

SpyderCheckr™ Technical Review

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At Photokina 2010 Datacolor debuted its new color chart, the SpyderCheckr™. This is Datacolor's competing product to X-Rite's ColorChecker® Passport released in 2009.

Description

Although the SpyderCheckr comes in a plastic protective case similar in concept to the Passport, it is quite different in many ways. The first difference is the size.

The SpyderCheckr is about four times larger than the Passport. Where the Passport fits into a pocket, the SpyderCheckr will only fit into a camera bag.



The patches within the SpyderCheckr are both somewhat familiar and yet different.

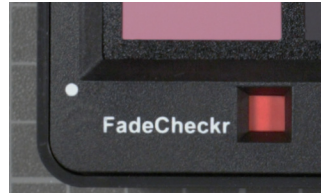


The right chart contains patches which mimic the ColorChecker Classic patches, but in different locations. This may have been done to avoid legal entanglements with X-Rite. While this may keep the X-Rite legal beagles away, it will create problems with profiling programs which expect patches to be in particular locations. This means that custom reference files will be needed before the SpyderCheckr can be used as a substitute for the ColorChecker Classic in some profiling programs. This should not present a

problem since making a custom reference file should be standard procedure for photographers using *any* color chart.

The left chart adds an additional six gray squares, six more skin tones, three dark hue patches, three light patches, and lighter medium chroma versions of the six primary patches (red, green, blue, cyan, magenta, yellow).

At the bottom-left corner is a fading test patch (FadeCheckr) to indicate the amount of UV exposure the chart has received. The FadeCheckr should turn yellow when the UV exposure has been sufficient to fade the chart patches.



The SpyderCheckr's frame is held closed with magnetic catches that when released allow the charts to be flipped, revealing two large, identical gray patches and copies of the front grayscale.



In the image above, both pages have been reversed in the case to present a 12 step grayscale. Also apparent in this sample is a manufacturing defect. The black frame on the right page was incorrectly placed thus blocking part of the large gray patch and not covering the white spaces between the smaller gray patches, as intended.

The ability to remove the pages allows the user to replace the pages with new ones when the patches become too damaged or faded (this is where the fading test patch becomes very useful). This is a great idea I wish other vendors would adopt. Pricing for the replacement pages is not available at this time.

The two final physical features of the SpyderCheckr are a 1/4-20 tripod mount on the bottom of the center spine and a retractable 1/4-20 stud at the top of the spine for mounting a SpyderCube™.

Software

Like the Passport, the SpyderCheckr has software to create a DNG profile for the camera. Unlike the Passport, the disk included with the SpyderCheckr does not contain the actual profiling program but instead launches your Internet browser to download the software from the Datacolor website.

While this may save production costs for Datacolor, this makes more work for photographers that want to install the software on computers that are not Internet connected.

Color

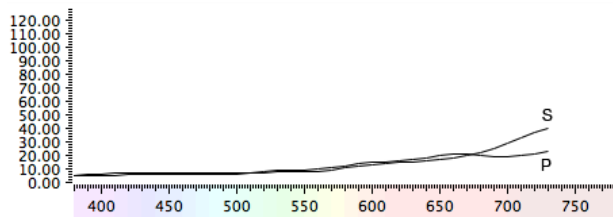
The color patches on the right page were designed to mimic the patches on the ColorChecker Classic. Despite spectral differences with some patches, the colorimetry of the SpyderCheckr patches is a fairly good match to the equivalent Passport patches as demonstrated in the following table of L*a*b* values.

ColorChecker Passport				SpyderCheckr				CIE 1976
Patch	L*	a*	b*	Patch	L*	a*	b*	ΔE
Dark skin	38.96	12.13	13.84	H6	36.79	12.37	13.02	2.3
Light skin	65.50	15.59	16.81	H5	65.63	14.35	17.92	1.7
Blue sky	50.69	-2.09	-21.75	H4	50.67	-1.90	-22.58	0.9
Foliage	43.92	-13.33	22.19	H3	42.49	-15.65	21.41	2.8
Blue flower	56.01	10.88	-24.39	H2	55.83	10.90	-25.45	1.1
Bluish green	71.84	-32.97	1.91	H1	71.74	-33.54	3.59	1.8
Orange	61.81	32.91	55.95	G1	59.85	33.67	56.18	2.1
Purplish blue	41.33	17.83	-46.95	G2	40.22	14.49	-42.43	5.7
Moderate red	50.35	47.10	15.00	G3	50.02	46.21	13.32	1.9
Purple	30.48	24.51	-21.61	G4	31.50	25.22	-24.53	3.2
Yellow green	73.21	-26.94	59.01	G5	72.42	-26.60	58.90	0.9
Orange yellow	71.32	16.60	67.24	G6	71.08	18.85	67.17	2.3
Blue	31.16	22.38	-50.04	F6	28.83	22.91	-49.79	2.4
Green	56.90	-41.24	35.11	F5	55.00	-40.90	33.84	2.3
Red	41.88	48.07	26.22	F4	40.07	53.36	24.62	5.8
Yellow	82.45	-1.08	81.57	F3	82.81	-1.58	83.57	2.1
Magenta	52.05	49.70	-16.34	F2	50.12	49.18	-16.85	2.1
Cyan	52.40	-24.88	-25.64	F1	50.57	-27.92	-24.96	3.6
White	97.94	-0.96	2.26	E1	96.92	-0.47	1.22	1.5
Neutral 8	82.33	-0.60	0.26	E2	81.25	-0.44	0.83	1.2
Neutral 6.5	67.43	-0.71	0.24	E3	66.30	-0.48	0.86	1.3
Neutral 5	51.31	-0.10	0.20	E4	50.85	-0.38	0.58	0.7
Neutral 3.5	36.20	-0.59	-0.73	E5	34.76	-0.11	0.59	2.0
Black	20.44	0.12	-0.54	E6	18.33	-0.12	-0.80	2.1

