	0.018	23.33	2.31	0.513	23.33	3.81
2.94	26.9	0.007	0.014	25.77	5.60	0.419	25.77	5.61
3.67	33.5	0.015	0.019	33.59	5.50	0.341	33.59	5.50
4.40	42.2	0.005	0.012	41.00	10.00	0.267	48.60	10.32
5.14	47.9	0.010	0.015	49.07	7.60	0.197	49.07	7.62
5.87	54.7	0.010	0.021	57.28	5.40	0.155	57.28	5.35
6.60	65.7	0.005	0.021	66.72	3.00	0.140	66.72	4.00
7.34	69.1	0.005	0.007	69.00	7.50	0.130	71.00	7.50
----- P17E16 AB UG = 0.83 -----								
2.20	27.7	0.019	0.022	20.25	9.00	0.447	20.25	9.18
2.94	44.9	0.012	0.029	40.00	10.00	0.300	40.00	19.21
3.67	48.6	0.016	0.029	45.00	10.00	0.334	45.00	20.70
4.40	53.7	0.022	0.035	60.06	15.00	0.160	62.61	16.66
5.14	43.6	0.029	0.034	63.39	10.00	0.159	63.39	11.89

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- P17E16 AB UG = 0.88 -----								
5.87	68.2	0.025	0.029	68.74	12.00	0.145	68.74	11.91
6.60	73.0	0.030	0.032	73.00	8.00	0.130	73.00	7.94
----- P18F16 AB UG = 1.33 -----								
1.47	25.4	0.048	0.048	19.04	4.70	0.498	19.04	4.69
2.20	40.8	0.026	0.056	30.00	10.00	0.360	30.00	10.00
2.94	50.5	0.034	0.046	50.50	20.00	0.150	50.50	20.00
3.67	52.9	0.012	0.039	52.90	24.00	0.170	52.90	35.00
4.40	62.1	0.040	0.061	65.00	10.00	0.141	68.36	11.25
5.14	77.0	0.075	0.054	2.53	0.90	0.110	77.00	1.49
----- P19G16 AB UG = 1.77 -----								
1.47	35.4	0.073	0.077	35.40	6.60	0.440	19.13	6.76
2.20	46.2	0.031	0.073	52.92	30.00	0.200	46.20	30.44
2.94	54.6	0.006	0.060	50.00	35.00	0.200	50.00	38.54
3.67	58.4	0.029	0.066	40.88	8.26	0.192	53.99	35.70
4.40	73.0	0.044	0.076	54.51	13.60	0.139	73.00	12.50
5.14	82.0					0.120		
----- P20H16 AB UG = 2.21 -----								
0.73	33.9	0.080	0.084	19.00	5.00	0.474	18.60	5.06
1.47	43.9	0.054	0.083	30.00	9.00	0.350	30.00	15.00
2.20	57.5	0.042	0.089	59.07	20.00	0.200	57.50	23.13
2.94	62.6	0.030	0.077	53.99	15.00	0.200	53.70	20.00
3.67	73.0	0.030	0.077	55.00	30.00	0.167	73.00	30.00
4.40	81.0					0.123		
----- P21I16 AB UG = 2.65 -----								
0.73	35.6	0.090	0.101	20.00	6.00	0.462	19.97	5.95
1.47	50.6	0.044	0.099	50.00	15.00	0.230	40.00	15.00
2.20	64.9	0.036	0.103	53.93	14.08	0.210	54.00	20.97
2.94	64.3	0.070	0.105	62.44	20.00	0.180	62.00	33.51
3.67	80.0					0.161		
----- P22J16 AB UG = 3.09 -----								
0.73	42.6	0.050	0.091	19.35	6.00	0.407	19.35	6.00
1.47	53.0	0.059	0.101	53.00	20.00	0.230	45.00	27.06
