Standard Practice for Specifying and Matching Color Using the Colorcurve System[1]

This standard is issued under the fixed designation E 1541; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

INTRODUCTION

The COLORCURVE® System[2] provides a systematic array of color samples whose arrangement has a simple relationship to the international CIE 1964 system, described in Test Method E 308 and used widely in industry to specify color and color differences from instrumental measurements. The system is based on four main elements: (*1*) aim points displayed on CIE (CIELAB) a*, b* planes at constant L*; (*2*) atlases containing physical representations of those aim points; (*3*) tables of spectral and colorimetric data for those aim points; and (*4*) computational methods and computer software that furnish Colorcurve notations and reflectances when CIE data are entered, or tristimulus values and reflectance data when Colorcurve notations are entered. The tristimulus data can be used in color formulation software to formulate specimens with minimum metamerism to the atlas samples.

The Master Atlas consists of 1231 atlas samples approximating the computed aim points and the corresponding data tables. A separate Gray and Pastel Atlas contains 956 additional samples, for a total of 2187 unique samples.

1. Scope

1.1 This practice provides a means for specifying the colors of objects in terms of the Colorcurve system. Both computational and visual methods are included. This practice is applicable to inked, painted, dyed, or mass-colored surfaces viewed by an observer with normal color vision.

1.2 This practice includes a method for producing a color specimen to match a Colorcurve sample.

1.3 This practice does not cover the preparation of specimens. If specimen preparation is required in conjunction with this practice, a mutually agreed upon procedure shall be established.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

D 1729 Practice for Visual Appraisal of Color and Color Differences of Diffusely-Illuminated Opaque Materials[3]

E 284 Terminology of Appearance[3]

E 308 Practice for Computing the Colors of Objects by Using the CIE System[3]

E 1164 Practice for Obtaining Spectrophotometric Data for Object-Color Evaluation[3]

3. Terminology

3.1 Definitions of appearance terms in Terminology E 284 are applicable to this practice.

3.2 *Definitions:*

3.2.1 *chromaticness*, *n*—the attribute of visual sensation combining the hue and saturation.

3.2.2 *hue*, *n*—the attribute of color perception by means of which an object is judged to be red, yellow, green, blue, purple, or intermediate between some adjacent pair of these, considered in a closed ring (red and purple being an adjacent pair).

3.3 *Definitions of Terms Specific to This Standard:*

3.3.1 *Colorcurve atlas*, *n*—physical exemplification of the Colorcurve system, consisting of a three-dimensional array of 2187 samples displayed on CIELAB cartesian coordinates in two atlases.

3.3.2 *Colorcurve system*, *n*—a color order system based on the CIE 1964 space, which uses the CIELAB *L** lightness scale

[1] This practice is under the jurisdiction of ASTM Committee E12 on Color and Appearance and is the direct responsibility of Subcommittee E12.07 on Color Order Systems.

Current edition approved July 10, 2003. Published July 2003. Originally approved in 1993. Last previous edition approved in 1998 as E 1541 – 98.

[2] Colorcurve® is a registered U.S. trademark used by ASTM International under the authorization of Colorcurve Systems, Inc. Aspects of Colorcurve technology are covered by U.S. Patent 5 012 482.

[3] *Annual Book of ASTM Standards*, Vol 06.01.

(L^* = L) and in which chromaticity is represented by opponent-color scales R/G (reds-greens) and Y/B (yellows-blues).

3.3.3 *lattice scaling constant*, *n*—ratio of the distance between adjacent samples at a system boundary (CIELAB chroma C^* = 60 for a major or minor hue axis) and the distance between the major and adjacent minor hue axes. In the Colorcurve system, this is 1/7.

3.3.4 *major hue axis*, *n—in the Colorcurve system*, central vertical or horizontal axis, that is, a line of sample points whose notations contain only a single hue term, for example, L45 R3.

3.3.5 *minor hue axis*, *n— in the Colorcurve system*, central diagonal axis, that is, a line of sample points whose notations contain two hue terms in the same amounts, for example, L45 R3Y3.

4. Summary of Practice

4.1 *Visual Method of Determining Colorcurve Notations*—Colorcurve atlas samples are used as references in judging the color of a specimen. Observers shall have normal color vision. Good illumination by either natural daylight or any broad band source shall be used. Specimens shall be viewed on a background with lightness similar to that of the Colorcurve atlas samples with which the specimen is being compared.

4.2 *Computation Method of Determining Colorcurve Notations*—CIE 1964 tristimulus values for standard illuminant D65 and the 1964 supplementary (10°) standard observer are obtained from spectrophotometric or spectrocolorimetric measurements. See Practice E 308 and Practice E 1164. Available computer software can be used to convert the tristimulus values into Colorcurve notations. A Colorcurve notation can be estimated without software by interpolating between the tristimulus values for Colorcurve samples listed in Table 1 or in the data tables furnished with the Colorcurve atlases.

4.3 *Determining Tristimulus Values for Colorcurve Notations*—Tristimulus values for a Colorcurve sample, or color specimen for which a Colorcurve notation is known, are found by referring to Table 1, or the data tables furnished with the Colorcurve atlases. If the specimen's Colorcurve notation lies between those listed in the table, a method of calculating the specimen's tristimulus values is given.

4.4 *Method for Formulating Matches*— The spectrophotometric or spectrocolorimetric data given in the atlas for the chosen aim color are entered into a computer with formulation software, which calculates the match using the colorants characterized in the software.

TABLE 1 Spectral and Colorimetric Data for the Aim Points of the Colorcurve System

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L30 N	6.15	6.40	6.25	6.17	6.22	6.27	6.18	6.19	6.40	6.30	6.24	6.16	6.06	5.93	5.88	5.82	30.00	0.00	0.00	5.91	6.24	6.70
L30 Y1	5.16	5.22	5.15	5.19	5.56	6.03	5.95	6.12	6.61	6.56	6.55	6.52	6.42	6.29	6.25	6.21	30.00	0.00	4.34	5.92	6.24	5.67
L30 R1Y1	5.70	5.70	5.50	5.37	5.19	5.15	5.07	5.38	6.08	7.29	7.94	8.24	8.24	8.14	8.10	8.09	30.00	7.14	3.60	6.57	6.24	5.82
L30 R2Y1	7.58	6.80	5.69	5.02	4.63	4.50	4.48	4.53	4.86	6.62	9.65	12.33	13.62	14.10	14.42	14.71	30.00	17.20	3.58	7.59	6.24	5.83
L30 R1	7.28	7.20	6.54	5.98	5.47	5.23	5.03	5.12	5.37	7.10	8.44	9.17	9.49	9.54	9.59	9.65	30.00	10.65	0.00	6.93	6.24	6.69
L30 R1B1	8.82	9.75	9.27	8.35	7.20	6.33	5.69	5.51	5.51	6.29	6.90	6.90	7.27	8.46	9.49	10.16	30.00	7.15	−8.88	6.58	6.24	9.20
L30 R1B2	10.47	13.18	13.89	12.75	10.24	7.50	6.06	5.46	5.23	5.29	5.58	5.40	5.75	7.17	8.59	9.10	30.00	7.15	−20.72	6.58	6.24	13.44
L30 B1	8.86	10.33	10.71	10.35	9.34	7.92	6.78	6.02	5.43	5.07	4.98	4.98	5.19	5.52	5.71	5.81	30.00	0.00	4.16	5.90	6.24	10.91
L30 G1B1	7.60	8.37	8.60	8.72	8.63	8.25	7.57	6.56	5.49	4.83	4.64	4.71	4.89	4.96	4.96	5.04	30.00	−5.06	−8.86	5.48	6.24	9.21
L30 G1	5.64	5.92	5.99	6.24	6.84	7.33	7.17	6.76	6.21	5.67	5.13	4.85	4.77	4.78	4.93	5.01	30.00	−6.52	0.00	5.36	6.24	6.71
L30 G1Y1	5.14	5.22	5.19	5.30	5.97	6.92	6.83	6.64	6.33	6.01	5.66	5.42	5.32	5.29	5.38	5.43	30.00	−5.06	3.59	5.47	6.24	5.83
L30 G1Y2	4.20	4.15	4.17	4.29	5.04	6.69	6.69	6.70	6.47	6.21	5.95	5.79	5.72	5.69	5.78	5.86	30.00	−5.06	8.40	5.48	6.24	4.79
L30 G2Y1	4.77	4.86	4.95	5.28	6.49	8.15	8.00	7.21	6.06	5.15	4.53	4.30	4.28	4.35	4.54	4.65	30.00	−11.91	3.61	4.91	6.24	5.83
L35 N	8.21	8.76	8.52	8.39	8.49	8.57	8.42	8.35	8.73	8.65	8.53	8.39	8.21	8.00	7.89	7.79	35.00	0.00	0.00	8.06	8.50	9.13
L35 Y1	7.04	7.30	7.14	7.13	7.64	8.23	8.16	8.21	8.95	9.00	8.92	8.80	8.63	8.41	8.31	8.22	35.00	0.00	4.38	8.05	8.50	7.82
L35 Y2	5.80	5.88	5.80	5.88	6.68	7.94	7.96	8.13	9.18	9.36	9.32	9.23	9.06	8.86	8.77	8.71	35.00	0.00	9.31	8.06	8.50	6.52
L35 R1Y1	7.53	7.82	7.55	7.38	7.18	7.01	6.86	7.17	8.77	10.13	10.58	10.63	10.44	10.19	10.05	9.96	35.00	7.10	3.74	8.86	8.50	8.00
L35 R1Y2	6.19	6.31	6.18	6.17	6.37	6.59	6.54	7.00	9.37	10.52	10.89	10.95	10.74	10.48	10.34	10.26	35.00	7.02	8.61	8.86	8.50	6.71
L35 R2Y1	8.37	8.45	7.80	7.23	6.61	6.27	5.89	6.13	6.66	10.21	13.90	14.88	15.04	14.90	14.83	14.81	35.00	17.05	3.74	10.08	8.50	8.01
L35 R2Y2	6.70	6.77	6.51	6.34	6.11	6.01	5.85	6.31	7.81	10.97	13.03	13.51	13.42	13.17	13.04	12.98	35.00	13.74	7.91	9.67	8.50	6.88
L35 R3Y1	9.99	9.70	8.08	6.80	5.85	5.46	5.15	5.24	5.48	8.63	16.25	20.14	21.33	21.63	21.81	22.00	35.00	26.19	3.76	11.29	8.50	8.00
L35 R3Y2	7.61	7.39	6.72	6.17	5.64	5.42	5.19	5.44	5.93	9.49	16.12	18.66	19.29	19.34	19.38	19.48	35.00	23.14	7.85	10.88	8.50	6.89
L35 R1	9.02	9.42	8.85	8.31	7.70	7.28	6.81	6.97	7.44	10.05	11.46	11.72	11.66	11.46	11.35	11.27	35.00	10.57	−0.01	9.28	8.50	9.13
L35 R2	10.34	10.52	9.21	7.99	6.88	6.35	5.82	5.93	6.09	9.60	14.49	16.07	16.49	16.47	16.47	16.50	35.00	20.13	0.00	10.50	8.50	9.14
L35 R1B1	11.31	12.65	11.99	1.00	9.77	8.80	7.81	7.57	7.30	8.75	9.58	9.52	9.66	10.21	10.58	10.75	35.00	7.10	−8.62	8.87	8.50	12.08
L35 R1B2	13.57	16.83	17.24	16.03	13.48	10.29	8.28	7.39	7.09	7.26	8.00	7.65	8.09	10.48	12.74	13.55	35.00	7.11	−20.24	8.87	8.50	16.99
L35 R1B3	15.19	20.56	22.68	21.19	16.82	11.67	8.70	7.36	6.64	6.32	6.44	6.13	6.42	7.64	8.52	8.44	35.00	7.04	−29.77	8.80	8.50	21.89
L35 R2B1	13.82	14.89	12.57	10.23	8.27	7.37	6.46	6.45	6.31	9.62	12.53	12.86	13.06	13.48	13.51	12.80	35.00	16.99	−8.62	10.07	8.50	12.07
L35 R2B2	13.64	18.99	16.00	12.58	9.73	8.45	7.15	7.05	6.65	9.39	10.34	10.07	10.19	10.74	10.78	9.93	35.00	13.75	−15.89	9.67	8.50	15.03
L35 R2B3	15.72	20.57	21.18	18.58	14.09	9.85	7.63	6.84	6.64	7.17	8.48	8.14	8.96	14.49	23.25	29.29	35.00	13.68	−26.11	9.66	8.50	19.92
L35 B1	11.76	13.31	13.59	13.24	12.30	10.71	9.23	8.24	7.45	7.09	7.26	7.01	7.17	8.05	8.60	8.69	35.00	0.00	−13.55	8.06	8.50	14.03
L35 B2	13.08	16.95	18.86	18.46	15.94	12.27	9.53	7.88	6.68	5.95	5.72	5.60	5.82	6.27	6.50	6.46	35.00	0.00	−24.46	8.03	8.50	18.90
L35 B3	12.90	19.47	23.83	24.26	20.35	14.48	10.24	7.62	5.68	4.74	4.55	4.29	4.40	5.01	5.31	5.25	35.00	0.00	−33.17	8.06	8.50	23.84
L35 G1B1	10.17	11.51	11.47	11.24	10.90	10.49	9.94	9.10	7.98	7.00	6.51	6.31	6.34	6.41	6.36	6.21	35.00	−5.06	−8.61	7.51	8.50	12.08
L35 G1B2	11.80	14.78	16.38	16.54	15.36	13.13	10.67	8.46	6.63	5.61	5.29	5.26	5.46	5.68	5.71	5.69	35.00	−5.06	−20.23	7.51	8.50	16.98
L35 G1B3	10.61	14.25	19.94	23.97	22.04	16.38	10.67	7.00	5.14	4.46	4.37	4.55	4.83	4.97	4.96	5.06	35.00	−5.09	−29.81	7.52	8.50	21.92
L35 G2B1	8.51	9.80	10.63	11.81	12.70	12.47	11.34	9.40	7.29	5.94	5.32	5.15	5.23	5.31	5.40	5.45	35.00	−12.11	−8.61	6.80	8.50	12.08
L35 G3B1	7.11	8.08	9.30	12.04	15.76	15.83	12.72	8.75	5.99	4.85	4.49	4.49	4.64	4.73	4.83	4.97	35.00	−19.49	−8.62	6.09	8.50	12.07
L35 G1	7.57	8.19	8.24	8.47	9.15	9.75	9.58	9.16	8.58	7.92	7.13	6.62	6.41	6.33	6.51	6.63	35.00	−6.63	0.00	7.36	8.50	9.14
L35 G2	6.65	7.30	7.73	8.68	10.24	11.20	10.85	9.82	8.34	6.90	5.69	5.17	5.05	5.08	5.35	5.54	35.00	−13.73	0.00	6.64	8.50	9.13
L35 G3	5.77	6.31	6.95	8.74	12.08	13.43	12.48	10.07	7.28	5.53	4.61	4.34	4.32	4.41	4.63	4.77	35.00	−21.19	0.00	5.93	8.50	9.12
L35 G1Y1	6.96	7.28	7.17	7.25	8.11	9.27	9.24	8.99	8.64	8.25	7.82	7.48	7.29	7.15	7.19	7.21	35.00	−5.09	3.76	7.51	8.50	8.00
L35 G1Y2	5.87	5.97	5.89	5.98	7.01	8.88	9.01	8.92	8.76	8.54	8.36	8.21	8.06	7.89	7.81	7.76	35.00	−4.36	8.59	7.59	8.50	6.71
L35 G2Y1	6.36	6.75	6.88	7.32	8.73	10.49	10.42	9.74	8.65	7.47	6.31	5.73	5.56	5.56	5.84	6.05	35.00	−12.06	3.76	6.80	8.50	8.00
L35 G2Y2	5.75	5.91	5.91	6.14	7.44	9.83	10.03	9.62	8.86	7.97	6.97	6.40	6.20	6.17	6.43	6.63	35.00	−10.41	7.89	6.96	8.50	6.88
L35 G3Y1	5.67	6.06	6.42	7.36	9.76	12.37	12.08	10.35	7.99	6.16	5.01	4.61	4.55	4.62	4.88	5.06	35.00	−19.63	3.79	6.09	8.50	8.00
L35 G3Y2	5.28	5.53	5.67	6.14	7.99	11.24	11.47	10.42	8.66	6.93	5.51	4.92	4.78	4.82	5.14	5.39	35.00	−17.76	7.91	6.26	8.50	6.88
L35 G3Y3	4.53	4.67	4.70	4.98	6.63	10.31	10.93	10.34	9.09	7.63	6.13	5.36	5.13	5.12	5.48	5.79	35.00	−16.06	12.51	6.42	8.50	5.76
L40 N	10.03	11.54	11.27	11.15	11.22	11.28	11.03	10.98	11.63	11.52	11.27	11.04	10.79	10.55	10.30	10.17	40.00	0.00	0.00	10.67	11.25	12.08
L40 Y1	9.09	9.79	9.52	9.54	10.21	10.90	10.72	10.80	12.00	11.99	11.76	11.53	11.28	11.03	10.78	10.65	40.00	0.00	4.55	10.67	11.25	10.45
L40 Y2	7.67	8.05	7.85	7.93	9.03	10.43	10.66	10.89	12.04	12.23	12.25	12.18	12.04	11.85	11.74	11.59	40.00	0.00	9.62	10.67	11.25	8.81
L40 Y3	6.30	6.34	6.22	6.35	7.71	9.88	10.47	10.96	12.31	12.60	12.70	12.69	12.61	12.48	12.42	12.32	40.00	0.00	15.35	10.67	11.25	7.18
L40 R1Y1	9.54	10.40	10.01	9.83	9.52	9.18	8.91	9.33	12.39	13.50	13.53	13.32	13.03	12.74	12.44	12.30	40.00	6.99	3.94	11.62	11.25	10.66
L40 R1Y2	8.11	8.56	8.29	8.26	8.64	8.95	8.92	9.30	12.46	13.64	14.11	14.19	14.06	13.86	13.74	13.59	40.00	7.00	8.94	11.62	11.25	9.02

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L40 R1Y3	6.67	6.77	6.60	6.67	7.52	8.51	8.70	9.28	12.68	14.03	14.59	14.73	14.66	14.51	14.45	14.35	40.00	7.00	14.57	11.62	11.25	7.39
L40 R2Y1	10.26	11.07	10.33	9.70	8.96	8.37	7.77	7.99	9.61	14.48	17.43	18.09	18.17	18.07	18.01	17.89	40.00	16.87	3.96	13.07	11.25	10.66
L40 R2Y2	8.62	9.13	8.72	8.50	8.21	7.90	7.66	8.09	11.62	14.82	16.28	16.62	16.56	16.38	16.28	16.16	40.00	13.61	8.27	12.57	11.25	9.23
L40 R2Y3	13.57	7.91	6.83	6.91	6.94	6.53	6.50	7.47	14.03	16.03	16.28	16.09	15.82	15.47	15.21	14.88	40.00	13.62	13.80	12.58	11.25	7.61
L40 R2Y4	5.54	5.33	5.34	5.59	5.96	6.38	6.51	7.59	13.25	16.61	17.11	16.82	16.43	16.07	15.77	15.71	40.00	13.63	20.19	12.58	11.25	5.98
L40 R3Y1	11.21	11.98	10.69	9.44	8.18	7.41	6.63	6.77	7.48	14.07	21.28	23.28	23.79	23.94	24.04	24.02	40.00	26.05	3.95	14.51	11.25	10.66
L40 R3Y2	9.33	9.74	8.99	8.36	7.65	7.14	6.62	6.94	78.00	15.03	20.38	21.73	22.02	22.04	22.07	22.03	40.00	23.02	8.27	14.02	11.25	9.24
L40 R3Y3	7.49	7.70	7.38	7.24	6.97	6.69	6.29	6.86	10.16	17.08	19.04	19.51	19.46	19.28	19.20	19.11	40.00	19.90	13.06	13.53	11.25	7.81
L40 R1	10.97	12.31	11.65	11.10	10.30	9.66	8.96	9.16	10.38	13.71	14.72	14.62	14.36	14.07	13.75	13.59	40.00	10.43	0.00	12.11	11.25	12.08
L40 R2	12.00	13.25	12.04	10.81	9.48	8.62	7.69	7.76	8.36	13.97	18.37	19.44	19.67	19.66	19.65	19.54	40.00	20.05	0.00	13.55	11.25	12.08
L40 R3	13.20	14.56	12.48	10.38	8.49	7.51	6.53	6.53	6.72	13.24	22.01	24.74	25.51	25.79	25.96	25.97	40.00	29.02	0.00	15.00	11.25	12.08
L40 R1B1	12.76	15.93	15.25	14.27	12.78	11.68	10.36	10.03	9.71	11.86	12.64	12.43	12.43	12.75	12.72	12.64	40.00	6.99	−8.39	11.62	11.25	15.51
L40 R1B2	16.15	20.97	21.22	19.89	17.15	13.67	11.11	9.81	9.35	9.65	10.76	10.46	11.29	14.56	17.44	18.46	40.00	7.00	−19.80	11.62	11.25	21.14
L40 R1B3	18.53	25.88	27.58	25.61	20.75	15.17	11.59	9.83	8.91	8.65	8.99	8.54	9.11	11.31	12.86	12.59	40.00	7.00	−29.33	11.62	11.25	26.77
L40 R2B1	14.72	17.48	15.84	13.74	11.55	10.24	8.81	8.58	8.26	12.78	16.04	16.72	17.09	17.57	17.80	17.74	40.00	16.87	−8.39	13.06	11.25	15.51
L40 R2B2	16.49	20.62	19.47	17.11	14.16	11.82	9.77	9.11	8.72	11.18	13.55	13.66	14.74	18.09	20.59	21.47	40.00	13.62	−15.62	12.58	11.25	18.94
L40 R2B3	18.79	25.53	25.75	22.81	17.96	13.29	10.31	9.09	8.68	9.61	11.42	11.21	12.61	18.99	27.43	32.37	40.00	13.61	−25.78	12.58	11.25	24.57
L40 R3B1	16.23	19.20	16.38	13.17	10.34	8.86	7.44	7.26	7.05	12.69	19.37	21.11	22.41	24.63	25.91	26.24	40.00	26.05	−8.39	14.51	11.25	15.51
L40 R3B2	18.45	23.01	20.23	16.26	12.47	10.21	8.31	7.89	7.60	11.78	16.60	17.39	19.45	25.96	31.78	34.18	40.00	23.01	−15.61	14.02	11.25	18.94
L40 R3B3	20.05	26.63	24.11	19.51	14.55	11.34	9.09	8.52	8.32	10.97	14.08	13.72	15.58	24.76	39.13	51.62	40.00	19.90	−22.01	13.53	11.25	22.37
L40 B1	13.09	17.05	17.15	16.68	15.42	13.71	11.96	10.93	10.22	9.87	9.80	9.37	9.49	10.25	10.45	10.17	40.00	0.00	−13.14	10.67	11.25	17.71
L40 B2	17.37	22.54	22.79	22.07	20.31	16.68	12.37	10.05	9.21	9.01	8.31	7.27	7.77	9.39	9.65	8.28	40.00	0.00	−23.71	10.67	11.25	23.34
L40 B3	15.36	23.70	29.01	29.50	24.54	17.85	13.01	10.37	8.36	7.11	6.57	6.28	6.33	6.63	6.63	6.43	40.00	0.00	−32.69	10.67	11.25	28.97
L40 G1B1	12.25	14.62	14.69	14.55	14.04	13.57	12.85	11.99	10.79	9.62	8.88	8.50	8.41	8.52	8.40	8.13	40.00	−5.17	−8.39	10.00	11.25	15.51
L40 G1B2	15.66	20.23	20.68	19.69	18.49	17.11	13.35	11.53	9.11	8.41	7.44	7.02	7.00	7.22	7.15	6.85	40.00	−5.16	−19.81	10.00	11.25	21.14
L40 G1B3	15.90	22.63	26.22	26.63	23.65	18.85	14.37	10.94	8.13	6.57	5.97	5.72	5.84	6.18	6.23	5.98	40.00	−5.16	−29.34	9.99	11.25	26.77
L40 G1B4	14.49	22.36	30.91	34.93	30.05	21.84	14.73	9.74	6.54	5.20	4.79	4.71	4.83	4.99	4.99	4.90	40.00	−5.16	−37.61	10.00	11.25	32.40
L40 G2B1	10.33	12.87	13.89	15.12	15.68	15.47	14.41	12.65	10.30	8.40	7.29	6.80	6.67	6.72	6.80	6.76	40.00	−12.28	−8.39	9.12	11.25	15.51
L40 G2B2	15.30	15.70	17.20	18.70	18.50	16.90	14.60	11.90	9.56	7.64	6.67	6.50	6.77	6.97	6.74	6.52	40.00	−10.58	−15.62	9.32	11.25	18.94
L40 G2B3	12.48	18.57	23.04	25.06	23.79	20.59	15.51	10.83	7.59	6.16	5.67	5.52	5.52	5.60	5.55	5.49	40.00	−10.57	−25.78	9.33	11.25	24.57
L40 G2B4	13.03	19.74	27.67	32.67	30.30	23.77	15.84	9.58	6.06	4.80	4.46	4.44	4.54	4.63	4.60	4.55	40.00	−10.57	−34.49	9.32	11.25	30.20
L40 G3B1	9.31	11.41	12.89	15.45	17.85	18.04	16.29	13.08	9.31	6.96	5.85	5.43	5.37	5.42	5.51	5.48	40.00	−19.88	−8.39	8.24	11.25	15.51
L40 G3B2	11.17	14.37	16.51	18.98	20.35	19.52	16.64	12.36	8.31	6.25	5.46	5.22	5.24	5.34	5.35	5.22	40.00	−18.05	−15.62	8.45	11.25	18.94
L40 G1	9.43	10.82	10.91	11.25	12.04	12.77	12.51	12.04	11.40	10.60	9.55	8.87	8.55	8.43	8.56	8.72	40.00	−6.80	0.00	9.79	11.25	12.08
L40 G2	8.97	9.30	10.10	11.70	13.70	14.40	13.90	12.80	11.30	9.37	7.75	7.05	6.82	6.79	7.02	7.24	40.00	−14.03	0.00	8.91	11.25	12.08
L40 G3	7.83	8.33	9.52	11.98	14.92	15.98	15.22	13.60	11.33	8.43	6.00	4.95	4.60	4.56	4.90	5.23	40.00	−21.74	0.00	8.04	11.25	12.08
L40 G4	7.19	8.24	9.10	11.33	16.20	20.08	18.24	13.77	9.10	6.24	4.85	4.37	4.43	4.74	4.92	4.79	40.00	−30.03	0.00	7.16	11.25	12.08
L40 G1Y1	9.41	9.68	9.55	9.70	10.77	12.19	12.13	11.84	11.42	11.01	10.43	10.03	9.73	9.54	9.47	9.48	40.00	−5.17	3.95	10.00	11.25	10.66
L40 G1Y2	7.96	8.09	7.90	8.03	9.49	11.90	12.05	11.83	11.52	11.26	10.96	10.71	10.48	10.28	10.07	9.98	40.00	−5.16	8.94	10.00	11.25	9.02
L40 G1Y3	6.24	6.43	6.29	6.46	8.17	11.07	11.83	12.05	11.86	11.61	11.35	11.15	10.99	10.82	10.78	10.69	40.00	−5.17	14.57	10.00	11.25	7.40
L40 G2Y1	8.32	9.04	9.22	9.79	11.53	13.63	13.51	12.76	11.58	10.13	8.56	7.75	7.44	7.39	7.67	7.95	40.00	−12.29	3.95	9.12	11.25	10.66
L40 G2Y2	7.56	7.07	7.58	8.84	10.60	12.20	12.80	12.80	12.00	10.60	9.27	8.73	8.50	8.42	8.51	8.61	40.00	−10.57	8.27	9.33	11.25	9.24
L40 G2Y3	4.94	5.68	6.08	6.86	9.53	12.11	12.50	12.46	12.14	11.39	9.91	8.95	8.64	8.70	9.40	10.18	40.00	−10.57	13.80	9.33	11.25	7.60
L40 G3Y1	7.17	7.78	8.47	10.09	13.28	15.41	14.57	13.08	12.46	8.62	6.54	5.90	5.73	5.77	6.09	6.43	40.00	−19.88	3.95	8.24	11.25	10.66
L40 G3Y2	6.99	7.23	7.55	8.40	10.92	14.08	13.80	12.93	13.60	9.50	7.05	6.26	6.06	6.09	6.47	6.87	40.00	−18.04	8.26	8.45	11.25	9.24
L40 G3Y3	6.65	6.63	6.56	6.75	8.63	13.08	14.46	13.55	12.04	10.22	8.35	7.39	7.07	7.01	7.27	7.52	40.00	−16.25	13.05	8.65	11.25	7.81
L40 G4Y1	6.15	6.93	7.74	10.12	14.83	17.90	17.10	14.21	10.16	7.10	5.40	4.81	4.66	4.67	4.90	5.11	40.00	−28.02	3.94	7.36	11.25	10.66
L40 G4Y2	5.93	6.44	6.92	8.40	12.29	16.60	16.58	14.38	10.85	7.88	6.02	5.32	5.13	5.14	5.43	5.70	40.00	−26.07	8.27	7.57	11.25	9.23
L40 G4Y3	6.01	6.02	6.18	6.72	9.46	15.40	15.87	14.06	12.53	8.57	6.38	5.71	5.51	5.52	5.76	6.10	40.00	−24.13	13.07	7.78	11.25	7.81
L45 N	12.79	14.72	14.44	14.49	14.59	14.48	14.22	14.15	14.95	14.89	14.56	14.23	13.91	13.58	13.26	13.07	45.00	0.00	0.00	13.79	14.54	15.61
L45 Y1	11.04	12.30	12.15	12.64	13.59	13.94	13.87	13.96	15.39	15.50	15.20	14.89	14.58	14.26	13.95	13.79	45.00	0.00	4.82	13.79	14.54	13.56
L45 Y2	9.84	10.54	10.26	10.34	11.80	13.57	13.81	13.94	15.58	15.89	15.83	15.67	15.45	15.17	14.98	14.75	45.00	0.00	10.17	13.79	14.54	11.51
L45 Y3	8.14	8.39	8.18	8.35	10.17	12.94	13.57	13.95	15.92	16.38	16.40	16.31	16.14	15.91	15.77	15.59	45.00	0.00	16.19	13.79	14.54	9.45
L45 Y4	6.38	6.31	6.19	6.38	8.28	12.10	13.39	14.15	16.26	16.82	16.92	16.92	16.84	16.69	16.63	16.53	45.00	0.00	23.18	13.79	14.54	7.40
L45 R1Y1	12.39	13.54	13.05	12.83	12.46	12.00	11.68	12.16	16.29	17.46	17.25	16.86	16.45	16.04	15.64	15.42	45.00	6.92	4.11	14.90	14.54	13.85
L45 R1Y2	10.29	10.97	10.70	10.97	11.45	11.48	11.37	11.96	16.59	18.04	17.89	17.53	17.15	16.76	16.39	16.20	45.00	6.92	9.37	14.91	14.54	11.80

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L45 R1Y3	8.30	8.55	8.47	9.09	10.33	10.93	11.07	11.77	16.82	18.60	18.53	18.21	17.87	17.52	17.19	17.04	45.00	6.92	15.28	14.90	14.54	9.75
L45 R1Y4	6.37	6.20	6.26	7.11	9.08	10.39	10.84	11.67	17.07	19.15	19.18	18.93	18.64	18.33	18.06	17.97	45.00	6.93	22.10	14.90	14.54	7.69
L45 R2Y1	12.93	14.22	13.34	12.71	11.81	10.97	10.12	10.45	12.88	19.28	21.93	21.96	21.60	21.19	20.73	20.49	45.00	16.70	4.10	16.58	14.54	13.86
L45 R2Y2	11.36	11.97	11.43	11.17	10.73	10.25	9.87	10.56	15.42	19.75	20.54	20.18	19.72	19.25	18.80	18.56	45.00	13.50	8.59	16.02	14.54	12.09
L45 R2Y3	9.20	9.60	9.24	9.19	9.56	9.73	9.65	10.19	16.28	19.85	20.86	21.04	20.89	20.63	20.47	20.29	45.00	13.51	14.39	16.02	14.54	10.04
L45 R2Y4	7.09	7.04	6.98	7.45	8.31	8.82	8.97	9.95	16.97	21.15	21.49	21.15	20.74	20.34	19.98	19.84	45.00	13.50	21.05	16.02	14.54	7.99
L45 R3Y1	13.83	15.11	13.74	12.44	10.99	9.94	8.86	8.99	10.26	18.81	26.43	28.05	28.29	28.22	28.16	27.99	45.00	25.83	4.10	18.27	14.54	13.86
L45 R3Y2	12.04	12.56	11.70	11.07	10.14	9.42	8.74	9.26	11.68	20.06	25.74	26.04	25.66	25.20	24.72	24.47	45.00	22.84	8.58	17.70	14.54	12.10
L45 R3Y3	9.81	10.28	9.76	9.52	9.21	8.78	8.49	9.01	14.50	20.99	23.66	24.17	24.10	23.87	23.72	23.56	45.00	19.79	13.51	17.14	14.54	10.34
L45 R3Y4	7.80	7.93	7.63	7.61	7.80	7.87	7.83	8.55	15.80	21.93	23.92	24.39	24.33	24.12	24.02	23.92	45.00	19.79	20.03	17.14	14.54	8.28
L45 R4Y1	14.89	16.30	14.18	12.08	10.03	8.85	7.65	7.71	8.20	17.23	30.71	34.69	35.54	35.78	35.89	35.84	45.00	34.42	4.10	19.95	14.54	13.86
L45 R4Y2	12.58	13.37	12.03	10.80	9.48	8.58	7.66	7.87	9.19	18.62	29.95	32.81	33.36	33.44	33.48	33.41	45.00	31.60	8.58	19.38	14.54	12.10
L45 R4Y3	10.41	10.81	10.00	9.40	8.69	8.09	7.51	7.91	10.71	20.32	28.77	30.60	30.88	30.84	30.81	30.73	45.00	28.73	13.51	18.82	14.54	10.34
L45 R4Y4	7.89	8.42	8.04	8.00	7.71	7.09	6.66	7.47	13.16	23.76	26.90	27.24	27.40	27.53	27.64	27.94	45.00	25.79	19.03	18.26	14.54	8.58
L45 R5Y3	11.19	11.67	10.38	9.25	8.67	8.26	7.00	7.11	7.43	17.46	33.83	39.03	40.14	40.47	40.66	40.64	45.00	37.17	13.49	20.50	14.54	10.34
L45 R5Y4	8.82	9.07	8.31	7.78	7.14	6.60	6.08	6.55	9.82	21.11	32.28	34.77	35.16	35.15	35.15	35.09	45.00	34.37	19.06	19.95	14.54	8.58
L45 R1	14.12	15.82	15.03	14.39	13.42	12.58	11.75	11.99	13.78	17.59	18.55	18.28	17.89	17.49	17.08	16.85	45.00	10.27	0.00	15.47	14.54	15.61
L45 R2	15.17	16.84	15.47	14.16	12.44	11.26	10.09	10.29	11.26	18.60	23.25	23.46	23.13	22.71	22.26	22.00	45.00	19.82	0.00	17.15	14.54	15.61
L45 R3	16.29	18.14	15.94	13.75	11.36	10.02	8.76	8.86	9.23	17.75	27.91	29.51	29.44	29.10	28.67	28.43	45.00	28.77	0.00	18.83	14.54	15.61
L45 R4	16.84	19.36	16.40	13.31	10.46	8.91	7.33	7.28	7.38	16.94	31.55	35.91	36.81	37.03	37.12	37.01	45.00	37.20	0.00	20.51	14.54	15.62
L45 R1B1	16.55	19.99	19.18	17.93	16.34	15.10	13.62	13.14	12.61	15.06	16.20	16.15	16.20	16.49	16.56	16.38	45.00	6.92	−8.21	14.90	14.54	19.56
L45 R1B2	19.73	25.63	25.86	24.43	21.44	17.46	14.39	12.80	12.23	12.64	14.12	13.77	14.78	18.72	22.03	23.20	45.00	6.92	−19.44	14.91	14.54	25.97
L45 R1B3	22.21	30.96	32.58	31.04	26.73	19.64	14.58	12.50	11.53	11.55	12.32	11.59	12.41	15.72	17.66	16.86	45.00	6.92	−28.95	14.90	14.54	32.38
L45 R1B4	25.69	36.96	38.98	37.44	32.12	22.59	14.79	11.55	10.67	10.97	10.61	9.16	9.96	12.71	13.31	11.01	45.00	6.93	−37.28	14.91	14.54	38.79
L45 R2B1	18.00	21.72	19.84	17.55	14.80	13.18	11.47	11.34	11.03	17.17	20.48	20.55	20.24	19.86	19.45	19.20	45.00	16.70	−8.20	16.59	14.54	19.56
L45 R2B2	19.92	25.31	23.91	21.42	17.93	15.16	12.63	11.94	11.53	14.88	17.59	17.22	18.15	21.30	22.97	23.38	45.00	13.51	−15.37	16.02	14.54	23.51
L45 R2B3	22.68	30.54	30.85	28.04	22.69	17.25	13.05	11.80	11.21	13.09	15.13	14.76	16.22	22.58	29.54	32.86	45.00	13.51	−25.46	16.02	14.54	29.92
L45 R2B4	24.15	35.85	38.27	34.70	26.61	18.43	13.68	11.86	11.19	11.65	13.08	12.40	13.61	18.94	23.79	24.25	45.00	13.51	−34.19	16.02	14.54	36.33
L45 R3B1	19.54	23.65	20.44	16.92	13.40	11.55	9.81	9.70	9.48	17.21	24.90	25.76	25.91	26.26	26.13	25.96	45.00	25.84	−8.21	18.27	14.54	19.56
L45 R3B2	21.94	28.02	24.73	20.44	15.91	13.20	10.86	10.47	10.16	15.86	21.53	21.48	23.18	29.17	33.30	34.69	45.00	22.85	−15.37	17.70	14.54	23.51
L45 R3B3	23.39	31.52	29.04	24.37	18.82	14.90	11.87	11.08	10.70	14.38	18.41	17.98	19.99	28.80	38.32	43.25	45.00	19.79	−21.77	17.14	14.54	27.45
L45 R4B1	21.24	25.61	20.97	16.14	12.27	10.37	8.62	8.42	8.16	15.53	27.74	31.14	34.31	42.22	48.34	50.63	45.00	34.43	−8.20	19.95	14.54	19.56
L45 B1	16.02	21.22	21.25	20.72	19.32	17.43	15.38	14.14	13.31	12.95	12.96	12.39	12.53	13.50	13.76	13.42	45.00	0.00	−12.78	13.79	14.54	22.03
L45 B2	20.22	27.00	28.11	27.09	24.08	19.80	16.18	13.91	12.28	11.29	11.03	10.43	10.76	12.12	12.71	12.08	45.00	0.00	−23.26	13.79	14.54	28.44
L45 B3	19.36	29.17	34.14	35.45	30.21	22.02	16.25	13.43	11.36	10.00	9.30	8.64	8.73	9.56	9.88	9.45	45.00	0.00	−32.27	13.79	14.54	34.85
L45 B4	21.41	32.77	40.95	42.55	35.53	25.17	17.16	12.67	9.82	8.29	7.63	7.24	7.40	7.88	7.91	7.47	45.00	0.00	−40.23	13.79	14.54	41.26
L45 G1B1	14.41	18.63	18.56	18.28	17.60	17.12	16.39	15.50	14.11	12.77	11.73	11.14	10.94	11.00	10.79	10.35	45.00	−5.24	−8.20	12.98	14.54	19.56
L45 G1B2	19.87	25.48	25.33	23.90	22.62	21.02	17.06	15.09	12.05	11.52	10.07	9.38	9.41	9.88	9.73	9.04	45.00	−5.23	−19.45	12.98	14.54	25.97
L45 G1B3	20.12	28.38	31.76	31.75	28.35	23.02	18.14	14.43	11.20	9.21	8.35	7.89	8.04	8.60	8.69	8.20	45.00	−5.23	−28.95	12.98	14.54	32.38
L45 G1B4	18.74	29.34	37.59	40.38	35.22	26.27	18.53	13.34	9.55	7.62	6.87	6.63	6.78	7.11	7.05	6.84	45.00	−5.23	−37.28	12.98	14.54	38.79
L45 G2B1	13.00	16.64	17.71	18.94	19.39	19.14	18.12	16.40	13.85	11.39	9.70	8.86	8.60	8.65	8.78	8.70	45.00	−2.47	−8.21	11.91	14.54	19.56
L45 G2B2	15.73	21.44	22.32	22.33	21.50	20.49	18.68	16.13	12.86	10.34	9.10	8.53	8.44	8.67	8.55	8.14	45.00	−10.70	−15.37	12.17	14.54	23.50
L45 G2B3	18.85	26.46	28.92	28.63	27.33	24.90	19.40	15.16	10.73	8.74	7.61	7.22	7.30	7.59	7.47	7.10	45.00	−10.68	−25.46	12.17	14.54	29.92
L45 G2B4	17.13	26.59	34.25	37.89	34.72	27.98	20.15	13.59	9.06	7.01	6.29	6.09	6.20	6.41	6.32	6.14	45.00	−10.69	−34.19	12.17	14.54	36.33
L45 G3B1	12.00	14.78	16.50	19.38	21.97	22.17	20.39	16.97	12.61	9.57	7.95	7.27	7.13	7.19	7.32	7.24	45.00	−20.16	−8.21	10.85	14.54	19.56
L45 G3B2	14.44	18.58	20.82	23.27	24.53	23.72	20.91	16.37	11.48	8.67	7.47	7.01	7.00	7.15	7.16	6.90	45.00	−18.27	−15.37	11.11	14.54	23.50
L45 G3B3	15.92	21.95	25.11	27.29	27.27	25.40	21.23	15.52	10.53	7.97	6.98	6.66	6.70	6.90	6.82	6.59	45.00	−16.41	−21.77	11.36	14.54	27.45
L45 G3B4	15.67	23.47	30.53	35.05	35.83	30.92	21.35	13.10	8.36	6.48	5.91	5.84	5.98	6.15	6.05	5.97	45.00	−16.40	−30.97	11.36	14.54	33.86
L45 G4B1	10.35	12.73	14.97	19.67	25.48	26.38	22.70	16.68	10.88	7.84	6.53	6.07	6.00	6.06	6.18	6.17	45.00	−28.38	−8.21	9.79	14.54	19.56
L45 G4B2	12.00	15.43	18.65	24.09	29.27	28.49	22.80	15.49	9.72	7.15	6.20	5.90	5.91	6.01	6.05	5.95	45.00	−26.34	−15.37	10.04	14.54	23.51
L45 G4B3	13.17	17.78	22.32	28.69	33.18	30.41	22.65	14.40	8.80	6.56	5.80	5.60	5.65	5.76	5.76	5.64	45.00	−24.35	−21.77	10.30	14.54	27.45
L45 G4B4	14.28	18.21	25.50	34.73	37.00	31.44	22.22	13.58	8.15	6.05	5.35	5.15	5.19	5.32	5.35	5.24	45.00	−22.37	−27.58	10.56	14.54	31.40
L45 G1	11.72	13.63	13.90	14.76	15.84	16.23	16.01	15.51	14.77	13.84	12.53	11.65	11.18	10.95	11.06	11.27	45.00	−6.95	0.00	12.72	14.54	15.61
L45 G2	10.59	12.33	13.22	15.10	17.29	18.02	17.60	16.52	14.79	12.63	10.28	9.10	8.63	8.49	8.82	9.27	45.00	−14.28	0.00	11.66	14.54	15.62
L45 G3	9.50	11.21	12.45	15.29	19.07	20.58	19.75	17.49	14.04	10.76	8.33	7.28	6.94	6.87	7.20	7.51	45.00	−22.09	0.00	10.60	14.54	15.62
L45 G4	8.38	9.85	11.34	15.32	21.71	24.14	22.26	17.87	12.44	8.71	6.73	6.01	5.82	5.82	6.07	6.26	45.00	−30.44	0.00	9.53	14.54	15.61
L45 G1Y1	11.36	12.64	12.47	12.62	13.96	15.52	15.60	15.31	14.80	14.23	13.57	13.05	12.72	12.45	12.41	12.32	45.00	−5.24	4.10	12.98	14.54	13.86

