

2.4.7. A NEW TABLE OF CONSTANTS OF THE STEP WEDGES IN LOG INTENSITY

Density of photographic emulsion is converted to light intensity scale by calibrating with density values of standard step wedges exposed on emulsions. The four step wedges, as illustrated in figure 1, are exposed on the four corner edges of the Kiso Schmidt plates since K1200 (1977 Dec. 3). The density values of the step wedges themselves were measured in 1977 and 1981 (Soyano, T., Simizu, Y., and Noguchi, T., 1981, *Tokyo Astr. Obs. Rep.*, 19, 441), and in 1982. No aging effect was found till 1982. In 1987, the density values were measured again, and a slight aging effect was found. We replace the table of constants of the step wedges with the new ones.

Diffuse densities of the step wedges were measured through color filters with referring to Interobservatory Standard Wedge (Latham, D. W., 1975, *AAS Photo-Bulletin*, No. 10, p.15; Noguchi, T., Takase, B., Soyano, T., and Koyano, H., 1978, *Tokyo Astr. Obs. Rep.*, 18, 400) by a densitometer of Dainihon Screen DM-257. A light source is a tungsten bulb and a detector is a photo-multiplier of Hamamatsu Photonics 931A for *U, B, G, R* and *W* (white light), or R928 for *I* color band. Photo-multiplier 931A is sensitive to wavelength 6500 Å, while R928 sensitive to 9300 Å. The color filters are UG-1 for *U*, and RG-695 for *I*, both of Schott, No. 94 for *B*, No. 93 for *G*, No. 92 for *R*, and No. 106 for *W*, those are of Kodak filters built in DM-257.

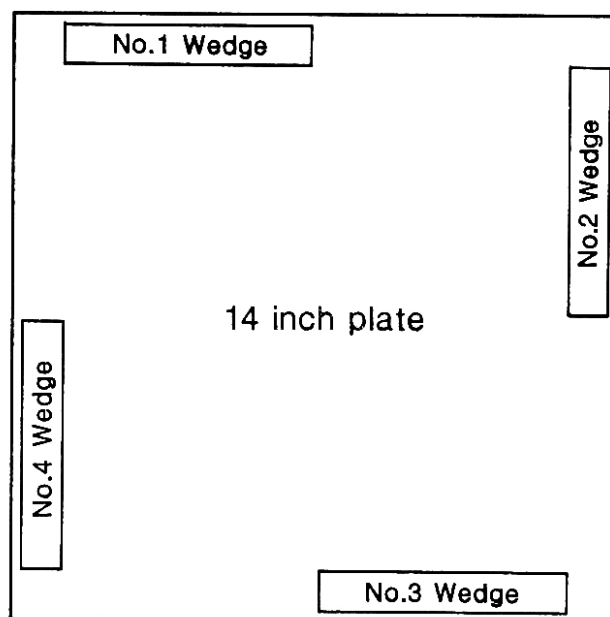


Fig. 1. Contiguration of step wedges on a Kiso Schmidt plate.

Wedge Constants (log Intensity)

Step	Wedge 1						Wedge 2					
	<i>W</i>	<i>U</i>	<i>B</i>	<i>G</i>	<i>R</i>	<i>I</i>	<i>W</i>	<i>U</i>	<i>B</i>	<i>G</i>	<i>R</i>	<i>I</i>
1	2.94	2.92	2.93	2.93	2.94	2.92	2.91	2.90	2.91	2.90	2.90	2.90
2	2.88	2.87	2.88	2.88	2.88	2.89	2.82	2.81	2.82	2.81	2.81	2.82
3	2.78	2.78	2.78	2.78	2.78	2.78	2.70	2.70	2.70	2.70	2.70	2.69
4	2.67	2.68	2.68	2.67	2.67	2.66	2.54	2.55	2.54	2.54	2.53	2.53
5	2.54	2.54	2.54	2.53	2.52	2.51	2.34	2.37	2.36	2.34	2.33	2.31
6	2.37	2.40	2.39	2.37	2.37	2.35	2.17	2.20	2.18	2.17	2.15	2.13
7	2.17	2.21	2.20	2.17	2.15	2.13	1.99	2.03	2.00	2.00	1.96	1.95
8	2.00	2.05	2.03	2.01	1.98	1.94	1.81	1.88	1.84	1.80	1.78	1.74
9	1.82	1.89	1.85	1.83	1.80	1.74	1.61	1.69	1.65	1.61	1.58	1.51
10	1.61	1.71	1.65	1.63	1.60	1.51	1.39	1.50	1.43	1.39	1.35	1.27
11	1.40	1.50	1.33	1.40	1.36	1.26	1.17	1.30	1.24	1.18	1.12	1.03
12	1.17	1.30	1.23	1.19	1.12	1.00	0.96	1.10	1.01	0.96	0.90	0.77
13	0.98	1.12	1.05	1.00	0.92	0.78	0.78	0.94	0.84	0.79	0.72	0.56
14	0.76	0.93	0.83	0.77	0.70	0.53	0.56	0.73	0.63	0.57	0.49	0.29
15	0.53	0.70	0.60	0.54	0.46	0.25	0.37	0.54	0.43	0.36	0.30	0.06

Step	Wedge 3						Wedge 4					
	<i>W</i>	<i>U</i>	<i>B</i>	<i>G</i>	<i>R</i>	<i>I</i>	<i>W</i>	<i>U</i>	<i>B</i>	<i>G</i>	<i>R</i>	<i>I</i>
1	2.93	2.91	2.93	2.93	2.93	2.92	2.90	2.90	2.90	2.90	2.91	2.90
2	2.88	2.87	2.88	2.88	2.88	2.88	2.82	2.80	2.82	2.82	2.82	2.81
3	2.77	2.77	2.77	2.77	2.77	2.78	2.70	2.70	2.70	2.71	2.71	2.70
4	2.67	2.67	2.67	2.67	2.67	2.67	2.55	2.55	2.55	2.55	2.55	2.53
5	2.52	2.53	2.53	2.53	2.52	2.51	2.35	2.38	2.36	2.36	2.34	2.31
6	2.39	2.40	2.39	2.38	2.37	2.34	2.18	2.21	2.19	2.18	2.17	2.12
7	2.18	2.22	2.21	2.20	2.17	2.15	2.00	2.03	2.01	2.01	1.98	1.94
8	2.01	2.06	2.03	2.02	2.00	1.97	1.82	1.89	1.84	1.84	1.80	1.75
9	1.85	1.90	1.87	1.85	1.82	1.77	1.59	1.69	1.63	1.62	1.58	1.51
10	1.64	1.72	1.68	1.65	1.62	1.55	1.38	1.49	1.42	1.40	1.35	1.25
11	1.41	1.51	1.45	1.43	1.38	1.27	1.15	1.28	1.19	1.16	1.11	0.97
12	1.18	1.31	1.24	1.19	1.14	1.01	0.91	1.07	0.97	0.94	0.88	0.71
13	1.00	1.13	1.05	1.00	0.95	0.80	0.75	0.91	0.80	0.77	0.71	0.50
14	0.77	0.93	0.85	0.80	0.72	0.55	0.55	0.72	0.61	0.57	0.50	0.28
15	0.54	0.72	0.60	0.57	0.50	0.27	0.36	0.56	0.43	0.36	0.31	0.07