2.20	60.5	0.050	0.107	55.00	20.00	0.195	55.00	36.96
2.94	74.0	0.050	0.096	42.59	14.46	0.190	60.00	42.92
----- P23K16 AB UG = 3.51 -----								
0.73	44.7	0.060	0.101	20.00	10.00	0.433	20.31	10.42
1.47	59.7	0.050	0.121	37.41	11.41	0.200	37.41	20.00
2.20	52.2	0.057	0.115	43.44	15.00	0.205	45.00	19.45
----- P24L16 AB UG = 3.93 -----								
0.73	54.1	0.069	0.121	54.00	10.00	0.310	40.00	12.93
1.47	55.1	0.070	0.119	54.81	10.64	0.225	40.00	40.00
2.20	55.3	0.053	0.115	36.51	34.47	0.256	33.81	38.36
----- P25M16 AB UG = 4.34 -----								
0.73	55.7	0.064	0.132	47.91	9.27	0.350	20.07	15.33
1.47	61.2	0.057	0.125	53.95	20.00	0.180	50.00	30.94
----- A14A13 IN UG = 0.00 -----								
5.96	44.7	0.000	0.000	0.00	0.00	0.531	43.34	4.55
7.16	51.2	0.000	0.000	0.00	0.00	0.475	48.47	4.19

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- A14A13 IN UG = 0.00 -----								
8.35	55.7	0.000	0.000	0.00	0.00	0.450	53.23	4.23
9.54	60.3	0.000	0.000	0.00	0.00	0.421	57.24	3.19
10.74	66.0	0.000	0.000	0.00	0.00	0.365	64.26	2.64
11.93	71.5	0.000	0.000	0.00	0.00	0.344	72.25	2.27
----- A16B13 IN UG = 0.49 -----								
4.77	41.8	0.020	0.023	40.44	5.10	0.580	40.44	5.09
5.96	46.3	0.021	0.009	34.50	1.64	0.535	43.74	5.54
7.16	51.7	0.001	0.024	52.50	1.64	0.478	49.61	5.34
8.35	56.4	0.020	0.028	53.73	5.50	0.445	53.73	5.55
9.54	61.9	0.000	0.005	59.00	4.40	0.391	58.99	4.44
10.74	67.4	0.010	0.060	66.28	8.80	0.351	66.28	8.76
----- A17C13 IN UG = 0.92 -----								
4.77	44.4	0.020	0.056	41.41	8.07	0.573	41.41	4.73
5.96	48.2	0.020	0.069	46.38	5.70	0.505	46.38	5.67
7.16	53.8	0.020	0.055	55.13	2.59	0.455	50.74	4.57
8.35	57.7	0.020	0.056	55.90	4.20	0.426	55.86	4.13
9.54	63.9	0.010	0.061	51.11	8.00	0.388	62.25	4.69
10.74	69.9	0.035	0.045	67.50	4.70	0.346	67.51	4.66
11.93	76.7	0.030	0.029	75.60	6.50	0.320	75.60	6.49
----- A18D13 IN UG = 1.76 -----								
3.58	40.9	0.087	0.087	40.50	5.90	0.577	40.49	5.92
4.77	45.4	0.039	0.106	20.95	7.81	0.540	42.57	4.77
5.96	49.5	0.070	0.106	47.28	3.00	0.492	47.28	3.01
7.16	53.1	0.038	0.105	55.36	2.68	0.459	50.78	5.76
8.35	58.3	0.050	0.104	58.00	3.30	0.417	56.97	3.26
9.54	65.0	0.030	0.097	45.00	10.00	0.371	64.24	2.63
11.93	79.3	0.036	0.115	70.00	8.00	0.291	77.59	6.00
----- A19E13 IN UG = 3.53 -----								
3.58	42.4	0.104	0.139	40.30	10.20	0.562	41.33	4.95