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L45 G1Y2	9.00	9.77	9.84	10.93	13.41	14.97	15.32	15.15	14.85	14.62	14.28	14.00	13.75	13.49	13.27	13.18	45.00	−5.21	9.38	12.99	14.54	11.80
L45 G1Y3	7.40	7.60	7.70	8.95	12.11	14.37	15.04	15.05	15.23	15.14	14.90	14.69	14.48	14.24	14.02	13.93	45.00	−5.20	15.30	12.99	14.54	9.75
L45 G1Y4	13.84	6.81	5.56	5.99	10.61	14.89	14.63	14.42	15.63	15.75	15.60	15.37	15.08	14.75	14.50	14.21	45.00	−5.17	22.13	13.00	14.54	7.69
L45 G2Y1	9.79	11.07	11.59	13.16	15.75	17.02	16.97	16.24	15.01	13.39	11.36	10.23	9.74	9.58	9.89	10.32	45.00	−12.48	4.11	11.91	14.54	13.85
L45 G2Y2	8.79	9.60	9.89	11.32	14.33	16.15	16.44	15.99	15.16	14.05	12.48	11.50	11.04	10.86	11.10	11.45	45.00	−10.70	8.58	12.17	14.54	12.09
L45 G2Y3	14.14	9.28	7.45	8.16	13.59	16.40	16.11	15.65	15.12	14.46	13.39	12.34	11.82	11.65	12.00	12.12	45.00	−10.68	14.39	12.18	14.54	10.04
L45 G2Y4	6.63	6.59	6.55	6.85	9.11	14.38	16.33	16.70	15.98	14.86	13.48	12.58	12.24	12.15	12.56	12.94	45.00	−10.65	21.07	12.19	14.54	7.99
L45 G3Y1	8.87	10.03	10.93	13.30	17.29	19.21	18.87	17.26	14.71	11.84	9.20	8.07	7.66	7.57	7.94	8.43	45.00	−20.17	4.10	10.85	14.54	13.85
L45 G3Y2	8.79	9.61	9.95	10.99	14.17	18.14	18.52	17.38	15.11	12.54	10.19	8.99	8.58	8.48	8.88	9.28	45.00	−18.27	8.57	11.11	14.54	12.10
L45 G3Y3	12.57	9.20	7.53	8.39	14.46	17.93	17.53	16.56	15.10	13.37	11.51	10.38	9.90	9.69	9.95	10.18	45.00	−16.41	13.51	11.36	14.54	10.34
L45 G3Y4	6.60	6.62	6.65	7.08	9.72	15.74	17.81	17.66	16.01	13.85	11.64	10.45	10.06	10.00	10.53	11.07	45.00	−16.38	20.03	11.37	14.54	8.28
L45 G3Y5	5.11	4.82	4.86	5.16	7.35	13.75	16.99	17.98	17.32	15.42	12.07	9.78	9.19	9.41	11.00	12.49	45.00	−16.35	27.77	11.38	14.54	6.23
L45 G4Y1	8.73	9.67	10.12	12.82	19.52	22.39	21.21	18.04	13.56	9.82	7.43	6.51	6.24	6.20	6.50	6.79	45.00	−28.37	4.10	9.79	14.54	13.86
L45 G4Y2	7.96	8.63	9.33	11.05	15.61	20.62	20.05	17.72	16.02	10.90	7.72	6.69	6.36	6.32	6.65	7.12	45.00	−26.34	8.57	10.04	14.54	12.10
L45 G4Y3	10.66	8.54	7.26	8.28	15.30	20.18	19.56	17.70	14.80	11.80	9.32	8.14	7.73	7.62	7.97	8.30	45.00	−24.36	13.51	10.30	14.54	10.33
L45 G4Y4	5.74	5.58	5.84	7.47	12.91	17.91	18.98	17.83	15.57	12.82	10.09	8.88	8.47	8.41	8.89	9.53	45.00	−22.39	19.03	10.55	14.54	8.57
L45 G5Y1	6.65	8.02	9.42	13.34	20.77	25.14	23.56	18.83	12.68	8.12	5.54	4.62	4.37	4.34	4.66	4.97	45.00	−37.20	4.10	8.72	14.54	13.86
L45 G5Y2	6.79	7.66	8.54	11.09	17.32	23.82	23.25	18.98	13.18	8.85	6.41	5.54	5.31	5.30	5.63	5.94	45.00	−35.02	8.57	8.98	14.54	12.10
L45 G5Y3	7.03	7.36	7.78	8.93	13.37	22.38	22.94	18.79	14.50	9.68	7.00	6.16	5.89	5.88	6.17	6.56	45.00	−32.87	13.50	9.23	14.54	10.34
L50 N	15.54	18.89	18.47	18.29	18.43	18.53	18.14	17.94	18.99	18.92	18.50	18.10	17.69	17.29	16.86	16.61	50.00	0.00	0.00	17.47	18.42	19.78
L50 Y1	14.44	16.20	15.78	15.73	16.83	17.91	17.86	17.74	19.28	19.47	19.26	18.99	18.67	18.29	18.00	17.67	50.00	0.00	5.06	17.46	18.42	17.26
L50 Y2	12.50	13.49	13.14	13.25	15.07	17.28	17.55	17.61	19.72	20.14	20.01	19.78	19.50	19.14	18.89	18.59	50.00	0.00	10.66	17.47	18.42	14.72
L50 Y3	10.72	10.79	10.44	10.63	13.27	18.28	18.06	17.86	17.19	20.87	21.67	21.39	21.00	20.59	20.15	19.91	50.00	0.00	16.93	17.47	18.42	12.20
L50 Y4	8.51	8.40	8.15	8.31	10.71	15.69	17.24	17.25	20.50	21.90	21.57	21.08	20.64	20.19	19.77	19.38	50.00	0.00	24.14	17.47	18.42	9.68
L50 R1Y1	15.22	17.11	16.53	16.38	16.13	15.56	15.17	15.56	20.48	21.94	21.65	21.19	20.71	20.23	19.76	19.47	50.00	6.86	4.24	18.76	18.42	17.65
L50 R1Y2	12.69	13.92	13.61	14.05	14.88	14.89	14.71	15.22	20.77	22.65	22.44	22.00	21.55	21.09	20.65	20.39	50.00	6.86	9.75	18.76	18.42	15.12
L50 R1Y3	10.30	10.98	10.87	11.74	13.57	14.27	14.35	14.99	21.08	23.35	23.22	22.83	22.42	21.99	21.59	21.37	50.00	6.86	15.89	18.76	18.42	12.59
L50 R1Y4	7.96	8.12	8.16	9.30	12.05	13.63	14.07	14.83	21.34	23.98	23.95	23.62	23.26	22.89	22.54	22.39	50.00	6.87	22.93	18.76	18.42	10.07
L50 R1Y5	6.34	6.13	6.05	6.24	8.08	12.26	13.93	15.19	20.89	23.40	23.97	24.14	24.14	24.03	24.04	24.00	50.00	6.87	31.27	18.77	18.42	7.55
L50 R2Y1	16.20	17.95	16.95	16.22	15.12	14.05	13.08	13.49	16.94	24.29	26.88	26.66	26.18	25.65	25.12	24.79	50.00	16.54	4.24	20.69	18.42	17.65
L50 R2Y2	14.19	15.34	14.66	14.38	13.91	13.23	12.78	13.43	20.23	24.78	25.16	24.69	24.16	23.61	23.09	22.78	50.00	13.41	8.85	20.05	18.42	15.51
L50 R2Y3	11.51	12.18	11.81	12.07	12.53	12.40	12.22	13.02	21.15	25.64	25.76	25.30	24.78	24.27	23.78	23.50	50.00	13.40	14.89	20.05	18.42	12.99
L50 R2Y4	9.44	9.59	9.31	9.42	10.74	12.17	12.40	13.08	20.78	25.59	26.62	26.77	26.61	26.34	26.17	25.99	50.00	13.41	21.76	20.06	18.42	10.46
L50 R2Y5	6.04	6.04	6.11	7.21	10.42	12.11	12.12	12.61	20.14	26.55	27.81	27.76	27.67	27.51	27.24	27.01	50.00	13.42	29.84	20.05	18.42	7.94
L50 R3Y1	17.06	18.85	17.35	16.01	14.21	12.83	11.52	11.82	13.66	24.39	32.60	33.28	32.92	32.42	31.87	31.53	50.00	25.65	4.25	22.63	18.42	17.65
L50 R3Y2	14.85	15.93	14.93	14.25	13.22	12.25	11.37	11.91	15.75	25.83	31.07	31.16	30.68	30.13	29.57	29.23	50.00	22.69	8.84	21.99	18.42	15.52
L50 R3Y3	12.48	13.19	12.59	12.36	12.07	11.47	11.04	11.54	18.81	27.15	28.82	29.02	28.80	28.44	28.20	27.94	50.00	19.68	13.89	21.35	18.42	13.38
L50 R3Y4	10.04	10.30	9.96	10.10	10.30	10.18	10.04	11.03	20.55	28.65	29.48	29.00	28.42	27.85	27.32	27.04	50.00	19.68	20.61	21.35	18.42	10.86
L50 R3Y5	7.29	7.22	7.17	7.77	8.94	9.59	9.78	10.87	20.57	29.24	30.29	29.91	29.44	28.96	28.53	28.36	50.00	19.68	28.48	21.35	18.42	8.34
L50 R4Y1	17.99	20.02	17.80	15.65	13.14	11.58	10.12	10.30	11.08	22.45	37.96	40.98	41.08	40.75	40.26	39.96	50.00	34.29	4.30	24.56	18.42	17.61
L50 R4Y2	15.59	16.74	15.29	14.05	12.42	11.21	10.08	10.46	12.34	24.12	36.92	38.75	38.58	38.14	37.60	37.28	50.00	31.50	8.79	23.91	18.42	15.52
L50 R4Y3	13.24	13.82	12.90	12.30	11.39	10.57	9.84	10.47	14.31	26.34	35.43	36.15	35.75	35.20	34.64	34.31	50.00	28.58	13.82	23.28	18.42	13.41
L50 R4Y4	10.75	11.09	10.58	10.40	10.14	9.67	9.28	9.90	17.12	29.65	32.72	33.22	33.08	32.77	32.58	32.39	50.00	25.69	19.51	22.64	18.42	11.25
L50 R4Y5	8.27	8.25	8.02	8.12	8.22	8.22	8.16	9.28	18.99	31.21	33.41	32.97	32.32	31.70	31.14	30.89	50.00	25.71	27.15	22.64	18.42	8.73
L50 R5Y1	19.23	21.65	18.37	15.09	12.14	10.57	9.00	8.97	9.12	19.58	41.11	50.03	51.96	52.60	52.89	52.90	50.00	42.41	4.24	26.50	18.42	17.65
L50 R5Y2	16.40	17.75	15.67	13.73	11.52	10.19	8.96	9.19	10.01	21.18	41.52	47.43	48.19	48.12	47.74	47.52	50.00	39.75	8.84	25.86	18.42	15.52
L50 R5Y3	13.78	14.46	13.16	12.05	10.80	9.85	8.93	9.20	11.20	23.31	40.33	44.98	45.78	45.91	45.96	45.88	50.00	37.04	13.88	25.22	18.42	13.39
L50 R5Y4	11.26	11.55	10.78	10.28	9.67	9.08	8.55	9.04	13.08	26.20	39.11	41.88	42.25	42.20	42.16	42.07	50.00	34.30	19.51	24.57	18.42	11.25
L50 R5Y5	8.64	8.40	7.97	7.85	9.29	11.46	10.40	10.75	10.46	21.41	38.39	43.64	44.80	45.20	45.47	45.53	50.00	31.49	25.87	23.93	18.42	9.13
L50 R6Y1	20.60	23.89	18.88	14.31	10.88	9.34	7.87	7.78	7.65	16.78	42.39	59.52	64.63	66.82	67.95	68.42	50.00	50.17	4.24	28.43	18.42	17.65
L50 R6Y2	17.53	19.27	16.15	13.15	10.56	9.24	7.95	7.96	8.19	18.04	43.11	57.32	61.03	62.48	63.21	63.48	50.00	47.64	8.85	27.79	18.42	15.51
L50 R6Y3	14.61	15.42	13.52	11.75	10.00	8.95	7.92	8.07	8.94	19.73	43.66	54.66	57.16	58.04	58.47	58.61	50.00	45.07	13.89	27.15	18.42	13.38
L50 R6Y4	11.85	12.13	11.03	10.13	9.12	8.41	7.71	8.06	10.06	22.15	43.83	51.44	52.93	53.36	53.58	53.63	50.00	42.45	19.51	26.51	18.42	11.25
L50 R6Y5	9.26	9.27	8.69	8.35	7.90	7.54	7.20	7.80	11.81	25.76	43.20	47.62	48.36	48.47	48.55	48.57	50.00	39.79	25.88	25.87	18.42	9.12
L50 R7Y3	15.69	16.81	13.92	11.27	9.08	8.01	7.00	7.04	7.34	16.31	43.58	64.71	72.28	76.00	78.08	79.14	50.00	52.71	13.89	29.09	18.42	13.38
L50 R7Y4	12.57	12.82	11.30	9.98	8.51	7.70	6.96	7.27	8.09	17.46	44.79	62.42	67.91	70.49	72.65	74.83	50.00	50.22	19.50	28.44	18.42	11.25

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L50 R7Y5	9.71	9.55	8.72	8.12	7.98	7.92	7.21	7.51	8.32	18.71	45.22	60.54	64.67	66.34	67.23	67.66	50.00	47.69	25.88	27.80	18.42	9.12
L50 R1	17.22	19.83	18.93	18.23	17.15	16.11	15.12	15.31	17.81	22.10	23.00	22.65	22.18	21.69	21.20	20.90	50.00	10.14	0.00	19.40	18.42	19.78
L50 R2	18.29	20.91	19.43	18.01	16.07	14.59	13.10	13.30	14.79	23.57	28.30	28.40	27.97	27.47	26.94	26.60	50.00	19.63	0.00	21.34	18.42	19.78
L50 R3	19.39	22.26	20.00	17.70	14.95	13.19	11.49	11.61	12.27	23.13	33.79	35.12	34.90	34.45	33.93	33.59	50.00	28.56	0.00	23.27	18.42	19.78
L50 R4	20.54	23.98	20.56	17.12	13.64	11.77	10.03	10.06	10.19	21.11	38.64	42.90	43.29	43.08	42.64	42.37	50.00	37.00	0.00	25.21	18.42	19.78
L50 R5	22.05	26.10	21.09	16.26	12.44	10.65	8.89	8.77	8.53	18.40	41.09	52.06	54.64	55.58	56.03	56.11	50.00	45.03	0.00	27.14	18.42	19.78
L50 R1B1	19.94	24.54	23.64	22.32	20.63	19.28	17.40	16.65	15.99	19.11	20.55	20.43	20.36	20.21	19.95	19.57	50.00	6.85	−8.05	18.76	18.42	24.28
L50 R1B2	23.00	30.81	30.97	29.72	26.53	22.02	18.09	16.25	15.60	16.34	18.27	17.63	18.75	22.91	25.44	26.05	50.00	6.87	−19.12	18.76	18.42	31.52
L50 R1B3	25.82	37.47	39.06	37.08	31.38	24.09	18.68	16.24	15.03	15.02	15.96	15.05	15.93	19.50	21.34	20.49	50.00	6.86	−28.60	18.76	18.42	38.76
L50 R2B1	21.23	26.29	24.36	21.93	18.83	16.89	14.76	14.61	14.27	21.68	25.35	25.35	24.95	24.48	23.98	23.66	50.00	16.54	−8.03	20.70	18.42	24.28
L50 R2B2	23.73	30.48	29.06	26.21	22.50	19.41	16.35	15.37	14.62	18.64	21.99	21.96	23.07	26.54	28.74	29.25	50.00	13.40	−15.13	20.06	18.42	28.77
L50 R2B3	26.03	36.82	36.77	33.66	27.80	21.58	16.91	15.15	14.53	16.39	19.47	18.81	20.67	28.68	36.28	39.66	50.00	13.41	−25.15	20.05	18.42	36.01
L50 R3B1	22.67	28.23	25.03	21.32	17.29	15.03	12.76	12.66	12.31	22.15	30.50	31.33	31.06	30.61	30.09	29.76	50.00	25.65	−8.04	22.63	18.42	24.28
L50 R3B2	25.23	33.24	29.95	25.43	20.31	17.06	14.07	13.56	13.06	20.29	26.77	26.69	28.26	33.48	36.53	37.37	50.00	22.69	−15.14	21.99	18.42	28.77
L50 R3B3	25.86	37.33	34.78	29.88	23.75	19.23	15.20	14.24	13.57	18.56	23.24	22.85	24.74	33.83	43.33	47.96	50.00	19.66	−21.53	21.35	18.42	33.27
L50 R4B1	24.15	30.53	25.68	20.61	15.85	13.41	11.16	11.02	10.70	21.02	35.23	37.59	38.87	41.67	42.76	42.93	50.00	34.25	−8.04	24.56	18.42	24.28
L50 R5B1	24.24	31.69	26.25	20.18	14.88	12.22	9.64	9.58	8.89	19.07	38.51	43.71	48.38	61.58	71.05	75.20	50.00	42.40	−8.04	26.50	18.42	24.28
L50 B1	20.33	26.09	26.00	25.39	23.88	21.78	19.44	17.94	16.92	16.57	16.68	15.96	16.17	17.27	17.47	16.96	50.00	0.00	−12.47	17.46	18.42	27.02
L50 B2	23.52	32.57	33.57	32.64	29.41	24.63	20.20	17.66	15.83	14.83	14.55	13.64	13.99	15.64	16.05	15.11	50.00	0.00	−22.86	17.47	18.42	34.26
L50 B3	25.21	37.88	41.39	40.37	34.72	27.00	20.85	17.43	14.80	13.11	12.36	11.48	11.76	13.08	13.32	12.34	50.00	0.00	−31.88	17.47	18.42	41.50
L50 G1B1	18.48	23.14	22.98	22.64	21.93	21.37	20.59	19.54	17.95	16.34	15.14	14.40	14.18	14.27	13.98	13.36	50.00	−5.32	−8.04	16.50	18.42	24.27
L50 G1B2	22.38	29.60	30.44	29.84	27.93	24.93	21.69	18.95	16.28	14.25	13.26	12.43	12.60	13.54	13.71	12.82	50.00	−5.32	−19.11	16.51	18.42	31.52
L50 G1B3	23.71	34.81	37.92	37.70	33.93	28.04	22.39	18.45	14.91	12.48	11.28	10.48	10.62	11.45	11.45	10.63	50.00	−5.31	−28.61	16.51	18.42	38.76
L50 G1B4	23.74	37.67	45.22	46.52	40.21	30.94	23.13	17.81	13.35	10.62	9.39	8.77	8.88	9.48	9.43	8.80	50.00	−5.31	−36.97	16.51	18.42	46.00
L50 G2B1	16.72	20.95	22.07	23.43	23.91	23.59	22.55	20.70	17.81	14.91	12.65	11.49	11.11	11.14	11.26	11.12	50.00	−12.67	−8.04	15.24	18.42	24.28
L50 G2B2	20.16	26.64	27.29	27.16	26.22	25.08	23.19	20.42	16.68	13.63	11.98	11.17	11.12	11.50	11.31	10.58	50.00	−10.84	−15.14	15.55	18.42	28.77
L50 G2B3	22.10	31.77	34.55	34.88	32.71	28.93	24.14	19.49	14.80	11.69	10.22	9.52	9.57	10.09	9.98	9.31	50.00	−10.85	−25.16	15.54	18.42	36.01
L50 G2B4	22.16	34.55	41.55	43.78	39.89	32.72	24.96	18.38	12.88	9.81	8.54	8.02	8.10	8.51	8.41	7.91	50.00	−10.84	−33.90	15.55	18.42	43.25
L50 G3B1	14.83	18.56	20.69	24.09	26.68	26.73	24.94	21.51	16.86	12.98	10.42	9.29	8.95	8.98	9.21	9.26	50.00	−20.42	−8.04	13.97	18.42	24.28
L50 G3B2	17.79	23.47	25.82	28.27	29.22	28.38	25.68	21.04	15.53	11.77	9.87	9.06	8.94	9.17	9.16	8.79	50.00	−18.51	−15.14	14.28	18.42	28.77
L50 G3B3	20.21	28.40	31.14	32.31	31.64	29.93	26.25	20.49	14.45	10.82	9.24	8.63	8.63	8.95	8.82	8.30	50.00	−16.61	−21.53	14.58	18.42	33.26
L50 G3B4	19.95	30.76	37.91	41.17	39.57	34.81	26.86	18.75	12.28	8.99	7.78	7.36	7.36	7.62	7.55	7.23	50.00	−16.60	−30.71	14.58	18.42	40.50
L50 G4B1	13.08	16.31	19.07	24.47	30.49	31.30	27.71	21.53	15.05	10.86	8.58	7.69	7.45	7.50	7.71	7.79	50.00	−28.68	−8.04	12.70	18.42	24.28
L50 G4B2	15.29	20.02	23.57	29.20	34.01	33.32	28.08	20.51	13.68	9.91	8.18	7.53	7.43	7.58	7.64	7.49	50.00	−26.63	−15.14	13.01	18.42	28.77
L50 G4B3	16.98	23.47	28.16	34.08	37.66	35.32	28.24	19.49	12.56	9.12	7.72	7.22	7.21	7.42	7.39	7.14	50.00	−24.61	−21.53	13.31	18.42	33.26
L50 G4B4	18.60	26.53	32.85	39.08	41.14	36.96	28.28	18.67	11.50	8.35	7.21	6.83	6.87	7.08	7.04	6.72	50.00	−22.63	−27.36	13.62	18.42	37.76
L50 G1	14.58	17.42	17.72	18.73	20.01	20.42	20.12	19.54	18.68	17.60	16.04	14.95	14.35	14.03	14.13	14.35	50.00	−7.08	0.00	16.20	18.42	19.78
L50 G2	13.26	15.85	16.90	19.09	21.65	22.46	21.97	20.81	18.89	16.35	13.38	11.79	11.12	10.90	11.33	11.92	50.00	−14.52	0.00	14.92	18.42	19.78
L50 G3	12.07	14.55	16.08	19.31	23.47	25.26	24.41	22.01	18.21	14.24	10.94	9.39	8.86	8.71	9.16	9.62	50.00	−22.39	0.00	13.66	18.42	19.78
L50 G4	10.56	12.61	14.70	19.58	26.58	28.95	26.96	22.54	16.94	12.09	8.74	7.51	7.10	7.02	7.40	7.92	50.00	−30.77	0.00	12.39	18.42	19.78
L50 G5	9.44	11.35	13.44	19.22	30.00	34.65	30.46	22.41	14.27	9.52	7.21	6.38	6.17	6.17	6.44	6.64	50.00	−39.76	0.00	11.12	18.42	19.78
L50 G1Y1	13.24	15.42	15.49	16.55	18.60	19.56	19.52	19.14	18.62	18.10	17.34	16.73	16.29	15.94	15.75	15.70	50.00	−5.30	4.25	16.51	18.42	17.64
L50 G1Y2	13.33	13.94	13.07	13.43	16.24	19.13	19.47	19.24	18.83	18.45	18.10	17.79	17.48	17.12	16.86	16.54	50.00	−5.29	9.75	16.51	18.42	15.12
L50 G1Y3	17.34	12.06	9.47	10.37	16.55	19.03	18.70	18.38	19.33	19.31	19.01	18.68	18.32	17.90	17.58	17.21	50.00	−5.30	15.90	16.51	18.42	12.59
L50 G1Y4	9.19	8.61	8.41	8.64	11.09	17.29	19.15	19.15	20.03	19.92	19.45	19.07	18.66	18.25	17.87	17.64	50.00	−5.31	22.93	16.51	18.42	10.07
L50 G2Y1	12.21	14.23	14.84	16.74	19.92	21.38	21.26	20.44	19.06	17.16	14.68	13.21	12.55	12.30	12.68	13.19	50.00	−12.65	4.24	15.24	18.42	17.65
L50 G2Y2	10.95	12.38	12.73	14.49	18.25	20.38	20.61	20.09	19.16	17.91	16.09	14.88	14.28	14.01	14.26	14.63	50.00	−10.83	8.84	15.54	18.42	15.51
L50 G2Y3	9.14	9.90	10.16	11.96	16.57	19.71	20.37	20.03	19.31	18.36	16.88	15.86	15.33	15.07	15.25	15.56	50.00	−10.82	14.88	15.55	18.42	12.99
L50 G2Y4	8.20	8.30	8.21	8.55	11.38	17.75	19.94	20.18	19.47	18.36	16.94	15.95	15.51	15.32	15.66	15.96	50.00	−10.81	21.75	15.55	18.42	10.47
L50 G2Y5	5.58	6.51	6.41	6.57	8.91	16.46	21.12	21.20	20.75	19.46	17.86	16.73	16.27	16.17	16.33	16.38	50.00	−10.81	29.88	15.55	18.42	7.93
L50 G3Y1	11.19	13.06	14.17	16.98	21.60	23.70	23.32	21.66	18.90	15.50	12.06	10.45	9.83	9.67	10.17	10.83	50.00	−20.43	4.24	13.97	18.42	17.65
L50 G3Y2	11.20	12.52	12.92	14.13	17.86	22.54	23.00	21.74	19.28	16.29	13.30	11.66	11.06	10.86	11.36	11.87	50.00	−18.48	8.86	14.28	18.42	15.51
L50 G3Y3	8.99	9.81	10.25	12.34	17.64	21.25	21.82	21.06	19.55	17.41	14.67	13.13	12.48	12.28	12.78	13.43	50.00	−16.58	13.89	14.59	18.42	13.39
L50 G3Y4	16.60	9.53	7.54	8.39	15.86	21.53	21.34	20.70	19.81	18.37	15.79	13.57	12.74	12.67	13.74	14.49	50.00	−16.56	20.63	14.59	18.42	10.85
L50 G3Y5	6.68	6.57	6.55	6.91	9.70	18.00	22.05	22.43	20.88	18.54	15.87	14.32	13.79	13.70	14.42	15.15	50.00	−16.57	28.50	14.59	18.42	8.33
L50 G4Y1	10.05	11.70	13.20	16.98	23.73	27.00	25.98	22.67	17.95	13.32	9.74	8.35	7.87	7.78	8.22	8.83	50.00	−28.66	4.24	12.70	18.42	17.65
L50 G4Y2	12.93	11.30	11.48	14.04	21.68	24.37	23.88	22.63	20.00	15.59	10.50	8.08	7.49	7.59	8.79	10.06	50.00	−26.61	8.85	13.01	18.42	15.51

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L50 G4Y3	8.32	9.05	9.69	12.20	18.84	23.72	24.16	22.44	19.37	15.65	12.02	10.40	9.81	9.68	10.26	11.02	50.00	−24.58	13.88	13.32	18.42	13.38
L50 G4Y4	9.02	9.11	9.08	9.60	12.96	21.61	24.38	23.01	20.19	16.54	12.91	11.14	10.51	10.41	11.05	11.75	50.00	−22.57	19.51	13.63	18.42	11.25
L50 G4Y5	6.72	6.69	6.73	7.22	10.41	19.83	24.21	23.71	20.68	16.95	13.48	11.76	11.23	11.16	11.92	12.73	50.00	−22.58	27.17	13.63	18.42	8.72
L50 G5Y1	9.00	10.44	12.15	16.82	26.49	31.80	29.17	22.84	15.98	10.93	7.85	6.82	6.48	6.44	6.78	7.25	50.00	−37.50	4.25	11.43	18.42	17.65
L50 G5Y2	8.45	9.52	10.74	14.39	23.27	29.36	28.15	23.29	17.20	12.13	8.72	7.51	7.11	7.06	7.48	8.04	50.00	−35.30	8.86	11.74	18.42	15.51
L50 G5Y3	7.68	8.33	9.14	12.03	20.36	27.19	27.11	23.46	18.24	13.33	9.68	8.31	7.85	7.79	8.28	8.95	50.00	−33.11	13.89	12.05	18.42	13.38
L50 G5Y4	6.71	6.90	7.38	9.70	17.63	25.27	26.16	23.49	19.11	14.51	10.71	9.20	8.70	8.62	9.20	9.98	50.00	−30.98	19.52	12.36	18.42	11.25
L50 G5Y5	6.56	6.62	6.78	7.57	11.47	21.90	25.72	23.80	21.95	15.55	11.03	9.30	8.84	8.82	9.57	10.43	50.00	−28.87	25.88	12.67	18.42	9.12
L50 G6Y2	7.61	8.51	9.79	13.82	25.49	35.61	31.80	22.77	14.76	9.79	7.09	6.24	5.98	5.97	6.27	6.68	50.00	−44.59	8.84	10.47	18.42	15.52
L50 G6Y3	7.01	7.56	8.42	11.55	21.95	32.40	30.81	23.61	16.13	10.90	7.82	6.81	6.49	6.48	6.85	7.36	50.00	−42.26	13.89	10.78	18.42	13.38
L50 G6Y4	7.60	7.94	8.30	9.37	14.31	28.02	31.50	25.00	17.88	11.77	8.21	7.05	6.68	6.63	7.01	7.54	50.00	−39.97	19.49	11.09	18.42	11.26
L55 N	18.79	23.45	22.97	22.77	22.93	23.04	22.58	22.31	23.54	23.50	22.99	22.53	22.05	21.57	21.05	20.75	55.00	0.00	0.00	21.72	22.93	24.59
L55 Y1	16.74	19.60	19.37	20.08	21.55	22.13	22.10	22.11	23.92	24.25	23.96	23.60	23.23	22.84	22.43	22.21	55.00	0.00	5.28	21.74	22.93	21.57
L55 Y2	14.26	16.11	16.01	17.18	19.82	21.29	21.66	21.89	24.43	25.07	24.90	24.63	24.33	24.01	23.67	23.53	55.00	0.00	11.09	21.74	22.93	18.52
L55 Y3	19.94	15.07	11.95	13.03	19.49	21.36	20.97	20.83	24.93	26.14	26.00	25.66	25.24	24.74	24.36	23.92	55.00	0.00	17.58	21.74	22.93	15.47
L55 Y4	9.17	9.55	9.64	11.23	15.77	19.50	20.93	21.61	25.34	26.59	26.69	26.60	26.49	26.33	26.16	26.20	55.00	0.00	24.98	21.74	22.93	12.41
L55 Y5	6.63	6.44	6.59	8.18	13.39	18.54	20.66	21.58	25.77	27.29	27.53	27.54	27.53	27.47	27.39	27.52	55.00	0.00	33.71	21.74	22.93	9.37
L55 R1Y1	18.37	21.26	20.62	20.51	20.40	19.81	19.38	19.67	24.92	26.71	26.65	26.29	25.86	25.39	24.91	24.64	55.00	6.80	4.35	23.22	22.93	22.09
L55 R1Y2	16.31	18.00	17.41	17.37	18.50	19.26	19.13	19.26	25.19	27.53	27.65	27.40	27.04	26.57	26.23	25.83	55.00	6.81	10.06	23.22	22.93	19.03
L55 R1Y3	12.94	14.05	13.86	14.82	17.05	18.18	18.53	19.18	25.66	28.31	28.55	28.37	28.12	27.82	27.50	27.41	55.00	6.80	16.43	23.23	22.93	15.98
L55 R1Y4	10.22	10.69	10.66	11.90	15.10	17.32	18.19	19.05	26.03	29.07	29.46	29.39	29.24	29.04	28.82	28.83	55.00	6.80	23.65	23.23	22.93	12.93
L55 R1Y5	7.48	7.41	7.50	8.87	12.89	16.41	17.91	18.99	26.41	29.82	30.37	30.42	30.38	30.29	30.18	30.29	55.00	6.80	32.13	23.23	22.93	9.88
L55 R1Y6	6.21	5.65	5.54	5.67	7.36	14.22	18.28	19.49	27.68	31.07	30.96	30.61	30.25	29.92	29.60	29.54	55.00	6.79	42.60	23.23	22.93	6.82
L55 R2Y1	19.50	22.28	21.14	20.34	19.18	17.88	16.76	17.12	21.69	29.70	32.36	32.33	31.95	31.49	30.98	30.71	55.00	16.42	4.36	25.43	22.93	22.08
L55 R2Y2	17.23	19.13	18.34	18.01	17.68	16.85	16.46	16.69	25.09	29.85	30.47	30.33	29.97	29.50	29.15	28.75	55.00	13.32	9.07	24.71	22.93	19.54
L55 R2Y3	14.64	15.68	15.09	15.05	15.98	16.43	16.30	16.66	25.52	30.81	31.54	31.45	31.13	30.69	30.37	30.02	55.00	13.32	15.31	24.71	22.93	16.49
L55 R2Y4	11.92	12.34	11.93	12.07	13.86	15.73	15.97	16.52	25.80	31.61	32.49	32.47	32.21	31.82	31.57	31.27	55.00	13.31	22.37	24.71	22.93	13.44
L55 R2Y5	16.17	9.87	7.79	8.51	13.78	15.73	15.40	15.72	25.63	32.65	33.75	33.71	33.37	32.91	32.57	32.19	55.00	13.32	30.59	24.71	22.93	10.39
L55 R2Y6	6.51	6.22	6.11	6.25	8.10	12.95	15.34	17.20	27.11	32.97	33.97	34.12	34.13	34.08	34.02	34.20	55.00	13.31	40.63	24.71	22.93	7.34
L55 R3Y1	20.44	23.31	21.64	20.16	18.16	16.46	14.84	15.12	17.78	30.37	38.74	39.63	39.46	39.08	38.62	38.38	55.00	25.48	4.36	27.64	22.93	22.09
L55 R3Y2	18.06	19.89	18.73	17.97	16.88	15.64	14.61	15.11	20.49	31.83	36.92	37.26	36.97	36.55	36.08	35.85	55.00	22.56	9.07	26.92	22.93	19.54
L55 R3Y3	15.72	16.83	16.03	15.72	15.28	14.47	14.00	14.75	24.71	33.13	34.74	34.65	34.28	33.84	33.37	33.16	55.00	19.58	14.21	26.19	22.93	17.01
L55 R3Y4	12.57	13.11	12.66	12.92	13.51	13.52	13.48	14.40	25.33	34.06	35.58	35.58	35.33	35.00	34.65	34.57	55.00	19.58	21.11	26.19	22.93	13.96
L55 R3Y5	9.45	9.56	9.40	10.08	11.67	12.70	13.17	14.29	25.51	34.76	36.50	36.65	36.54	36.35	36.14	36.19	55.00	19.58	29.11	26.19	22.93	10.90
L55 R3Y6	6.97	6.76	6.64	6.84	8.66	12.06	13.18	14.45	25.70	35.39	37.38	37.77	37.76	37.60	37.57	37.52	55.00	19.58	38.78	26.19	22.93	7.85
L55 R4Y1	21.32	24.49	22.13	19.81	17.00	15.03	13.15	13.33	14.65	28.88	44.91	47.91	48.19	48.02	47.65	47.49	55.00	34.09	4.37	29.85	22.93	22.08
L55 R4Y2	18.78	20.71	19.10	17.76	15.97	14.44	13.04	13.42	16.41	30.88	43.60	45.47	45.51	45.24	44.84	44.67	55.00	31.31	9.07	29.13	22.93	19.54
L55 R4Y3	16.28	17.36	16.27	15.60	14.64	13.56	12.68	13.29	19.09	33.34	41.73	42.62	42.46	42.12	41.69	41.53	55.00	28.48	14.21	28.40	22.93	17.01
L55 R4Y4	13.81	14.34	13.62	13.35	12.95	12.27	11.87	12.73	23.17	35.84	39.25	39.43	39.14	38.75	38.33	38.20	55.00	25.61	19.89	27.68	22.93	14.47
L55 R4Y5	10.56	10.69	10.34	10.56	11.06	11.20	11.25	12.31	24.06	37.08	39.93	40.17	40.00	39.75	39.46	39.47	55.00	25.61	27.67	27.67	22.93	11.42
L55 R4Y6	7.57	7.54	7.27	7.43	8.95	10.73	11.09	12.01	24.29	37.84	40.84	41.28	41.17	40.89	40.74	40.57	55.00	25.61	36.99	27.67	22.93	8.37
L55 R5Y1	22.43	25.86	22.66	19.31	15.96	13.95	11.86	11.80	12.14	25.49	49.27	58.30	60.07	60.54	60.71	60.61	55.00	42.27	4.37	32.06	22.93	22.08
L55 R5Y2	19.59	21.80	19.57	17.49	14.99	13.25	11.64	11.88	13.35	28.04	49.41	54.83	55.68	55.76	55.52	55.47	55.00	39.62	9.08	31.33	22.93	19.54
L55 R5Y3	16.91	18.08	16.62	15.46	13.92	12.62	11.44	11.90	15.05	30.67	48.42	51.86	52.24	52.13	51.82	51.74	55.00	36.94	14.21	30.61	22.93	17.00
L55 R5Y4	14.29	14.81	13.86	13.30	12.49	11.61	10.90	11.61	17.51	33.98	46.68	48.44	48.48	48.24	47.90	47.82	55.00	34.20	19.89	29.88	22.93	14.47
L55 R5Y5	11.43	11.80	11.19	11.00	10.78	10.25	10.00	10.65	21.47	38.16	43.78	44.58	44.45	44.12	43.89	43.68	55.00	31.43	26.27	29.16	22.93	11.93
L55 R5Y6	8.26	8.46	8.01	8.03	8.79	9.20	9.16	9.91	22.81	40.02	44.31	44.86	44.70	44.35	44.13	43.90	55.00	31.42	35.29	29.16	22.93	8.88
L55 R6Y2	21.00	22.70	19.87	17.20	14.34	12.41	10.41	10.55	10.90	24.36	51.55	65.78	70.62	73.97	75.52	75.73	55.00	47.56	9.07	33.54	22.93	19.55
L55 R6Y3	17.32	18.90	16.98	15.19	13.21	11.74	10.26	10.40	12.16	26.97	52.68	62.64	64.61	65.16	65.38	65.35	55.00	44.98	14.21	32.82	22.93	17.01
L55 R6Y4	14.41	15.39	14.10	13.12	11.95	10.81	9.77	10.08	13.96	30.68	52.49	58.50	59.40	59.49	59.45	59.31	55.00	42.38	19.88	32.09	22.93	14.47
L55 R6Y5	11.64	12.33	11.40	10.91	10.31	9.44	8.81	9.29	16.85	35.87	50.91	53.65	53.85	53.62	53.43	53.21	55.00	39.74	26.27	31.37	22.93	11.93
L55 R6Y6	9.29	9.18	8.80	8.68	8.45	8.21	8.05	9.13	19.53	40.27	48.69	49.60	49.54	49.34	49.08	49.16	55.00	36.97	33.71	30.65	22.93	9.38
L55 R7Y4	15.37	16.08	14.40	12.96	11.24	10.07	9.01	9.38	11.05	25.15	55.71	70.50	74.67	76.34	76.84	77.30	55.00	50.15	19.88	34.31	22.93	14.49
L55 R7Y5	12.46	12.58	11.60	10.91	9.97	9.22	8.55	9.18	12.51	28.60	56.72	66.23	68.16	68.76	68.83	69.03	55.00	47.60	26.29	33.58	22.93	11.94
L55 R7Y6	9.54	9.38	8.90	8.65	8.25	7.93	7.64	8.56	14.69	34.04	56.41	60.93	61.56	61.65	61.53	61.68	55.00	45.05	33.67	32.86	22.93	9.39
L55 R8Y4	15.97	16.67	14.81	12.88	10.44	8.82	6.94	7.14	7.57	26.41	59.74	78.16	84.23	87.20	88.84	89.87	55.00	57.63	19.89	36.52	22.93	14.49

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L55 R8Y5	24.06	13.55	11.10	10.71	9.81	8.52	7.34	7.82	8.51	27.07	58.74	76.59	82.48	85.43	87.18	88.07	55.00	55.19	26.28	35.79	22.93	11.94
L55 R8Y6	9.66	9.64	8.99	8.58	8.06	7.64	7.25	7.82	11.58	27.38	58.49	74.53	78.82	80.43	81.12	81.59	55.00	52.72	33.68	35.07	22.93	9.39
L55 R1	20.58	24.50	23.51	22.72	21.54	20.31	19.17	19.29	22.31	26.97	28.04	27.78	27.35	26.87	26.35	26.05	55.00	10.03	0.00	23.95	22.93	24.62
L55 R2	21.71	25.71	24.09	22.54	20.39	18.60	16.82	16.97	18.99	29.00	33.98	34.28	33.97	33.53	33.03	32.75	55.00	19.46	0.00	26.16	22.93	24.62
L55 R3	23.00	26.95	24.63	22.10	19.25	17.22	15.03	14.94	15.80	28.37	40.07	42.19	42.31	42.06	41.82	41.46	55.00	28.36	0.00	28.37	22.93	24.62
L55 R4	24.13	28.58	25.25	21.60	17.91	15.67	13.29	13.17	13.31	26.59	45.58	50.91	51.73	51.79	51.73	51.48	55.00	36.82	0.00	30.57	22.93	24.62
L55 R5	25.28	30.45	25.85	20.99	16.60	14.23	11.81	11.64	11.42	23.96	48.68	58.83	63.57	72.98	81.20	85.40	55.00	44.88	0.00	32.78	22.93	24.62
L55 R1B1	23.69	29.91	28.91	27.33	25.28	23.70	21.66	21.05	20.19	23.90	25.32	25.12	24.95	24.93	24.77	24.38	55.00	6.80	−7.90	23.22	22.93	29.70
L55 R1B2	26.59	36.89	37.12	35.75	32.23	27.12	22.59	20.41	19.63	20.54	22.89	22.15	23.50	28.38	31.43	32.35	55.00	6.81	−18.84	23.22	22.93	37.83
L55 R1B3	29.88	44.40	46.00	43.91	37.75	29.31	23.08	20.25	19.20	19.18	20.28	19.05	20.15	24.77	27.27	26.01	55.00	6.80	−28.29	23.22	22.93	45.95
L55 R2B1	24.59	31.69	29.66	27.01	23.55	21.26	18.72	18.53	18.10	26.68	30.81	30.96	30.63	30.17	29.66	29.34	55.00	16.41	−7.90	25.43	22.93	29.71
L55 R2B2	26.74	36.33	34.86	31.99	27.71	24.03	20.39	19.35	18.61	23.56	27.29	26.88	28.00	31.55	33.32	33.75	55.00	13.32	−14.95	24.71	22.93	34.79
L55 R2B3	30.57	43.79	43.80	39.93	33.49	26.69	21.44	19.19	18.26	20.44	24.12	23.74	25.98	35.50	46.03	51.28	55.00	13.31	−24.90	24.71	22.93	42.91
L55 R3B1	27.08	33.51	30.22	26.42	22.21	19.37	16.52	16.45	15.85	26.22	36.75	38.45	38.37	37.96	37.58	37.06	55.00	25.49	−7.90	27.64	22.93	29.70
L55 R3B2	28.47	39.24	35.90	31.06	25.34	21.51	17.87	17.24	16.57	25.20	32.56	32.67	34.47	39.87	42.95	43.89	55.00	22.56	−14.95	26.92	22.93	34.79
L55 R3B3	30.12	43.74	41.28	36.08	29.25	23.86	19.27	18.01	17.28	22.90	28.63	28.17	30.76	40.77	49.90	54.14	55.00	19.58	−21.33	26.19	22.93	39.87
L55 R4B1	28.06	35.93	31.12	25.56	20.39	17.64	14.61	14.35	13.55	26.04	42.07	45.94	46.61	46.91	46.94	46.67	55.00	34.09	−7.90	29.85	22.93	29.70
L55 R4B2	30.06	42.26	36.76	30.07	23.34	19.38	15.82	15.33	14.74	25.30	37.41	38.30	41.88	54.98	69.02	78.29	55.00	31.31	−14.95	29.12	22.93	34.79
L55 B1	22.73	31.39	31.44	30.79	29.09	26.74	24.05	22.38	21.27	20.87	21.04	20.24	20.40	21.83	22.21	21.75	55.00	0.00	−12.21	21.75	22.93	32.76
L55 B2	28.00	38.91	40.04	38.77	35.21	29.87	25.09	22.03	19.90	18.70	18.64	17.63	18.20	20.63	21.66	20.52	55.00	0.00	−22.53	21.74	22.93	40.87
L55 B3	28.10	44.84	48.89	47.62	41.28	32.56	25.54	21.82	18.98	17.05	16.25	15.06	15.31	17.27	17.92	16.74	55.00	0.00	−31.56	21.74	22.93	48.98
L55 G1B1	21.85	28.24	28.11	27.73	26.93	26.28	25.40	24.23	22.44	20.59	19.16	18.23	17.93	18.03	17.65	16.84	55.00	−5.36	−7.90	20.62	22.93	29.70
L55 G1B2	26.28	35.56	36.45	35.77	33.65	30.29	26.63	23.55	20.55	18.21	17.08	16.01	16.22	17.46	17.69	16.51	55.00	−5.37	−18.84	20.62	22.93	37.83
L55 G1B3	27.64	41.69	44.87	44.48	40.30	33.69	27.36	23.02	19.10	16.31	14.86	13.72	13.87	15.10	15.21	14.03	55.00	−5.36	−28.30	20.62	22.93	45.95
L55 G1B4	28.27	45.91	53.48	53.94	46.72	36.77	28.28	22.60	17.53	14.25	12.61	11.62	11.73	12.68	12.69	11.68	55.00	−5.36	−36.70	20.62	22.93	54.07
L55 G2B1	20.45	25.97	27.09	28.42	29.08	28.80	27.73	25.65	22.27	18.83	16.25	14.79	14.37	14.40	14.53	14.14	55.00	−12.73	−7.95	19.12	22.93	29.70
L55 G2B2	24.43	32.30	33.01	32.75	31.78	30.45	28.40	25.35	21.08	17.47	15.48	14.42	14.38	14.92	14.76	13.65	55.00	−10.92	−14.95	19.49	22.93	34.79
L55 G2B3	27.04	38.40	41.23	41.31	38.88	34.56	29.48	24.44	19.07	15.28	13.47	12.46	12.56	13.38	13.37	12.28	55.00	−10.92	−24.90	19.49	22.93	42.91
L55 G2B4	27.91	42.42	49.32	50.86	46.28	38.34	30.43	23.53	17.11	13.17	11.45	10.59	10.70	11.42	11.41	10.48	55.00	−10.92	−33.67	19.49	22.93	51.03
L55 G3B1	18.41	23.45	25.69	29.16	31.98	32.17	30.40	26.74	21.32	16.64	13.54	12.00	11.57	11.61	11.90	11.74	55.00	−20.51	−7.99	17.61	22.93	29.70
L55 G3B2	21.34	29.10	31.69	33.89	34.55	33.72	31.05	26.42	20.25	15.39	12.79	11.62	11.35	11.67	11.70	11.11	55.00	−18.59	−14.99	17.99	22.93	34.79
L55 G3B3	25.01	34.92	37.33	38.34	38.12	35.52	31.29	25.34	19.63	14.36	12.03	11.08	11.07	11.64	11.44	10.52	55.00	−16.70	−21.34	18.37	22.93	39.87
L55 G3B4	25.06	38.96	45.37	47.75	45.54	40.43	32.74	24.20	16.54	12.23	10.38	9.63	9.66	10.14	9.98	9.27	55.00	−16.70	−30.50	18.37	22.93	47.99
L55 G4B1	16.41	20.94	23.98	29.66	35.79	36.79	33.52	27.22	19.53	14.17	11.15	9.81	9.48	9.54	9.83	9.76	55.00	−28.74	−8.04	16.11	22.93	29.70
L55 G4B2	19.37	25.64	29.38	34.84	39.28	38.76	34.06	26.36	18.07	13.06	10.66	9.63	9.48	9.70	9.80	9.37	55.00	−26.70	−15.04	16.49	22.93	34.79
L55 G4B3	21.82	30.13	34.88	40.05	42.79	40.74	34.49	25.51	16.85	12.12	10.08	9.25	9.21	9.52	9.50	8.92	55.00	−24.70	21.38	16.87	22.93	39.87
L55 G4B4	22.64	33.89	40.34	45.54	46.56	42.84	34.59	24.33	15.80	11.37	9.54	8.86	8.86	9.21	9.09	8.56	55.00	−22.71	−27.21	17.25	22.93	44.95
L55 G5B1	14.27	18.15	21.77	29.72	41.32	43.32	36.35	26.23	17.32	11.85	9.15	8.14	7.90	7.97	8.19	8.26	55.00	−37.52	−8.07	14.61	22.93	29.70
L55 G5B2	16.42	21.88	26.56	35.36	46.14	46.04	36.55	24.91	15.71	10.96	8.83	8.05	7.92	8.09	8.17	8.02	55.00	−35.33	−15.09	14.99	22.93	34.79
L55 G5B3	18.74	25.97	31.76	40.99	49.92	47.34	36.55	24.32	14.71	10.11	8.23	7.50	7.45	7.69	7.72	7.33	55.00	−33.19	−21.43	15.37	22.93	39.87
L55 G1	18.33	22.22	22.35	22.91	24.28	25.33	25.01	24.31	23.25	21.95	20.12	18.80	18.07	17.65	17.73	17.94	55.00	−7.16	0.00	20.25	22.93	24.62
L55 G2	16.86	20.55	21.57	23.46	26.13	27.68	27.18	25.83	23.53	20.54	16.99	15.01	14.15	13.82	14.33	14.99	55.00	−14.69	0.00	18.76	22.93	24.62
L55 G3	15.13	18.55	20.41	23.97	28.52	30.65	29.74	27.21	23.13	18.42	14.01	11.96	11.19	10.96	11.55	12.31	55.00	−22.63	0.00	17.27	22.93	24.62
L55 G4	13.26	16.31	18.83	24.42	31.93	34.57	32.72	28.19	21.84	15.82	11.34	9.57	8.97	8.81	9.33	10.02	55.00	−31.04	0.00	15.77	22.93	24.62
L55 G5	11.91	14.69	17.34	24.10	35.68	40.54	36.52	28.23	19.06	12.89	9.41	8.05	7.66	7.61	8.01	8.34	55.00	−40.00	0.00	14.28	22.93	24.62
L55 G1Y1	17.49	20.25	19.97	20.13	22.08	24.34	24.43	23.94	23.26	22.52	21.66	20.94	20.44	19.99	19.83	19.60	55.00	−5.36	4.37	20.62	22.93	22.08
L55 G1Y2	15.49	17.21	16.84	17.04	19.79	23.65	24.25	23.96	23.47	23.00	22.56	22.17	21.79	21.36	21.04	20.66	55.00	−5.37	10.07	20.62	22.93	19.03
L55 G1Y3	13.12	14.03	13.76	14.10	17.35	22.52	23.62	23.58	24.60	24.27	23.38	22.61	22.12	21.72	21.70	21.61	55.00	−5.37	16.43	20.62	22.93	15.98
L55 G1Y4	9.18	9.66	9.81	11.59	16.90	21.58	23.30	23.64	24.27	24.46	24.37	24.24	24.12	23.97	23.80	23.83	55.00	−5.36	23.67	20.62	22.93	12.92
L55 G1Y5	6.75	6.62	6.79	8.54	14.48	20.62	23.05	23.66	24.78	25.19	25.22	25.19	25.16	25.10	25.02	25.13	55.00	−5.37	32.13	20.62	22.93	9.88
L55 G2Y1	15.13	18.05	18.79	20.97	24.49	26.23	26.23	25.34	23.71	21.49	18.57	16.80	16.02	15.73	16.24	16.90	55.00	−12.80	4.36	19.13	22.93	22.08
L55 G2Y2	15.11	17.02	17.01	17.66	20.95	25.26	25.81	25.16	23.90	22.22	20.12	18.62	17.90	17.52	17.82	18.07	55.00	−10.93	9.07	19.50	22.93	19.54
L55 G2Y3	13.12	14.16	13.99	14.53	18.36	24.35	25.60	25.23	24.21	22.90	21.00	19.67	18.97	18.61	18.80	19.14	55.00	−10.93	15.30	19.49	22.93	16.49
L55 G2Y4	10.93	11.31	11.12	11.54	15.37	23.15	25.57	25.53	24.66	23.52	21.82	20.62	19.98	19.67	19.87	20.23	55.00	−10.93	22.37	19.49	22.93	13.44
L55 G2Y5	8.55	8.49	8.33	8.64	11.94	21.15	25.55	26.07	25.33	24.22	22.51	21.33	20.77	20.56	20.91	21.43	55.00	−10.93	30.61	19.49	22.93	10.38
L55 G3Y1	13.82	16.53	17.89	21.23	26.47	28.94	28.65	26.83	23.62	19.62	15.46	13.41	12.63	12.41	13.09	13.96	55.00	−20.63	4.36	17.63	22.93	22.08
L55 G3Y2	12.66	14.69	15.60	18.44	24.08	27.44	27.76	26.50	24.05	20.78	17.01	15.00	14.22	14.02	14.74	15.65	55.00	−18.66	9.07	18.00	22.93	19.54

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L55 G3Y3	11.22	12.60	13.20	15.72	21.74	26.04	26.96	26.17	24.35	21.78	18.49	16.62	15.89	15.71	16.44	17.36	55.00	−16.71	14.21	18.37	22.93	17.00
L55 G3Y4	10.95	11.46	11.38	11.99	16.23	24.80	27.34	26.81	25.00	22.46	19.21	17.29	16.47	16.20	16.81	17.60	55.00	−16.70	21.12	18.37	22.93	13.95
L55 G3Y5	8.73	8.75	8.64	9.04	12.67	22.76	27.43	27.46	25.73	23.18	19.88	17.96	17.19	17.00	17.74	18.68	55.00	−16.71	29.12	18.37	22.93	10.90
L55 G4Y1	13.27	15.81	17.45	20.99	27.52	32.60	31.88	28.32	22.84	17.18	12.56	10.63	9.94	9.76	10.34	11.11	55.00	−28.92	4.36	16.14	22.93	22.08
L55 G4Y2	11.53	13.42	14.73	18.49	26.08	30.60	30.53	27.96	23.55	18.56	14.02	12.01	11.31	11.17	11.90	12.85	55.00	−26.81	9.07	16.51	22.93	19.54
L55 G4Y3	10.33	11.62	12.51	15.67	23.34	28.86	29.57	27.73	24.18	19.81	15.43	13.37	12.65	12.53	13.36	14.42	55.00	−24.76	14.21	16.88	22.93	17.00
L55 G4Y4	8.98	9.71	10.30	13.00	20.72	27.22	28.67	27.46	24.68	20.99	16.90	14.85	14.14	14.04	14.95	16.09	55.00	−22.73	19.88	17.25	22.93	14.47
L55 G4Y5	8.69	8.88	8.89	9.52	13.58	24.77	29.56	28.82	25.65	21.53	17.36	15.14	14.38	14.19	15.05	15.97	55.00	−22.73	27.68	17.25	22.93	11.41
L55 G4Y6	6.39	6.17	6.21	6.68	10.16	21.62	28.29	29.23	27.70	24.04	17.97	13.96	12.86	13.13	15.67	18.12	55.00	−22.73	37.01	17.25	22.93	8.36
L55 G5Y1	11.46	13.84	15.94	21.23	30.91	37.27	35.28	29.02	20.90	14.41	10.22	8.57	8.07	7.96	8.46	9.00	55.00	−37.73	4.36	14.65	22.93	22.08
L55 G5Y2	10.40	12.11	13.72	18.37	28.48	34.75	33.79	28.95	22.14	15.89	11.37	9.64	9.09	9.00	9.62	10.44	55.00	−35.50	9.07	15.02	22.93	19.54
L55 G5Y3	10.76	11.98	12.87	15.23	22.28	32.10	32.67	28.90	25.08	17.36	11.93	9.96	9.33	9.21	9.88	10.78	55.00	−33.30	14.21	15.39	22.93	17.00
L55 G5Y4	8.26	8.92	9.68	12.80	22.23	30.52	31.67	28.94	24.05	18.67	13.97	11.99	11.36	11.30	12.17	13.29	55.00	−31.14	19.89	15.76	22.93	14.46
L55 G5Y5	8.67	8.98	9.12	9.95	14.54	27.02	32.10	30.12	25.12	19.62	14.92	12.70	12.00	11.85	12.68	13.60	55.00	−29.01	26.28	16.13	22.93	11.93
L55 G5Y6	6.48	6.25	6.46	7.13	11.14	23.52	30.19	30.57	27.96	22.59	15.18	11.05	10.00	10.26	12.72	15.31	55.00	−29.01	35.30	16.13	22.93	8.87
L55 G6Y2	9.84	11.66	13.40	18.05	28.76	40.21	38.31	29.75	19.97	13.05	9.02	7.53	7.10	7.02	7.49	8.00	55.00	−44.76	9.07	13.53	22.93	19.54
L55 G6Y3	9.84	11.03	12.14	15.02	23.60	37.17	37.52	30.15	21.81	14.32	9.84	8.31	7.84	7.76	8.28	8.96	55.00	−42.41	14.21	13.90	22.93	17.00
L55 G6Y4	13.08	10.81	9.20	10.94	23.55	36.31	35.01	29.73	22.41	15.99	11.49	9.60	9.00	8.84	9.40	10.01	55.00	−40.11	19.89	14.26	22.93	14.46
L55 G6Y5	7.74	8.23	8.58	9.89	15.57	30.29	35.38	31.01	25.14	17.25	11.82	9.66	9.04	8.93	9.73	10.64	55.00	−37.83	26.27	14.63	22.93	11.93
L60 N	22.32	28.72	28.22	28.00	28.18	28.28	27.77	27.45	28.84	28.82	28.24	27.72	27.17	26.63	26.04	25.68	60.00	0.00	0.00	26.66	28.12	30.20
L60 Y1	20.93	24.83	24.28	24.34	26.00	27.36	27.16	27.06	29.40	29.78	29.33	28.83	28.31	27.76	27.20	26.84	60.00	0.00	5.47	26.66	28.12	26.57
L60 Y2	18.74	21.05	20.54	20.70	23.40	26.54	26.87	26.75	29.99	30.72	30.43	30.03	29.59	29.07	28.67	28.20	60.00	0.00	11.46	26.67	28.12	22.95
L60 Y3	15.87	17.19	16.74	17.11	20.75	25.54	26.31	26.60	30.70	31.77	31.47	31.03	30.56	30.06	29.55	29.26	60.00	0.00	18.12	26.66	28.12	19.32
L60 Y4	13.03	13.57	13.21	13.60	17.55	24.32	26.01	26.59	31.32	32.69	32.47	32.09	31.68	31.23	30.78	30.55	60.00	0.00	25.70	26.67	28.12	15.69
L60 Y5	9.99	10.05	9.82	10.17	13.77	22.61	26.06	26.94	31.86	33.43	33.41	33.22	32.97	32.62	32.41	32.14	60.00	0.00	34.54	26.67	28.12	12.06
L60 Y6	6.91	6.67	6.58	6.84	9.63	19.64	26.15	28.16	32.60	34.00	34.12	34.12	34.06	33.89	33.87	33.78	60.00	0.00	45.37	26.67	28.12	8.44
L60 R1Y1	22.33	26.11	25.25	24.80	25.85	26.75	25.38	25.13	26.21	31.88	33.64	33.50	33.10	32.57	32.16	31.67	60.00	6.76	4.47	28.35	28.12	27.21
L60 R1Y2	19.56	22.22	21.54	21.57	23.00	23.82	23.53	23.90	30.99	33.65	33.56	33.12	33.61	32.07	31.51	31.18	60.00	6.76	10.36	28.35	28.12	23.58
L60 R1Y3	16.85	18.34	17.78	18.01	20.57	22.98	23.08	23.60	31.47	34.67	34.67	34.27	33.80	33.28	32.75	32.46	60.00	6.76	16.88	28.35	28.12	19.96
L60 R1Y4	13.93	14.58	14.15	14.48	17.74	22.01	22.72	23.45	31.95	35.64	35.75	35.40	34.98	34.51	34.03	33.79	60.00	6.76	24.27	28.35	28.12	16.33
L60 R1Y5	10.78	10.87	10.58	10.89	14.30	20.67	22.52	23.58	32.50	36.50	36.73	36.47	36.14	35.77	35.38	35.24	60.00	6.76	32.85	28.35	28.12	12.70
L60 R1Y6	7.71	7.48	7.32	7.54	10.30	18.37	22.54	24.35	33.22	37.15	37.51	37.43	37.29	37.11	36.91	36.96	60.00	6.77	43.24	28.35	28.12	9.08
L60 R2Y1	23.27	27.22	25.98	25.06	23.96	22.49	21.25	21.24	26.67	35.76	38.87	38.94	38.57	38.05	37.63	37.15	60.00	16.31	4.46	30.85	28.12	27.21
L60 R2Y2	20.73	23.70	22.76	22.44	22.15	21.24	20.66	21.21	31.22	36.46	36.78	36.40	35.90	35.35	34.77	34.44	60.00	13.25	9.27	30.03	28.12	24.23
L60 R2Y3	17.86	19.54	18.83	18.80	20.04	20.66	20.49	20.75	31.15	37.39	38.03	37.83	37.42	36.91	36.52	36.08	60.00	13.25	15.69	30.03	28.12	20.60
L60 R2Y4	14.78	15.60	15.08	15.25	17.52	19.86	20.12	20.55	31.47	38.37	39.17	39.03	38.68	38.20	37.86	37.47	60.00	13.25	22.89	30.04	28.12	16.98
L60 R2Y5	11.56	11.79	11.45	11.72	14.56	18.85	19.83	20.53	31.87	39.29	40.23	40.18	39.91	39.51	39.25	38.94	60.00	13.26	31.22	30.03	28.12	13.35
L60 R2Y6	8.41	8.22	8.03	8.26	10.98	17.07	19.36	20.92	32.83	40.20	41.09	41.03	40.85	40.61	40.36	40.36	60.00	13.25	41.24	30.03	28.12	9.72
L60 R3Y1	23.93	28.33	26.51	24.92	22.70	20.68	18.76	19.02	22.48	36.99	45.97	46.80	46.54	46.09	45.55	45.25	60.00	25.36	4.47	33.35	28.12	27.21
L60 R3Y2	21.54	24.39	23.12	22.28	21.28	19.85	18.72	18.85	25.59	38.38	43.99	44.49	44.21	43.73	43.35	42.91	60.00	22.45	9.27	32.53	28.12	24.23
L60 R3Y3	18.90	20.85	19.92	19.58	19.27	18.26	17.83	18.14	30.26	39.99	41.39	41.31	40.92	40.40	40.01	39.58	60.00	19.50	14.49	31.71	28.12	21.24
L60 R3Y4	15.86	16.81	16.13	16.13	17.17	17.53	17.26	18.10	31.02	41.29	42.62	42.42	41.99	41.51	41.00	40.76	60.00	19.50	21.53	31.72	28.12	17.62
L60 R3Y5	12.42	12.77	12.34	12.52	14.62	16.91	17.26	17.90	30.79	42.06	43.88	43.96	43.68	43.27	42.99	42.68	60.00	19.50	29.63	31.71	28.12	13.99
L60 R3Y6	9.17	9.03	8.79	9.01	11.46	15.56	16.67	18.04	31.65	43.09	44.80	44.80	44.58	44.30	44.01	43.98	60.00	19.50	39.30	31.72	28.12	10.36
L60 R3Y7	5.79	5.49	5.44	5.65	7.61	13.53	16.71	18.80	32.30	43.50	45.55	45.99	46.11	46.07	46.16	46.21	60.00	19.51	51.54	31.72	28.12	6.74
L60 R4Y1	24.74	29.52	27.04	24.59	21.48	19.12	16.83	17.00	18.87	35.63	53.07	56.17	56.39	56.15	55.73	55.50	60.00	33.97	4.46	35.85	28.12	27.21
L60 R4Y2	22.19	25.32	23.56	22.13	20.17	18.31	16.63	17.00	21.08	37.97	51.52	53.34	53.29	52.94	52.47	52.23	60.00	31.20	9.28	35.03	28.12	24.22
L60 R4Y3	19.57	21.52	20.27	19.54	18.51	17.16	16.12	16.73	24.50	40.90	49.29	49.99	49.73	49.30	48.80	48.55	60.00	28.39	14.49	34.22	28.12	21.25
L60 R4Y4	16.94	18.06	17.16	16.86	16.44	15.53	15.05	15.90	29.47	43.81	46.38	46.30	45.90	45.43	44.92	44.69	60.00	25.54	20.23	33.40	28.12	18.25
L60 R4Y5	13.34	13.83	13.28	13.31	14.43	15.07	15.02	15.62	29.18	44.56	47.67	47.92	47.67	47.25	46.96	46.65	60.00	25.54	28.10	33.40	28.12	14.64
L60 R4Y6	9.99	9.92	9.62	9.79	11.69	13.93	14.32	15.55	29.81	45.74	48.72	48.82	48.59	48.29	47.96	47.91	60.00	25.54	37.43	33.40	28.12	11.01
L60 R4Y7	6.61	6.31	6.20	6.33	8.10	12.23	14.04	15.95	30.60	46.44	49.51	49.84	49.86	49.82	49.74	49.94	60.00	25.54	49.12	33.40	28.12	7.38
L60 R5Y1	25.94	30.86	27.62	24.12	20.40	17.96	15.35	15.24	15.80	31.83	57.89	67.94	69.96	70.51	70.71	70.63	60.00	42.19	4.47	38.35	28.12	27.21
L60 R5Y2	22.86	26.33	24.01	21.85	19.10	16.99	14.99	15.25	17.45	35.03	58.14	63.86	64.70	64.75	64.48	64.36	60.00	39.55	9.27	37.53	28.12	24.23
L60 R5Y3	20.07	22.13	20.59	19.37	17.90	16.36	14.95	15.13	19.57	37.44	56.59	60.99	61.49	61.37	61.21	60.94	60.00	36.86	14.50	36.72	28.12	21.24
L60 R5Y4	17.19	18.44	17.36	16.77	16.08	14.98	14.20	14.57	22.81	41.71	54.62	56.68	56.72	56.41	56.15	55.85	60.00	34.13	20.22	35.90	28.12	18.26

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L60 R5Y5	14.35	15.05	14.30	14.07	13.85	13.12	12.83	13.40	26.85	46.36	51.41	51.95	51.73	51.32	51.02	50.72	60.00	31.37	26.61	35.08	28.12	15.28
L60 R5Y6	10.75	10.87	10.47	10.56	11.71	12.62	12.70	13.48	27.22	47.49	52.88	53.54	53.41	53.08	52.87	52.67	60.00	31.38	35.64	35.08	28.12	11.65
L60 R5Y7	7.33	7.07	6.92	7.06	8.65	11.25	12.06	13.62	28.11	48.80	53.83	54.28	54.24	54.13	53.98	54.10	60.00	31.37	46.80	35.09	28.12	8.02
L60 R6Y2	23.79	27.46	24.53	21.49	18.24	16.07	13.80	13.76	14.62	30.52	60.46	76.73	81.73	83.98	85.21	85.82	60.00	47.53	9.27	40.04	28.12	24.23
L60 R6Y3	20.70	22.97	20.98	19.16	17.06	15.32	13.60	13.70	16.11	33.24	61.29	73.25	75.95	76.84	77.21	77.30	60.00	44.96	14.49	39.22	28.12	21.24
L60 R6Y4	17.66	18.98	17.63	16.66	15.50	14.21	13.09	13.37	18.28	37.12	61.34	68.69	69.88	70.07	70.07	69.96	60.00	42.35	20.22	38.40	28.12	18.26
L60 R6Y5	14.67	15.37	14.47	14.04	13.53	12.67	12.10	12.60	21.36	42.66	59.95	63.32	63.62	63.43	63.25	63.05	60.00	39.70	26.63	37.58	28.12	15.27
L60 R6Y6	11.91	11.99	11.43	11.29	11.18	10.80	10.55	11.60	25.06	49.50	57.13	57.65	57.43	57.12	56.77	56.72	60.00	37.02	33.91	36.77	28.12	12.30
L60 R6Y7	8.14	7.93	7.71	7.81	8.88	10.05	10.28	11.60	25.28	50.29	58.28	58.95	58.87	58.72	58.52	58.60	60.00	37.03	44.60	36.77	28.12	8.67
L60 R7Y4	18.71	19.63	17.87	16.52	14.92	13.18	11.75	12.00	14.95	32.80	64.93	80.88	86.16	88.30	89.10	89.38	60.00	50.22	20.23	40.90	28.12	18.26
L60 R7Y5	15.03	15.76	14.67	13.96	13.10	12.11	11.28	11.69	17.09	36.61	65.22	76.82	79.37	80.14	80.43	80.58	60.00	47.68	26.62	40.09	28.12	15.28
L60 R7Y6	12.28	12.20	11.41	11.21	11.42	10.99	10.57	11.03	19.90	41.10	64.02	72.05	74.06	74.67	74.55	74.52	60.00	45.11	33.92	39.27	28.12	12.29
L60 R7Y7	8.88	8.85	8.52	8.54	8.92	9.11	9.09	9.97	22.29	49.97	62.92	64.92	65.03	64.81	64.67	64.61	60.00	42.51	42.51	38.45	28.12	9.31
L60 R8Y6	12.23	12.52	11.72	11.28	10.72	10.04	9.47	10.02	15.91	36.87	68.37	84.24	89.43	91.75	92.77	93.85	60.00	52.72	33.97	41.79	28.12	12.30
L60 R8Y7	9.13	9.14	8.72	8.60	8.41	8.14	7.98	8.78	18.38	44.85	70.10	76.83	77.78	77.79	77.66	77.71	60.00	50.23	42.58	40.97	28.12	9.31
L60 R1	24.18	29.86	28.77	27.90	26.58	25.15	23.83	23.92	27.53	32.83	33.93	33.59	33.08	32.52	31.93	31.56	60.00	9.94	0.00	29.16	28.12	30.20
L60 R2	25.31	31.19	29.44	27.74	25.33	23.22	21.12	21.24	23.75	35.25	40.68	40.91	40.52	40.00	39.43	39.08	60.00	19.33	0.00	31.66	28.12	30.19
L60 R3	26.30	32.62	30.06	27.35	23.88	21.32	18.75	18.83	20.17	35.34	47.62	49.20	49.08	48.69	48.18	47.88	60.00	28.22	0.00	34.17	28.12	30.20
L60 R4	27.81	34.14	30.69	26.80	22.65	19.97	17.04	16.87	17.09	32.81	53.80	59.59	60.42	60.44	60.33	60.04	60.00	36.70	0.00	36.67	28.12	30.19
L60 R5	28.83	36.11	31.38	26.16	21.15	18.32	15.27	15.07	14.70	30.05	57.84	70.65	73.71	74.78	75.27	75.36	60.00	44.80	0.00	39.17	28.12	30.20
L60 R1B1	26.70	35.83	34.84	33.27	30.82	28.89	26.55	25.97	25.15	29.49	30.87	30.47	30.20	30.14	29.76	29.44	60.00	6.75	−7.78	28.35	28.12	35.91
L60 R1B2	30.02	43.54	43.91	42.46	38.64	32.94	27.75	25.22	24.32	25.42	28.25	27.43	29.02	34.74	38.32	39.43	60.00	6.76	−18.59	28.35	28.12	44.96
L60 R1B3	32.69	51.84	53.99	51.65	44.78	35.60	28.48	25.15	23.53	23.72	25.43	24.11	25.48	31.05	34.19	33.19	60.00	6.76	−28.02	28.35	28.12	54.01
L60 R2B1	28.09	37.81	35.67	32.76	28.89	26.26	23.29	23.05	22.55	32.50	37.16	37.27	36.86	36.33	35.74	35.37	60.00	16.31	−7.78	30.85	28.12	35.90
L60 R2B2	30.16	42.98	41.48	38.35	33.59	29.40	25.17	23.95	23.06	28.89	33.22	32.73	34.00	38.08	40.12	40.61	60.00	13.25	−14.78	30.03	28.12	41.60
L60 R2B3	34.13	51.24	51.45	47.24	40.14	32.50	26.44	23.80	22.69	25.28	29.62	29.18	31.76	42.79	55.42	62.40	60.00	13.25	−24.66	30.04	28.12	50.66
L60 R3B1	29.34	39.87	36.45	32.16	27.08	23.94	20.60	20.43	19.93	33.54	43.65	44.76	44.55	44.11	43.56	43.22	60.00	25.37	−7.79	33.35	28.12	35.90
L60 R3B2	31.70	46.08	42.62	37.37	31.00	26.62	22.33	21.58	20.71	30.83	39.17	39.23	41.19	47.21	50.70	51.76	60.00	22.45	−14.78	32.53	28.12	41.61
L60 R3B3	33.26	51.24	48.76	43.08	35.51	29.36	23.96	22.45	21.54	28.12	34.74	34.19	37.13	48.80	60.27	66.31	60.00	19.50	−21.16	31.71	28.12	47.31
L60 R4B1	31.63	42.33	37.19	31.04	25.14	21.92	18.25	17.93	16.88	31.60	49.94	54.39	54.92	54.81	54.62	54.26	60.00	33.98	−7.78	35.85	28.12	35.90
L60 B1	27.32	37.59	37.60	36.87	35.04	32.40	29.40	27.45	26.13	25.78	26.08	25.09	25.37	26.96	27.30	26.64	60.00	0.00	−11.97	26.66	28.12	39.25
L60 B2	30.58	45.74	47.05	45.93	42.05	36.03	30.32	27.02	24.70	23.58	23.50	22.09	22.64	25.36	26.21	24.80	60.00	0.00	−22.22	26.66	28.12	48.31
L60 B3	32.53	52.69	56.80	55.54	49.18	39.25	31.09	26.68	23.44	21.52	20.85	19.32	19.82	22.51	23.30	21.57	60.00	0.00	−31.25	26.67	28.12	57.37
L60 G1B1	26.20	34.11	33.98	33.44	32.67	31.96	31.01	29.62	27.55	25.37	23.83	22.79	22.54	22.71	22.39	21.32	60.00	−5.40	−7.79	25.37	28.12	35.90
L60 G1B2	29.05	42.15	43.20	42.64	40.27	36.47	32.13	28.80	25.53	23.02	21.61	20.18	20.29	21.74	21.84	20.40	60.00	−5.39	−18.60	25.37	28.12	44.96
L60 G1B3	31.16	49.09	52.63	52.16	47.52	40.13	33.08	28.29	23.92	20.75	19.09	17.61	17.78	19.42	19.59	18.02	60.00	−5.39	−28.03	25.37	28.12	54.01
L60 G2B1	23.56	31.31	32.74	34.43	35.08	34.73	33.53	31.35	27.73	23.80	20.44	18.54	17.86	17.86	18.04	17.77	60.00	−12.92	−7.78	23.63	28.12	35.90
L60 G2B2	28.33	38.61	39.44	39.16	38.10	36.60	34.30	30.94	26.15	21.97	19.59	18.26	18.20	18.90	18.71	17.29	60.00	−11.00	−14.77	24.07	28.12	41.60
L60 G2B3	31.00	45.52	48.64	48.68	45.96	41.11	35.49	29.98	23.99	19.55	17.33	16.00	16.12	17.22	17.23	15.76	60.00	−10.99	−24.66	24.07	28.12	50.66
L60 G3B1	21.53	28.43	31.17	35.28	38.33	38.48	36.55	32.68	26.84	21.30	17.12	15.06	14.39	14.38	14.78	14.80	60.00	−20.80	−7.77	21.90	28.12	35.90
L60 G3B2	27.08	36.99	38.39	39.26	40.85	40.51	37.20	31.82	26.52	19.55	16.12	14.61	14.39	15.11	14.95	13.65	60.00	−18.78	−14.78	22.33	28.12	41.61
L60 G3B3	28.76	41.86	44.41	45.35	44.71	41.78	37.50	31.23	24.95	18.55	15.48	14.14	14.06	14.79	14.55	13.23	60.00	−16.79	−21.16	22.77	28.12	47.31
L60 G4B1	19.53	25.64	29.30	35.84	42.48	43.49	40.07	33.42	25.08	18.53	14.29	12.41	11.84	11.87	12.27	12.37	60.00	−29.11	−7.78	20.17	28.12	35.90
L60 G4B2	22.63	31.17	35.46	41.53	46.23	45.70	40.79	32.53	23.35	17.16	13.79	12.30	11.98	12.25	12.37	11.89	60.00	−26.98	−14.77	20.61	28.12	41.61
L60 G4B3	25.18	36.68	41.85	47.17	49.75	47.71	41.28	31.66	21.98	16.04	13.17	11.94	11.77	12.20	12.14	11.36	60.00	−24.88	−21.16	21.04	28.12	47.32
L60 G4B4	27.05	41.87	48.46	52.85	53.12	49.51	41.53	30.73	20.76	15.05	12.50	11.44	11.37	11.89	11.71	10.81	60.00	−22.80	−27.05	21.47	28.12	53.02
L60 G5B1	17.58	22.94	27.16	35.87	47.83	50.51	43.79	33.02	22.49	15.70	11.90	10.35	9.92	9.97	10.31	10.40	60.00	−37.92	−7.79	18.43	28.12	35.91
L60 G5B2	20.14	27.44	32.65	42.02	53.02	53.19	43.91	31.58	20.82	14.61	11.53	10.28	10.01	10.22	10.37	10.09	60.00	−35.66	−14.78	18.87	28.12	41.61
L60 G1	21.82	27.30	27.49	28.14	29.68	30.84	30.48	29.70	28.51	27.02	24.88	23.32	22.44	21.93	22.04	22.30	60.00	−7.26	0.00	24.93	28.12	30.20
L60 G2	20.22	25.31	26.53	28.69	31.74	33.53	33.00	31.51	28.95	25.48	21.25	18.81	17.73	17.32	17.96	18.78	60.00	−14.85	0.00	23.20	28.12	30.19
L60 G3	18.35	23.04	25.24	29.32	34.42	36.82	35.85	33.10	28.55	23.07	17.66	15.06	14.05	13.72	14.48	15.47	60.00	−22.85	0.00	21.47	28.12	30.19
L60 G4	16.34	20.57	23.58	29.87	38.06	41.09	39.17	34.33	27.31	20.23	14.54	12.16	11.31	11.07	11.78	12.71	60.00	−31.28	0.00	19.73	28.12	30.20
L60 G5	14.67	18.43	21.80	29.75	42.46	47.44	43.33	34.69	24.80	17.05	12.00	10.08	9.44	9.31	9.87	10.54	60.00	−40.24	0.00	18.00	28.12	30.19
L60 G1Y1	20.71	24.89	24.59	24.88	27.26	29.72	29.73	29.21	28.45	27.71	26.68	25.81	25.17	24.64	24.32	24.16	60.00	−5.41	4.47	25.36	28.12	27.21
L60 G1Y2	18.57	21.29	20.87	21.21	24.68	29.02	29.57	29.23	28.75	28.32	27.77	27.26	26.76	26.24	25.70	25.37	60.00	−5.39	10.35	25.37	28.12	23.59
L60 G1Y3	16.09	17.64	17.24	17.66	21.78	27.93	29.14	29.05	29.47	29.29	28.79	28.32	27.85	27.35	26.84	26.54	60.00	−5.39	16.89	25.37	28.12	19.96
L60 G1Y4	13.36	14.04	13.71	14.09	18.22	26.51	28.97	29.15	30.15	30.12	29.77	29.42	29.06	28.62	28.30	27.92	60.00	−5.39	24.28	25.37	28.12	16.33