4.77	47.6	0.080	0.151	46.30	2.70	0.509	46.30	2.65
5.96	50.9	0.100	0.165	51.80	13.80	0.484	51.80	13.85
7.16	56.8	0.100	0.189	55.50	2.73	0.428	55.51	2.73
8.35	61.3	0.110	0.213	59.35	7.10	0.400	59.35	5.00
9.54	68.8	0.100	0.220	68.43	8.60	0.347	68.43	8.64
10.74	75.4	0.059	0.179	37.73	20.25	0.305	75.80	11.70
11.93	84.3					0.290		
----- A20F13 IN UG = 5.25 -----								
3.58	45.1	0.130	0.145	40.50	4.00	0.595	40.50	4.00
4.77	49.0	0.100	0.136	46.90	2.90	0.497	46.91	2.88
5.96	52.7	0.089	0.177	50.21	2.47	0.470	50.92	5.64
7.16	56.4	0.130	0.196	55.55	2.70	0.432	55.55	2.74
8.35	62.0	0.120	0.238	60.80	6.70	0.398	60.86	6.75
9.54	69.4	0.120	0.274	69.67	8.00	0.340	70.70	8.62
10.74	78.8	0.140	0.200	76.72	9.00	0.300	79.69	6.25
11.93	89.3					0.270		
----- A21G13 IN UG = 7.01 -----								
2.39	40.0	0.186	0.241	39.40	8.00	0.600	39.40	8.00
3.58	43.9	0.127	0.227	50.29	7.06	0.580	43.91	5.50



Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- A21G13 IN UG = 7.01 -----								
4.77	48.8	0.126	0.188	46.00	7.60	0.510	46.11	7.60
5.96	54.2	0.112	0.211	44.03	7.22	0.476	51.90	7.06
7.16	56.5	0.124	0.223	57.58	3.06	0.442	55.54	6.16
8.35	64.5	0.130	0.260	63.80	6.30	0.389	63.82	6.26
9.54	72.2	0.150	0.267	71.70	7.00	0.358	71.66	6.22
10.74	80.3	0.116	0.237	35.20	26.55	0.293	80.77	7.09
----- A22H13 IN UG = 8.74 -----								
2.39	40.2	0.159	0.224	40.00	6.30	0.600	40.62	6.32
3.58	46.9	0.190	0.193	46.90	6.00	0.590	44.00	6.00
4.77	50.6	0.187	0.187	51.60	5.60	0.510	48.50	5.61
5.96	53.8	0.139	0.214	55.13	2.59	0.447	52.67	4.61
7.16	57.5	0.200	0.219	60.00	6.60	0.450	57.00	6.56
8.35	63.2	0.103	0.216	23.52	25.55	0.382	62.82	4.92
9.54	68.2	0.145	0.243	68.04	12.43	0.367	68.36	10.26
10.74	75.5	0.200	0.231	76.78	9.00	0.320	78.80	9.50
----- A23I13 IN UG = 10.46 -----								
2.39	41.0	0.170	0.207	40.76	6.20	0.596	40.76	6.18
3.58	46.5	0.177	0.219	44.20	6.13	0.553	44.22	6.13
4.77	50.7	0.188	0.214	48.00	3.30	0.469	47.97	3.26
5.96	50.2	0.193	0.202	50.75	8.30	0.515	50.75	8.31
7.16	55.4	0.200	0.203	55.00	6.70	0.481	54.82	6.68
8.35	63.5	0.200	0.204	62.40	7.90	0.426	62.39	7.87
9.54	69.2	0.175	0.202	54.59	9.90	0.418	68.20	8.77
10.74	81.3	0.180	0.181	76.60	8.80	0.340	76.61	8.77
----- A24J13 IN UG = 12.17 -----								
2.39	40.9	0.175	0.234	40.00	6.00	0.600	40.42	5.98
3.58	47.3	0.181	0.216	54.40	2.33	0.536	43.57	6.07