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L60 G1Y5	10.44	10.53	10.28	10.64	14.62	24.66	28.84	29.54	30.84	30.99	30.65	30.32	29.99	29.63	29.27	29.12	60.00	−5.40	32.86	25.37	28.12	12.70
L60 G1Y6	7.48	7.25	7.10	7.32	10.24	21.19	29.21	30.96	31.47	31.52	31.34	31.19	31.05	30.89	30.72	30.77	60.00	−5.39	43.24	25.37	28.12	9.08
L60 G2Y1	19.66	23.46	23.93	25.20	28.68	32.16	32.23	31.08	29.10	26.40	23.12	20.93	19.96	19.50	20.03	20.54	60.00	−12.91	4.47	23.64	28.12	27.21
L60 G2Y2	18.27	21.17	21.14	21.95	25.98	30.83	31.36	30.63	29.27	27.46	24.88	23.10	22.17	21.70	21.98	22.42	60.00	−10.99	9.27	24.07	28.12	24.23
L60 G2Y3	16.08	17.81	17.60	18.26	22.85	29.83	31.21	30.73	29.59	28.12	25.96	24.41	23.56	23.10	23.28	23.63	60.00	−10.99	15.68	24.07	28.12	20.60
L60 G2Y4	13.50	14.31	14.05	14.59	19.30	28.47	31.14	30.98	30.02	28.80	26.97	25.62	24.86	24.43	24.56	24.86	60.00	−10.99	22.89	24.07	28.12	16.97
L60 G2Y5	10.76	10.94	10.72	11.14	15.44	26.46	31.16	31.48	30.67	29.56	27.86	26.60	25.92	25.57	25.77	26.14	60.00	−10.99	31.20	24.07	28.12	13.35
L60 G2Y6	7.90	7.71	7.56	7.83	11.08	22.92	31.26	32.57	31.82	30.54	28.49	27.08	26.45	26.26	26.81	27.54	60.00	−10.99	41.22	24.07	28.12	9.72
L60 G3Y1	18.01	21.81	23.02	25.54	30.67	35.11	34.93	32.86	29.22	24.53	19.44	16.81	15.75	15.39	16.16	17.14	60.00	−20.79	4.46	21.90	28.12	27.21
L60 G3Y2	17.20	19.97	20.53	22.15	27.17	33.46	34.14	32.56	29.56	25.62	21.28	18.70	17.67	17.28	18.02	18.79	60.00	−18.78	9.26	22.34	28.12	24.23
L60 G3Y3	15.88	17.77	17.90	18.94	23.90	31.77	33.30	32.24	29.94	26.78	23.04	20.66	19.66	19.25	19.93	20.60	60.00	−16.79	14.49	22.77	28.12	21.24
L60 G3Y4	13.56	14.57	14.51	15.27	20.23	30.31	33.22	32.55	30.50	27.57	24.02	21.72	20.76	20.37	21.06	21.76	60.00	−16.79	21.53	22.77	28.12	17.62
L60 G3Y5	11.00	11.30	11.14	11.68	16.35	28.23	33.18	33.00	31.18	28.48	24.83	22.58	21.61	21.28	22.03	22.98	60.00	−16.78	29.62	22.77	28.12	13.99
L60 G3Y6	8.28	8.15	8.01	8.35	11.95	24.72	33.38	34.11	32.28	29.37	25.45	23.15	22.23	22.03	23.02	24.24	60.00	−16.78	39.29	22.78	28.12	10.36
L60 G4Y1	16.30	19.87	21.85	25.90	33.19	38.92	38.22	34.38	28.33	21.74	15.98	13.45	12.52	12.25	13.02	14.02	60.00	−29.11	4.45	20.17	28.12	27.22
L60 G4Y2	15.85	18.62	19.73	22.29	28.98	36.80	37.25	34.33	29.27	23.32	17.64	14.98	13.98	13.68	14.50	15.56	60.00	−26.99	9.27	20.60	28.12	24.23
L60 G4Y3	14.90	16.83	17.34	18.98	25.21	34.72	36.32	34.16	29.98	24.72	19.26	16.56	15.51	15.19	16.04	17.14	60.00	−24.87	14.49	21.04	28.12	21.25
L60 G4Y4	13.52	14.69	14.81	15.89	21.64	32.58	35.45	33.98	30.57	26.02	20.92	18.24	17.17	16.84	17.71	18.83	60.00	−22.79	20.21	21.48	28.12	18.27
L60 G4Y5	11.15	11.58	11.52	12.23	17.34	30.29	35.56	34.60	31.34	26.87	21.77	19.08	18.02	17.73	18.70	19.92	60.00	−22.80	28.10	21.48	28.12	14.64
L60 G4Y6	8.59	8.54	8.44	8.86	12.84	26.71	35.85	35.73	32.40	27.71	22.40	19.67	18.67	18.48	19.62	21.06	60.00	−22.79	37.42	21.48	28.12	11.01
L60 G5Y1	14.49	17.76	20.34	26.14	36.62	44.14	42.16	35.37	26.55	18.71	13.07	10.88	10.13	9.94	10.60	11.48	60.00	−37.93	4.47	18.43	28.12	27.21
L60 G5Y2	14.34	17.00	18.68	22.43	31.19	41.26	41.14	35.69	27.83	20.25	14.39	12.01	11.18	10.96	11.70	12.68	60.00	−35.65	9.27	18.87	28.12	24.23
L60 G5Y3	13.78	15.71	16.64	19.02	26.59	38.49	40.13	35.90	29.04	21.87	15.88	13.32	12.41	12.17	12.99	14.07	60.00	−33.43	14.48	19.31	28.12	21.25
L60 G5Y4	12.72	13.93	14.34	15.85	22.47	35.74	39.18	35.99	30.05	23.36	17.35	14.67	13.69	13.44	14.34	15.51	60.00	−31.23	20.22	19.74	28.12	18.26
L60 G5Y5	11.17	11.74	11.84	12.77	18.43	32.73	38.35	36.14	30.98	24.78	18.83	16.07	15.06	14.82	15.81	17.08	60.00	−29.07	26.62	20.18	28.12	15.28
L60 G5Y6	8.83	8.87	8.82	9.37	13.78	28.98	38.80	37.38	32.06	25.61	19.47	16.66	15.69	15.51	16.66	18.11	60.00	−29.07	35.64	20.18	28.12	11.65
L60 G5Y7	6.23	5.89	5.91	6.25	9.06	22.37	36.90	39.51	35.94	28.53	19.29	14.54	13.45	13.86	16.95	20.36	60.00	−29.18	46.78	20.17	28.12	8.03
L60 G6Y1	12.65	15.52	18.44	25.99	41.21	51.18	46.19	35.13	23.87	15.65	10.66	8.91	8.35	8.22	8.75	9.45	60.00	−47.30	4.47	16.70	28.12	27.21
L60 G6Y2	12.75	15.21	17.34	22.43	34.11	47.49	45.70	36.15	25.44	17.09	11.70	9.75	9.10	8.96	9.56	10.37	60.00	−44.88	9.26	17.14	28.12	24.23
L60 G6Y3	12.50	14.39	15.74	18.98	28.34	43.67	44.88	37.00	27.06	18.70	12.94	10.76	10.04	9.87	10.57	11.49	60.00	−42.52	14.49	17.57	28.12	21.24
L60 G6Y4	11.77	13.03	13.74	15.77	23.50	39.98	43.98	37.60	28.46	20.21	14.17	11.81	11.01	10.83	11.62	12.67	60.00	−40.18	20.22	18.01	28.12	18.26
L60 G6Y5	10.54	11.17	11.45	12.67	18.97	36.05	43.15	38.19	29.79	21.70	15.44	12.92	12.07	11.89	12.80	13.98	60.00	−37.87	26.60	18.44	28.12	15.28
L60 G6Y6	8.96	9.11	9.15	9.85	14.77	31.60	42.35	38.85	31.06	23.14	16.72	14.07	13.19	13.04	14.09	15.45	60.00	−35.61	33.92	18.88	28.12	12.29
L60 G6Y7	6.60	6.24	6.33	6.77	9.92	24.39	39.88	41.44	35.53	25.92	16.24	11.95	11.02	11.36	14.03	17.14	60.00	−35.60	44.58	18.88	28.12	8.67
L65 N	25.93	34.65	34.16	33.93	34.11	34.21	33.66	33.29	34.81	34.80	34.18	33.61	33.01	32.42	31.77	31.37	65.00	0.00	0.00	32.29	34.05	36.56
L65 Y1	24.48	30.13	29.55	29.64	31.59	33.19	32.97	32.84	35.53	35.99	35.48	34.92	34.34	33.73	33.10	32.70	65.00	0.00	5.64	32.29	34.05	32.31
L65 Y2	22.31	25.73	25.15	25.36	28.54	32.22	32.62	32.43	36.21	37.11	36.76	36.30	35.81	35.22	34.77	34.24	65.00	0.00	11.80	32.29	34.05	28.05
L65 Y3	19.08	21.27	20.75	21.20	25.51	31.05	31.89	32.16	37.05	38.38	38.01	37.50	36.97	36.40	35.81	35.45	65.00	0.00	18.63	32.29	34.05	23.80
L65 Y4	15.88	16.94	16.51	17.00	21.80	29.73	31.61	32.13	37.81	39.52	39.23	38.76	38.27	37.74	37.20	36.89	65.00	0.00	26.31	32.29	34.05	19.55
L65 Y5	12.51	12.82	12.49	12.93	17.58	27.83	31.43	32.35	38.55	40.53	40.33	39.94	39.52	39.07	38.61	38.38	65.00	0.00	35.22	32.29	34.05	15.29
L65 Y6	8.94	8.83	8.65	9.00	12.72	24.81	31.78	33.41	39.26	41.21	41.24	41.10	40.90	40.60	40.43	40.20	65.00	0.00	45.97	32.29	34.05	11.04
L65 Y7	5.54	5.21	5.12	5.25	7.30	18.09	32.25	36.65	40.39	41.56	41.72	41.82	41.92	41.98	42.03	42.31	65.00	0.00	60.02	32.30	34.05	6.78
L65 R1Y1	25.67	31.84	30.98	30.68	30.69	30.06	29.42	29.64	36.70	39.14	38.88	38.35	37.77	37.15	36.51	36.11	65.00	6.71	4.56	34.18	34.05	33.10
L65 R1Y2	23.05	27.12	26.36	26.42	28.18	29.19	28.86	29.21	37.32	40.41	40.24	39.73	39.17	38.57	37.94	37.56	65.00	6.71	10.62	34.19	34.05	28.84
L65 R1Y3	20.11	22.56	21.92	22.20	25.30	28.19	28.30	28.80	37.87	41.62	41.56	41.08	40.54	39.96	39.37	39.01	65.00	6.71	17.30	34.18	34.05	24.59
L65 R1Y4	16.87	18.12	17.61	18.01	22.00	27.11	27.91	28.59	38.45	42.80	42.84	42.41	41.91	41.37	40.82	40.50	65.00	6.71	24.81	34.19	34.05	20.33
L65 R1Y5	13.43	13.86	13.48	13.89	18.18	25.69	27.65	28.62	39.06	43.88	44.03	43.67	43.24	42.77	42.28	42.04	65.00	6.72	33.45	34.19	34.05	16.08
L65 R1Y6	9.84	9.76	9.52	9.85	13.63	23.41	27.65	29.20	39.83	44.78	45.05	44.81	44.52	44.18	43.83	43.73	65.00	6.72	43.79	34.19	34.05	11.83
L65 R1Y7	6.14	5.84	5.78	6.02	8.54	19.13	28.00	31.06	40.76	45.15	45.73	45.90	45.95	45.87	45.93	45.93	65.00	6.71	57.04	34.19	34.05	7.57
L65 R2Y1	26.61	32.88	31.52	30.58	29.20	27.43	25.95	26.27	32.97	43.12	45.99	45.81	45.30	44.71	44.09	43.70	65.00	16.20	4.56	37.00	34.05	33.10
L65 R2Y2	24.26	28.80	27.76	27.43	27.25	26.27	25.60	26.12	37.58	43.60	43.85	43.39	42.83	42.23	41.60	41.22	65.00	13.17	9.45	36.08	34.05	29.63
L65 R2Y3	21.37	23.99	23.19	23.17	24.77	25.64	25.46	25.63	37.52	44.72	45.31	45.03	44.58	44.01	43.57	43.07	65.00	13.18	16.00	36.08	34.05	25.38
L65 R2Y4	17.96	19.39	18.77	18.99	21.81	24.72	25.05	25.37	37.88	45.90	46.67	46.44	46.03	45.50	45.10	44.64	65.00	13.18	23.34	36.08	34.05	21.13
L65 R2Y5	14.36	14.94	14.50	14.83	18.36	23.60	24.73	25.30	38.31	47.02	47.95	47.80	47.45	46.98	46.64	46.25	65.00	13.17	31.74	36.08	34.05	16.87
L65 R2Y6	10.71	10.71	10.42	10.76	14.39	21.78	24.15	25.53	39.33	48.18	49.02	48.82	48.50	48.13	47.75	47.62	65.00	13.18	41.71	36.09	34.05	12.61
L65 R2Y7	7.06	6.77	6.64	6.83	9.39	18.36	24.25	26.78	40.52	48.84	49.80	49.84	49.79	49.69	49.57	49.69	65.00	13.18	54.24	36.09	34.05	8.36

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L65 R3Y1	27.46	34.07	32.13	30.41	27.98	25.63	23.41	23.66	27.84	44.23	54.13	55.03	54.74	54.27	53.71	53.36	65.00	25.22	4.56	39.80	34.05	33.10
L65 R3Y2	25.28	29.58	28.21	27.31	26.26	24.60	23.32	23.38	31.58	45.92	51.84	52.29	51.96	51.44	51.03	50.55	65.00	22.33	9.45	38.89	34.05	29.64
L65 R3Y3	22.27	25.40	24.36	24.03	24.47	24.00	23.31	23.46	34.72	46.97	49.97	49.99	49.59	49.03	48.61	48.12	65.00	19.41	14.74	37.98	34.05	26.17
L65 R3Y4	19.01	20.74	19.94	19.98	21.46	22.07	21.75	22.55	37.43	49.24	50.55	50.25	49.76	49.23	48.67	48.36	65.00	19.41	21.91	37.98	34.05	21.92
L65 R3Y5	15.35	16.11	15.57	15.80	18.48	21.41	21.82	22.33	37.12	50.14	52.02	51.99	51.66	51.19	50.84	50.46	65.00	19.42	30.08	37.98	34.05	17.66
L65 R3Y6	11.61	11.71	11.36	11.67	14.92	19.96	21.12	22.37	38.04	51.44	53.19	53.05	52.71	52.34	51.93	51.78	65.00	19.42	39.70	37.98	34.05	13.41
L65 R3Y7	7.74	7.53	7.39	7.66	10.47	17.99	21.34	22.98	38.45	52.04	54.25	54.52	54.47	54.27	54.20	54.09	65.00	19.42	51.64	37.98	34.05	9.15
L65 R4Y1	28.20	35.36	32.74	30.12	26.68	23.93	21.23	21.38	23.71	42.71	61.94	65.51	65.81	65.61	65.20	64.97	65.00	33.82	4.56	42.61	34.05	33.10
L65 R4Y2	25.96	30.47	28.66	27.13	25.26	23.21	21.28	21.30	26.25	44.74	60.16	62.90	63.03	62.72	62.44	62.07	65.00	31.07	9.45	41.70	34.05	29.63
L65 R4Y3	23.10	26.20	24.86	24.10	23.21	21.67	20.58	20.76	30.28	48.44	57.73	58.82	58.63	58.19	57.84	57.42	65.00	28.28	14.73	40.79	34.05	26.17
L65 R4Y4	20.17	22.19	21.21	20.92	20.94	20.06	19.63	19.97	35.33	51.87	54.79	54.86	54.49	53.98	53.59	53.16	65.00	25.45	20.50	39.88	34.05	22.71
L65 R4Y5	16.40	17.37	16.69	16.75	18.33	19.30	19.25	19.73	35.36	52.96	56.27	56.43	56.12	55.65	55.31	54.94	65.00	25.45	28.47	39.88	34.05	18.45
L65 R4Y6	12.51	12.78	12.36	12.60	15.16	18.34	18.92	19.65	35.57	53.99	57.64	57.91	57.69	57.30	57.04	56.76	65.00	25.45	37.77	39.88	34.05	14.20
L65 R4Y7	8.54	8.44	8.21	8.50	11.34	16.86	18.60	19.78	36.26	55.02	58.79	59.18	59.08	58.81	58.67	58.50	65.00	25.46	49.18	39.88	34.05	9.94
L65 R5Y1	29.51	36.58	33.30	29.64	25.57	22.73	19.62	19.45	20.24	38.60	66.62	78.75	81.78	82.89	83.44	83.62	65.00	42.05	4.56	45.42	34.05	33.10
L65 R5Y2	26.62	31.48	29.16	26.90	24.20	21.86	19.46	19.41	22.15	41.39	66.71	75.28	76.88	77.26	77.37	77.28	65.00	39.42	9.44	44.51	34.05	29.64
L65 R5Y3	23.65	26.90	25.23	23.96	22.41	20.59	18.97	19.08	24.91	45.22	65.87	70.85	71.47	71.40	71.26	71.02	65.00	36.75	14.74	43.60	34.05	26.17
L65 R5Y4	20.64	22.73	21.52	20.90	20.20	18.86	17.98	18.27	28.87	50.41	63.71	65.75	65.76	65.43	65.14	64.82	65.00	34.04	20.51	42.69	34.05	22.70
L65 R5Y5	17.43	18.81	17.90	17.69	17.88	17.24	16.88	17.32	33.40	55.41	60.64	61.05	60.77	60.31	59.97	59.61	65.00	31.30	26.90	41.77	34.05	19.24
L65 R5Y6	13.53	13.95	13.42	13.54	15.19	16.52	16.61	17.25	33.23	56.25	62.19	62.77	62.59	62.21	61.95	61.67	65.00	31.30	35.92	41.78	34.05	14.99
L65 R5Y7	9.34	9.49	9.10	9.36	11.95	15.38	16.07	16.92	34.06	57.57	63.39	63.97	63.84	63.51	63.29	63.06	65.00	31.30	46.85	41.78	34.05	10.73
L65 R6Y4	21.05	23.26	21.80	20.80	19.59	18.04	16.75	16.97	23.67	45.32	70.81	79.36	81.00	81.37	81.48	81.48	65.00	42.27	20.51	45.50	34.05	22.71
L65 R6Y5	17.92	19.23	18.18	17.71	17.20	16.10	15.45	15.86	27.43	52.05	69.54	72.90	73.19	72.98	72.77	72.56	65.00	39.64	26.91	44.58	34.05	19.24
L65 R6Y6	14.56	15.29	14.55	14.45	14.93	14.71	14.47	15.04	30.93	57.94	66.85	67.86	67.73	67.36	67.08	66.83	65.00	36.97	34.13	43.67	34.05	15.78
L65 R6Y7	10.45	10.48	10.13	10.30	12.05	13.97	14.30	15.17	30.93	58.60	68.36	69.63	69.64	69.39	69.22	69.08	65.00	36.88	44.70	43.69	34.05	11.51
L65 R6Y8	6.40	6.13	6.04	6.25	8.12	12.24	13.87	15.49	31.79	59.59	69.33	70.82	71.07	71.04	71.08	71.15	65.00	36.89	58.23	43.69	34.05	7.26
L65 R7Y5	32.46	20.95	17.40	17.45	17.17	14.92	13.85	14.81	22.38	48.31	75.26	86.03	88.99	90.25	91.04	91.44	65.00	47.51	26.99	47.42	34.05	19.24
L65 R7Y6	14.98	15.67	14.83	14.53	14.20	13.37	12.95	13.51	26.07	54.09	75.14	80.06	80.67	80.56	80.39	80.32	65.00	44.97	34.22	46.50	34.05	15.77
L65 R7Y7	11.48	11.65	11.18	11.22	12.07	12.53	12.50	13.26	28.17	58.94	73.40	75.67	75.79	75.55	75.35	75.25	65.00	42.38	42.57	45.59	34.05	12.31
L65 R7Y8	7.27	7.06	6.91	7.10	8.74	11.33	12.09	13.35	28.62	59.77	74.58	77.11	77.46	77.39	77.35	77.42	65.00	42.41	55.36	45.59	34.05	8.05
L65 R8Y7	11.87	12.13	11.53	11.37	11.17	10.63	10.37	11.08	23.71	57.51	80.73	86.68	87.42	87.19	86.85	86.91	65.00	50.28	42.55	48.40	34.05	12.31
L65 R8Y8	8.58	7.27	7.70	8.49	9.23	9.52	10.05	10.73	26.08	61.96	78.81	82.50	83.02	82.81	82.77	82.95	65.00	47.76	52.72	47.49	34.05	8.84
L65 R1	27.81	35.99	34.84	33.88	32.41	30.77	29.25	29.31	33.32	39.36	40.58	40.20	39.64	39.03	38.39	37.97	65.00	9.84	0.00	35.10	34.05	36.56
L65 R2	28.84	37.38	35.53	33.65	30.97	28.55	26.11	26.21	29.07	42.07	48.12	48.36	47.94	47.38	46.77	46.38	65.00	19.18	0.00	37.91	34.05	36.56
L65 R3	34.88	40.07	35.40	33.09	29.91	26.57	23.67	23.79	25.14	41.32	55.85	58.34	58.40	58.05	57.72	57.25	65.00	28.05	0.00	40.72	34.05	36.56
L65 R4	31.44	40.45	36.90	32.72	28.12	25.03	21.56	21.32	21.59	39.50	62.64	69.48	70.56	70.68	70.64	70.40	65.00	36.53	0.00	43.53	34.05	36.57
L65 R5	31.92	42.14	37.58	32.22	26.67	23.27	19.37	19.14	18.74	37.29	66.75	81.29	85.78	87.89	89.17	89.84	65.00	44.65	0.00	46.33	34.05	36.56
L65 R1B1	30.15	42.49	41.53	39.84	37.12	34.92	32.23	31.54	30.61	35.53	37.21	36.76	36.53	36.60	36.26	35.93	65.00	6.72	−7.68	34.19	34.05	42.93
L65 R1B2	33.17	51.01	51.66	50.12	45.90	39.47	33.58	30.69	29.66	30.94	34.27	33.35	35.23	41.97	46.31	47.64	65.00	6.71	−18.37	34.18	34.05	52.97
L65 R1B3	35.42	59.90	62.77	60.28	52.85	42.49	34.36	30.55	28.73	29.05	31.23	29.72	31.39	38.24	42.27	41.12	65.00	6.71	−27.78	34.18	34.05	63.01
L65 R2B1	31.40	44.67	42.48	39.30	35.00	32.05	28.64	28.37	27.70	38.97	44.20	44.33	43.87	43.29	42.66	42.25	65.00	16.20	−7.68	36.99	34.05	42.93
L65 R2B2	33.27	50.37	48.95	45.56	40.31	35.57	30.72	29.30	28.26	34.84	39.82	39.27	40.80	45.77	48.30	49.06	65.00	13.17	−14.63	36.08	34.05	49.30
L65 R2B3	37.12	59.09	59.73	55.16	47.37	38.91	32.10	29.08	27.81	30.74	35.71	35.23	38.18	50.93	67.19	79.76	65.00	13.18	−24.46	36.08	34.05	59.34
L65 R3B1	32.52	46.94	43.39	38.69	33.04	29.47	25.58	25.39	24.72	40.23	51.61	52.86	52.63	52.17	51.59	51.22	65.00	25.22	−7.68	39.80	34.05	42.93
L65 R3B2	34.61	53.85	50.30	44.55	37.49	32.51	27.53	26.64	25.60	37.08	46.55	46.59	48.96	56.60	61.55	63.24	65.00	22.35	−14.63	38.89	34.05	49.30
L65 R4B1	34.60	49.29	44.25	37.83	31.35	27.63	23.24	22.87	21.58	38.71	58.60	63.38	63.93	63.81	63.62	63.25	65.00	33.82	−7.68	42.61	34.05	42.93
L65 B1	30.70	44.36	44.51	43.77	41.79	38.84	35.46	33.27	31.79	31.42	31.82	30.70	31.06	32.96	33.41	32.63	65.00	0.00	−11.76	32.29	34.05	46.60
L65 B2	33.64	53.37	55.07	53.91	49.63	42.88	36.47	32.77	30.19	28.99	29.02	27.39	28.06	31.36	32.43	30.76	65.00	0.00	−21.94	32.29	34.05	56.64
L65 G1B1	28.98	40.55	40.55	40.15	39.21	38.37	37.23	35.75	33.47	31.10	29.24	27.95	27.55	27.78	27.31	26.12	65.00	−5.44	−7.68	30.80	34.05	42.93
L65 G1B2	32.30	49.43	50.79	50.25	47.67	43.40	38.52	34.80	31.15	28.32	26.75	25.04	25.18	26.96	27.11	25.36	65.00	−5.44	−18.37	30.80	34.05	52.97
L65 G1B3	34.15	57.06	61.36	60.93	55.72	47.42	39.58	34.28	29.41	25.82	23.92	22.11	22.32	24.33	24.58	22.62	65.00	−5.44	−27.78	30.80	34.05	63.01
L65 G2B1	27.21	37.59	39.25	41.10	41.81	41.44	40.14	37.72	33.63	29.14	25.25	23.00	22.21	22.23	22.44	22.05	65.00	−13.02	−7.67	28.81	34.05	42.93
L65 G2B2	30.77	45.56	46.66	46.54	45.31	43.59	40.88	37.20	32.00	27.31	24.42	22.71	22.50	23.34	23.03	21.36	65.00	−11.07	−14.63	29.31	34.05	49.30
L65 G2B3	34.56	53.22	56.90	57.01	53.99	48.51	42.26	36.23	29.57	24.48	21.87	20.23	20.36	21.76	21.79	19.93	65.00	−11.07	−24.46	29.31	34.05	59.33
L65 G3B1	25.21	34.40	37.53	42.08	45.44	45.61	43.55	39.32	32.81	26.45	21.47	18.93	18.08	18.07	18.57	18.57	65.00	−20.97	−7.67	26.81	34.05	42.92
L65 G3B2	28.90	42.08	45.05	47.68	48.57	47.62	44.61	38.94	31.04	24.61	20.73	18.80	18.38	18.89	18.84	17.70	65.00	−18.91	−14.63	27.32	34.05	49.30
L65 G3B3	31.54	49.33	52.55	53.31	52.03	49.60	45.08	38.18	29.62	23.27	19.92	18.26	18.09	18.94	18.64	17.02	65.00	−16.89	−21.01	27.82	34.05	55.66

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L65 G4B1	23.15	31.26	35.43	42.69	50.04	51.21	47.55	40.29	30.98	23.33	18.10	15.68	14.92	14.93	15.47	15.58	65.00	−29.30	−7.68	24.82	34.05	42.93
L65 G4B2	26.39	37.60	42.36	48.95	54.07	53.56	48.33	39.37	29.08	21.76	17.56	15.61	15.15	15.50	15.67	14.99	65.00	−27.14	−14.63	25.33	34.05	49.30
L65 G4B3	29.00	43.98	49.61	55.16	57.78	55.62	48.84	38.45	27.55	20.46	16.85	15.20	14.94	15.52	15.43	14.32	65.00	−24.97	−21.00	25.84	34.05	55.66
L65 G4B4	30.85	49.97	57.12	61.41	61.35	57.52	49.17	37.56	26.25	19.34	16.08	14.63	14.49	15.18	14.96	13.66	65.00	−22.92	−26.91	26.33	34.05	62.03
L65 G5B1	21.13	28.28	33.09	42.71	55.81	58.96	51.73	40.06	28.26	20.14	15.23	13.13	12.50	12.55	13.02	13.12	65.00	−38.10	−7.67	22.83	34.05	42.92
L65 G5B2	24.86	32.87	39.23	49.89	61.32	61.32	51.83	38.86	26.34	18.80	14.84	12.96	12.59	12.91	13.31	12.83	65.00	−35.82	−14.63	23.33	34.05	49.30
L65 G1	26.04	33.07	33.39	34.11	35.83	37.18	36.86	35.92	34.54	32.70	30.32	28.50	27.54	26.96	27.21	27.38	65.00	−7.34	0.00	30.29	34.05	36.56
L65 G2	23.79	30.80	32.28	34.80	38.19	40.14	39.56	37.92	35.06	31.09	26.13	23.22	21.93	21.43	22.22	23.23	65.00	−15.00	0.00	28.30	34.05	36.56
L65 G3	21.87	28.26	30.84	35.47	41.16	43.84	42.82	39.81	34.76	28.49	22.07	18.89	17.62	17.20	18.16	19.39	65.00	−23.03	0.00	26.31	34.05	36.56
L65 G4	19.74	25.46	28.97	36.04	45.15	48.65	46.61	41.29	33.48	25.32	18.39	15.36	14.24	13.91	14.83	16.04	65.00	−31.48	0.00	24.32	34.05	36.56
L65 G5	17.91	23.04	27.03	36.04	49.99	55.57	51.14	41.74	30.79	21.71	15.31	12.74	11.85	11.64	12.40	13.31	65.00	−40.41	0.00	22.32	34.05	36.56
L65 G1Y1	24.29	30.28	29.99	30.36	33.09	35.89	35.92	35.33	34.48	33.64	32.44	31.44	30.70	30.11	29.76	29.61	65.00	−5.45	4.56	30.80	34.05	33.10
L65 G1Y2	21.98	26.03	25.57	25.99	30.02	35.00	35.64	35.24	34.79	34.34	33.73	33.16	32.60	32.01	31.40	31.01	65.00	−5.45	10.61	30.80	34.05	28.85
L65 G1Y3	19.25	21.70	21.25	21.76	26.64	33.78	35.16	35.02	35.66	35.51	34.95	34.41	33.87	33.30	32.71	32.35	65.00	−5.45	17.30	30.80	34.05	24.59
L65 G1Y4	16.24	17.50	17.09	17.62	22.85	32.28	34.82	34.99	36.49	36.60	36.11	35.61	35.10	34.57	34.03	33.71	65.00	−5.44	24.81	30.80	34.05	20.33
L65 G1Y5	12.94	13.36	13.04	13.51	18.51	30.21	34.72	35.32	37.31	37.62	37.20	36.77	36.33	35.87	35.40	35.15	65.00	−5.44	33.45	30.80	34.05	16.08
L65 G1Y6	9.47	9.43	9.23	9.60	13.62	26.98	35.06	36.54	38.09	38.28	38.06	37.85	37.61	37.27	37.08	36.82	65.00	−5.44	43.79	30.80	34.05	11.83
L65 G2Y1	22.98	28.60	29.16	30.66	34.75	38.58	38.59	37.41	35.29	32.31	28.28	25.70	24.47	23.94	24.55	25.37	65.00	−13.02	4.56	28.81	34.05	33.10
L65 G2Y2	21.71	25.97	25.96	26.91	31.55	37.09	37.71	36.90	35.40	33.37	30.43	28.36	27.27	26.72	27.05	27.57	65.00	−11.07	9.45	29.31	34.05	29.63
L65 G2Y3	19.28	21.97	21.74	22.51	27.90	35.99	37.59	37.02	35.78	34.14	31.70	29.92	28.93	28.38	28.58	28.96	65.00	−11.07	16.00	29.31	34.05	25.38
L65 G2Y4	16.47	17.93	17.62	18.28	23.92	34.51	37.50	37.24	36.20	34.88	32.87	31.36	30.48	29.96	30.05	30.32	65.00	−11.07	23.34	29.31	34.05	21.12
L65 G2Y5	13.35	13.92	13.63	14.17	19.52	32.38	37.54	37.72	36.85	35.71	33.96	32.62	31.83	31.37	31.45	31.72	65.00	−11.07	31.75	29.31	34.05	16.87
L65 G2Y6	9.99	10.02	9.83	10.25	14.59	28.92	37.63	38.77	38.05	36.72	34.87	33.46	32.78	32.41	32.83	33.18	65.00	−11.06	41.70	29.31	34.05	12.61
L65 G3Y1	21.43	26.73	28.19	31.09	36.90	41.92	41.76	39.48	35.40	30.02	24.03	20.86	19.55	19.11	20.02	21.26	65.00	−20.96	4.56	26.81	34.05	33.09
L65 G3Y2	20.52	24.61	25.24	27.09	33.03	40.06	40.76	39.10	35.91	31.50	26.14	23.10	21.79	21.31	22.20	23.33	65.00	−18.92	9.45	27.32	34.05	29.63
L65 G3Y3	19.10	22.01	22.14	23.37	29.39	38.22	39.83	38.68	36.24	32.77	28.20	25.41	24.14	23.65	24.42	25.41	65.00	−16.89	14.73	27.82	34.05	26.17
L65 G3Y4	16.65	18.26	18.18	19.08	24.90	36.53	39.90	39.08	36.81	33.52	29.45	26.76	25.60	25.11	25.89	26.68	65.00	−16.89	21.90	27.82	34.05	21.92
L65 G3Y5	13.66	14.38	14.17	14.86	20.60	34.36	39.81	39.49	37.52	34.60	30.53	27.95	26.77	26.33	27.11	28.12	65.00	−16.89	30.09	27.82	34.05	17.66
L65 G3Y6	10.49	10.58	10.39	10.86	15.62	30.82	40.02	40.49	38.59	35.59	31.40	28.79	27.67	27.32	28.27	29.46	65.00	−16.88	39.70	27.82	34.05	13.41
L65 G4Y1	19.67	24.61	26.93	31.52	39.67	46.20	45.52	41.31	34.60	27.04	20.13	16.96	15.76	15.40	16.37	17.64	65.00	−29.29	4.56	24.82	34.05	33.10
L65 G4Y2	19.10	23.03	24.35	27.28	34.88	43.82	44.43	41.20	35.57	28.75	22.01	18.75	17.48	17.09	18.10	19.41	65.00	−27.12	9.46	25.33	34.05	29.63
L65 G4Y3	18.09	20.88	21.53	23.50	30.42	41.48	43.55	41.05	36.17	30.13	24.07	20.74	19.50	19.07	20.09	21.20	65.00	−25.02	14.73	25.83	34.05	26.17
L65 G4Y4	16.51	18.41	18.56	19.84	26.60	39.10	42.37	40.72	36.98	31.87	25.95	22.74	21.42	20.99	22.01	23.32	65.00	−22.93	20.51	26.33	34.05	22.70
L65 G4Y5	14.13	14.58	14.83	15.80	21.50	35.54	41.28	41.19	39.09	34.64	27.08	21.73	20.09	20.26	23.36	26.23	65.00	−22.92	28.47	26.34	34.05	18.45
L65 G4Y6	10.88	11.08	10.94	11.52	16.70	33.02	42.81	42.44	38.92	33.85	27.87	24.64	23.36	23.03	24.26	25.80	65.00	−22.93	37.78	26.33	34.05	14.19
L65 G5Y1	17.71	22.21	25.24	31.73	43.23	51.89	49.89	42.48	32.73	23.65	16.67	13.81	12.79	12.51	13.39	14.55	65.00	−38.10	4.56	22.83	34.05	33.09
L65 G5Y2	17.24	20.89	23.01	27.64	37.85	48.55	48.05	42.28	35.44	25.63	17.93	14.81	13.70	13.41	14.40	15.72	65.00	−35.82	9.45	23.33	34.05	29.63
L65 G5Y3	16.81	19.64	20.76	23.52	32.14	45.66	47.69	43.01	35.40	27.18	19.97	16.77	15.58	15.24	16.27	17.62	65.00	−33.58	14.74	23.84	34.05	26.16
L65 G5Y4	15.53	17.45	18.01	19.88	27.31	42.57	46.81	43.17	36.27	28.69	21.92	18.53	17.34	16.97	18.05	19.27	65.00	−31.37	20.51	24.34	34.05	22.70
L65 G5Y5	13.92	15.01	15.13	16.30	23.12	39.37	45.59	43.13	37.52	30.57	23.60	20.22	18.93	18.57	19.74	21.24	65.00	−29.19	26.91	24.84	34.05	19.24
L65 G5Y6	11.17	11.51	11.44	12.18	17.82	35.47	45.99	44.30	38.65	31.56	24.44	21.01	19.74	19.44	20.73	22.37	65.00	−29.19	35.92	24.85	34.05	14.98
L65 G5Y7	7.63	7.57	7.62	8.29	13.38	31.11	43.73	44.83	41.82	35.25	25.29	19.04	17.30	17.62	21.39	25.14	65.00	−29.19	46.85	24.85	34.05	10.73
L65 G6Y2	15.75	19.23	21.78	27.52	40.28	55.53	53.93	43.46	31.61	21.85	15.03	12.40	11.49	11.26	12.07	13.16	65.00	−45.00	9.45	21.34	34.05	29.63
L65 G6Y3	15.40	18.14	19.76	23.49	33.95	51.22	52.97	44.29	33.31	23.64	16.50	13.64	12.64	12.39	13.30	14.50	65.00	−42.63	14.74	21.84	34.05	26.16
L65 G6Y4	14.49	16.44	17.32	19.73	28.61	47.13	51.90	44.92	34.86	25.38	17.98	14.92	13.84	13.56	14.57	15.90	65.00	−40.29	20.51	22.35	34.05	22.70
L65 G6Y5	13.17	14.31	14.67	16.18	23.69	42.90	50.82	45.44	36.32	27.16	19.62	16.40	15.26	14.98	16.09	17.54	65.00	−37.98	26.90	22.85	34.05	19.24
L65 G6Y6	11.24	11.79	11.86	12.83	19.17	38.54	49.76	45.97	37.73	28.89	21.19	17.80	16.59	16.31	17.55	19.16	65.00	−35.71	34.13	23.36	34.05	15.77
L65 G6Y7	8.20	8.07	8.29	9.11	14.37	32.86	46.63	47.16	42.10	32.81	21.42	15.38	13.83	14.15	17.66	21.46	65.00	−35.62	44.41	23.37	34.05	11.60
L70 N	29.48	41.41	41.00	40.77	40.90	40.95	40.37	39.97	41.56	41.56	40.91	40.31	39.68	39.06	38.37	37.94	70.00	0.00	0.00	38.64	40.75	43.76
L70 Y1	28.01	36.12	35.54	35.67	37.89	39.70	39.49	39.34	42.39	42.96	42.41	41.81	41.20	40.55	39.88	39.44	70.00	0.00	5.79	38.64	40.75	38.83
L70 Y2	25.46	30.98	30.38	30.76	34.60	38.55	38.82	38.87	43.28	44.36	43.88	43.30	42.70	42.06	41.41	40.99	70.00	0.00	12.11	38.64	40.75	33.89
L70 Y3	22.47	25.93	25.36	25.90	30.91	37.30	38.29	38.54	44.14	45.72	45.32	44.76	44.18	43.57	42.94	42.57	70.00	0.00	19.06	38.64	40.75	28.96
L70 Y4	19.01	20.88	20.39	20.98	26.64	35.79	37.92	38.42	44.98	47.04	46.71	46.19	45.65	45.07	44.47	44.11	70.00	0.00	26.85	38.64	40.75	24.03
L70 Y5	15.31	16.09	15.69	16.25	21.90	33.76	37.74	38.61	45.89	48.32	48.08	47.62	47.13	46.61	46.08	45.78	70.00	0.00	35.80	38.64	40.75	19.10
L70 Y6	11.41	11.49	11.21	11.64	16.51	30.56	37.92	39.49	46.85	49.35	49.20	48.85	48.47	48.06	47.64	47.46	70.00	0.00	46.46	38.64	40.75	14.17
L70 Y7	7.27	7.01	6.91	7.20	10.45	24.69	38.51	42.11	47.92	49.83	49.97	49.96	49.90	49.72	49.68	49.58	70.00	0.00	59.99	38.64	40.75	9.23

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L70 R1Y1	29.16	38.02	37.15	36.84	36.90	36.20	35.51	35.73	43.67	46.47	46.17	45.61	45.00	44.35	43.68	43.25	70.00	6.67	4.64	40.76	40.75	39.77
L70 R1Y2	27.18	32.71	31.91	31.91	33.95	35.35	35.19	35.11	44.10	47.86	47.81	47.37	46.86	46.24	45.75	45.19	70.00	6.68	10.84	40.77	40.75	34.84
L70 R1Y3	23.93	27.47	26.76	27.03	30.54	34.25	34.65	34.70	44.71	49.28	49.35	48.94	48.46	47.86	47.39	46.85	70.00	6.67	17.66	40.77	40.75	29.91
L70 R1Y4	20.15	22.34	21.74	22.24	26.96	32.90	33.81	34.47	45.65	50.75	50.78	50.30	49.76	49.19	48.59	48.23	70.00	6.67	25.27	40.76	40.75	24.98
L70 R1Y5	16.44	17.37	16.91	17.38	22.31	31.41	33.95	34.48	46.01	51.91	52.24	51.95	51.55	51.04	50.66	50.22	70.00	6.68	33.97	40.76	40.75	20.05
L70 R1Y6	12.36	12.55	12.23	12.67	17.51	28.99	33.49	34.90	47.21	53.24	53.50	53.17	52.78	52.36	51.91	51.71	70.00	6.67	44.24	40.77	40.75	15.11
L70 R1Y7	8.27	8.05	7.87	8.14	11.60	24.43	33.86	36.57	48.45	54.00	54.38	54.25	54.07	53.86	53.63	53.63	70.00	6.67	57.07	40.77	40.75	10.18
L70 R2Y1	30.08	39.28	37.87	36.86	35.35	33.36	31.69	32.00	39.48	50.91	54.19	54.03	53.51	52.92	52.29	51.88	70.00	16.11	4.64	43.90	40.75	39.78
L70 R2Y2	31.75	35.59	33.01	33.08	33.18	30.99	30.66	31.36	46.80	51.28	51.24	50.78	50.25	49.61	49.11	48.53	70.00	13.12	9.60	42.89	40.75	35.79
L70 R2Y3	24.71	29.08	28.18	28.26	30.18	31.06	30.67	31.28	45.04	52.97	53.38	52.92	52.37	51.77	51.15	50.76	70.00	13.11	16.30	42.89	40.75	30.86
L70 R2Y4	21.26	23.79	23.07	23.40	26.87	30.04	30.17	30.91	45.45	54.43	55.03	54.61	54.09	53.52	52.94	52.58	70.00	13.11	23.74	42.89	40.75	25.93
L70 R2Y5	17.50	18.65	18.11	18.51	22.76	28.99	30.30	30.76	45.41	55.55	56.59	56.39	56.01	55.51	55.14	54.71	70.00	13.11	32.19	42.89	40.75	20.99
L70 R2Y6	13.36	13.71	13.34	13.76	18.18	27.22	30.11	30.96	46.05	56.78	57.99	57.89	57.59	57.17	56.88	56.54	70.00	13.11	42.09	42.89	40.75	16.07
L70 R2Y7	9.12	8.99	8.80	9.15	12.86	24.15	30.09	31.85	47.12	57.75	59.08	59.14	59.01	58.74	58.61	58.42	70.00	13.11	54.29	42.89	40.75	11.14
L70 R3Y1	30.82	40.54	38.53	36.68	34.03	31.40	28.88	29.11	33.85	51.99	63.22	64.35	64.12	63.69	63.16	62.83	70.00	25.12	4.63	47.04	40.75	39.78
L70 R3Y2	29.05	35.45	34.00	33.06	31.95	30.08	28.68	28.67	38.19	54.12	60.64	61.15	60.85	60.34	59.94	59.46	70.00	22.25	9.60	46.03	40.75	35.79
L70 R3Y3	29.27	31.74	29.41	29.39	29.42	27.39	27.02	27.68	46.22	56.33	57.18	56.87	56.40	55.81	55.34	54.81	70.00	19.35	14.94	45.01	40.75	31.82
L70 R3Y4	22.60	25.33	24.47	24.51	26.48	27.60	27.46	27.70	43.82	57.69	59.53	59.39	59.00	58.46	58.06	57.59	70.00	19.35	22.22	45.02	40.75	26.89
L70 R3Y5	18.62	20.02	19.38	19.66	22.95	26.58	27.07	27.48	44.04	59.01	61.16	61.10	60.76	60.27	59.91	59.50	70.00	19.35	30.45	45.01	40.75	21.95
L70 R3Y6	14.38	14.86	14.41	14.82	18.90	24.99	26.27	27.42	45.02	60.55	62.54	62.34	61.96	61.55	61.10	60.88	70.00	19.35	40.04	45.02	40.75	17.02
L70 R3Y7	10.10	10.04	9.80	10.16	13.88	23.01	26.66	27.98	45.26	61.32	63.92	64.11	63.98	63.70	63.54	63.34	70.00	19.35	51.70	45.02	40.75	12.09
L70 R4Y1	32.33	41.63	39.07	36.27	32.86	29.97	26.83	26.64	29.04	49.09	71.21	77.39	78.37	78.48	78.46	78.29	70.00	33.72	4.65	50.18	40.75	39.77
L70 R4Y2	29.66	36.37	34.49	32.89	30.90	28.60	26.44	26.39	32.26	52.58	69.79	73.23	73.54	73.34	73.14	72.84	70.00	30.99	9.60	49.17	40.75	35.80
L70 R4Y3	26.83	31.58	30.16	29.36	28.46	26.71	25.52	25.63	36.97	57.08	67.18	68.41	68.28	67.87	67.54	67.16	70.00	28.21	14.94	48.15	40.75	31.82
L70 R4Y4	23.80	27.01	25.92	25.65	25.92	25.08	24.60	24.85	42.09	60.81	64.16	64.23	63.88	63.38	63.00	62.57	70.00	25.40	20.76	47.14	40.75	27.83
L70 R4Y5	19.76	21.54	20.72	20.85	22.82	23.89	23.63	24.52	42.76	62.48	65.72	65.57	65.15	64.69	64.20	63.93	70.00	25.40	28.78	47.14	40.75	22.90
L70 R4Y6	15.50	16.19	15.66	15.96	19.18	23.19	23.89	24.48	42.29	63.22	67.53	67.82	67.60	67.21	66.93	66.63	70.00	25.39	38.06	47.14	40.75	17.97
L70 R4Y7	11.11	11.16	10.86	11.20	14.71	21.56	23.65	24.69	42.82	64.32	68.96	69.41	69.31	69.03	68.86	68.67	70.00	25.39	49.24	47.14	40.75	13.04
L70 R4Y8	6.58	6.37	6.21	6.52	9.73	18.92	23.38	25.19	44.12	65.45	70.02	70.60	70.65	70.51	70.48	70.43	70.00	25.39	63.75	47.14	40.75	8.10
L70 R5Y2	30.17	37.25	34.97	32.74	29.90	27.20	24.21	24.15	27.49	49.94	76.08	86.66	89.60	90.79	91.52	91.96	70.00	39.33	9.60	52.30	40.75	35.81
L70 R5Y3	27.30	32.27	30.54	29.23	27.64	25.57	23.78	23.82	31.04	53.28	75.67	82.26	83.42	83.63	83.68	83.62	70.00	36.69	14.95	51.29	40.75	31.81
L70 R5Y4	24.27	27.64	26.31	25.67	24.99	23.43	22.49	22.70	35.70	59.57	73.71	76.04	76.15	75.88	75.65	75.39	70.00	34.00	20.75	50.28	40.75	27.84
L70 R5Y5	20.76	22.75	21.82	21.72	23.21	23.87	23.30	23.60	36.71	59.87	72.58	74.51	74.56	74.28	74.04	73.78	70.00	31.26	27.15	49.26	40.75	23.85
L70 R5Y6	16.64	17.56	16.91	17.07	19.29	21.17	21.29	21.81	39.80	65.48	72.61	73.32	73.18	72.83	72.57	72.31	70.00	31.25	36.16	49.27	40.75	18.92
L70 R5Y7	12.16	12.34	11.96	12.26	15.33	19.95	21.01	21.85	40.09	66.49	74.22	75.13	75.11	74.86	74.70	74.54	70.00	31.25	46.90	49.27	40.75	13.99
L70 R5Y8	7.55	7.42	7.21	7.52	10.74	18.00	20.64	22.00	41.15	67.72	75.39	76.42	76.53	76.39	76.34	76.29	70.00	31.26	60.56	49.27	40.75	9.06
L70 R6Y5	21.42	23.65	22.48	22.00	21.52	20.19	19.50	19.83	34.42	61.95	79.89	83.84	84.32	84.20	84.07	83.97	70.00	39.61	27.15	52.40	40.75	23.85
L70 R6Y6	17.85	19.05	18.24	18.18	19.14	19.24	19.00	19.47	37.17	66.77	77.89	79.38	79.38	79.08	78.85	78.66	70.00	36.95	34.30	51.39	40.75	19.88
L70 R6Y7	13.41	13.67	13.18	13.40	15.70	17.92	18.10	19.24	37.78	68.69	79.71	80.45	80.27	80.09	79.83	79.74	70.00	36.95	44.63	51.39	40.75	14.94
L70 R6Y8	8.47	8.55	8.20	8.52	11.69	16.81	18.10	19.06	38.33	69.04	80.83	82.70	82.93	82.80	82.73	82.72	70.00	36.96	57.59	51.39	40.75	10.01
L70 R7Y6	18.30	19.65	18.66	18.33	18.02	16.96	16.51	16.96	32.98	64.73	85.42	91.76	92.98	92.94	92.77	92.98	70.00	45.08	34.31	54.53	40.75	19.87
L70 R7Y7	14.43	14.96	14.35	14.42	15.84	16.73	16.71	17.33	34.53	67.30	84.62	88.49	89.02	88.87	88.71	88.77	70.00	42.49	42.49	53.51	40.75	15.89
L70 R1	31.21	42.81	41.67	40.62	38.99	37.17	35.44	35.47	39.72	46.62	48.08	47.69	47.12	46.48	45.82	45.38	70.00	9.77	0.00	41.78	40.75	43.76
L70 R2	32.13	44.35	42.45	40.40	37.43	34.72	31.94	32.01	35.06	49.56	56.49	56.83	56.42	55.88	55.27	54.87	70.00	19.06	0.00	44.92	40.75	43.76
L70 R3	34.07	45.79	43.13	39.90	35.98	32.90	29.38	29.11	30.45	48.79	65.11	68.17	68.37	68.11	67.84	67.46	70.00	27.93	0.00	48.05	40.75	43.76
L70 R4	34.80	47.52	43.90	39.42	34.36	30.89	26.89	26.59	26.77	46.45	71.81	80.94	82.91	83.51	83.79	83.82	70.00	36.43	0.00	51.19	40.75	43.76
L70 R1B1	33.29	49.90	49.09	47.30	44.35	41.82	38.71	37.87	36.85	42.20	44.30	43.80	43.72	44.19	44.02	43.72	70.00	6.68	−7.58	40.77	40.75	50.82
L70 R1B2	37.60	59.31	60.45	58.45	53.72	46.70	40.52	37.11	35.86	37.02	40.80	40.20	42.45	50.88	57.73	60.14	70.00	6.63	−18.16	40.77	40.75	61.91
L70 R2B1	34.34	52.34	50.15	46.64	41.86	38.58	34.72	34.42	33.47	46.16	52.19	52.39	51.94	51.36	50.72	50.29	70.00	16.12	−7.58	43.91	40.75	50.82
L70 R2B2	35.91	58.58	57.39	53.69	47.88	42.51	37.01	35.35	34.19	41.44	47.20	46.60	48.55	55.01	58.81	59.96	70.00	13.13	−14.49	42.89	40.75	57.88
L70 R3B1	37.00	54.75	51.15	45.86	39.95	36.26	31.65	31.21	29.86	46.55	60.42	62.64	62.64	62.27	61.93	61.47	70.00	25.12	−7.58	47.04	40.75	50.82
L70 R3B2	38.88	62.11	58.62	52.10	44.69	39.44	33.73	32.49	30.88	43.15	54.10	54.84	57.87	68.83	80.20	87.18	70.00	22.26	−14.50	46.03	40.75	57.89
L70 R4B1	37.86	57.38	52.09	45.06	37.92	33.77	28.80	28.35	26.76	45.34	67.65	73.77	75.38	77.15	78.04	78.14	70.00	33.73	−7.59	50.18	40.75	50.83
L70 B1	35.32	52.01	52.41	51.47	49.41	46.14	42.55	39.94	38.24	37.59	38.21	37.19	37.79	40.31	41.30	40.41	70.00	0.00	−11.57	38.64	40.75	54.84
L70 B2	36.24	61.11	63.51	62.77	59.62	51.54	43.34	38.90	36.05	34.98	35.50	33.60	34.64	39.39	41.26	39.18	70.00	0.00	−21.66	38.64	40.75	65.92
L70 G1B1	33.68	47.85	48.02	47.48	46.61	45.69	44.42	42.64	40.03	37.26	35.32	33.96	33.71	34.13	33.80	32.33	70.00	−5.48	−7.58	36.96	40.75	50.82
L70 G1B2	35.07	57.36	59.26	58.80	56.02	51.23	45.78	41.65	37.56	34.37	32.59	30.63	30.79	32.89	33.10	31.04	70.00	−5.52	−18.16	36.96	40.75	61.91

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L70 G1B3	36.48	65.31	70.94	70.74	64.93	55.60	46.95	41.12	35.72	31.66	29.49	27.38	27.61	29.99	30.30	27.97	70.00	−5.58	−27.53	36.96	40.75	72.99
L70 G2B1	31.94	44.75	46.58	48.49	49.46	49.16	47.80	44.99	40.14	34.94	30.81	28.36	27.64	27.77	28.01	27.25	70.00	−13.11	−7.58	34.68	40.75	50.82
L70 G2B2	33.82	53.26	54.78	54.76	53.47	51.49	48.38	44.26	38.46	33.21	29.93	27.94	27.70	28.76	28.44	26.43	70.00	−11.12	−14.50	35.27	40.75	57.89
L70 G2B3	37.53	61.40	66.06	66.44	63.06	56.83	49.90	43.28	35.89	30.13	27.12	25.17	25.33	27.00	27.05	24.83	70.00	−11.17	−24.26	35.27	40.75	68.97
L70 G3B1	28.79	41.01	44.57	49.67	53.50	53.77	51.52	46.79	39.48	32.26	26.51	23.50	22.48	22.49	23.10	23.06	70.00	−21.09	−7.58	32.41	40.75	50.82
L70 G3B2	32.24	49.59	53.01	55.90	56.91	55.91	52.60	46.28	37.46	30.14	25.69	23.37	22.88	23.52	23.46	22.01	70.00	−19.01	−14.50	33.00	40.75	57.89
L70 G3B3	34.46	57.31	61.28	62.30	60.97	58.13	52.98	45.39	35.97	28.78	24.88	22.86	22.65	23.69	23.37	21.35	70.00	−16.95	−20.86	33.58	40.75	64.95
L70 G4B1	26.83	37.59	42.29	50.31	58.61	60.05	55.96	47.87	37.51	28.82	22.65	19.70	18.73	18.76	19.42	19.50	70.00	−29.44	−7.59	30.14	40.75	50.82
L70 G4B2	29.98	44.69	50.01	57.24	63.08	62.59	56.74	46.82	35.39	27.02	22.05	19.65	19.06	19.50	19.71	18.81	70.00	−27.26	−14.49	30.73	40.75	57.88
L70 G4B3	32.38	51.76	58.07	64.16	67.16	64.75	57.23	45.86	33.78	25.61	21.29	19.23	18.89	19.62	19.52	18.05	70.00	−25.10	−20.86	31.31	40.75	64.95
L70 G4B4	33.97	58.24	66.44	71.26	71.13	66.75	57.55	44.96	32.42	24.38	20.43	18.59	18.38	19.27	18.99	17.26	70.00	−22.97	−26.78	31.89	40.75	72.02
L70 G1	28.93	39.42	39.94	40.93	42.87	44.25	43.84	42.90	41.41	39.41	36.44	34.30	33.12	32.48	32.76	33.23	70.00	−7.41	0.00	36.37	40.75	43.76
L70 G2	27.34	36.89	38.71	41.65	45.47	47.61	47.01	45.20	41.99	37.43	31.69	28.31	26.80	26.22	27.18	28.41	70.00	−15.12	0.00	34.10	40.75	43.75
L70 G3	25.45	34.09	37.12	42.41	48.82	51.80	50.70	47.35	41.69	34.55	27.10	23.33	21.80	21.30	22.47	23.97	70.00	−23.20	0.00	31.83	40.75	43.76
L70 G4	23.52	30.80	34.75	42.94	53.56	57.38	55.03	48.93	39.93	30.85	23.17	19.40	18.06	17.62	18.74	20.01	70.00	−31.66	0.00	29.56	40.75	43.76
L70 G5	21.88	28.90	33.33	42.68	57.68	65.74	60.53	49.45	37.07	26.89	19.49	16.32	15.21	14.98	15.91	16.89	70.00	−40.57	0.00	27.29	40.75	43.76
L70 G1Y1	27.86	36.36	36.14	36.60	39.66	42.76	42.82	42.18	41.27	40.31	38.91	37.75	36.92	36.28	35.96	35.84	70.00	−5.48	4.64	36.95	40.75	39.77
L70 G1Y2	26.19	31.56	31.08	31.43	35.77	41.76	42.71	42.23	41.57	40.95	40.37	39.84	39.30	38.68	38.18	37.61	70.00	−5.48	10.85	36.95	40.75	34.84
L70 G1Y3	22.68	26.46	25.97	26.59	32.21	40.38	41.98	41.82	42.59	42.46	41.86	41.27	40.69	40.07	39.43	39.02	70.00	−5.48	17.66	36.95	40.75	29.91
L70 G1Y4	19.45	21.60	21.13	21.78	27.91	38.72	41.60	41.74	43.56	43.74	43.20	42.65	42.09	41.51	40.90	40.52	70.00	−5.48	25.27	36.95	40.75	24.98
L70 G1Y5	15.80	16.75	16.36	16.95	22.99	36.48	41.49	42.04	44.52	44.94	44.47	43.97	43.46	42.93	42.37	42.05	70.00	−5.48	33.97	36.95	40.75	20.05
L70 G1Y6	12.00	12.18	11.89	12.36	17.58	33.07	41.73	43.02	45.50	45.97	45.58	45.18	44.77	44.33	43.88	43.66	70.00	−5.49	44.24	36.95	40.75	15.11
L70 G1Y7	7.96	7.75	7.62	7.95	11.57	27.14	42.24	45.66	46.49	46.52	46.39	46.28	46.15	45.90	45.81	45.64	70.00	−5.48	57.07	36.95	40.75	10.18
L70 G2Y1	26.55	34.44	35.17	36.91	41.50	45.78	45.84	44.55	42.20	38.82	34.19	31.22	29.80	29.19	29.95	30.93	70.00	−13.11	4.64	34.68	40.75	39.78
L70 G2Y2	25.28	31.46	31.52	32.62	37.87	44.10	44.84	43.96	42.32	40.03	36.67	34.30	33.06	32.44	32.87	33.50	70.00	−11.12	9.60	35.27	40.75	35.80
L70 G2Y3	22.72	26.79	26.55	27.46	33.64	42.83	44.69	44.07	42.72	40.89	38.15	36.13	35.00	34.39	34.65	35.09	70.00	−11.13	16.30	35.26	40.75	30.86
L70 G2Y4	19.72	22.13	21.78	22.57	29.14	41.22	44.64	44.33	43.21	41.76	39.55	37.86	36.86	36.27	36.37	36.66	70.00	−11.13	23.74	35.26	40.75	25.93
L70 G2Y5	16.33	17.49	17.13	17.81	24.21	38.96	44.72	44.84	43.91	42.70	40.83	39.38	38.50	37.95	37.98	38.20	70.00	−11.13	32.19	35.26	40.75	20.99
L70 G2Y6	12.57	12.87	12.58	13.10	18.67	35.32	44.93	45.82	45.01	43.84	41.97	40.53	39.71	39.25	39.40	39.76	70.00	−11.13	42.09	35.26	40.75	16.07
L70 G2Y7	8.75	8.58	8.39	8.72	12.68	29.08	45.09	47.80	47.00	45.35	42.65	40.76	39.89	39.60	40.33	41.26	70.00	−11.13	54.30	35.27	40.75	11.14
L70 G3Y1	25.01	32.34	34.06	37.36	43.87	49.54	49.44	46.92	42.39	36.30	29.41	25.70	24.15	23.62	24.76	26.21	70.00	−21.10	4.64	32.41	40.75	39.78
L70 G3Y2	24.05	29.88	30.65	32.76	39.46	47.41	48.28	46.46	42.93	37.94	31.81	28.29	26.75	26.19	27.25	28.59	70.00	−19.01	9.61	32.99	40.75	35.79
L70 G3Y3	22.58	26.94	27.12	28.56	35.41	45.39	47.27	46.00	43.30	39.38	34.16	30.95	29.47	28.90	29.81	30.98	70.00	−16.96	14.95	33.58	40.75	31.81
L70 G3Y4	19.83	22.49	22.36	23.45	30.54	43.56	47.19	46.31	43.94	40.44	35.63	32.58	31.16	30.59	31.46	32.56	70.00	−16.96	22.22	33.57	40.75	26.88
L70 G3Y5	16.97	18.02	17.94	18.76	25.06	40.34	46.60	46.74	45.45	42.72	37.28	32.42	30.66	30.70	33.53	35.77	70.00	−16.96	30.46	33.58	40.75	21.95
L70 G3Y6	13.26	13.59	13.43	14.05	19.68	36.82	46.74	47.70	46.57	43.88	38.40	33.51	31.78	31.89	34.88	37.27	70.00	−16.97	40.04	33.58	40.75	17.02
L70 G3Y7	9.36	9.24	9.11	9.54	13.88	31.18	46.70	49.45	48.48	45.43	39.15	33.83	32.10	32.39	35.91	38.88	70.00	−16.96	51.71	33.58	40.75	12.09
L70 G4Y1	23.22	29.97	32.65	37.81	46.91	54.42	53.78	49.08	41.57	33.01	24.95	21.15	19.67	19.22	20.42	21.97	70.00	−29.45	4.65	30.14	40.75	39.77
L70 G4Y2	22.58	28.10	29.66	33.00	41.52	51.65	52.46	48.85	42.55	34.83	27.03	23.18	21.64	21.16	22.39	23.97	70.00	−27.28	9.60	30.72	40.75	35.79
L70 G4Y3	21.44	25.63	26.35	28.55	36.67	48.99	51.28	48.61	43.44	36.67	29.31	25.47	23.90	23.39	24.63	26.19	70.00	−25.12	14.94	31.31	40.75	31.82
L70 G4Y4	19.82	22.76	22.96	24.46	32.21	46.35	50.14	48.30	44.15	38.39	31.63	27.91	26.34	25.81	27.02	28.53	70.00	−22.99	20.76	31.89	40.75	27.83
L70 G4Y5	16.88	18.46	18.39	19.46	26.78	43.65	50.26	48.95	45.06	39.51	32.87	29.16	27.61	27.10	28.35	29.91	70.00	−22.99	28.79	31.89	40.75	22.90
L70 G4Y6	13.58	14.21	14.05	14.82	20.94	39.64	50.66	50.19	46.14	40.44	34.05	30.27	28.83	28.36	29.69	31.13	70.00	−23.00	38.07	31.89	40.75	17.97
L70 G4Y7	10.00	9.99	9.82	10.28	15.14	33.84	50.99	52.02	47.93	41.84	34.70	30.88	29.40	29.06	30.65	32.61	70.00	−23.00	49.25	31.89	40.75	13.03
L70 G5Y1	21.25	27.38	30.88	38.12	50.80	60.84	58.70	50.37	39.56	29.28	20.98	17.44	16.13	15.76	16.87	18.33	70.00	−38.24	4.64	27.87	40.75	39.77
L70 G5Y2	20.94	26.12	28.43	33.21	44.04	57.14	57.45	50.72	41.03	31.18	22.78	19.07	17.68	17.27	18.46	20.00	70.00	−35.95	9.60	28.45	40.75	35.80
L70 G5Y3	20.15	24.20	25.51	28.63	38.29	53.63	56.21	50.94	42.45	33.18	24.79	20.93	19.46	19.03	20.29	21.91	70.00	−33.68	14.95	29.04	40.75	31.81
L70 G5Y4	18.81	21.70	22.29	24.35	33.12	50.16	54.94	51.00	43.69	35.13	26.88	22.93	21.40	20.95	22.26	23.95	70.00	−31.45	20.76	29.61	40.75	27.83
L70 G5Y5	17.01	18.85	19.00	20.40	28.35	46.66	53.78	51.01	44.81	37.03	29.04	25.06	23.50	23.04	24.40	26.13	70.00	−29.24	27.16	30.19	40.75	23.85
L70 G5Y6	13.90	14.69	14.62	15.55	22.42	42.48	54.19	52.24	46.03	38.16	30.06	26.02	24.47	24.04	25.51	27.36	70.00	−29.24	36.17	30.20	40.75	18.91
L70 G5Y7	10.50	10.60	10.45	11.02	16.32	36.34	54.81	54.33	47.64	39.22	30.78	26.68	25.17	24.83	26.49	28.56	70.00	−29.25	46.90	30.20	40.75	13.98
L70 G6Y3	18.79	22.06	24.40	29.09	40.29	59.14	61.86	52.74	40.51	29.52	20.81	16.72	15.42	15.19	16.70	18.32	70.00	−42.71	14.95	26.77	40.75	31.81
L70 G6Y4	18.37	20.86	21.92	24.53	33.41	53.75	61.37	53.61	42.54	31.23	22.29	18.45	17.08	16.81	18.25	20.00	70.00	−40.34	20.77	27.35	40.75	27.82
L70 G6Y5	16.19	18.07	18.52	20.33	29.04	50.52	59.74	53.62	43.49	33.20	24.42	20.52	19.08	18.69	20.02	21.75	70.00	−38.02	27.16	27.93	40.75	23.85
L70 G6Y6	14.16	15.17	15.25	16.43	23.89	45.61	58.46	54.12	44.99	35.13	26.32	22.31	20.82	20.44	21.87	23.72	70.00	−35.73	34.31	28.51	40.75	19.87
L70 G6Y7	10.92	11.14	11.06	11.76	17.56	39.03	59.02	56.13	47.12	36.32	26.96	22.83	21.36	21.05	22.67	24.74	70.00	−35.73	44.64	28.51	40.75	14.94

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L75 N	32.70	48.83	48.60	48.38	48.47	48.46	47.88	47.48	49.10	49.13	48.47	47.87	47.24	46.60	45.91	45.47	75.00	0.00	0.00	45.78	48.28	51.84
L75 Y1	31.35	42.82	42.32	42.51	45.04	47.13	46.96	46.82	50.08	50.72	50.17	49.56	48.94	48.28	47.60	47.14	75.00	0.00	5.93	45.78	48.28	46.18
L75 Y2	28.91	36.98	36.39	36.86	41.24	45.79	46.17	46.23	51.11	52.36	51.88	51.29	50.69	50.05	49.38	48.94	75.00	0.00	12.37	45.78	48.28	40.52
L75 Y3	25.90	31.17	30.58	31.22	36.97	44.34	45.55	45.83	52.08	53.94	53.53	52.97	52.39	51.77	51.13	50.71	75.00	0.00	19.44	45.78	48.28	34.86
L75 Y4	22.37	25.47	24.92	25.63	32.16	42.64	45.13	45.65	53.05	55.47	55.15	54.63	54.07	53.49	52.87	52.48	75.00	0.00	27.33	45.78	48.28	29.19
L75 Y5	19.42	20.14	19.60	20.22	26.19	40.02	45.40	46.00	53.97	56.98	56.67	56.18	55.58	54.98	54.37	53.93	75.00	0.00	36.31	45.78	48.28	23.54
L75 Y6	14.12	14.59	14.23	14.79	20.80	36.99	45.04	46.57	55.14	58.22	58.07	57.67	57.24	56.78	56.30	56.04	75.00	0.00	46.89	45.78	48.28	17.87
L75 Y7	9.55	9.44	9.25	9.64	14.00	31.04	45.71	48.90	56.32	58.98	59.09	58.97	58.80	58.51	58.35	58.13	75.00	0.00	60.00	45.78	48.28	12.21
L75 R1Y1	33.62	45.04	44.24	43.87	44.08	43.42	42.86	42.65	51.21	54.56	54.41	53.95	53.42	52.79	52.29	51.71	75.00	6.64	4.72	48.14	48.28	47.31
L75 R1Y2	30.91	38.96	38.17	38.22	40.58	42.25	42.13	42.02	51.93	56.22	56.21	55.77	55.27	54.66	54.17	53.61	75.00	6.64	11.05	48.15	48.28	41.65
L75 R1Y3	27.66	32.98	32.26	32.59	36.65	41.01	41.53	41.55	52.62	57.85	57.98	57.58	57.10	56.51	56.06	55.52	75.00	6.64	17.98	48.15	48.28	35.98
L75 R1Y4	23.51	27.06	26.42	27.01	32.51	39.48	40.60	41.27	53.68	59.57	59.66	59.18	58.65	58.09	57.49	57.12	75.00	6.64	25.68	48.15	48.28	30.32
L75 R1Y5	19.77	21.44	20.91	21.47	27.24	37.80	40.78	41.25	54.04	60.91	61.34	61.04	60.65	60.14	59.76	59.31	75.00	6.63	34.42	48.15	48.28	24.66
L75 R1Y6	15.29	15.91	15.52	16.05	21.66	35.22	40.70	41.68	54.94	62.28	62.84	62.63	62.31	61.88	61.57	61.20	75.00	6.64	44.62	48.15	48.28	19.00
L75 R1Y7	10.65	10.61	10.35	10.75	15.47	30.81	40.56	42.95	56.60	63.57	64.01	63.79	63.50	63.20	62.86	62.73	75.00	6.63	57.12	48.15	48.28	13.34
L75 R2Y1	34.39	46.27	44.95	43.84	42.47	40.42	38.69	38.53	46.25	58.98	63.41	63.57	63.20	62.67	62.25	61.74	75.00	16.04	4.72	51.63	48.28	47.31
L75 R2Y2	32.02	41.01	39.97	39.61	39.81	38.84	38.25	38.21	51.98	60.17	60.73	60.38	59.92	59.33	58.87	58.35	75.00	13.06	9.74	50.51	48.28	42.77
L75 R2Y3	28.81	34.82	33.92	33.98	36.33	37.78	37.64	37.70	52.37	61.82	62.61	62.31	61.87	61.32	60.88	60.38	75.00	13.06	16.54	50.51	48.28	37.11
L75 R2Y4	25.08	28.78	28.02	28.36	32.35	36.62	37.15	37.34	52.78	63.41	64.44	64.20	63.80	63.28	62.88	62.41	75.00	13.06	24.08	50.51	48.28	31.45
L75 R2Y5	20.69	22.86	22.25	22.81	28.06	35.01	36.20	37.11	53.77	65.12	66.08	65.73	65.28	64.80	64.28	63.97	75.00	13.06	32.58	50.51	48.28	25.79
L75 R2Y6	16.43	17.26	16.80	17.31	22.62	33.25	36.58	37.33	53.86	66.32	67.83	67.75	67.47	67.06	66.77	66.43	75.00	13.06	42.44	50.51	48.28	20.13
L75 R2Y7	11.71	11.81	11.52	11.97	16.70	30.06	36.61	38.12	54.91	67.55	69.22	69.27	69.11	68.81	68.64	68.41	75.00	13.06	54.38	50.51	48.28	14.46
L75 R3Y1	35.03	47.50	45.60	43.62	41.09	38.40	35.64	35.44	40.19	59.29	73.25	75.62	75.74	75.48	75.25	74.93	75.00	25.01	4.72	55.11	48.28	47.31
L75 R3Y2	32.65	42.00	40.56	39.59	38.45	36.42	34.90	34.85	45.45	62.91	70.48	71.22	71.01	70.59	70.25	69.84	75.00	22.17	9.75	53.99	48.28	42.77
L75 R3Y3	29.97	36.79	35.65	35.33	35.67	34.72	34.15	34.23	51.29	65.59	67.45	67.30	66.92	66.40	66.01	65.55	75.00	19.29	15.14	52.87	48.28	38.24
L75 R3Y4	26.28	30.55	29.63	29.73	32.17	33.72	33.62	33.80	51.40	67.12	69.39	69.32	68.98	68.50	68.14	67.72	75.00	19.29	22.51	52.87	48.28	32.58
L75 R3Y5	22.12	24.50	23.78	24.13	28.10	32.59	33.23	33.56	51.61	68.59	71.28	71.30	71.01	70.58	70.27	69.90	75.00	19.28	30.80	52.87	48.28	26.92
L75 R3Y6	17.60	18.66	18.13	18.59	23.36	31.10	32.97	33.56	51.99	69.98	73.06	73.20	72.98	72.61	72.36	72.06	75.00	19.28	40.35	52.87	48.28	21.25
L75 R3Y7	12.84	13.07	12.73	13.17	17.84	28.75	32.87	33.98	52.72	71.23	74.62	74.90	74.80	74.53	74.38	74.18	75.00	19.28	51.78	52.88	48.28	15.59
L75 R3Y8	7.96	7.75	7.60	7.93	11.55	24.36	32.86	35.30	54.32	72.31	75.73	76.21	76.32	76.23	76.25	76.23	75.00	19.30	66.45	52.88	48.28	9.93
L75 R4Y1	34.19	48.92	46.31	43.41	39.43	36.07	32.63	32.74	35.62	57.66	81.32	88.92	90.87	91.75	91.93	92.17	75.00	33.63	4.72	58.60	48.28	47.31
L75 R4Y2	33.14	42.93	41.07	39.43	37.36	34.87	32.51	32.41	39.02	60.57	79.98	85.20	86.11	86.25	86.31	86.27	75.00	30.90	9.74	57.48	48.28	42.78
L75 R4Y3	30.49	37.61	36.16	35.36	34.48	32.56	31.32	31.37	44.43	66.17	77.61	79.31	79.35	79.08	78.86	78.60	75.00	28.13	15.14	56.36	48.28	38.24
L75 R4Y4	27.49	32.44	31.30	31.06	31.67	30.99	30.49	30.66	49.46	70.37	74.58	74.80	74.54	74.12	73.81	73.46	75.00	25.33	20.99	55.24	48.28	33.70
L75 R4Y5	23.33	26.17	25.31	25.46	28.10	30.06	30.08	30.36	49.45	71.67	76.59	76.95	76.75	76.39	76.12	75.83	75.00	25.33	29.07	55.24	48.28	28.04
L75 R4Y6	18.79	20.14	19.52	19.89	23.86	28.89	29.77	30.25	49.59	72.90	78.53	79.06	78.95	78.65	78.45	78.22	75.00	25.33	38.32	55.24	48.28	22.38
L75 R4Y7	13.99	14.38	13.98	14.40	18.80	27.15	29.60	30.46	50.06	74.04	80.25	80.98	80.99	80.79	80.68	80.56	75.00	25.33	49.31	55.24	48.28	16.72
L75 R4Y8	9.08	8.93	8.74	9.09	12.77	23.82	29.54	31.37	51.30	75.14	81.55	82.53	82.77	82.75	82.80	82.85	75.00	25.34	63.16	55.24	48.28	11.06
L75 R5Y4	27.95	33.16	31.78	31.15	30.52	28.79	27.84	27.98	43.41	69.02	84.47	87.91	88.41	88.35	88.32	88.29	75.00	33.93	20.98	58.72	48.28	33.70
L75 R5Y5	24.58	27.95	26.91	26.77	27.82	27.66	27.28	27.53	46.98	73.81	82.17	83.18	83.14	82.86	82.66	82.48	75.00	31.20	27.37	57.60	48.28	29.17
L75 R5Y6	20.02	21.71	20.97	21.19	24.10	26.74	26.96	27.37	46.96	74.69	84.17	85.52	85.61	88.39	85.27	85.17	75.00	31.20	36.37	57.60	48.28	23.51
L75 R5Y7	15.18	15.76	15.28	15.66	19.55	25.44	26.75	27.44	47.21	75.53	86.00	87.77	88.05	87.95	87.93	87.96	75.00	31.20	46.95	57.61	48.28	17.84
L75 R5Y8	10.19	10.13	9.89	10.25	13.99	23.07	26.65	28.01	48.09	76.46	87.44	89.71	90.33	90.45	90.64	90.90	75.00	31.21	60.08	57.61	48.28	12.18
L75 R6Y6	21.27	23.37	22.47	22.48	24.09	24.74	24.54	24.90	44.31	75.02	89.41	92.97	93.65	93.58	93.59	93.82	75.00	36.92	34.47	59.97	48.28	24.63
L75 R6Y7	16.43	17.24	16.64	16.95	20.10	23.27	23.55	24.63	45.00	76.91	91.98	94.25	94.32	94.58	94.49	94.57	75.00	36.92	44.68	59.97	48.28	18.97
L75 R6Y8	10.75	11.37	11.04	11.59	15.43	19.84	20.38	21.82	50.86	83.56	91.21	91.59	91.74	91.87	92.10	92.26	75.00	36.83	57.32	59.97	48.28	13.27
L75 R1	35.69	50.37	49.34	48.12	46.54	44.68	42.80	42.47	46.47	54.38	56.59	56.40	55.93	55.33	54.85	54.28	75.00	9.70	0.00	49.27	48.28	51.84
L75 R2	36.49	51.91	50.12	47.83	44.87	42.12	39.00	38.70	41.38	57.03	65.97	66.94	66.73	66.28	65.91	65.45	75.00	18.96	0.00	52.75	48.28	51.84
L75 R3	37.13	53.55	50.93	47.44	43.16	39.79	35.85	35.53	36.70	56.36	75.01	79.38	79.96	79.92	79.84	79.63	75.00	27.82	0.00	56.23	48.28	51.84
L75 R1B1	35.00	57.78	57.60	55.90	52.81	50.02	46.22	45.23	43.96	49.96	52.62	52.26	52.36	53.54	53.80	53.59	75.00	6.64	−7.50	48.15	48.28	59.64
L75 R1B2	37.78	67.84	69.88	68.22	62.98	54.90	47.64	44.09	42.82	44.40	48.62	47.52	50.03	59.34	66.21	68.32	75.00	6.64	−17.99	48.14	48.28	71.80
L75 R2B1	38.72	60.71	58.73	54.79	49.84	46.48	41.74	41.28	39.57	53.76	61.14	61.75	61.45	60.94	60.51	59.99	75.00	16.04	−7.50	51.63	48.28	59.64
L75 R2B2	40.09	67.61	66.88	62.46	56.21	50.48	44.45	42.40	40.81	48.48	55.22	55.09	57.62	66.66	74.34	77.47	75.00	13.06	−14.38	50.51	48.28	67.44
L75 R3B1	39.50	63.44	59.85	54.00	47.46	43.41	38.19	37.73	35.93	54.25	70.10	73.06	73.27	73.03	72.80	72.45	75.00	25.02	−7.50	55.12	48.28	59.64
L75 B1	38.17	60.12	60.99	60.09	57.88	54.21	50.21	47.33	45.46	44.75	45.50	44.38	45.14	48.17	49.42	48.43	75.00	0.00	−11.31	45.75	48.28	63.88
L75 B2	40.20	70.39	74.20	72.72	67.17	58.80	51.47	46.82	43.57	41.78	42.04	40.32	41.46	46.14	48.17	46.10	75.00	0.00	−21.46	45.78	48.28	76.16
L75 G1B1	36.88	55.79	56.30	55.84	54.95	53.89	52.40	50.38	47.44	44.34	42.23	40.70	40.51	41.15	40.87	39.20	75.00	−5.51	−7.50	43.88	48.28	59.64