4.77	49.9	0.204	0.218	52.50	1.64	0.500	46.99	7.11
5.96	55.0	0.179	0.206	46.96	6.30	0.450	52.46	7.52
7.16	58.3	0.164	0.209	59.16	2.49	0.441	55.98	9.16
8.35	65.6	0.170	0.222	64.20	5.70	0.382	64.18	5.67
9.54	73.5	0.182	0.232	65.59	3.12	0.356	70.62	13.28
----- A25K13 IN UG = 13.94 -----								
2.39	41.4	0.185	0.236	35.00	7.00	0.600	41.35	7.00
3.58	47.4	0.180	0.226	48.00	5.60	0.528	44.16	5.44
4.77	50.9	0.200	0.223	50.00	5.80	0.481	47.60	5.85
5.96	53.8	0.204	0.217	52.50	1.64	0.488	51.85	5.85
7.16	57.1	0.194	0.217	57.27	9.00	0.420	55.13	9.00
8.35	64.7	0.197	0.230	66.63	3.04	0.404	62.65	7.82
9.54	72.8	0.194	0.211	61.50	1.64	0.343	70.99	8.93
----- A26L13 IN UG = 15.64 -----								
2.39	41.0	0.212	0.237	31.83	2.60	0.584	40.32	8.84
3.58	47.2	0.213	0.259	47.00	5.00	0.530	45.24	5.00
4.77	49.5	0.210	0.234	52.50	1.64	0.492	47.76	7.44
5.96	55.7	0.230	0.245	54.00	6.20	0.440	53.90	6.17
7.16	58.3	0.194	0.236	58.30	8.00	0.441	56.12	8.02
8.35	64.1	0.210	0.253	63.14	9.50	0.400	63.14	9.50
9.54	73.7	0.215	0.224	61.50	1.64	0.352	71.04	12.48

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
		A27M13		IN	UG = 17.31			
2.39	40.5	0.247	0.247	40.00	4.00	0.650	40.01	4.00
3.58	46.8	0.223	0.249	43.00	7.00	0.550	43.21	7.02
4.77	50.4	0.200	0.248	50.00	8.70	0.514	46.18	8.67
5.96	54.7	0.210	0.239	52.00	10.00	0.508	51.97	10.08
7.16	61.9	0.232	0.241	52.50	1.64	0.422	59.15	9.88
8.35	65.6	0.223	0.247	52.50	15.00	0.420	62.64	17.46
9.54	73.0	0.200	0.240	70.90	12.00	0.360	70.90	11.59
		A14A13		AB	UG = 0.00			
5.96	45.8	0.000	0.000	0.00	0.00	0.525	45.46	2.35
7.16	49.9	0.000	0.000	0.00	0.00	0.480	48.21	4.32
8.35	54.5	0.000	0.000	0.00	0.00	0.467	52.70	3.54
9.54	58.8	0.000	0.000	0.00	0.00	0.437	56.53	5.91
10.74	63.9	0.000	0.000	0.00	0.00	0.384	63.32	2.30
11.93	69.4	0.000	0.000	0.00	0.00	0.357	68.69	3.91
		A16B13		AB	UG = 0.49			
4.77	44.0	0.004	0.023	45.57	2.39	0.550	40.22	2.83
5.96	45.8	0.029	0.009	44.50	3.40	0.533	44.50	3.44
7.16	50.6	0.019	0.024	52.50	1.64	0.475	49.11	6.29
8.35	55.7	0.015	0.028	53.65	4.83	0.447	53.65	4.83
9.54	66.3	0.000	0.005	58.50	4.75	0.360	58.53	4.75
10.74	65.6	0.005	0.060	65.50	3.11	0.354	65.56	3.11
		A17C13		AB	UG = 0.92			
4.77	44.1	0.005	0.056	44.00	5.00	0.580	40.55	4.78
5.96	46.8	0.040	0.069	46.70	3.00	0.514	46.72	2.80