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L75 G1B2	39.36	65.98	68.80	68.26	65.18	59.77	54.01	49.32	44.68	40.94	39.16	37.19	37.64	40.24	40.79	38.46	75.00	−5.52	−17.99	43.88	48.28	71.80
L75 G2B1	35.42	52.48	54.72	56.88	58.04	57.77	56.28	53.12	47.57	41.68	37.10	34.37	33.63	33.86	34.13	33.16	75.00	−13.21	−7.50	41.31	48.28	59.64
L75 G2B2	38.31	61.60	63.76	63.78	62.55	60.34	56.96	52.29	45.65	39.69	36.18	34.07	34.04	35.36	35.17	32.81	75.00	−11.19	−14.37	41.97	48.28	67.44
L75 G2B3	39.72	69.58	75.91	76.85	72.96	65.84	58.22	51.02	42.91	36.49	33.08	30.86	31.03	32.94	32.99	30.44	75.00	−11.19	−24.11	41.97	48.28	79.59
L75 G3B1	33.53	48.56	52.45	58.00	62.70	63.26	60.70	55.11	46.44	38.37	32.41	29.10	28.15	28.28	28.91	28.49	75.00	−21.22	−7.50	38.74	48.28	59.63
L75 G3B2	36.91	57.75	61.74	64.98	66.44	65.42	61.72	54.58	44.42	36.23	31.42	28.91	28.57	29.40	29.37	27.50	75.00	−19.11	−14.37	39.41	48.28	67.43
L75 G3B3	38.89	65.68	70.86	72.34	71.05	67.72	61.97	53.55	42.86	34.81	30.53	28.31	28.27	29.55	29.29	26.85	75.00	−17.04	−20.73	40.07	48.28	75.23
L75 G4B1	30.39	44.67	49.92	58.74	68.40	70.32	65.20	56.10	44.59	34.93	27.96	24.52	23.39	23.45	24.23	24.27	75.00	−29.60	−7.50	36.18	48.28	59.64
L75 G4B2	33.18	52.38	58.38	66.50	73.69	73.21	66.13	54.88	42.31	33.00	27.33	24.51	23.82	24.38	24.62	23.46	75.00	−27.40	−14.37	36.84	48.28	67.43
L75 G1	32.23	46.65	47.46	48.66	50.70	52.80	51.67	50.68	49.07	46.81	43.43	40.99	39.68	39.01	39.42	40.03	75.00	−7.47	0.00	43.21	48.28	51.85
L75 G2	30.75	43.76	45.99	49.42	53.63	55.87	55.25	53.28	49.70	44.55	38.05	34.20	32.49	31.85	33.01	34.47	75.00	−15.24	0.00	40.65	48.28	51.84
L75 G3	30.12	41.45	45.22	51.89	58.76	60.66	59.21	55.39	48.92	41.12	33.27	28.89	27.21	26.61	27.93	29.42	75.00	−22.42	−1.66	38.42	48.28	53.56
L75 G4	26.96	37.28	41.93	50.90	62.48	66.93	64.29	57.46	47.75	37.45	28.17	23.85	22.18	21.67	23.06	24.86	75.00	−31.82	0.00	35.52	48.28	51.84
L75 G1Y1	31.20	43.10	43.02	43.60	47.01	50.44	50.56	49.92	48.94	47.85	46.22	44.88	43.96	43.29	43.06	43.02	75.00	−5.51	4.72	43.88	48.28	47.31
L75 G1Y2	29.96	37.69	37.26	37.70	42.57	49.30	50.44	49.95	49.26	48.58	47.89	47.26	46.68	46.03	45.57	45.02	75.00	−5.51	11.05	43.88	48.28	41.65
L75 G1Y3	26.16	31.86	31.36	32.09	38.48	47.80	49.72	49.56	50.30	50.15	49.53	48.94	48.33	47.70	47.03	46.60	75.00	−5.52	17.98	43.88	48.28	35.98
L75 G1Y4	22.81	26.25	25.75	26.52	33.55	45.89	49.28	49.43	51.44	51.68	51.13	50.56	49.98	49.37	48.74	48.30	75.00	−5.52	25.69	43.88	48.28	30.32
L75 G1Y5	18.99	20.75	20.30	21.02	28.08	43.38	49.07	49.65	52.56	53.11	52.62	52.10	51.56	50.99	50.40	50.04	75.00	−5.52	34.42	43.88	48.28	24.66
L75 G1Y6	14.82	15.44	15.07	15.68	22.06	39.74	49.23	50.51	53.71	54.39	53.97	53.52	53.05	52.55	52.04	51.75	75.00	−5.52	44.62	43.88	48.28	19.00
L75 G1Y7	10.42	10.37	10.12	10.53	15.37	33.65	49.89	52.88	54.94	55.32	55.01	54.69	54.37	54.02	53.65	53.51	75.00	−5.52	57.11	43.88	48.28	13.34
L75 G2Y1	30.98	41.03	42.03	44.04	49.00	53.93	54.17	52.67	49.91	45.94	40.92	37.52	36.01	35.34	36.28	37.24	75.00	−13.20	4.72	41.31	48.28	47.31
L75 G2Y2	28.78	37.59	37.76	39.05	44.93	51.95	52.87	51.94	50.14	47.53	43.68	40.99	39.60	38.93	39.51	40.30	75.00	−11.19	9.74	41.97	48.28	42.77
L75 G2Y3	27.13	32.27	32.31	33.28	39.64	49.99	52.44	52.01	50.99	49.23	45.69	42.06	40.49	40.28	42.17	43.42	75.00	−11.19	16.55	41.97	48.28	37.11
L75 G2Y4	23.17	26.96	26.59	27.52	35.00	48.64	52.62	52.30	51.10	49.49	47.00	45.10	43.99	43.36	43.54	43.91	75.00	−11.19	24.08	41.97	48.28	31.45
L75 G2Y5	19.54	21.58	21.17	21.98	29.42	46.09	52.72	52.86	51.88	50.57	48.53	46.93	45.95	45.36	45.41	45.66	75.00	−11.19	32.58	41.97	48.28	25.78
L75 G2Y6	15.50	16.31	15.95	16.62	23.36	42.28	52.95	53.85	53.02	51.81	49.89	48.38	47.48	46.95	47.05	47.34	75.00	−11.20	42.44	41.97	48.28	20.12
L75 G2Y7	11.20	11.25	11.02	11.50	16.61	35.85	52.65	55.65	55.37	54.09	51.16	48.05	46.78	46.77	48.74	50.09	75.00	−11.19	54.38	41.97	48.28	14.46
L75 G3Y1	29.29	38.60	40.69	44.57	51.76	58.29	58.32	55.35	49.94	43.02	35.65	31.36	29.66	29.04	30.35	31.79	75.00	−21.22	4.72	38.74	48.28	47.30
L75 G3Y2	27.62	35.91	36.88	39.28	46.76	55.73	56.83	54.80	50.83	45.16	38.20	34.18	32.43	31.80	33.06	34.65	75.00	−19.12	9.74	39.40	48.28	42.77
L75 G3Y3	26.14	32.51	32.77	34.40	42.07	53.31	55.57	54.21	51.23	46.81	40.93	37.30	35.63	34.99	36.08	37.45	75.00	−17.05	15.14	40.07	48.28	38.23
L75 G3Y4	23.34	27.47	27.37	28.63	36.66	51.30	55.55	54.59	51.96	47.98	42.52	39.06	37.45	36.82	37.85	39.15	75.00	−17.04	22.51	40.07	48.28	32.57
L75 G3Y5	19.96	22.28	22.01	23.01	30.88	48.52	55.61	55.16	52.80	49.15	44.02	40.70	39.15	38.55	39.55	40.81	75.00	−17.04	30.80	40.07	48.28	26.91
L75 G3Y6	16.13	17.15	16.84	17.61	24.75	44.58	55.83	56.17	53.96	50.42	45.36	42.10	40.59	40.03	41.09	42.42	75.00	−17.05	40.35	40.07	48.28	21.25
L75 G3Y7	11.95	12.12	11.86	12.40	18.11	38.48	56.14	58.10	55.83	51.89	46.36	42.92	41.43	40.97	42.29	43.90	75.00	−17.05	51.80	40.07	48.28	15.58
L75 G4Y1	26.84	36.08	39.19	45.01	55.13	63.65	62.99	57.59	49.17	39.59	30.45	26.04	24.30	23.76	25.19	27.04	75.00	−29.60	4.72	36.18	48.28	47.30
L75 G4Y2	26.19	33.93	35.75	39.51	48.97	60.52	61.65	57.52	50.39	41.70	32.87	28.43	26.64	26.07	27.53	29.39	75.00	−27.40	9.74	36.84	48.28	42.77
L75 G4Y3	25.03	31.12	32.00	34.48	43.52	57.39	60.19	57.19	51.37	43.75	35.43	31.04	29.23	28.64	30.09	31.92	75.00	−25.23	15.14	37.50	48.28	38.23
L75 G4Y4	23.31	27.75	28.01	29.73	38.43	54.31	58.86	56.81	52.15	45.66	38.04	33.81	32.01	31.41	32.81	34.56	75.00	−23.09	20.98	38.16	48.28	33.70
L75 G4Y5	20.25	22.87	22.79	24.05	32.43	51.27	58.95	57.50	53.17	46.97	39.53	35.33	33.55	32.97	34.39	36.16	75.00	−23.09	29.07	38.16	48.28	28.03
L75 G4Y6	16.97	17.85	17.84	18.77	25.77	45.89	57.72	58.44	56.04	50.56	41.02	33.96	31.71	31.93	36.15	40.01	75.00	−23.08	38.32	38.16	48.28	22.38
L75 G4Y7	12.63	12.94	12.71	13.34	19.50	40.98	59.66	60.66	56.22	49.59	41.76	37.46	35.73	35.26	36.94	39.02	75.00	−23.09	49.31	38.16	48.28	16.71
L75 G5Y2	24.58	31.78	34.43	39.75	51.65	66.77	67.40	59.49	48.63	37.67	28.09	23.72	22.05	21.55	22.98	24.83	75.00	−36.08	9.75	34.27	48.28	42.77
L75 G5Y3	23.76	29.57	31.10	34.61	45.26	62.59	65.94	59.85	50.24	39.90	30.39	25.90	24.15	23.63	25.12	27.04	75.00	−33.80	15.15	34.93	48.28	38.23
L75 G5Y4	22.33	26.66	27.37	29.73	39.50	58.55	64.40	59.84	51.59	42.02	32.72	28.16	26.37	25.82	27.36	29.33	75.00	−31.55	20.99	35.59	48.28	33.69
L75 G5Y5	20.37	23.31	23.50	25.12	34.13	54.53	62.97	59.82	52.82	44.12	35.15	30.59	28.77	28.22	29.79	31.78	75.00	−29.33	27.38	36.26	48.28	29.16
L75 G5Y6	17.04	18.53	18.45	19.58	27.64	49.97	63.35	61.12	54.17	45.43	36.38	31.78	29.95	29.43	31.08	33.17	75.00	−29.33	36.37	36.26	48.28	23.50
L75 G5Y7	13.24	13.71	13.53	14.27	20.89	43.63	63.90	63.28	55.91	46.70	37.34	32.67	30.86	30.40	32.21	34.47	75.00	−29.33	46.95	36.26	48.28	17.84
L75 G6Y6	17.29	19.05	19.16	20.56	29.21	53.29	68.53	63.39	53.05	42.11	32.18	27.53	25.75	25.26	26.91	29.03	75.00	−35.80	34.48	34.35	48.28	24.63
L75 G6Y7	14.06	14.32	14.55	15.56	22.22	44.93	64.79	65.87	58.64	46.57	32.37	24.60	22.48	22.81	27.30	32.08	75.00	−35.74	44.56	34.36	48.28	19.02
L80 N	35.71	56.39	56.52	56.68	56.82	56.40	55.82	55.50	57.04	57.14	56.55	55.96	55.35	54.71	54.04	53.59	80.00	0.00	0.00	53.75	56.68	60.86
L80 Y1	34.31	50.36	50.03	50.30	53.03	55.30	55.20	55.09	58.57	59.30	58.78	58.21	57.61	56.99	56.33	55.89	80.00	0.00	6.06	53.75	56.68	54.42
L80 Y2	32.12	43.74	43.24	43.81	48.69	53.85	54.39	54.50	59.76	61.20	60.76	60.21	59.64	59.04	58.40	57.98	80.00	0.00	12.62	53.75	56.68	47.98
L80 Y3	30.23	37.27	36.69	37.30	43.36	52.19	54.06	54.05	60.67	62.88	62.65	62.22	61.76	61.19	60.74	60.22	80.00	0.00	19.79	53.75	56.68	41.53
L80 Y4	26.47	30.84	30.26	30.96	37.86	50.15	53.60	53.85	61.71	64.61	64.49	64.10	63.67	63.14	62.72	62.24	80.00	0.00	27.75	53.75	56.68	35.09
L80 Y5	22.14	24.52	24.00	24.71	31.85	47.51	53.39	54.04	62.79	66.26	66.25	65.92	65.53	65.04	64.67	64.23	80.00	0.00	36.76	53.75	56.68	28.65
L80 Y6	17.36	18.36	17.94	18.58	25.28	43.74	53.46	54.86	64.02	67.78	67.87	67.61	67.30	66.87	66.57	66.19	80.00	0.00	47.24	53.75	56.68	22.20

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L80 Y7	12.27	12.42	12.13	12.64	18.13	37.78	53.78	56.92	65.55	68.96	69.15	69.01	68.82	68.50	68.31	68.06	80.00	0.00	59.99	53.75	56.68	15.77
L80 R1Y1	36.80	52.77	52.17	51.82	52.01	51.28	50.72	50.52	59.78	63.57	63.50	63.08	62.61	62.03	61.57	61.04	80.00	6.61	4.78	56.36	56.68	55.74
L80 R1Y2	34.38	45.92	45.24	45.35	48.01	49.97	49.91	49.82	60.54	65.45	65.54	65.16	64.72	64.16	63.73	63.22	80.00	6.61	11.23	56.37	56.68	49.29
L80 R1Y3	31.31	39.20	38.50	38.91	43.50	48.57	49.25	49.28	61.28	67.31	67.58	67.24	66.83	66.30	65.90	65.42	80.00	6.61	18.27	56.37	56.68	42.85
L80 R1Y4	27.62	32.60	31.94	32.52	38.45	46.97	48.77	48.97	62.00	69.08	69.54	69.25	68.88	68.39	68.02	67.58	80.00	6.62	26.05	56.37	56.68	36.41
L80 R1Y5	23.34	26.14	25.56	26.21	32.82	44.94	48.47	48.95	62.78	70.81	71.45	71.23	70.91	70.47	70.14	69.75	80.00	6.62	34.82	56.37	56.68	29.97
L80 R1Y6	18.58	19.85	19.38	20.01	26.57	42.07	48.39	49.36	63.71	72.38	73.20	73.07	72.81	72.43	72.17	71.85	80.00	6.62	44.95	56.37	56.68	23.52
L80 R1Y7	13.47	13.76	13.44	13.97	19.66	37.52	48.62	50.66	65.05	73.72	74.68	74.66	74.52	74.24	74.07	73.85	80.00	6.62	57.16	56.37	56.68	17.07
L80 R2Y1	37.41	54.07	52.92	51.78	50.33	48.17	46.29	46.11	53.97	68.02	73.60	74.02	73.78	73.37	73.04	72.65	80.00	15.97	4.78	60.21	56.68	55.74
L80 R2Y2	35.37	48.22	47.29	46.96	47.26	46.27	45.67	45.63	60.43	69.78	70.58	70.32	69.94	69.43	69.05	68.60	80.00	13.02	9.87	58.98	56.68	50.61
L80 R2Y3	32.39	41.25	40.39	40.51	43.27	45.09	45.01	45.06	60.79	71.60	72.71	72.51	72.17	71.70	71.35	70.94	80.00	13.02	16.77	58.98	56.68	44.17
L80 R2Y4	28.77	34.45	33.69	34.10	38.71	43.79	44.49	44.66	61.17	73.39	74.84	74.72	74.42	73.99	73.68	73.31	80.00	13.02	24.39	58.98	56.68	37.73
L80 R2Y5	24.55	27.83	27.18	27.74	33.53	42.21	44.15	44.51	61.62	75.06	76.87	76.83	76.59	76.22	75.95	75.64	80.00	13.02	32.93	58.98	56.68	31.28
L80 R2Y6	19.81	21.39	20.87	21.47	27.68	40.04	43.98	44.68	62.23	76.63	78.79	78.86	78.70	78.39	78.19	77.94	80.00	13.03	42.74	58.98	56.68	24.84
L80 R2Y7	14.69	15.17	14.79	15.34	21.10	36.63	44.09	45.49	63.25	78.04	80.46	80.68	80.63	80.41	80.31	80.16	80.00	13.03	54.45	58.99	56.68	18.39
L80 R2Y8	9.38	9.25	9.06	9.45	13.72	30.32	44.31	47.65	65.19	79.09	81.58	82.02	82.20	82.16	82.22	82.25	80.00	13.03	69.32	58.99	56.68	11.95
L80 R3Y2	35.86	49.25	47.92	46.96	45.83	43.69	42.11	42.03	53.32	72.00	81.38	82.71	82.74	82.50	82.34	82.11	80.00	22.11	9.87	62.83	56.68	50.61
L80 R3Y3	33.47	43.47	42.38	42.10	42.66	41.81	41.24	41.28	59.41	75.60	78.15	78.18	77.93	77.54	77.27	76.94	80.00	19.24	15.31	61.60	56.68	45.49
L80 R3Y4	29.92	36.42	35.51	35.67	38.64	40.73	40.72	40.86	59.48	77.23	80.40	80.55	80.37	80.02	79.79	79.52	80.00	19.24	22.77	61.60	56.68	39.04
L80 R3Y5	25.76	29.60	28.85	29.28	33.97	39.49	40.35	40.63	59.65	78.76	82.62	82.93	82.82	82.54	82.37	82.16	80.00	19.25	31.10	61.60	56.68	32.60
L80 R3Y6	21.05	23.00	22.40	22.95	28.58	37.84	40.15	40.67	59.99	80.13	84.70	85.20	85.19	84.99	84.89	84.77	80.00	19.24	40.61	61.60	56.68	26.16
L80 R3Y7	15.93	16.62	16.20	16.74	22.39	35.30	40.15	41.15	60.67	81.37	86.53	87.28	87.44	87.34	87.36	87.36	80.00	19.24	51.86	61.60	56.68	19.70
L80 R3Y8	10.52	10.48	10.24	10.67	15.24	30.56	40.40	42.66	62.22	82.42	87.78	88.85	89.29	89.40	89.62	89.84	80.00	19.19	66.09	61.57	56.68	13.19
L80 R4Y4	31.08	38.53	37.41	37.23	38.26	37.87	37.38	37.50	57.26	80.13	86.27	86.99	87.00	86.77	86.66	86.54	80.00	25.29	21.18	64.22	56.68	40.36
L80 R4Y5	26.97	31.46	30.58	30.81	34.13	36.88	37.03	37.25	57.21	81.19	88.54	89.63	89.78	89.63	89.61	89.60	80.00	25.29	29.31	64.22	56.68	33.92
L80 R4Y6	23.91	24.84	23.58	24.29	29.93	36.55	36.76	38.55	53.28	84.86	91.20	91.91	92.19	92.20	92.41	92.55	80.00	25.29	38.55	64.22	56.68	27.47
L80 R1	38.51	58.67	57.92	56.62	54.88	52.91	50.80	50.47	54.14	63.14	65.99	65.94	65.54	65.01	64.59	64.08	80.00	9.65	0.00	57.59	56.68	60.87
L80 R2	39.10	60.32	58.79	56.32	53.08	50.15	46.70	46.38	48.65	65.45	76.30	77.86	77.87	77.58	77.35	77.03	80.00	18.87	0.00	61.45	56.68	60.87
L80 R1B1	40.09	66.81	66.89	64.81	61.56	58.42	54.47	53.08	51.70	57.60	61.14	60.89	61.57	63.82	64.91	64.87	80.00	6.61	−7.43	56.37	56.68	69.43
L80 R2B1	38.03	69.64	68.39	64.47	58.88	54.99	49.61	49.06	47.41	62.51	71.35	72.10	72.51	73.96	74.43	74.42	80.00	15.97	−7.43	60.21	56.68	69.43
L80 B1	40.37	69.03	70.80	70.00	67.54	63.27	58.71	55.53	53.49	52.75	53.69	52.48	53.47	57.24	58.92	57.82	80.00	0.00	−11.27	53.74	56.68	74.16
L80 G1B1	37.29	64.26	65.47	65.33	64.36	63.05	61.12	58.87	55.66	52.41	50.07	48.24	47.95	48.90	48.56	46.71	80.00	−5.54	−7.43	51.62	56.68	69.43
L80 G1B2	38.70	74.49	79.13	79.25	75.75	69.37	62.62	57.68	52.79	48.90	46.75	44.37	44.63	47.38	47.75	45.12	80.00	−5.54	−17.83	51.62	56.68	82.73
L80 G2B1	38.36	60.98	63.80	66.23	67.59	67.37	65.73	62.10	55.73	49.17	44.24	41.32	40.60	41.01	41.26	40.02	80.00	−13.27	−7.43	48.74	56.68	69.43
L80 G2B2	38.09	70.17	73.62	74.20	72.93	70.27	66.11	60.86	53.75	47.36	43.39	40.89	40.66	42.18	41.90	39.26	80.00	−11.22	−14.26	49.49	56.68	78.00
L80 G3B1	35.04	56.50	61.20	67.54	72.93	73.58	70.55	64.07	54.69	45.83	38.93	35.20	33.97	34.16	34.89	34.54	80.00	−21.32	−7.43	45.86	56.68	69.43
L80 G3B2	37.22	66.13	71.32	75.39	77.28	76.11	71.57	63.26	52.40	43.52	38.05	35.15	34.56	35.53	35.44	33.32	80.00	−19.19	−14.27	46.61	56.68	78.00
L80 G1	35.03	54.54	55.81	57.31	59.46	60.79	60.40	59.39	57.63	55.07	51.20	48.46	47.02	46.33	46.93	47.74	80.00	−7.52	0.00	50.87	56.68	60.87
L80 G2	33.78	51.34	54.14	58.19	62.85	65.17	64.53	62.35	58.31	52.47	45.18	40.89	39.00	38.31	39.69	41.41	80.00	−15.33	0.00	47.99	56.68	60.87
L80 G3	36.90	53.57	54.34	55.54	63.01	74.81	73.81	65.38	53.84	44.92	40.00	37.47	37.38	38.73	38.40	35.60	80.00	−23.47	0.00	45.11	56.68	60.87
L80 G4	30.33	44.62	49.94	59.50	72.20	78.03	74.93	66.97	56.23	44.63	34.23	29.15	27.28	26.96	28.91	31.10	80.00	−31.96	0.00	42.23	56.68	60.87
L80 G1Y1	34.17	50.61	50.80	51.56	55.27	58.98	59.20	58.56	57.53	56.26	54.31	52.74	51.74	51.07	51.01	51.13	80.00	−5.54	4.78	51.62	56.68	55.74
L80 G1Y2	32.22	44.43	44.13	44.86	50.57	57.73	58.89	58.48	57.78	57.16	56.32	55.56	54.89	54.25	53.69	53.35	80.00	−5.54	11.23	51.62	56.68	49.30
L80 G1Y3	29.59	38.03	37.57	38.41	45.52	56.02	58.37	58.24	58.87	58.72	58.13	57.56	56.97	56.36	55.71	55.29	80.00	−5.54	18.26	51.62	56.68	42.86
L80 G1Y4	26.32	31.69	31.18	32.07	39.95	53.79	57.80	58.02	60.17	60.48	59.95	59.41	58.85	58.27	57.65	57.24	80.00	−5.54	26.04	51.62	56.68	36.42
L80 G1Y5	22.85	25.55	25.05	25.79	33.29	50.69	57.92	58.52	61.38	61.94	61.57	61.16	60.72	60.18	59.77	59.29	80.00	−5.54	34.81	51.62	56.68	29.97
L80 G1Y6	17.96	19.28	18.85	19.60	27.10	46.95	57.69	59.12	62.76	63.61	63.23	62.78	62.31	61.82	61.30	60.99	80.00	−5.54	44.94	51.62	56.68	23.53
L80 G1Y7	13.81	13.69	13.27	13.79	19.36	39.35	58.69	62.28	64.58	64.92	64.46	64.01	63.51	63.02	62.46	62.13	80.00	−5.53	57.13	51.62	56.68	17.09
L80 G2Y1	33.17	48.36	49.67	52.01	57.61	62.82	63.08	61.59	58.69	54.32	48.36	44.60	42.84	42.15	43.29	44.71	80.00	−13.28	4.78	48.73	56.68	55.74
L80 G2Y2	32.05	44.51	44.86	46.35	52.82	60.62	61.78	60.82	58.85	55.88	51.48	48.46	46.93	46.25	47.02	48.02	80.00	−11.24	9.87	49.48	56.68	50.61
L80 G2Y3	29.71	38.60	38.47	39.68	47.35	58.92	61.58	60.94	59.37	57.04	53.47	50.90	49.53	48.87	49.41	50.16	80.00	−11.24	16.77	49.48	56.68	44.17
L80 G2Y4	27.42	32.64	32.28	33.23	41.00	56.52	61.70	61.44	60.10	58.08	55.25	53.03	51.88	51.24	51.70	52.10	80.00	−11.24	24.38	49.49	56.68	37.73
L80 G2Y5	23.48	26.52	26.09	26.93	34.77	53.47	61.76	62.08	61.01	59.32	56.94	55.04	54.02	53.41	53.76	54.05	80.00	−11.24	32.93	49.48	56.68	31.28
L80 G2Y6	18.78	20.39	19.97	20.79	28.66	49.73	61.84	62.91	62.06	60.74	58.58	56.90	55.92	55.37	55.55	55.92	80.00	−11.24	42.73	49.49	56.68	24.84
L80 G2Y7	14.13	14.56	14.24	14.84	21.08	42.95	61.87	65.05	64.30	62.48	59.76	57.65	56.66	56.17	56.84	57.47	80.00	−11.23	54.42	49.49	56.68	18.40
L80 G3Y1	36.62	50.13	48.61	50.28	59.81	70.90	70.88	64.92	55.49	47.47	42.82	40.37	40.25	41.51	41.17	38.45	80.00	−21.32	4.78	45.86	56.68	55.74
L80 G3Y2	31.01	42.66	43.88	46.59	54.79	64.86	66.30	64.04	59.53	53.11	45.34	40.88	38.94	38.26	39.74	41.58	80.00	−19.20	9.87	46.61	56.68	50.62

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L80 G3Y3	30.56	38.93	39.34	41.11	49.07	62.01	65.12	63.55	59.98	54.81	48.52	44.42	42.69	42.00	43.27	44.62	80.00	−17.11	15.31	47.35	56.68	45.49
L80 G3Y4	26.88	33.12	33.06	34.48	43.35	59.65	64.79	63.79	60.87	56.37	50.26	46.42	44.65	43.98	45.21	46.72	80.00	−17.10	22.76	47.35	56.68	39.05
L80 G3Y5	23.48	27.25	26.96	28.12	36.95	56.51	64.90	64.50	61.88	57.76	52.01	48.33	46.62	45.98	47.16	48.62	80.00	−17.10	31.08	47.35	56.68	32.61
L80 G3Y6	19.45	21.36	21.00	21.93	30.18	52.13	65.07	65.57	63.14	59.15	53.52	49.91	48.24	47.64	48.85	50.35	80.00	−17.10	40.60	47.35	56.68	26.16
L80 G3Y7	14.93	15.57	15.25	15.95	22.94	45.84	65.29	67.55	65.10	60.78	54.77	51.01	49.35	48.82	50.22	51.93	80.00	−17.10	51.83	47.35	56.68	19.72
L80 G4Y1	30.33	42.92	46.49	52.95	64.14	74.18	73.49	67.00	57.47	46.94	36.84	31.87	29.88	29.27	30.94	33.07	80.00	−29.72	4.78	42.98	56.68	55.74
L80 G4Y2	29.73	40.54	42.67	46.85	57.15	70.36	71.96	67.04	58.90	49.25	39.49	34.52	32.50	31.86	33.55	35.69	80.00	−27.50	9.86	43.73	56.68	50.62
L80 G4Y3	28.60	37.36	38.40	41.15	51.00	66.60	70.23	66.74	60.08	51.56	42.36	37.48	35.46	34.81	36.47	38.57	80.00	−25.30	15.31	44.48	56.68	45.49
L80 G4Y4	26.90	33.52	33.86	35.78	45.34	63.06	68.73	66.40	61.06	53.72	45.24	40.54	38.55	37.89	39.50	41.51	80.00	−23.14	21.18	45.23	56.68	40.36
L80 G4Y5	23.80	27.95	27.89	29.32	38.66	59.48	68.76	67.17	62.21	55.20	46.93	42.29	40.31	39.66	41.29	43.31	80.00	−23.15	29.30	45.22	56.68	33.92
L80 G4Y6	20.30	22.35	22.12	23.16	31.28	54.36	69.29	68.83	63.57	56.39	48.47	43.73	41.87	41.23	42.87	44.68	80.00	−23.14	38.53	45.23	56.68	27.48
L80 G4Y7	15.70	16.55	16.26	17.06	24.48	48.36	69.21	70.52	65.50	58.16	49.62	44.89	42.95	42.69	44.21	46.45	80.00	−23.13	49.34	45.23	56.68	21.04
L80 G5Y4	25.95	32.32	33.16	35.77	46.42	67.62	75.36	69.70	60.17	49.58	39.32	34.23	32.20	31.58	33.34	35.58	80.00	−31.61	21.17	42.34	56.68	40.37
L80 G5Y5	23.95	28.48	28.72	30.55	40.50	63.00	73.64	69.84	61.69	51.97	42.07	37.00	34.95	34.33	36.11	38.37	80.00	−29.38	27.56	43.09	56.68	35.24
L80 G5Y6	20.47	23.02	22.93	24.25	33.39	57.83	73.93	71.29	63.15	53.38	43.42	38.31	36.26	35.65	37.51	39.83	80.00	−29.37	36.54	43.09	56.68	28.80
L80 G5Y7	16.71	17.46	17.45	18.40	25.71	49.66	70.81	73.44	68.30	58.18	44.35	35.66	33.08	33.43	38.62	43.81	80.00	−29.37	46.97	43.10	56.68	22.36
L82.50 N	36.56	61.58	62.04	61.91	61.79	61.61	61.09	60.74	62.12	62.14	61.56	61.01	60.44	59.86	59.22	58.82	82.50	0.00	0.00	58.06	61.23	65.75
L82.50 Y1	37.33	54.44	54.24	54.39	57.15	59.82	59.95	59.63	63.09	63.87	63.48	63.02	62.54	61.95	61.50	60.95	82.50	0.00	6.12	58.06	61.23	58.90
L82.50 Y2	35.01	47.46	47.02	47.49	52.35	58.22	59.13	58.97	64.25	65.83	65.54	65.11	64.66	64.10	63.66	63.15	82.50	0.00	12.73	58.06	61.23	52.04
L82.50 Y3	32.01	40.54	40.00	40.65	47.02	56.40	58.48	58.51	65.35	67.72	67.55	67.16	66.73	66.20	65.80	65.31	82.50	0.00	19.95	58.06	61.23	45.19
L82.50 Y4	28.32	33.73	33.16	33.90	41.18	54.24	58.04	58.34	66.45	69.57	69.51	69.17	68.78	68.29	67.92	67.47	82.50	0.00	27.95	58.06	61.23	38.34
L82.50 Y5	23.98	27.03	26.49	27.24	34.81	51.42	57.83	58.55	67.59	71.33	71.39	71.10	70.77	70.32	69.99	69.59	82.50	0.00	36.96	58.06	61.23	31.49
L82.50 Y6	19.08	20.47	20.01	20.71	27.90	47.42	57.90	59.40	68.87	72.94	73.12	72.91	72.64	72.25	71.98	71.65	82.50	0.00	47.39	58.06	61.23	24.64
L82.50 Y7	13.78	14.12	13.79	14.35	20.39	41.29	58.18	61.45	70.48	74.26	74.53	74.43	74.27	73.98	73.81	73.58	82.50	0.00	60.00	58.06	61.23	17.78
L82.50 R1Y1	36.02	57.13	56.75	56.53	56.45	55.47	54.73	54.97	64.83	68.58	68.38	67.92	67.40	66.90	66.32	65.96	82.50	6.60	4.81	60.81	61.23	60.32
L82.50 R1Y2	34.32	49.89	49.25	49.50	52.18	54.14	53.97	54.34	65.87	70.83	70.79	70.36	69.88	69.41	68.86	68.52	82.50	6.60	11.32	60.81	61.23	53.46
L82.50 R1Y3	33.05	42.58	41.92	42.38	47.25	52.71	53.51	53.56	65.90	72.36	72.74	72.47	72.11	71.64	71.29	70.86	82.50	6.60	18.40	60.81	61.23	46.61
L82.50 R1Y4	29.45	35.59	34.94	35.57	41.85	51.01	53.02	53.25	66.63	74.26	74.86	74.65	74.34	73.91	73.59	73.22	82.50	6.60	26.22	60.81	61.23	39.76
L82.50 R1Y5	25.18	28.74	28.15	28.85	35.87	48.85	52.74	53.24	67.41	76.05	76.88	76.74	76.48	76.10	75.84	75.51	82.50	6.60	34.99	60.81	61.23	32.91
L82.50 R1Y6	20.34	22.06	21.56	22.24	29.27	45.82	52.70	53.70	68.35	77.70	78.74	78.69	78.51	78.19	77.99	77.73	82.50	6.60	45.09	60.81	61.23	26.05
L82.50 R1Y7	15.05	15.58	15.21	15.79	22.03	41.09	52.92	55.00	69.70	79.17	80.38	80.46	80.39	80.17	80.06	79.90	82.50	6.60	57.15	60.81	61.23	19.20
L82.50 R1Y8	9.52	9.39	9.20	9.60	14.06	32.85	53.05	58.25	71.97	80.10	81.38	81.68	81.83	81.78	81.84	81.85	82.50	6.60	72.57	60.81	61.23	12.35
L82.50 R2Y1	38.67	58.22	57.24	56.10	54.62	52.45	50.49	50.32	58.03	72.65	79.09	79.75	79.63	79.30	79.07	78.77	82.50	15.92	4.81	64.85	61.23	60.32
L82.50 R2Y2	36.81	51.95	51.13	50.83	51.77	51.55	50.65	50.58	62.21	73.92	76.82	76.89	76.63	76.23	75.94	75.58	82.50	12.99	9.93	63.56	61.23	54.88
L82.50 R2Y3	34.07	44.74	43.94	44.10	47.07	49.14	49.11	49.16	65.24	76.83	78.20	78.10	77.84	77.45	77.17	76.83	82.50	12.99	16.88	63.56	61.23	48.03
L82.50 R2Y4	30.57	37.55	36.81	37.26	42.20	47.77	48.59	48.76	65.57	78.64	80.44	80.43	80.23	79.88	79.66	79.37	82.50	13.00	24.52	63.56	61.23	41.18
L82.50 R2Y5	26.39	30.53	29.87	30.49	36.68	46.10	48.27	48.64	65.99	80.38	82.65	82.76	82.63	82.34	82.17	81.96	82.50	12.99	33.08	63.56	61.23	34.33
L82.50 R2Y6	21.60	23.71	23.15	23.81	30.48	43.82	48.16	48.86	66.58	81.96	84.71	84.97	84.93	84.72	84.63	84.50	82.50	13.00	42.86	63.56	61.23	27.48
L82.50 R2Y7	16.33	17.09	16.67	17.27	23.56	40.26	48.32	49.72	67.58	83.36	86.52	86.97	87.09	86.99	87.01	86.99	82.50	12.99	54.44	63.56	61.23	20.62
L82.50 R2Y8	10.78	10.76	10.52	10.96	15.84	33.90	48.60	51.85	69.45	84.49	87.82	88.58	88.98	89.07	89.29	89.48	82.50	13.00	68.98	63.56	61.23	13.77
L82.50 R3Y2	37.26	53.12	51.93	51.00	49.89	47.75	46.16	46.08	57.53	76.45	87.17	89.22	89.54	89.47	89.51	89.48	82.50	22.06	9.92	67.60	61.23	54.89
L82.50 R3Y3	35.06	47.05	46.03	45.79	46.51	45.78	45.23	45.26	63.63	80.76	83.93	84.14	84.02	83.73	83.56	83.35	82.50	19.21	15.39	66.31	61.23	49.45
L82.50 R3Y4	31.68	39.62	38.74	38.95	42.21	44.67	44.73	44.85	63.66	82.33	86.37	86.77	86.74	86.51	86.41	86.28	82.50	19.21	22.88	66.31	61.23	42.60
L82.50 R3Y5	27.58	32.39	31.65	32.13	37.22	43.41	44.44	44.70	63.81	83.67	88.63	89.30	89.39	89.24	89.24	89.21	82.50	19.13	31.20	66.25	61.23	35.74
L82.50 R3Y6	22.86	25.40	24.79	25.39	31.48	41.67	44.29	44.80	64.12	84.89	90.94	92.02	92.34	92.32	92.48	92.63	82.50	19.21	40.72	66.31	61.23	28.89
L82.50 R4Y4	32.76	41.78	40.73	40.60	41.95	41.86	41.42	41.52	61.28	84.09	91.50	92.84	93.15	93.08	93.21	93.35	82.50	25.21	21.28	69.06	61.23	44.02
L82.50 R1	39.66	63.09	62.58	61.25	59.42	57.41	55.17	54.86	58.19	67.79	71.11	71.17	70.84	70.36	69.99	69.55	82.50	9.62	0.00	62.10	61.23	65.75
L82.50 R2	40.13	64.79	63.50	60.94	57.54	54.56	50.95	50.63	52.50	69.67	81.87	84.05	84.27	84.13	84.04	83.86	82.50	18.82	0.00	66.13	61.23	65.75
L82.50 R1B1	40.95	71.32	71.94	69.88	66.51	63.12	58.92	57.40	56.02	61.93	65.87	65.66	66.66	69.80	71.50	71.72	82.50	6.59	−7.39	60.81	61.23	74.71
L82.50 R2B1	34.80	69.37	72.38	70.50	65.03	60.18	52.91	52.54	51.33	66.04	75.64	75.93	78.54	86.00	90.17	91.56	82.50	15.93	−7.39	64.84	61.23	74.71
L82.50 B1	41.17	73.53	76.06	75.35	72.75	68.14	63.31	60.00	57.88	57.10	58.11	56.85	57.96	62.11	64.03	62.86	82.50	0.00	−11.20	58.06	61.23	79.64
L82.50 G1B1	40.41	68.84	70.50	70.29	69.42	68.04	66.03	63.54	60.04	56.49	54.22	52.47	52.45	53.63	53.52	51.55	82.50	−5.55	−7.39	55.81	61.23	74.71
L82.50 G2B1	39.55	65.48	68.72	71.31	72.81	72.62	70.87	66.93	60.08	53.19	48.13	45.17	44.49	45.02	45.25	43.83	82.50	−13.31	−7.39	52.77	61.23	74.71
L82.50 G3B1	37.30	65.26	68.08	70.03	75.59	81.84	78.12	69.09	57.69	48.20	42.81	40.05	39.55	40.73	40.56	38.24	82.50	−21.37	−7.39	49.72	61.23	74.71
L82.50 G3B2	40.33	70.46	76.30	80.95	83.59	82.26	76.97	67.97	56.27	47.10	41.70	38.84	38.52	39.61	39.55	37.22	82.50	−19.24	−14.22	50.52	61.23	83.68
L82.50 G1	38.06	58.71	60.29	61.96	64.19	65.56	65.24	64.13	62.22	59.36	55.45	52.55	51.16	50.47	51.21	51.93	82.50	−7.55	0.00	55.01	61.23	65.75