7.16	52.5	0.024	0.055	55.52	2.73	0.457	49.99	4.46
8.35	56.0	0.028	0.056	55.00	4.30	0.436	55.08	4.25
9.54	62.3	0.030	0.061	61.00	4.00	0.402	61.03	4.00
10.74	67.2	0.030	0.045	66.30	5.40	0.358	66.29	5.39
11.93	74.3	0.036	0.036	74.60	2.87	0.320	74.63	3.14
		A18D13		AB	UG = 1.76			
3.58	41.1	0.080	0.087	39.70	5.52	0.611	39.67	5.52
4.77	43.7	0.050	0.106	41.70	5.50	0.559	41.69	5.49
5.96	48.1	0.040	0.106	46.00	6.00	0.511	45.88	6.04
7.16	52.3	0.050	0.105	55.60	2.76	0.472	50.43	5.60
8.35	56.9	0.060	0.104	56.50	6.00	0.427	56.47	3.08
9.54	63.0	0.040	0.097	50.00	7.00	0.378	63.49	2.36
10.74	68.5	0.021	0.069	26.19	23.82	0.343	75.86	4.84
11.93	76.9	0.044	0.069	76.40	7.90	0.310	76.38	7.90
		A19E13		AB	UG = 3.53			
3.58	41.6	0.098	0.139	31.11	5.30	0.577	40.85	5.28
4.77	46.4	0.078	0.151	19.63	14.90	0.514	46.02	2.55
5.96	50.2	0.110	0.165	51.50	10.00	0.481	51.45	16.01
7.16	54.5	0.100	0.189	54.50	3.00	0.438	54.63	2.41
8.35	60.3	0.100	0.213	60.00	7.00	0.431	58.70	8.80
9.54	66.1	0.110	0.220	66.30	11.00	0.340	66.35	10.84
10.74	73.0	0.100	0.193	73.00	10.00	0.308	74.69	3.16
11.93	84.3					0.270		

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
----- A20F13 AB UG = 5.25 -----								
3.58	44.3	0.100	0.145	40.20	5.00	0.600	40.20	5.00
4.77	46.9	0.087	0.136	12.98	21.98	0.519	46.37	2.68
5.96	50.8	0.115	0.177	49.20	2.83	0.466	50.19	5.91
7.16	54.8	0.120	0.196	55.00	12.00	0.432	54.66	3.92
8.35	60.1	0.087	0.238	61.07	4.48	0.408	58.99	4.56
9.54	69.1	0.120	0.274	69.12	6.00	0.350	69.29	6.00
10.74	76.5	0.130	0.217	78.40	7.00	0.330	78.37	7.00
11.93	89.3					0.290		
----- A21G13 AB UG = 7.01 -----								
2.39	39.5	0.198	0.241	40.60	2.69	0.583	38.94	3.25
3.58	43.7	0.132	0.227	48.59	9.06	0.570	43.51	5.26
4.77	48.5	0.127	0.188	54.41	2.33	0.505	46.20	5.18
5.96	52.4	0.135	0.211	41.54	7.70	0.480	51.12	5.84
7.16	57.1	0.111	0.223	56.75	7.07	0.442	55.69	5.06
8.35	63.3	0.124	0.260	62.31	11.84	0.382	64.03	4.01
9.54	69.2	0.152	0.281	62.38	13.11	0.348	69.80	7.17
10.74	80.3	0.140	0.238	70.00	7.10	0.300	80.95	7.11
----- A22H13 AB UG = 8.74 -----								
2.39	40.1	0.160	0.224	40.00	6.60	0.595	40.25	6.62
3.58	45.0	0.171	0.193	44.00	4.20	0.532	43.96	4.23
4.77	50.1	0.124	0.187	50.46	2.38	0.482	47.63	3.14
5.96	54.2	0.121	0.214	55.47	4.60	0.438	53.12	4.92
7.16	56.9	0.137	0.219	53.73	16.25	0.438	55.95	6.02
8.35	62.0	0.170	0.216	62.00	8.00	0.390	62.15	5.23
9.54	66.8	0.164	0.240	68.64	18.75	0.373	67.82	11.71
10.74	75.8	0.190	0.240	77.30	10.00	0.320	77.32	9.34
----- A23I13 AB UG = 10.46 -----								
2.39	41.0	0.155	0.207	27.13	12.04	0.580	40.64	5.11
3.58	46.0	0.122	0.219	48.90	6.36	0.588	43.16	6.42
4.77	49.6	0.158	0.214	48.00	6.80	0.497	47.19	6.76
5.96	50.2	0.168	0.202	50.00	7.70	0.490	50.72	7.64
7.16	54.3	0.200	0.203	54.00	7.30	0.480	53.98	7.26
8.35	62.4	0.165	0.196	55.00	9.50	0.440	60.91	9.51
9.54	69.7	0.190	0.207	68.00	9.34	0.390	67.93	9.10
10.74	81.3	0.163	0.195	67.33	2.79	0.340	75.19	9.22
----- A24J13 AB UG = 12.17 -----								
2.39	40.4	0.210	0.234	40.40	6.50	0.600	40.45	6.50
3.58	47.2	0.185	0.216	44.00	6.00	0.530	43.77	6.08
4.77	48.6	0.190	0.218	47.00	6.10	0.496	46.93	6.06
5.96	53.9	0.188	0.206	51.60	6.50	0.460	51.63	6.50
7.16	57.0	0.167	0.209	54.25	17.42	0.440	55.52	7.23
8.35	63.6	0.168	0.222	47.44	13.75	0.400	62.19	9.34
9.54	71.0	0.195	0.250	69.70	10.00	0.354	69.65	10.07
----- A25K13 AB UG = 13.94 -----								
2.39	41.5	0.220	0.236	40.80	6.60	0.600	40.83	6.60
3.58	47.9	0.168	0.226	37.33	2.66	0.539	43.41	7.03
4.77	49.5	0.202	0.223	52.50	1.64	0.509	46.83	7.46
5.96	53.9	0.200	0.217	51.90	8.50	0.472	51.91	8.45

Table 14 (continued)

UL	H	EGLOW	EGUPP	IG	GSIG	ESLOW	IS	SSIG
		A25K13		AB	UG = 13.94			
7.16	57.6	0.170	0.221	55.50	10.90	0.443	55.48	10.88
8.35	64.5	0.189	0.230	68.25	9.00	0.380	62.66	9.61
9.54	71.7	0.198	0.222	69.70	10.00	0.350	69.68	9.98
		A26L13		AB	UG = 15.64			
2.39	40.8	0.207	0.237	30.00	4.33	0.593	39.79	7.90
3.58	46.1	0.194	0.259	40.00	6.80	0.555	43.43	6.78
4.77	49.5	0.207	0.234	52.50	1.64	0.486	47.33	6.45
5.96	53.8	0.186	0.245	43.99	7.21	0.483	51.61	7.08
7.16	56.6	0.200	0.243	54.90	9.75	0.450	54.85	9.75
8.35	62.9	0.200	0.253	60.00	10.50	0.400	60.90	10.50
9.54	69.3	0.224	0.236	70.00	8.40	0.375	70.09	8.36
		A27M13		AB	UG = 17.31			
2.39	39.3	0.240	0.247	39.50	6.90	0.600	39.47	6.91
3.58	45.9	0.219	0.249	43.00	6.00	0.551	43.11	6.02
4.77	48.1	0.202	0.248	45.50	9.00	0.530	45.36	8.95
5.96	54.1	0.210	0.239	51.70	9.20	0.479	51.71	9.13
7.16	59.7	0.226	0.243	58.00	10.00	0.459	57.79	10.14
8.35	61.9	0.220	0.245	60.30	11.25	0.436	60.34	11.25
9.54	69.6	0.220	0.257	67.00	15.00	0.389	67.62	15.07

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