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L82.50 G2	34.85	55.70	58.91	63.09	67.70	70.20	69.63	67.42	63.26	56.91	49.13	44.46	42.53	42.11	43.89	45.81	82.50	−15.39	0.00	51.97	61.23	65.75
L82.50 G3	33.53	52.12	56.69	63.80	72.17	76.22	74.89	70.24	62.63	52.97	43.08	37.79	35.76	35.37	37.44	39.72	82.50	−23.53	0.00	48.93	61.23	65.75
L82.50 G1Y1	35.22	54.98	55.36	56.14	59.65	63.64	64.02	63.40	62.46	61.14	59.08	57.41	56.41	55.87	55.96	56.17	82.50	−5.55	4.81	55.81	61.23	60.31
L82.50 G1Y2	35.18	48.25	48.04	48.68	54.27	62.14	63.66	63.24	62.55	61.74	60.78	59.92	59.28	58.66	58.40	58.05	82.50	−5.56	11.31	55.81	61.23	53.46
L82.50 G1Y3	31.34	41.65	41.13	41.95	48.83	60.29	63.43	63.34	63.74	63.50	62.91	62.38	61.82	61.26	60.63	60.24	82.50	−5.55	18.40	55.81	61.23	46.61
L82.50 G1Y4	28.39	34.93	34.29	35.16	42.78	57.64	62.88	63.18	65.10	65.30	64.77	64.26	63.72	63.18	62.57	62.19	82.50	−5.55	26.22	55.81	61.23	39.76
L82.50 G1Y5	24.71	28.14	27.62	28.41	36.33	54.67	62.56	63.26	66.17	66.78	66.45	66.07	65.67	65.16	64.77	64.31	82.50	−5.55	34.99	55.81	61.23	32.90
L82.50 G1Y6	19.97	21.62	21.16	21.89	29.40	50.36	62.64	64.25	67.58	68.38	68.13	67.81	67.46	67.00	66.67	66.27	82.50	−5.55	45.09	55.81	61.23	26.05
L82.50 G1Y7	14.78	15.28	14.93	15.53	21.95	44.05	62.87	66.47	69.13	69.72	69.55	69.32	69.07	68.70	68.45	68.14	82.50	−5.55	57.16	55.81	61.23	19.20
L82.50 G2Y1	34.40	52.64	54.17	56.55	62.00	67.72	68.26	66.75	63.78	58.95	52.50	48.35	46.56	46.11	47.63	49.26	82.50	−13.31	4.81	52.77	61.23	60.31
L82.50 G2Y2	34.98	48.35	48.84	50.33	56.71	65.24	66.77	65.73	63.54	60.23	55.77	52.55	51.06	50.38	51.28	52.19	82.50	−11.26	9.92	53.56	61.23	54.88
L82.50 G2Y3	32.51	42.13	42.07	43.23	50.73	63.29	66.59	65.93	64.19	61.50	57.79	55.00	53.66	53.00	53.72	54.43	82.50	−11.26	16.88	53.56	61.23	48.02
L82.50 G2Y4	29.30	35.70	35.36	36.36	44.49	60.80	66.52	66.32	64.94	62.78	59.72	57.35	56.17	55.53	56.09	56.61	82.50	−11.26	24.53	53.56	61.23	41.18
L82.50 G2Y5	25.37	29.20	28.76	29.66	37.91	57.52	66.58	67.02	65.92	64.12	61.54	59.48	58.42	57.82	58.28	58.67	82.50	−11.26	33.08	53.56	61.23	34.32
L82.50 G2Y6	20.81	22.76	22.32	23.12	30.94	52.97	66.67	68.15	67.27	65.61	63.18	61.25	60.26	59.71	60.17	60.58	82.50	−11.26	42.87	53.56	61.23	27.47
L82.50 G2Y7	15.76	16.45	16.09	16.74	23.53	46.52	66.56	70.11	69.37	67.45	64.54	62.31	61.27	60.78	61.51	62.22	82.50	−11.26	54.45	53.56	61.23	20.62
L82.50 G2Y8	9.94	10.12	9.84	10.40	16.39	39.54	65.27	72.03	72.26	70.59	66.29	61.90	60.25	60.40	63.40	65.69	82.50	−11.26	68.99	53.56	61.23	13.76
L82.50 G3Y1	34.70	49.52	52.25	56.92	65.25	73.11	73.31	69.62	63.02	54.88	46.33	41.34	39.37	38.67	40.27	42.07	82.50	−23.38	4.82	49.72	61.23	60.31
L82.50 G3Y2	32.61	46.70	47.99	50.67	58.56	69.55	71.76	69.45	64.70	57.63	49.30	44.41	42.43	42.01	43.91	45.96	82.50	−19.24	9.92	50.52	61.23	54.88
L82.50 G3Y3	31.45	42.72	43.08	44.87	52.92	66.40	70.26	68.82	65.34	59.77	52.61	48.16	46.28	45.85	47.55	49.36	82.50	−17.13	15.39	51.31	61.23	49.44
L82.50 G3Y4	29.51	36.37	36.36	37.76	46.42	63.87	70.14	69.09	65.71	60.69	54.47	50.37	48.63	47.94	49.27	50.68	82.50	−17.13	22.88	51.31	61.23	42.59
L82.50 G3Y5	25.87	30.13	29.86	30.98	39.62	60.24	70.15	69.86	66.84	62.17	56.27	52.32	50.63	49.97	51.27	52.64	82.50	−17.13	31.22	51.31	61.23	35.74
L82.50 G3Y6	21.56	23.84	23.47	24.39	32.56	55.47	70.24	71.13	68.30	63.73	57.89	53.98	52.34	51.71	53.05	54.47	82.50	−17.13	40.71	51.31	61.23	28.89
L82.50 G3Y7	16.69	17.60	17.25	17.98	25.14	48.96	70.14	73.23	70.38	65.42	59.19	55.13	53.48	52.92	54.42	56.04	82.50	−17.13	51.86	51.31	61.23	22.04
L82.50 G3Y8	11.92	11.86	11.44	11.73	17.06	38.82	67.09	77.15	75.58	69.15	59.27	53.41	51.66	51.93	55.37	59.05	82.50	−17.14	65.64	51.31	61.23	15.18
L82.50 G4Y1	33.25	45.54	50.32	57.99	69.20	79.04	78.53	72.20	62.40	51.48	40.50	34.20	32.01	31.64	34.27	36.95	82.50	−29.77	4.81	46.68	61.23	60.32
L82.50 G4Y2	31.50	44.66	46.91	51.03	60.86	75.09	77.86	72.54	63.85	53.40	43.08	37.67	35.60	35.23	37.36	39.72	82.50	−27.55	9.93	47.47	61.23	54.88
L82.50 G4Y3	30.55	41.23	42.28	44.97	54.35	71.05	76.44	72.69	65.40	55.96	46.12	40.77	38.69	38.30	40.42	42.74	82.50	−25.35	15.39	48.27	61.23	49.44
L82.50 G4Y4	29.03	37.12	37.38	39.24	48.30	66.71	74.31	72.01	66.28	58.16	49.08	43.94	41.89	41.49	43.53	45.74	82.50	−23.17	21.26	49.06	61.23	44.02
L82.50 G4Y5	26.15	31.19	30.99	32.38	41.26	62.53	74.51	73.15	67.71	59.80	50.84	45.71	43.66	43.26	45.31	47.53	82.50	−23.18	29.41	49.06	61.23	37.16
L82.50 G4Y6	22.18	24.82	24.57	25.67	34.23	58.22	74.66	74.33	68.53	60.87	52.57	47.63	45.69	45.04	46.76	48.68	82.50	−23.17	38.64	49.06	61.23	30.31
L82.50 G4Y7	18.11	18.94	18.49	19.29	26.53	50.10	74.29	77.26	71.62	63.11	53.70	48.39	46.29	45.92	48.11	50.50	82.50	−23.17	49.38	49.06	61.23	23.46
L82.50 G5Y5	26.51	31.32	31.87	33.82	43.43	66.38	78.90	75.61	67.06	56.82	45.93	39.41	37.12	36.79	39.68	42.58	82.50	−29.40	27.64	46.81	61.23	38.58
L85 N	37.45	65.85	66.71	66.65	66.44	66.19	65.70	65.39	66.68	66.71	66.17	65.66	65.13	64.60	63.99	63.62	85.00	0.00	0.00	62.59	66.01	70.88
L85 Y1	36.40	58.64	58.71	59.07	61.82	64.51	64.62	64.56	68.20	69.00	68.55	68.07	67.56	67.06	66.48	66.12	85.00	0.00	6.18	62.59	66.01	63.61
L85 Y2	36.52	51.29	50.97	51.48	56.55	62.77	63.83	63.72	69.10	70.78	70.55	70.18	69.77	69.27	68.88	68.41	85.00	0.00	12.84	62.59	66.01	56.33
L85 Y3	32.56	44.15	43.57	44.36	50.94	60.77	63.13	63.54	70.78	73.16	72.90	72.48	72.03	71.59	71.07	70.75	85.00	0.00	20.10	62.59	66.01	49.06
L85 Y4	30.14	36.79	36.24	37.03	44.66	58.51	62.73	63.10	71.40	74.75	74.78	74.50	74.18	73.75	73.43	73.05	85.00	0.00	28.13	62.59	66.01	41.78
L85 Y5	25.77	29.84	29.16	30.02	37.86	55.11	62.55	63.70	73.28	77.10	77.07	76.74	76.35	75.99	75.54	75.28	85.00	0.00	37.15	62.59	66.01	34.51
L85 Y6	20.87	22.74	22.25	23.00	30.66	51.23	62.60	64.25	73.91	78.31	78.61	78.48	78.28	77.96	77.75	77.48	85.00	0.00	47.54	62.59	66.01	27.23
L85 Y7	15.39	15.97	15.60	16.22	22.81	44.89	62.84	66.37	75.61	79.76	80.16	80.15	80.06	79.83	79.71	79.54	85.00	0.00	60.00	62.59	66.01	19.96
L85 Y8	9.63	9.51	9.31	9.73	14.32	34.68	62.23	71.57	78.06	80.52	81.03	81.24	81.36	81.30	81.36	81.35	85.00	0.00	75.99	62.59	66.01	12.69
L85 R1Y1	37.03	61.42	61.31	61.14	61.03	60.00	59.28	59.57	69.80	73.92	73.83	73.44	72.99	72.56	72.05	71.74	85.00	6.58	4.84	65.47	66.01	65.13
L85 R1Y2	35.50	53.75	53.27	53.56	56.35	58.43	58.31	58.71	70.45	75.74	75.80	75.45	75.03	74.63	74.15	73.86	85.00	6.58	11.40	65.48	66.01	57.86
L85 R1Y3	33.38	46.33	45.66	46.25	51.24	56.89	57.68	58.22	71.29	77.85	78.12	77.81	77.43	77.08	76.64	76.38	85.00	6.58	18.52	65.48	66.01	50.58
L85 R1Y4	31.23	38.75	38.14	38.82	45.43	55.27	57.53	57.79	71.38	79.61	80.43	80.31	80.09	79.75	79.52	79.23	85.00	6.58	26.37	65.48	66.01	43.31
L85 R1Y5	27.03	31.50	30.91	31.66	39.08	52.96	57.27	57.82	72.12	81.46	82.56	82.54	82.39	82.10	81.93	81.70	85.00	6.58	35.16	65.47	66.01	36.03
L85 R1Y6	22.15	24.42	23.90	24.64	32.13	49.73	57.27	58.34	73.07	83.19	84.59	84.69	84.63	84.41	84.32	84.17	85.00	6.58	45.22	65.48	66.01	28.76
L85 R1Y7	16.71	17.54	17.13	17.77	24.53	44.79	57.53	59.71	74.41	84.71	86.35	86.62	86.70	86.58	86.60	86.57	85.00	6.58	57.17	65.48	66.01	21.48
L85 R1Y8	10.94	10.93	10.69	11.15	16.23	36.54	57.65	62.93	76.69	85.72	87.48	88.02	88.35	88.43	88.63	88.78	85.00	6.59	72.22	65.48	66.01	14.21
L85 R2Y1	39.75	62.50	61.79	60.67	59.17	57.00	55.00	54.84	62.20	77.25	84.87	85.95	86.02	85.83	85.74	85.58	85.00	15.90	4.84	69.71	66.01	65.13
L85 R2Y2	38.17	56.14	55.49	55.22	55.62	54.69	54.13	54.10	69.45	80.18	81.47	81.40	81.19	80.84	80.62	80.33	85.00	12.97	9.98	68.36	66.01	59.38
L85 R2Y3	35.62	48.40	47.69	47.90	51.09	53.44	53.48	53.54	69.75	82.18	83.96	84.01	83.86	83.57	83.41	83.19	85.00	12.97	16.98	68.36	66.01	52.11
L85 R2Y4	32.30	40.81	40.11	40.62	45.88	52.01	53.00	53.18	70.03	84.00	86.38	86.57	86.52	86.29	86.19	86.05	85.00	12.97	24.66	68.36	66.01	44.83
L85 R2Y5	28.21	33.39	32.74	33.41	40.01	50.27	52.74	53.12	70.39	85.67	88.74	89.13	89.19	89.04	89.05	89.01	85.00	12.97	33.23	68.36	66.01	37.56
L85 R2Y6	23.42	26.16	25.59	26.30	33.43	47.84	52.71	53.44	70.95	87.10	90.93	91.61	91.86	91.82	91.98	92.10	85.00	12.97	42.99	68.36	66.01	30.28

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L85 R2Y7	16.94	18.55	18.34	19.39	27.60	44.07	50.95	52.69	72.47	88.24	91.70	92.32	92.81	92.80	92.79	92.51	85.00	12.97	54.46	68.36	66.01	23.01
L85 R3Y3	36.52	50.80	49.91	49.72	50.62	50.05	49.53	49.57	67.86	85.76	90.03	90.61	90.71	90.57	90.60	90.59	85.00	19.19	15.46	71.24	66.01	53.63
L85 R3Y4	32.23	43.02	42.11	42.46	46.24	49.54	49.45	50.10	67.47	86.31	93.23	94.45	94.64	94.95	94.92	95.08	85.00	19.18	22.99	71.24	66.01	46.36
L85 R1	37.99	67.57	67.62	66.52	64.49	62.37	59.74	59.71	62.68	73.17	76.68	76.78	76.45	76.09	75.63	75.36	85.00	9.59	0.00	66.82	66.01	70.88
L85 R2	40.96	69.32	68.44	65.82	62.29	59.29	55.56	55.24	56.57	73.74	87.40	90.79	91.51	91.65	91.88	91.98	85.00	18.78	0.00	71.05	66.01	70.88
L85 R1B1	41.63	75.85	77.29	75.27	71.75	68.06	63.62	61.95	60.59	66.42	70.82	70.65	72.07	76.52	79.33	80.07	85.00	6.58	−7.36	65.48	66.01	80.25
L85 B1	41.78	77.93	81.60	81.05	78.24	73.20	68.10	64.68	62.48	61.67	62.72	61.43	62.65	67.19	69.38	68.13	85.00	0.00	−11.14	62.59	66.01	85.37
L85 G1B1	41.21	73.33	75.72	75.68	74.83	73.29	71.04	68.35	64.65	60.97	58.68	56.87	56.93	58.34	58.33	56.26	85.00	−5.57	−7.36	60.22	66.01	80.25
L85 G2B1	40.54	70.06	73.86	76.66	78.35	78.22	76.31	71.94	64.57	57.37	52.25	49.27	48.66	49.32	49.52	47.90	85.00	−13.35	−7.36	57.01	66.01	80.25
L85 G3B1	32.55	63.91	72.23	78.30	81.99	83.51	81.96	75.94	64.03	52.39	45.33	42.16	42.55	45.27	46.70	45.27	85.00	−21.42	−7.36	53.79	66.01	80.25
L85 G1	39.25	63.05	65.05	66.97	69.23	70.50	70.20	69.10	67.10	64.05	59.89	56.83	55.40	54.72	55.57	56.42	85.00	−7.58	0.00	59.38	66.01	70.88
L85 G2	38.05	59.45	62.99	67.96	73.30	75.60	74.90	72.30	67.45	60.90	53.40	48.72	46.80	46.08	47.60	49.27	85.00	−15.43	0.00	56.17	66.01	70.88
L85 G3	36.53	55.47	60.20	68.35	78.33	82.39	80.45	74.85	66.27	56.73	47.32	42.00	39.95	39.23	40.96	42.93	85.00	−23.60	0.00	52.95	66.01	70.88
L85 G1Y1	36.32	59.05	59.71	60.63	64.29	68.44	68.91	68.33	67.36	65.90	63.58	61.73	60.68	60.18	60.44	60.81	85.00	−5.57	4.84	60.22	66.01	65.13
L85 G1Y2	34.92	52.34	52.24	53.07	58.80	66.97	68.76	68.44	67.82	67.06	65.90	64.90	64.18	63.67	63.40	63.30	85.00	−5.57	11.40	60.22	66.01	57.85
L85 G1Y3	42.44	43.19	44.17	46.87	52.74	61.56	67.75	69.72	69.18	68.09	67.02	66.50	66.27	66.24	66.32	66.47	85.00	−5.57	18.53	60.22	66.01	50.58
L85 G1Y4	30.72	37.95	37.46	38.30	46.34	62.20	67.72	68.02	69.76	69.99	69.63	69.25	68.85	68.35	67.96	67.51	85.00	−5.57	26.37	60.22	66.01	43.31
L85 G1Y5	26.59	30.91	30.38	31.22	39.53	58.79	67.49	68.35	71.18	71.82	71.54	71.21	70.85	70.39	70.05	69.63	85.00	−5.57	35.16	60.22	66.01	36.03
L85 G1Y6	22.07	24.15	23.53	24.34	32.13	53.51	67.80	69.86	73.11	73.85	73.51	73.12	72.69	72.27	71.78	71.48	85.00	−5.57	45.22	60.22	66.01	28.76
L85 G1Y7	16.45	17.24	16.85	17.50	24.46	47.66	67.66	71.70	74.32	74.94	74.83	74.65	74.43	74.10	73.89	73.61	85.00	−5.57	57.16	60.22	66.01	21.48
L85 G1Y8	10.77	10.75	10.52	10.98	16.09	37.72	66.32	76.21	77.46	77.04	75.86	74.84	74.38	74.15	74.65	75.11	85.00	−5.57	72.22	60.22	66.01	14.21
L85 G2Y1	35.63	56.79	58.62	61.21	66.84	72.75	73.39	71.83	68.64	63.48	56.69	52.37	50.52	50.09	51.74	53.50	85.00	−13.35	4.85	57.01	66.01	65.13
L85 G2Y2	34.80	52.45	53.04	54.62	61.04	69.89	71.76	70.85	68.78	65.28	60.21	56.70	55.10	54.65	55.88	57.19	85.00	−11.29	9.98	57.85	66.01	59.37
L85 G2Y3	32.98	45.94	45.87	47.14	54.78	67.86	71.86	71.35	69.68	66.81	62.48	59.38	57.91	57.46	58.49	59.58	85.00	−11.28	16.98	57.85	66.01	52.10
L85 G2Y4	31.15	38.95	38.65	39.70	48.14	65.23	71.59	71.49	70.06	67.72	64.40	61.86	60.63	60.02	60.70	61.36	85.00	−11.29	24.66	57.85	66.01	44.83
L85 G2Y5	27.27	32.07	31.63	32.58	41.19	61.65	71.64	72.26	71.13	69.17	66.32	64.10	63.00	62.42	63.01	63.55	85.00	−11.29	33.23	57.85	66.01	37.55
L85 G2Y6	22.68	25.23	24.77	25.61	33.88	56.80	71.67	73.48	72.58	70.77	68.08	65.96	64.93	64.39	64.99	65.55	85.00	−11.29	42.99	57.85	66.01	30.28
L85 G2Y7	17.49	18.51	18.12	18.83	26.13	50.12	71.40	75.54	74.82	72.71	69.51	67.09	66.00	65.52	66.37	67.22	85.00	−11.29	54.47	57.85	66.01	23.00
L85 G2Y8	11.93	12.02	11.77	12.28	17.87	40.43	68.94	78.64	79.31	76.88	70.85	65.33	63.42	63.74	67.62	70.86	85.00	−11.29	68.70	57.85	66.01	15.73
L85 G3Y1	34.66	54.04	57.06	61.63	69.84	78.39	79.07	75.29	68.58	59.67	50.09	44.75	42.65	42.25	44.39	46.71	85.00	−21.43	4.84	53.79	66.01	65.13
L85 G3Y2	35.50	50.27	51.83	54.85	63.29	75.01	77.25	74.44	68.85	61.57	53.54	48.65	46.68	45.97	47.58	49.37	85.00	−19.28	9.98	54.64	66.01	59.37
L85 G3Y3	32.96	46.40	46.88	48.77	57.08	71.27	75.72	74.21	70.37	64.33	56.77	52.13	50.19	49.77	51.61	53.57	85.00	−17.16	15.46	55.48	66.01	53.62
L85 G3Y4	30.68	39.84	39.72	41.21	50.34	69.48	76.30	74.10	70.56	65.81	59.42	54.72	53.05	53.34	55.79	58.21	85.00	−17.16	22.99	55.48	66.01	46.35
L85 G3Y5	27.80	33.09	32.83	34.00	42.99	64.42	75.49	75.34	72.04	67.00	60.74	56.61	54.88	54.22	55.62	57.13	85.00	−17.16	31.35	55.48	66.01	39.08
L85 G3Y6	23.46	26.40	26.02	26.99	35.57	59.32	75.51	76.74	73.64	68.66	62.44	58.36	56.66	56.03	57.48	59.03	85.00	−17.17	40.83	55.48	66.01	31.80
L85 G3Y7	18.47	19.75	19.38	20.16	27.81	52.55	75.16	79.01	75.86	70.43	63.83	59.59	57.88	57.31	58.90	60.64	85.00	−17.17	51.89	55.48	66.01	24.52
L85 G3Y8	13.06	13.28	13.02	13.60	19.63	43.06	71.94	81.90	81.08	75.27	64.98	57.21	54.73	55.15	60.30	65.03	85.00	−17.16	65.40	55.48	66.01	17.25
L85 G4Y3	32.16	44.93	46.10	48.91	58.52	75.98	82.44	78.08	70.08	60.17	50.02	44.50	42.36	41.97	44.20	46.64	85.00	−25.40	15.46	52.26	66.01	53.62
L85 G4Y4	30.71	40.50	40.83	42.77	52.22	71.88	80.63	77.59	71.16	62.67	53.33	47.95	45.87	45.58	47.86	50.30	85.00	−23.21	21.35	53.11	66.01	47.87
L85 G4Y5	28.17	33.97	33.95	35.45	44.89	67.58	80.36	78.53	71.97	63.83	55.22	50.12	48.11	47.42	49.17	51.14	85.00	−23.21	29.51	53.10	66.01	40.60
L85 G4Y6	24.60	27.72	27.34	28.45	36.97	60.88	80.45	80.66	74.23	65.64	56.61	51.56	49.53	49.16	51.24	53.38	85.00	−23.21	38.73	53.10	66.01	33.32
L87.50 N	38.23	70.60	72.09	72.12	71.67	71.22	70.78	70.53	71.78	71.84	71.37	70.92	70.44	69.97	69.43	69.09	87.50	0.00	0.00	67.35	71.03	76.27
L87.50 Y1	37.35	63.02	63.41	63.86	66.71	69.55	69.77	69.79	73.45	74.33	73.95	73.54	73.09	72.66	72.15	71.84	87.50	0.00	6.23	67.35	71.03	68.56
L87.50 Y2	37.89	55.31	55.15	55.72	60.97	67.57	68.79	68.76	74.19	75.98	75.84	75.54	75.21	74.77	74.45	74.06	87.50	0.00	12.94	67.36	71.03	60.85
L87.50 Y3	33.91	47.78	47.30	48.15	55.01	65.50	68.24	68.73	75.93	78.42	78.26	77.92	77.54	77.19	76.75	76.50	87.50	0.00	20.24	67.36	71.03	53.15
L87.50 Y4	31.10	40.17	39.53	40.45	48.28	62.61	67.48	68.28	76.92	80.30	80.27	79.97	79.63	79.33	78.92	78.69	87.50	0.00	28.30	67.36	71.03	45.44
L87.50 Y5	27.69	32.55	32.00	32.86	41.20	59.68	67.51	68.47	77.75	82.11	82.44	82.33	82.17	81.87	81.70	81.46	87.50	0.00	37.32	67.36	71.03	37.73
L87.50 Y6	22.95	25.36	24.71	25.55	33.47	54.43	67.54	69.78	79.71	84.24	84.50	84.35	84.12	83.94	83.64	83.49	87.50	0.00	47.66	67.36	71.03	30.03
L87.50 Y7	17.10	18.00	17.59	18.27	25.39	48.57	67.74	71.69	80.89	85.43	86.07	86.21	86.26	86.13	86.14	86.08	87.50	0.00	59.98	67.36	71.03	22.32
L87.50 Y8	11.09	11.09	10.85	11.32	16.56	38.42	66.86	76.91	83.48	86.25	87.02	87.42	87.70	87.75	87.93	88.05	87.50	0.00	75.58	67.37	71.03	14.61
L87.50 R1Y1	40.33	65.64	65.78	65.56	65.64	64.78	64.29	64.19	74.09	78.73	78.95	78.73	78.45	78.06	77.78	77.44	87.50	6.57	4.87	70.37	71.03	70.19
L87.50 R1Y2	36.58	58.02	57.77	58.13	61.03	63.26	63.23	63.68	75.58	81.36	81.60	81.34	81.02	80.74	80.35	80.14	87.50	6.57	11.47	70.38	71.03	62.49
L87.50 R1Y3	36.19	49.88	49.41	49.96	55.33	61.68	62.77	62.89	75.54	83.09	83.88	83.82	83.66	83.36	83.20	82.97	87.50	6.58	18.64	70.38	71.03	54.78
L87.50 R1Y4	32.94	42.10	41.53	42.27	49.21	59.77	62.34	62.65	76.19	85.12	86.27	86.32	86.24	86.01	85.91	85.76	87.50	6.58	26.52	70.38	71.03	47.07
L87.50 R1Y5	28.86	34.45	33.87	34.68	42.48	57.30	62.14	62.76	76.89	87.00	88.58	88.78	88.81	88.65	88.65	88.59	87.50	6.58	35.31	70.38	71.03	39.36
L87.50 R1Y6	23.99	26.96	26.42	27.21	35.15	53.85	62.23	63.41	77.78	88.66	90.71	91.12	91.31	91.26	91.40	91.48	87.50	6.58	45.34	70.38	71.03	31.65

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	*L**	*a**	*b**	*X*	*Y*	*Z*
L87.50 R2Y1	40.62	66.77	66.51	65.54	64.11	61.92	59.45	59.38	66.06	82.77	90.75	92.31	92.68	92.69	92.88	93.00	87.50	15.87	4.87	74.80	71.03	70.19
L87.50 R2Y2	39.31	60.35	59.93	59.73	60.18	59.32	58.80	58.79	74.08	85.64	87.42	87.55	87.50	87.28	87.20	87.07	87.50	12.96	10.03	73.40	71.03	64.12
L87.50 R2Y3	37.03	52.21	51.64	51.92	55.35	58.05	58.19	58.27	74.26	87.54	90.08	90.41	90.48	90.34	90.38	90.36	87.50	12.96	17.07	73.40	71.03	56.41
L87.50 R2Y4	33.94	44.22	43.60	44.16	49.78	56.58	57.77	57.97	74.34	88.75	92.01	92.58	92.80	92.74	92.90	93.02	87.50	12.96	24.78	73.40	71.03	48.70
L87.50 R1	41.35	72.25	72.65	71.30	69.27	67.26	64.77	64.51	66.67	77.41	82.16	82.61	82.50	82.21	82.03	81.78	87.50	9.57	0.00	71.78	71.03	76.27
L87.50 G1B1	41.81	77.74	81.22	81.45	80.64	78.87	76.30	73.38	69.49	65.70	63.41	61.56	61.72	63.38	63.47	61.33	87.50	−5.58	−7.32	64.86	71.03	86.06
L87.50 G2B1	41.32	74.62	79.21	82.28	84.25	84.21	82.02	77.10	69.17	61.75	56.66	53.72	53.20	54.01	54.16	52.33	87.50	−13.38	−7.33	61.47	71.03	86.06
L87.50 G1	37.74	67.70	70.45	72.59	74.55	75.61	75.32	74.36	72.49	69.31	64.60	61.30	59.77	59.34	60.51	61.75	87.50	−7.59	0.00	63.97	71.03	76.27
L87.50 G2	37.02	64.32	68.56	73.70	78.88	81.20	80.58	78.01	73.14	66.02	57.63	52.66	50.64	50.23	52.25	54.41	87.50	−15.47	0.00	60.59	71.03	76.27
L87.50 G1Y1	37.28	63.42	64.44	65.46	69.14	73.30	73.87	73.36	72.41	70.91	68.47	66.55	65.50	65.06	65.44	65.92	87.50	−5.58	4.87	64.86	71.03	70.19
L87.50 G1Y2	38.05	56.24	56.36	57.15	63.11	71.71	73.63	73.35	72.69	71.78	70.53	69.46	68.78	68.24	68.24	68.15	87.50	−5.58	11.47	64.86	71.03	62.48
L87.50 G1Y3	34.20	48.96	48.60	49.54	56.93	69.68	73.76	73.87	73.88	73.63	73.17	72.74	72.29	71.85	71.33	71.02	87.50	−5.58	18.64	64.86	71.03	54.78
L87.50 G1Y4	32.49	41.31	40.85	41.74	50.06	66.70	72.90	73.36	74.92	75.14	74.85	74.53	74.20	73.76	73.43	73.04	87.50	−5.57	26.52	64.86	71.03	47.07
L87.50 G1Y5	28.47	33.87	33.35	34.24	42.89	63.00	72.67	73.76	76.43	77.07	76.87	76.61	76.32	75.93	75.65	75.30	87.50	−5.57	35.31	64.86	71.03	39.36
L87.50 G1Y6	23.68	26.54	26.03	26.87	35.25	58.09	72.67	74.92	78.02	78.87	78.76	78.57	78.34	78.00	77.78	77.49	87.50	−5.57	45.34	64.86	71.03	31.65
L87.50 G1Y7	18.22	19.37	18.95	19.66	27.12	51.30	72.63	77.39	79.79	80.41	80.39	80.29	80.16	79.89	79.74	79.53	87.50	−5.57	57.16	64.87	71.03	23.95
L87.50 G1Y8	12.96	12.68	12.29	12.78	18.16	39.55	70.01	82.69	84.81	84.03	81.47	79.45	78.52	78.39	79.37	80.41	87.50	−5.56	71.90	64.87	71.03	16.24
L87.50 G2Y1	38.82	60.72	62.86	65.78	71.87	78.12	78.78	76.97	73.21	67.81	61.26	56.98	55.18	54.49	55.91	57.45	87.50	−13.38	4.87	61.47	71.03	70.19
L87.50 G2Y2	37.93	56.46	57.31	59.01	65.77	75.18	77.19	76.17	73.72	69.91	64.89	61.37	59.82	59.16	60.29	61.48	87.50	−11.30	10.03	62.36	71.03	64.12
L87.50 G2Y3	34.35	49.79	49.83	51.17	58.99	72.55	77.08	76.66	74.90	71.79	67.16	63.91	62.41	62.01	63.19	64.44	87.50	−11.30	17.07	62.36	71.03	56.41
L87.50 G2Y4	32.93	42.41	42.16	43.26	51.94	69.73	76.91	76.96	75.45	72.90	69.29	66.59	65.33	64.74	65.57	66.40	87.50	−11.30	24.78	62.36	71.03	48.70
L87.50 G2Y5	29.17	35.14	34.71	35.71	44.64	65.80	76.90	77.80	76.63	74.47	71.32	68.92	67.78	67.24	67.98	68.71	87.50	−11.29	33.36	62.37	71.03	40.99
L87.50 G2Y6	25.00	28.07	27.50	28.42	36.71	59.73	77.18	79.69	78.85	76.82	73.44	71.00	69.78	69.40	70.32	71.33	87.50	−11.30	43.09	62.37	71.03	33.28
L87.50 G2Y7	19.31	20.75	20.32	21.09	28.88	53.71	76.29	81.39	80.69	78.29	74.69	72.05	70.91	70.45	71.47	72.53	87.50	−11.29	54.47	62.37	71.03	25.57
L87.50 G3Y1	35.90	58.33	61.60	66.30	74.70	84.04	85.08	80.79	73.58	64.42	54.69	49.26	47.12	46.72	48.95	51.37	87.50	−21.47	4.87	58.09	71.03	70.19
L87.50 G3Y2	35.33	54.81	56.55	59.50	67.76	79.90	83.03	80.21	74.50	66.58	57.64	52.47	50.39	50.00	52.12	54.41	87.50	−19.31	10.03	58.98	71.03	64.11
L87.50 G3Y3	34.02	50.23	51.01	53.01	61.34	76.15	81.47	79.92	75.64	69.14	61.24	56.57	54.58	54.11	56.08	58.30	87.50	−17.18	15.53	59.86	71.03	58.04
L87.50 G3Y4	33.19	43.28	43.36	44.87	54.01	72.94	81.17	80.16	76.10	70.30	63.44	59.04	57.22	56.55	58.07	59.74	87.50	−17.18	23.09	59.86	71.03	50.33
L87.50 G3Y5	29.87	36.13	36.10	37.35	46.46	67.88	79.59	80.65	78.86	74.31	65.74	58.68	56.21	56.39	60.82	64.69	87.50	−17.18	31.46	59.87	71.03	42.62
L87.50 G3Y6	25.51	29.12	28.83	29.87	38.73	62.65	79.49	82.11	80.57	76.09	67.58	60.60	58.17	58.38	62.83	66.74	87.50	−17.18	40.91	59.87	71.03	34.92
L87.50 G3Y7	20.41	22.10	21.74	22.58	30.66	55.80	78.77	84.42	83.14	78.16	69.05	61.82	59.38	59.66	64.36	68.57	87.50	−17.17	51.89	59.87	71.03	27.21
L90 N	41.60	74.91	76.76	76.70	76.48	76.22	75.99	75.72	76.71	76.76	76.46	76.15	75.82	75.38	75.06	74.67	90.00	0.00	0.00	72.35	76.30	81.93
L90 Y1	38.12	67.52	68.39	68.94	71.83	74.77	75.12	75.22	78.73	79.65	79.36	79.03	78.66	78.33	77.91	77.66	90.00	0.00	6.27	72.35	76.30	73.78
L90 Y2	39.08	59.51	59.57	60.21	65.59	72.56	74.00	74.06	79.47	81.39	81.36	81.17	80.93	80.59	80.36	80.06	90.00	0.00	13.04	72.35	76.30	65.62
L90 Y3	36.77	51.48	51.20	52.00	59.12	70.33	73.35	73.64	80.68	83.61	83.76	83.63	83.46	83.17	83.00	82.76	90.00	0.00	20.38	72.35	76.30	57.46
L90 Y4	33.60	43.49	43.03	43.92	52.12	67.59	72.96	73.58	81.86	85.77	86.12	86.08	85.99	85.75	85.65	85.48	90.00	0.00	28.46	72.35	76.30	49.30
L90 Y5	29.11	35.76	35.09	36.06	44.62	63.60	72.93	74.47	83.77	88.26	88.61	88.53	88.37	88.31	88.10	88.02	90.00	0.00	37.49	72.35	76.30	41.15
L90 Y6	24.68	27.97	27.31	28.20	36.54	58.41	72.95	75.59	85.03	89.89	90.45	90.48	90.41	90.46	90.32	90.31	90.00	0.00	47.80	72.35	76.30	32.99
L90 R1Y1	41.12	70.19	70.84	70.69	70.69	69.77	69.34	69.30	79.18	84.20	84.62	84.53	84.37	84.08	83.93	83.71	90.00	6.56	4.89	75.51	76.30	75.52
L90 R1Y2	39.69	61.95	61.97	62.32	65.67	68.55	68.84	68.90	80.43	87.45	88.33	88.39	88.36	88.16	88.12	88.01	90.00	6.56	11.62	75.51	76.30	67.36
L90 R1Y3	37.55	53.77	53.46	54.08	59.69	66.58	67.89	68.08	80.42	88.63	89.84	90.00	90.04	89.89	89.92	89.88	90.00	6.56	18.76	75.51	76.30	59.21
L90 R1Y4	34.55	45.61	45.13	45.92	53.16	64.56	67.54	67.92	80.90	90.40	92.16	92.52	92.72	92.66	92.84	92.95	90.00	6.56	26.66	75.51	76.30	51.05
L90 R1	41.91	76.84	78.11	76.76	74.62	72.66	70.05	69.84	71.05	82.15	88.10	88.98	89.10	88.98	88.98	88.92	90.00	9.54	0.00	76.98	76.30	81.93
L90 G1	38.44	72.24	75.81	78.37	80.37	81.28	81.08	80.15	78.18	74.74	69.76	66.34	64.80	64.43	65.75	67.14	90.00	−7.62	0.00	68.79	76.30	81.93
L90 G2	37.87	68.84	73.75	79.47	85.11	87.33	86.68	83.76	78.43	71.01	62.52	57.51	55.48	55.10	57.19	59.43	90.00	−15.51	0.00	65.23	76.30	81.93
L90 G1Y1	40.60	67.85	69.26	70.36	74.24	78.57	79.26	78.75	77.66	75.89	73.31	71.27	70.26	69.72	70.27	70.78	90.00	−5.59	4.90	69.73	76.30	75.52
L90 G1Y2	39.24	60.51	60.88	61.76	67.82	76.77	78.98	78.81	78.18	77.19	75.76	74.54	73.85	73.37	73.55	73.66	90.00	−5.59	11.55	69.73	76.30	67.36
L90 G1Y3	35.42	52.90	52.69	53.68	61.18	74.37	79.02	79.29	79.07	78.83	78.45	78.10	77.72	77.37	76.93	76.67	90.00	−5.59	18.75	69.73	76.30	59.21
L90 G1Y4	34.18	44.87	44.48	45.41	53.94	71.31	78.42	79.13	80.34	80.51	80.32	80.09	79.85	79.49	79.26	78.95	90.00	−5.59	26.67	69.73	76.30	51.04
L90 G1Y5	30.32	37.02	36.52	37.45	46.39	67.26	78.16	79.63	81.93	82.53	82.44	82.29	82.11	81.80	81.62	81.37	90.00	−5.59	35.47	69.73	76.30	42.89
L90 G1Y6	25.58	29.27	28.75	29.63	38.39	61.99	78.08	80.98	83.62	84.39	84.41	84.34	84.23	83.99	83.87	83.69	90.00	−5.59	45.47	69.73	76.30	34.73
L90 G1Y7	20.06	21.67	21.21	21.98	29.92	54.91	77.69	83.71	85.45	85.94	86.07	86.12	86.12	85.95	85.92	85.83	90.00	−5.59	57.18	69.73	76.30	26.58
L90 G2Y1	39.91	65.21	67.76	70.88	77.12	83.74	84.62	82.65	78.51	72.77	66.01	61.66	59.86	59.19	60.70	62.35	90.00	−13.41	4.90	66.17	76.30	75.52
L90 G2Y2	39.16	60.82	61.94	63.72	70.55	80.41	82.82	81.82	79.16	75.06	69.77	66.15	64.59	63.97	65.21	66.54	90.00	−11.33	10.08	67.10	76.30	69.10
L90 G2Y3	37.31	53.63	53.91	55.25	63.29	77.65	82.60	82.18	80.09	76.68	72.10	68.88	67.46	66.87	67.98	69.15	90.00	−11.32	17.16	67.10	76.30	60.95
L90 G2Y4	34.63	46.08	45.90	47.05	55.89	74.24	82.51	82.82	81.19	78.33	74.36	71.49	70.21	69.67	70.67	71.70	90.00	−11.32	24.91	67.10	76.30	52.79

TABLE 1 *Continued*

Colorcurve	400	420	440	460	480	500	520	540	560	580	600	620	640	660	680	700	L*	a*	b*	X	Y	Z
L90 G2Y5	30.42	38.55	38.07	39.15	48.00	69.22	82.67	84.26	83.13	80.68	76.80	74.11	72.83	72.49	73.62	74.88	90.00	−11.32	33.49	67.10	76.30	44.64
L90 G2Y6	26.53	30.74	30.26	31.21	40.19	64.38	82.09	85.31	84.37	81.95	78.42	75.85	74.72	74.27	75.26	76.29	90.00	−11.33	43.21	67.10	76.30	36.47
L90 G2Y7	17.95	21.06	21.30	23.14	35.67	66.65	81.22	83.41	83.76	83.29	81.46	79.92	79.39	79.64	80.95	82.19	90.00	−11.32	54.50	67.10	76.30	28.32
L90 G3Y2	38.74	57.32	60.98	64.82	72.49	83.50	86.85	85.87	81.88	74.13	62.34	53.85	51.06	51.30	56.49	61.36	90.00	−19.35	10.08	63.54	76.30	69.10
L90 G3Y3	37.56	53.50	55.21	57.49	65.70	80.03	85.38	85.12	82.36	76.32	66.17	58.39	55.75	55.97	60.81	65.21	90.00	−17.21	15.60	64.48	76.30	62.69
L90 G3Y4	33.68	47.36	47.39	48.93	57.98	76.84	87.37	86.72	82.35	75.86	68.17	63.53	61.62	61.27	63.26	65.38	90.00	−17.21	23.19	64.48	76.30	54.53
L90 G3Y5	31.74	39.53	39.52	40.80	50.11	71.93	85.25	87.00	84.95	79.71	70.55	63.32	60.83	61.06	65.67	69.81	90.00	−17.21	31.58	64.48	76.30	46.38
L90 G3Y6	27.46	32.09	31.79	32.87	42.03	66.32	84.74	88.64	86.85	81.50	72.31	65.13	62.69	62.94	67.58	71.78	90.00	−17.21	41.01	64.48	76.30	38.22
L90 G3Y7	18.20	22.20	22.69	24.80	37.88	69.27	84.66	86.74	85.60	81.78	75.10	70.75	69.28	69.71	72.84	75.91	90.00	−17.21	51.91	64.48	76.30	30.06
L92.50 N	42.09	79.39	82.41	82.44	82.11	81.92	81.41	81.25	80.87	82.11	82.33	82.17	81.96	81.63	81.42	81.15	92.50	0.00	0.00	77.60	81.83	87.87
L92.50 Y1	41.38	72.04	73.32	73.79	76.73	79.85	80.39	80.42	83.63	84.64	84.59	84.46	84.30	84.01	83.85	83.63	92.50	0.00	6.33	77.60	81.83	79.25
L92.50 Y2	40.09	63.86	64.24	64.94	70.41	77.79	79.51	79.71	84.93	86.99	87.13	87.08	87.00	86.77	86.69	86.54	92.50	0.00	13.13	77.60	81.83	70.63
L92.50 Y3	38.08	55.51	55.40	56.26	63.50	75.38	78.93	79.37	86.13	89.30	89.68	89.75	89.77	89.62	89.63	89.58	92.50	0.00	20.51	77.60	81.83	62.02
L92.50 Y4	35.57	47.56	47.00	47.99	56.35	71.41	77.21	78.92	90.76	92.01	92.29	92.50	92.67	92.62	92.80	92.90	92.50	0.00	28.61	77.60	81.83	53.40
L92.50 R1Y1	41.73	74.67	76.07	76.05	75.98	75.07	74.72	74.76	84.31	89.81	90.56	90.69	90.75	90.61	90.66	90.64	92.50	6.55	4.92	80.90	81.83	81.11
L92.50 R1Y2	41.39	67.35	66.40	67.23	70.45	71.18	71.80	73.15	89.97	92.02	92.28	92.46	92.61	92.54	92.69	92.78	92.50	6.55	11.61	80.90	81.83	72.50
L92.50 G1	41.65	76.04	80.14	83.16	85.65	86.60	86.49	85.46	83.10	79.40	74.58	71.25	69.81	69.25	70.44	71.71	92.50	−7.64	0.00	73.85	81.83	87.87
L92.50 G1Y1	41.35	72.45	74.51	75.79	79.62	83.99	84.85	84.47	83.37	81.45	78.62	76.47	75.46	74.99	75.72	76.44	92.50	−5.60	4.92	74.84	81.83	81.11
L92.50 G1Y2	40.25	64.97	65.69	66.66	72.70	81.95	84.57	84.58	84.00	82.90	81.21	79.83	79.13	78.73	79.14	79.51	92.50	−5.60	11.62	74.84	81.83	72.49
L92.50 G1Y3	38.44	56.90	56.95	57.88	65.50	79.34	84.43	84.91	84.74	84.32	83.68	83.10	82.75	82.43	82.49	82.49	92.50	−5.60	18.86	74.84	81.83	63.88
L92.50 G1Y4	35.76	48.64	48.34	49.31	57.96	75.86	84.16	85.28	85.93	86.03	85.97	85.88	85.77	85.52	85.41	85.24	92.50	−5.59	26.80	74.84	81.83	55.26
L92.50 G1Y5	32.13	40.39	39.93	40.90	50.04	71.42	83.87	86.01	87.65	88.14	88.22	88.23	88.21	88.03	88.00	87.91	92.50	−5.59	35.60	74.84	81.83	46.64
L92.50 G1Y6	27.53	32.23	31.71	32.64	41.71	65.65	83.08	87.25	90.61	90.67	90.13	89.61	89.43	89.29	89.72	90.13	92.50	−5.59	45.57	74.84	81.83	38.02
L92.50 G2Y1	41.02	68.50	73.15	77.07	82.21	87.64	88.97	88.45	85.95	80.43	71.10	63.81	61.29	61.50	66.13	70.30	92.50	−13.43	4.92	71.09	81.83	81.11
L92.50 G2Y2	40.21	65.39	66.86	68.71	75.46	85.75	88.86	87.86	84.85	80.38	74.88	71.22	69.69	69.12	70.47	71.93	92.50	−11.34	10.13	72.08	81.83	74.35
L92.50 G2Y3	38.63	57.93	58.39	59.76	67.75	82.50	88.63	88.42	86.02	82.19	77.31	74.00	72.61	72.08	73.32	74.66	92.50	−11.34	17.25	72.09	81.83	65.73
L92.50 G2Y4	36.28	49.92	49.97	51.16	59.92	78.16	87.47	88.76	88.05	85.52	80.09	75.15	73.33	73.47	76.78	79.57	92.50	−11.34	25.02	72.09	81.83	57.12
L92.50 G2Y5	32.89	41.88	41.58	42.66	51.91	73.55	87.20	89.86	89.50	87.20	82.10	77.45	75.74	75.90	79.09	81.80	92.50	−11.34	33.62	72.09	81.83	48.50
L92.50 G2Y6	32.39	35.02	31.21	33.31	47.68	72.37	87.07	89.80	89.26	87.42	84.63	82.57	81.69	81.33	82.22	83.15	92.50	−11.33	43.30	72.09	81.83	39.88
L93.75 N	42.28	81.37	85.33	85.77	85.84	85.62	84.61	83.57	83.32	84.22	85.32	85.24	85.54	85.78	85.78	85.62	93.75	0.00	0.00	80.31	84.69	90.94
L93.75 Y1	41.68	74.33	76.02	76.56	79.45	82.59	83.23	83.34	86.42	87.46	87.50	87.45	87.38	87.16	87.08	86.94	93.75	0.00	6.36	80.31	84.69	82.08
L93.75 Y2	40.53	66.08	66.66	67.40	72.87	80.47	82.40	82.69	87.69	89.82	90.08	90.15	90.18	90.03	90.06	90.02	93.75	0.00	13.19	80.31	84.69	73.22
L93.75 Y3	38.66	57.57	57.57	58.44	65.71	77.89	81.79	82.34	88.65	91.82	92.36	92.58	92.76	92.69	92.87	92.97	93.75	0.00	20.60	80.31	84.69	64.36
L93.75 R1Y1	43.25	76.25	78.81	79.12	79.30	78.36	77.85	78.03	85.69	92.38	94.18	94.46	94.67	94.67	94.86	95.62	93.75	6.52	4.95	83.69	84.69	84.00
L93.75 G1	48.29	79.22	83.76	86.49	88.79	89.70	89.80	88.78	85.91	81.71	76.89	73.93	73.28	73.84	75.31	76.10	93.75	−7.66	0.00	76.47	84.69	90.94
L93.75 G1Y1	41.65	74.76	77.26	78.64	82.40	86.74	87.73	87.45	86.34	84.31	81.36	79.16	78.17	77.74	78.55	79.39	93.75	−5.62	4.95	77.48	84.69	84.00
L93.75 G1Y2	40.68	67.23	68.18	69.19	75.18	84.56	87.48	87.63	87.07	85.88	84.00	82.51	81.81	81.45	82.00	82.54	93.75	−5.62	11.67	77.48	84.69	75.14
L93.75 G1Y3	39.01	59.02	59.19	60.15	67.74	81.72	87.33	88.02	87.91	87.41	86.55	85.81	85.43	85.16	85.43	85.66	93.75	−5.62	18.94	77.49	84.69	66.28
L93.75 G2Y2	40.78	67.22	69.60	71.63	77.78	87.20	90.50	90.63	89.09	85.08	77.72	71.62	69.47	69.66	73.66	77.18	93.75	−11.36	10.17	74.66	84.69	77.06
L93.75 G2Y3	39.29	59.90	60.77	62.19	69.83	83.87	90.04	90.77	89.70	86.43	80.04	74.57	72.60	72.77	76.43	79.61	93.75	−11.36	17.31	74.66	84.69	68.20
L95 N	42.42	83.19	88.26	88.97	89.04	88.62	87.71	87.02	86.77	87.11	88.20	88.10	88.79	90.56	91.74	92.03	95.00	0.00	0.00	83.09	87.62	94.09
L95 Y1	41.93	76.61	78.81	79.43	82.25	85.44	86.21	86.44	89.26	90.31	90.47	90.55	90.59	90.45	90.50	90.47	95.00	0.00	6.37	83.08	87.62	84.99
L95 Y2	40.91	68.32	69.14	69.91	75.31	83.04	85.16	85.55	90.03	92.04	92.43	92.63	92.79	92.72	92.90	93.00	95.00	0.00	13.22	83.08	87.62	75.90
L95 G1	49.75	81.81	86.66	89.52	91.95	92.95	93.02	91.79	88.59	84.29	79.69	76.86	76.33	76.89	78.16	78.81	95.00	−7.66	0.00	79.15	87.62	94.08
L95 G1Y1	41.96	76.70	80.16	81.75	85.05	88.97	90.14	90.34	89.93	88.30	84.44	80.68	79.26	79.35	81.97	84.12	95.00	−5.61	4.95	80.19	87.62	86.97
L95 G1Y2	41.09	69.46	70.82	71.89	77.64	86.80	90.00	90.53	90.43	89.48	86.91	84.18	83.12	83.18	85.17	86.75	95.00	−5.61	11.69	80.19	87.62	77.88
L95 G1Y3	39.56	61.26	61.58	62.56	70.05	84.00	90.20	91.21	91.19	90.58	89.40	88.49	88.09	87.87	88.40	88.91	95.00	−5.62	18.97	80.19	87.62	68.79

5. Significance and Use

5.1 Notational systems that specify and identify colors, and sets of samples that exemplify the systems, have proved to be very useful. The Colorcurve system specifies a large number of sample aim points derived by linear interpolation in CIE 1964 *X*, *Y*, *Z* space within regions bounded by a major and minor hue axis and displayed on CIE 1976 (CIELAB) cartesian coordinates. Colored samples approximating many of these aim points are available in the Colorcurve atlases.[4] This practice describes how to assign a Colorcurve notation to a color specimen, which gives its position within the Colorcurve system.

5.2 When a color sample has been specified, there is a need for a method to match that color as closely as possible. The Colorcurve system includes the data necessary to minimize metamerism between a Colorcurve sample and a color formulated to match the sample. This practice describes the use of these data.

6. Apparatus

6.1 *Visual Method*—Colorcurve system Master Atlas or Gray and Pastel Atlas.[4]

6.2 *Instrumental Method*—Spectrophotometer or spectrocolorimeter.

6.3 *Color Matching*—Spectrophotometer or spectrocolorimeter with color formulating software.

7. Description of the Colorcurve System

7.1 *Form of the Colorcurve System*:

7.1.1 The Colorcurve system has 18 lightness levels beginning at CIELAB L^* = 30 and extending upward to the lightest specimens at L^* = 95. Each lightness level has a neutral gray at its center and four major hue axes, which divide the color grid into four quadrants. As displayed in the atlas, samples on the vertical axis move upward from blues toward yellows. On the horizontal axis, reds are on the righthand side, and greens are on the left-hand side. Other color samples, which combine two of the major hues in varying proportions, are positioned in the quadrant between the major hues they contain.

NOTE 1—The conventional terms red, green, yellow, and blue are used throughout this practice for convenience; however, this does not imply that the R/G and Y/B axes indicate the locations of the corresponding unitary hues.

7.1.2 Colorcurve notations have two parts, separated by a space; the first part gives the lightness level of the color, and the second gives its chromatic content. An example is L65 R3Y4, in which the L65 signifies a lightness of 65 and the R3Y4 signifies that the color lies three steps from the achromatic axis along the R axis and four steps from the achromatic axis along the Y axis.

7.1.2.1 The data tables included with the atlases contain the spectral reflectance data at 16 points for every atlas sample. These tables describe the aim points quantitatively in three ways: by spectral reflectance values, CIE tristimulus values, and CIELAB values.

NOTE 2—The spectrophotometric data present what the ideal curve of each colored sample would be if it were a perfect match to the theoretical aim point. This ideal curve was calculated using optical constants that describe the color characteristics of each pigment used to make each sample. In some cases, these calculations result in a curve that deviates slightly from the ideal curve of a perfect match. When this variant curve is used to calculate the tristimulus values, these values could differ from the theoretical values. The differences typically are 0.01 to 0.05 in *X*, *Y*, or *Z*.

7.2 *Basis for the Colorcurve System*— The Colorcurve system is based on a simple additive technique that is used to generate aim points for the samples. These are derived from nine starting points (CIELAB a^*, b^* values) at 18 lightness levels (L^*). The lightness levels and gray-point tristimulus values are given in Table 2, and the CIELAB a^* and b^* coordinates for the starting points are given in Table 3.

7.2.1 The CIE tristimulus values, *X*, *Y*, *Z*, for the starting points were combined in appropriate proportions to populate the space. An example of the combining procedure is given in Table 4.

NOTE 3—Tristimulus values (*X*, *Y*, *Z*), not colorants, were combined.

7.2.2 The lattice scaling constant used in the system is 1/7. By using the nine starting points of Table 3, this provides seven intervals between samples along lines connecting adjacent major and minor hue axes at CIELAB chroma C^* = 60. Fig. 1 provides an example of the lattice points at a single lightness level (L^* = 65), plotted on the CIELAB a^*, b^* diagram. There are 28 lattice points for the chromatic colors in each octant (omitting those on one axis to avoid double counting), or 55 in each quadrant, plus one achromatic point common to all. The Colorcurve atlas contains as many samples at those aim points as can be produced by use of the selected pigments. Table 5 lists the pigments used in producing the atlas samples.

7.2.3 Tristimulus values are additive in the Colorcurve system, but CIELAB values are not. Although lightness levels in the Colorcurve system are the same as CIELAB lightness levels, these lightness levels do not have equal visual spacing.

7.2.4 The additivity rule for the Colorcurve system states that each tristimulus value of a mixture point is the sum of contributions from the tristimulus values of the two end points

TABLE 2 The Lightness Levels of the Colorcurve System

Lightness Level, L^*	Tristimulus Values of Gray Point		
	X	*Y*	*Z*
30	5.92	6.24	6.70
35	8.06	8.50	9.13
40	10.67	11.25	12.08
45	13.79	14.54	15.61
50	17.47	18.42	19.78
55	21.74	22.93	24.62
60	26.66	28.12	30.20
65	32.29	34.05	36.56
70	38.64	40.75	43.76
75	45.78	48.28	51.84
80	53.75	56.68	60.86
82.5	58.06	61.23	65.75
85	62.59	66.01	70.88
87.5	67.36	71.03	76.27
90	72.35	76.30	81.93
92.5	77.60	81.83	87.87
93.75	80.31	84.69	90.94
95	83.09	87.62	94.09

[4] Available from Colorcurve Systems, Inc., 123 N. Third St., Minneapolis, MN 55401.

TABLE 3 Colorcurve a*b* Starting Points for all Lightness Levels

	a*	b*
Red	60	0
Orange	42.5	42.5
Yellow	0	60
Yellow/Green	−42.5	42.5
Green	−60	0
Blue/Green	−42.5	−42.5
Blue	0	−60
Purple	42.5	−42.5
Gray	0	0

being mixed, each weighted by its proportion in the mixture. This additivity implies that tristimulus values are related linearly in the Colorcurve system. However, the user should be warned that to calculate the tristimulus values of an intermediate sample that will fall on one of the eight axes, the data must come from points that bracket the desired point on the same axis. To calculate the tristimulus values of a sample not on a major or minor axis, the data must come from positions that bracket the desired point and lie within an octant bounded by a major and an adjacent minor hue axis. This warning applies to interpolation between points on a single lightness plane since, in this practice, interpolation between lightness planes is conducted first, using the *Y* tristimulus values. These restrictions apply to all calculations assuming additivity, including those in paragraph 7.3, Sections 9 and 10, and the appendixes of this practice.

7.3 *Locations of Aim Points and Extrapolations Beyond the Original Boundaries of the System*—The tristimulus values of any desired aim point can be determined by use of the following equation, which applies to aim points both within and beyond the boundaries of the system described in 7.2.2, Table 4, and Fig. 1. The equation applies to any plane of constant lightness; thus, there is no equation for tristimulus value *Y*. They are as follows:

$$X = (1/7)[(7 - a)X_{gray} + b\,X_{minor} + (a - b)X_{major}] \quad (1)$$

$$Z = (1/7)[(7 - a)Z_{gray} + b\,Z_{minor} + (a - b)Z_{major}]$$

where:

1/7	=	lattice scaling constant,
a	=	largest value of R, G, Y, or B in the lattice point notation,
b	=	the smallest value of R, G, Y, or B,
X_{gray} and Z_{gray}	=	tristimulus values of the achromatic or neutral point at the specified lightness level (Table 2),
X_{minor} and Z_{minor}	=	tristimulus values of the $C^* = 60$ point on the minor hue axis nearest to the point sought, and
X_{major} and Z_{major}	=	tristimulus values of the $C^* = 60$ point on the major hue axis nearest to the point sought.

Note that all values of *X* and *Z* called for in these equations should be rounded to two figures after the decimal point (as in Table 1). For points on a major hue axis, $b = 0$ and the second term in the equation is zero. For points on a minor hue axis, $a = b$ and the third term is zero. Examples of the use of (Eq 1) are given in Appendix X1 (see also 9.2.2).

8. Colorcurve System Notations by Visual Means

8.1 *Lighting and Viewing Conditions*:

8.1.1 *Observers*—The samples and specimens should be viewed by observers with normal color vision.

8.1.2 *Use of Natural Daylight*—Select a window in which the sun is not shining. A north window is usually selected in the northern hemisphere. Place a table by the window so that light reaches the table top from the observer's side, chiefly from the sky, and at angles centering on 45° from the horizontal. Place a canopy of black cloth above the working surface to prevent errors caused by reflections of light from the ceiling or room objects in the surface of the specimen. View the specimen along a direction just far enough from the perpendicular to avoid reflection from the observer's forehead. The directions of illumination and viewing may be reversed with equivalent results. When using reverse conditions, namely, illumination along the normal and viewing at 45° from normal, a black cloth should be hung opposite to the observer to avoid extraneous reflections being seen on the surfaces of the specimens.

8.1.3 *Use of Artificial Light*—When choosing a color from a Colorcurve atlas, a color-matching viewing booth or any broad band artificial source that produces a good level of illumination is suitable. Both daylight and incandescent sources are satisfactory. When obtaining a Colorcurve notation for a color specimen that does not contain the same colorants as the Colorcurve samples to which it is compared, use the light source under which the specimen will usually be seen. The provisions of 8.1.2 shall be followed in other respects (see Practice D 1729).

8.2 *Selecting a Color From the Colorcurve System*—Choose a sample from either of the Colorcurve atlases, and record its notation and the light source used. If the desired color falls between Colorcurve samples, estimate its relative position between those samples and record its notation as a decimal fraction.

NOTE 4—Minor errors may occur because atlas samples may not lie exactly on aim points.

8.3 *Determining the Colorcurve System Notation for a Color Specimen*:

8.3.1 Locate the page in the appropriate atlas that contains samples with the same lightness as the specimen. Assign the specimen the lightness number for that page. If the lightness of the specimen falls between the lightnesses of the specimens on two adjacent pages, estimate its relative position between the two lightnesses and assign the specimen the appropriate lightness notation as a decimal fraction.

8.3.2 Use a mask to isolate the same size areas of the specimen and Colorcurve samples. Use a white mask when judging light specimens, a gray mask for mid-range specimens, and a black mask for dark specimens. Assign the specimen the notation of the matching Colorcurve sample. If no matching sample exists, locate the two Colorcurve samples between which the specimen falls in chromaticness. Estimate its relative position between the samples, and assign the specimen the appropriate notation as a decimal fraction, for example, L65.5 R3.3 Y4.5.

8.3.3 Record and report the light source used when determining the notation.

TABLE 4 Additive Combination Scheme for the Yellow-Orange-Red Quadrant of the Colorcurve System (Upper Right Quadrant in Fig. 1)[A]

Color		Percent in Mixture							
Y7	Y	100	86	71	57	43	29	14	0
	O	0	14	29	43	57	71	86	100
	G	0	0	0	0	0	0	0	0
	R	0	0	0	0	0	0	0	0
Y6	Y	86	71	57	43	29	14	0	0
	O	0	14	29	43	57	71	86	86
	G	14	14	14	14	14	14	14	0
	R	0	0	0	0	0	0	0	14
Y5	Y	71	57	43	29	14	0	0	0
	O	0	14	29	43	57	71	71	71
	G	29	29	29	29	29	29	14	0
	R	0	0	0	0	0	0	14	29
Y4	Y	57	43	29	14	0	0	0	0
	O	0	14	29	43	57	57	57	57
	G	43	43	43	43	43	29	14	0
	R	0	0	0	0	0	14	29	43
Y3	Y	43	29	14	0	0	0	0	0
	O	0	14	29	43	43	43	43	43
	G	57	57	57	57	43	29	14	0
	R	0	0	0	0	14	29	43	57
Y2	Y	29	14	0	0	0	0	0	0
	O	0	14	29	29	29	29	29	29
	G	71	71	71	57	43	29	14	0
	R	0	0	0	14	29	43	57	71
Y1	Y	14	0	0	0	0	0	0	0
	O	0	14	14	14	14	14	14	14
	G	86	86	71	57	43	29	14	0
	R	0	0	14	29	43	57	71	86
	Y	0	0	0	0	0	0	0	0
	O	0	0	0	0	0	0	0	0
	G	100	86	71	57	43	29	14	0
	R	0	14	29	43	57	71	86	100
N			R1	R2	R3	R4	R5	R6	R7

[A] Each group of four numbers, arranged vertically, represents the proportions of the yellow (Y), orange (O), gray (G), and red (R) starting point colors of Table 3 in one of the aim points in the quadrant. The chromatic notations of the points are found by combining the row and column notations at the left and bottom of the table; for example, the point at the upper right has the chromatic notation R7Y7. Note that not all of the aim points correspond to samples in the Colorcurve atlas; see Table 1. Similar schemes for the remaining quadrants can be derived by changing the starting point colors from Table 3. Percentages are rounded; they are exactly 0/7, 1/7, 2/7 ... 7/7 times 100.

9. Determining CIE Data from the Colorcurve Notation of a Color Specimen

9.1 If the Colorcurve sample was selected from one of the atlases, or a specimen was matched to a Colorcurve sample, under natural daylight or Illuminant D65, proceed to 9.2.

9.1.1 If the sample was selected, or matched, under another source, follow the procedures in Practice E 308 (see Note 4 and Note 5) to convert the reflectance values in Table 1 to CIE tristimulus values and then, if desired, to CIELAB notations. In the calculations, use the illuminant corresponding to that source, the CIE 1964 supplementary (10°) standard observer, and a 20-nm wavelength measurement interval, bandpass, and summation interval.

NOTE 5—Each Colorcurve notation is based on a specific reflectance curve; therefore, if the specimen has the same reflectance curve as a Colorcurve sample, although the specimen and corresponding sample will change appearance under different light sources, the relationship between them will remain constant.

NOTE 6—When calculating tristimulus values by the weighted-ordinate method for use with the Colorcurve system, sets of tristimulus weighting factors compatible with those used when the system was defined must be used for highest accuracy. Sets of tristimulus weight factors should be selected from among those given in Practice E 308, Tables 5 or 6 in editions dated 1995 or later. See also 10.1. Specifically, if standard illuminant D65 and the 1964 supplementary standard observer are used, the weight sets in Tables 5.19, 5.20, 6.19, or 6.20 should be used. See elsewhere in Practice E 308 for further information.

9.1.2 If illumination was by a source not listed in Practice E 308, the spectral power distribution of the light source must be determined and then the appropriate weighting applied (see Note 5 and Note 6).

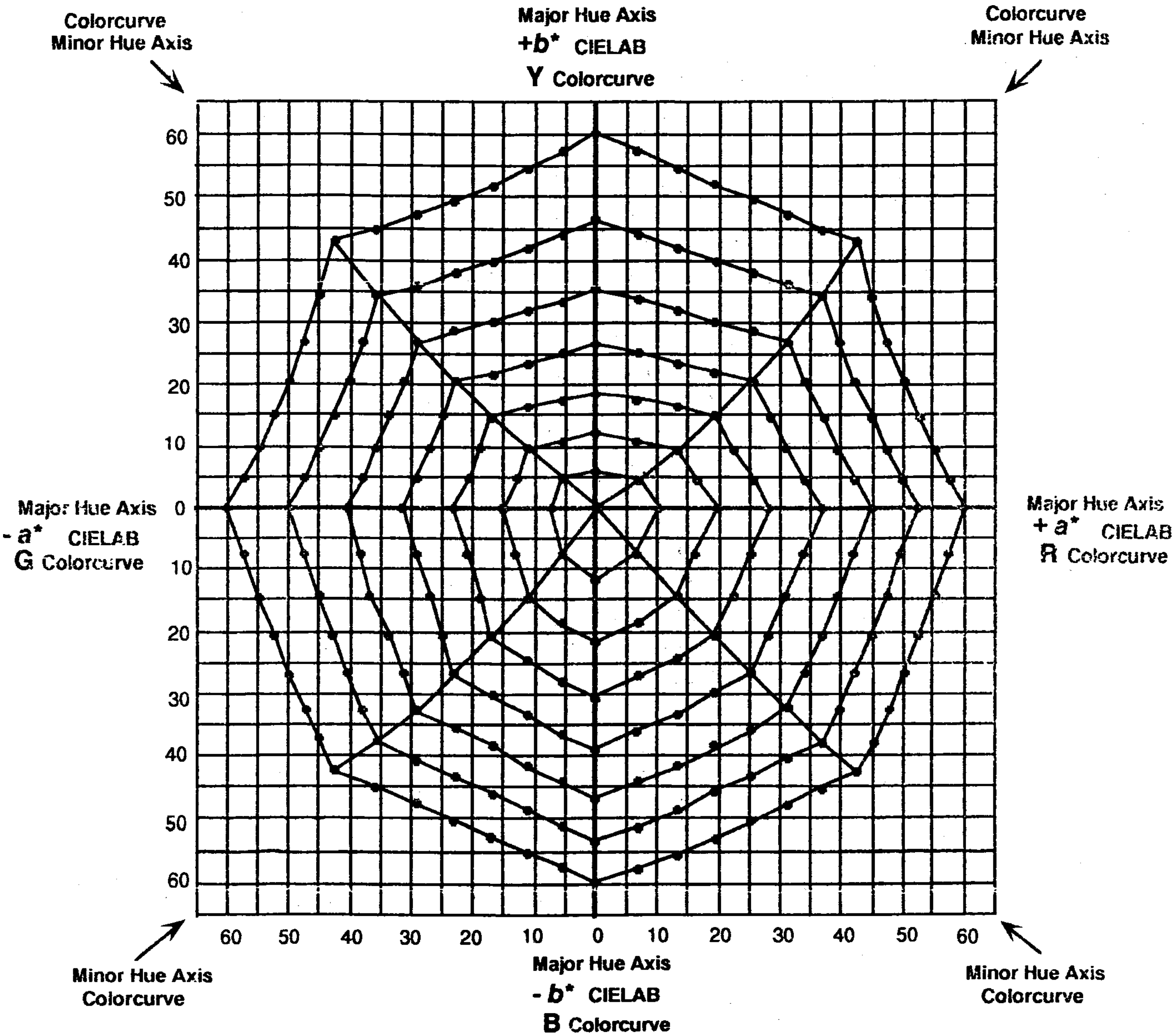
9.2 *Tristimulus Values*—Refer to Table 5 or the tables furnished with the Colorcurve atlases.

9.2.1 If the exact Colorcurve notation of the specimen is found in the tables, read the corresponding tristimulus values to the right on the same row.

9.2.2 If the exact Colorcurve notation of the specimen is not found in the tables, its tristimulus values can be found by use of the CIELAB equations and (Eq 1). Tristimulus value Y must first be found from the value of L for the specimen, which is the same numerically as CIELAB L*. Note that Table 1 and the Colorcurve tables contain only aim points for which atlas samples exist; (Eq 1) may require use of the tristimulus values of other aim points, representing the ends of major and minor hue axes. These can be determined from their CIELAB coordinates in Table 3, as described in Appendix X2.

9.2.2.1 It is convenient to use the CIELAB equations in reverse form (Billmeyer and Saltzman,[5] p. 63). Tristimulus values X and Z may be found by use of the reverse CIELAB

[5] Billmeyer, F.W., Jr., and Saltzman, M., *Principles of Color Technology*, 2nd ed., Wiley, New York, NY, 1981.



NOTE 1—This figure compares the spacing of points in the Colorcurve and CIELAB systems, but provides no information stating which, if either, is more nearly equally visually spaced.

FIG. 1 Colorcurve System Lattice Points for L^* = 65 Plotted in the CIELAB a^*, b^* Diagram

TABLE 5 Colorcurve Pigments

Pigment	Colour Index Name	Colour Index Number	Manufacturer	Manufacturer's Code
1. Lampblack	Pigment Black 6	77266	Gen. Carbon	Lampblack Superfine #0
2. Titanium dioxide	Pigment White 6	77891	Du Pont	TiPure R902
3. Light yellow	...	...	Hoechst	Novoperm Yellow F2G-A
4. Permanent orange	Pigment Orange 43	71105	Hoechst	Hostaperm Orange GR
5. Quinacridone red	Pigment Violet 19	73900	Hoechst	Hostaperm Red E5B-02
6. Carbazole violet	Pigment Violet 23	51319	Hoechst	Hostaperm Violet RL
7. Phthalocyanine blue	Pigment Blue 15	74160	Heubach	Heucophthal Blue GF BT-617
8. Phthalocyanine	Pigment Green 7	74260	Sun Chemical	Phthalo Green 264-0414

equations containing a^* and b^*, followed by use of (Eq 1). Detailed examples of the procedures and their use are given in Appendix X2.

9.3 *CIELAB Notations*—Use Section 7 of Practice E 308 to calculate CIELAB notations from the tristimulus values of the specimen (see Note 5 and Note 6).

10. Colorcurve System Notations from CIE Measurement

10.1 Determine the spectral reflectance and tristimulus values of the specimen by measurements conforming to Practice E 1164 and Practice E 308, using illuminant D65 and the 1964 supplementary (10°) standard observer (see Note 5).

10.2 Reflectance values, tristimulus values, and CIELAB notations for Colorcurve samples are given in Table 1 and in the data tables furnished with the Colorcurve atlases. If the tristimulus values of the specimen are listed in the table, read the Colorcurve notation from the left-hand column. If the specimen's tristimulus values lie between the values given in the table, calculate the Colorcurve notation for the specimen by interpolation, as follows:

10.2.1 Calculate L^* from tristimulus value Y by using the CIELAB equations. See Practice E 308. An example calculation is given in Appendix X3.

10.2.2 Locate, on the nearest L^* plane to the value of L^* for the specimen, the nearest four lattice points surrounding the specimen, in terms of X and Z.

10.2.3 Repeat 10.2.2 for the nearest L^* plane on the other side of the L^* of the specimen.

10.2.4 By linear interpolation, calculate the values of X and Z for each of the surrounding points at the value of L^* of the specimen. Plot these points on a graph of X versus Z to confirm that the selection of points is correct. See Fig. X3.1 for an example.

10.2.5 From the graph, estimate the approximate decimal parts of the chromatic notation of the specimen. Refine the calculation, if necessary, following the example given in Appendix X3. There will usually be no change from the estimated decimal notations.

10.2.6 Combine the whole number and the decimal parts of the chromatic designations and, using the value of L^* calculated in 10.2.1, obtain the complete Colorcurve notation of the specimen.

11. Formulating a Specimen to Match a Colorcurve Sample

11.1 *Spectrophotometer or Spectrocolorimeter*—Locate the Colorcurve notation for the sample in Table 1, or in the data tables furnished with the Colorcurve system. Enter the listed reflectance values for that Colorcurve notation into a color formulation system and calculate the least metameric formula with the colorants in the system. Matching reflectance curves will reduce to a minimum the metamerism between the Colorcurve sample and the formulated color specimen under different light sources. Corrections may have to be made for texture or gloss differences between the Colorcurve sample and the specimen.

NOTE 7—A typical formulation system uses spectrophotometric data. The computer tries all possible combinations of a group of colorants to determine which will make the least metameric match. This procedure involves iterating to find a combination with a minimum color difference in the primary light source and then computing the color difference for two other sources. The least metameric formula has the smallest color differences in all three sources. Matching reflectance values of the sample and the specimen at 20-nanometer intervals across the visible spectrum assures that the match will be preserved in all light sources.

12. Report

12.1 *Color Selected from One of the Colorcurve Atlases*—Report the Colorcurve notation for the sample and the light source used when the selection was made.

12.2 *Colorcurve Notation for a Color Specimen*—Report the Colorcurve notation for the specimen, the light source used, and whether or not the reflectance values of the sample and specimen are the same. If the specimen was measured, report instrument identification, illuminating and viewing geometry, and spectral bandpass (when selectable). Report that specular reflection was included in the measurement and the date of measurement.

12.3 *Specimen Formulated to Match a Colorcurve Sample*—Report the Colorcurve notation, CIE tristimulus values, reflectance values, and CIELAB notations, as L^* a^*b^*, for the specimen. Report the illuminant(s) used and that specular reflection was included.

13. Keywords

13.1 color; Colorcurve system; color matching; color order systems; color specification

APPENDIXES

(Nonmandatory Information)

X1. NUMERICAL EXAMPLES OF THE USE OF EQ (1)

X1.1 The object of the examples is to calculate the tristimulus values of a point within the bounds of the atlas, and of an extrapolated point. In each case, whole-number Colorcurve notations are used; for other cases, see Appendix X2.

X1.2 *Example 1*—Calculate the tristimulus values of L65 R1Y4, which is within the defined lattice.

X1.2.1 Referring to (Eq 1), here $a = 4$ and $b = 1$. The nearest point on a major hue axis at $C^* = 60$ is L65 Y7; the nearest point on an adjacent minor hue axis at $C^* = 60$ is L65 R7Y7.

X1.2.2 For L65 N, from Table 2, $X_{gray} = 32.29$, $Y_{gray} = 34.05$, and $Z_{gray} = 36.56$. From Table 1 or the Colorcurve atlas table, for L65 R7Y7, $X_{minor} = 45.59$ and $Z_{minor} = 12.31$. Similarly, for L65 Y7, $X_{major} = 32.29$ and $Z_{major} = 6.78$.

X1.2.3 Substituting into (Eq 1),

$$X = (1/7)[(7 - 4)(32.29) + (1)(45.59) + (4 - 1)(32.29)] = 34.19 \quad (X1.1)$$

$$Z = (1/7)[(7 - 4)(36.56) + (1)(12.31) + (4 - 1)(6.78)] = 20.33$$

The tristimulus values of L65 R1Y4 are thus $X = 34.19$, $Y = 34.05$, and $Z = 20.33$. Note that these values agree with those in Table 1.

X1.3 *Example 2*—Calculate the tristimulus values of L65 R7Y8, a point outside the lattice boundary.

X1.3.1 Here $a = 8$ and $b = 7$, and the major and minor axes are the same as those in Example 1. Substituting into (Eq 1),

$$X = (1/7)[(7 - 8)(32.29) + (7)(45.59) + (8 - 7)(32.29)] = 45.59 \quad \text{(X1.2)}$$

$$Z = (1/7)[(7 - 8)(36.56) + (7)(12.31) + (8 - 7)(6.78)] = 8.06$$

The tristimulus values of L65 R7Y8 are $X = 45.59$. $Y = 34.05$, and $Z = 8.06$.

X2. NUMERICAL EXAMPLE FOR CALCULATION OF TRISTIMULUS VALUES FROM COLORCURVE NOTATIONS

X2.1 The object of the example is to calculate the tristimulus values of a specimen with Colorcurve notation L65.5 R2.3B1.8. A computational method, based on the use of (Eq 1), is described.

X2.2 Here, in (Eq 1), $a = 2.3$ and $b = 1.8$. Tristimulus values X, Y, and Z are required for the neutral sample L65.5 N, and X and Z for samples L65.5 R7B7 on the minor axis and L65.5 R7 on the major axis. None of these is listed in Table 1, Table 3, or the Colorcurve atlas table.

X2.3 First obtain tristimulus value Y for L = CIELAB $L^* = 65.5$. It is most convenient to use the reverse CIELAB equations. The equation for Y is as follows:

$$Y = Y_n[(L^* + 16)/116]^3 \quad \text{(X2.1)}$$

The defining conditions for the Colorcurve system are the CIE 1964 supplementary standard observer and standard illuminant D 65, for which $Xn = 94.811$, $Yn = 100.000$, and $Zn = 107.304$ (Billmeyer and Saltzman,[5] p. 62). Substituting,

$$Y = 100.000[(65.5 + 16)/116]^3 = 34.68 \quad \text{(X2.2)}$$

X2.4 Tristimulus values X_{gray} and Z_{gray} for L65.5 N may be found by using the remaining reverse CIELAB equations, noting that for the N sample $a^* = b^* = 0$:

$$X = X_n\{[(L^* + 16)/116] + a^*/500\}^3 \quad \text{(X2.3)}$$

$$X_{gray} = 94.811\{[(65.5 + 16)/116] + 0\}^3 = 32.88$$

Similarly,

$$Z = Z_n\{[(L^* + 16)/116] - b^*/200\}^3 \quad \text{(X2.4)}$$

$$Z_{gray} = 37.21$$

X2.5 Tristimulus values for samples with notations R7B7 or R7 do not appear in Table 1 or the Colorcurve atlas table for lightnesses near 65.5. They may be calculated by use of the reverse CIELAB equations and their defining values of a^* and b^* in Table 3, followed by the use of (Eq 1). In the latter table, note that notation R means red and notation RB mean purple. For example, for L65.5 R7B7,

$$X_{minor} = 94.811\{[(65.5 + 16)/116] + (42.5)/500\}^3 = 46.32 \quad \text{(X2.5)}$$

$$Z_{minor} = 107.304\{[(65.5 + 16)/116] - (-42.5)/200\}^3 = 82.22$$

Similarly, for L65.5 R7, $X_{major} = 52.77$ and $Z_{major} = 3721$.

X2.6 Substituting the above values into (Eq 1),

$$X = (1/7)[4.7(32.88) + 1.8(46.32) + 0.5(52.77)] = 37.76 \quad \text{(X2.6)}$$

$$Z = (1/7)[4.7(37.21) + 1.8(82.22) + 0.5(37.21)] = 48.78$$

X2.7 The tristimulus values corresponding to Colorcurve notation L65.5 R2.3B1.8 are $X = 37.76$, $Y = 34.68$, and $Z = 48.78$.

X3. NUMERICAL EXAMPLE FOR CALCULATION OF COLORCURVE NOTATIONS FROM TRISTIMULUS VALUES

X3.1 The object of the example is to calculate the Colorcurve notation corresponding to $X = 37.75$, $Y = 34.68$, and $Z = 48.80$.

X3.2 Using the CIELAB equations (see 7.4.1 in Practice E 308), calculate the value of L* corresponding to $Y = 34.68$. It is 65.5. The constant-lightness planes in the Colorcurve lattice nearest this value are 65 and 70.

X3.3 In Table 1, locate four points that surround the specimen point on each plane.

X3.3.1 First locate in which quadrant of the Colorcurve lattice the specimen point will fall. This can be accomplished by calculating CIELAB a^* and b^* for the given tristimulus values (see X3.2). If both a^* and b^* are positive, the specimen point will fall in the red-yellow quadrant; if a^* is negative and b^* positive, in the yellow-green quadrant; if both a^* and b^* are negative, in the green-blue quadrant; and if a^* is positive and b^* negative, in the blue-red quadrant. For the present example, the specimen point falls in the blue-red quadrant. See also Fig. 1 of this practice.

X3.3.2 The desired points are found to be the following:

Point	*L**	*X*	*Y*	*Z*
R2B1	65	36.99	34.05	42.93
R2B2	65	36.08	34.05	49.30
R3B1	65	39.80	34.05	42.93
R3B2	65	38.89	34.05	49.30
R2B1	70	43.91	40.75	50.82

R2B2	70	42.89	40.75	57.88
R3B1	70	47.04	40.75	50.82
R3B2	70	46.03	40.75	57.89

X3.4 From the above, calculate the tristimulus values of the four surrounding points at L^* = 65.5, using the relationship based on the additive linearity of the Colorcurve lattice (see 7.2.4). The value of Y = 34.68 for the desired point, at L^* = 65.5, is (34.68 − 34.05)/(40.75 − 34.05) = 0.094 = 9.4 % of the distance between the Y value for L^* = 65 and L^* = 70. By additivity, the value of X for R2B1 (for example) at L^* = 65.5 is obtained by adding 9.4 % of X at L^* = 70 and (100 − 9.4) = 90.6 % of X at L^* = 65. The resulting tristimulus values for the four points required, at L^* = 65.5, are as follows:

Point	*L**	*X*	*Y*	*Z*
R2B1	65.5	37.64	34.68	43.67
R2B2	65.5	36.72	34.68	50.11
R3B1	65.5	40.48	34.68	43.67
R3B2	65.5	39.56	34.68	50.11

X3.5 Refer to Fig. X3.1. This is a small section of a constant-lightness plane of X versus Z, in which the four selected points surrounding the specimen point are the corners of a parallelogram. Also marked is Point D, the sample point. Using the additive linearity of the Colorcurve lattice, it is possible to estimate the two hue notations of this point to well within 0.1 unit from the graph. A graphical method is described.

X3.5.1 Draw lines on the graph through Point D that are accurately parallel to the pairs of sides of the parallelogram. These lines, between Points E and F, and between Points G and H, are shown in the figure.

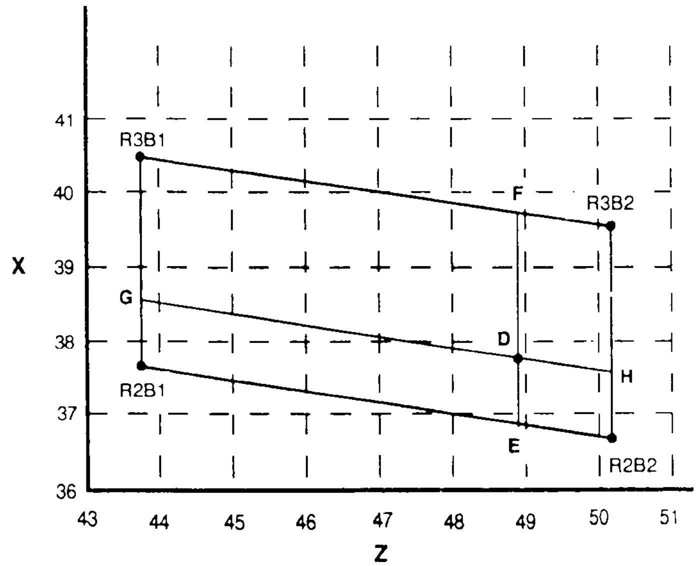


FIG. X3.1 Illustration of Calculation of Colorcurve Notation from Tristimulus Values

X3.5.2 Accurately measure the distances between the following Points: D and E, E and F, and D and G, and G and H.

X3.5.3 The decimal part of the R hue notation of Point D is given by the ratio of the distance from D to E to that from E to F. This ratio is 0.30. Thus, the complete red hue notation of D is R2.30. Similarly, the blue hue notation is found to be B1.80.

X3.6 Rounding to one decimal place, the full Colorcurve notation of the specimen is found to be L65.5 R2.3B1.8.