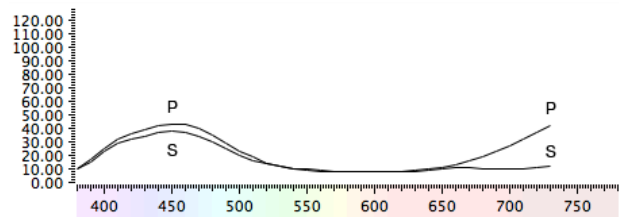
Values calculated by SpectraShop 3 for a D65 illuminant, CIE 1931 2° observer.

Spectra

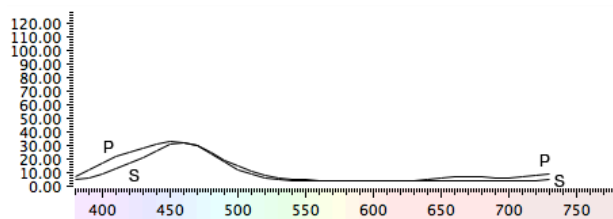
Shown below are the SpyderCheckr patches with the largest spectral differences from the corresponding Passport ColorChecker Classic patches. In the graphs P stands for Passport and S signifies SpyderCheckr. The spectra for all the SpyderCheckr patches, can be downloaded from rmimaging.com/spectral_library/library_index.html.



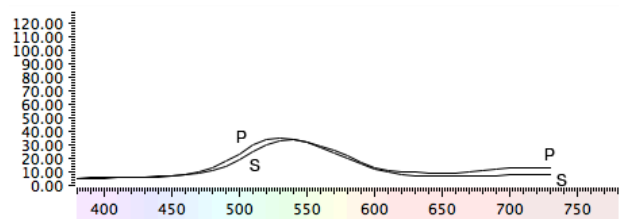
Dark skin/H6



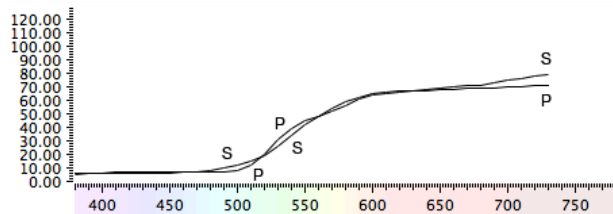
Purplish blue/G2



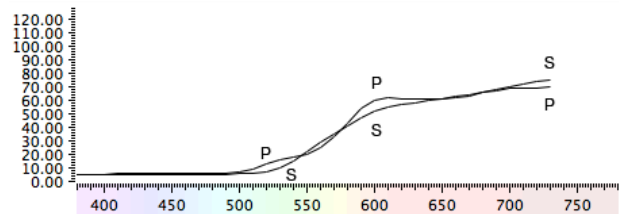
Blue/F6



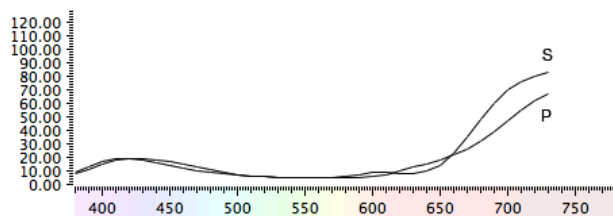
Green/F5



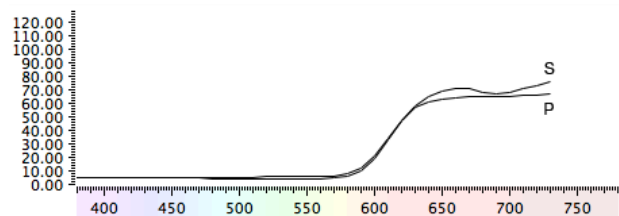
Orange yellow/G6



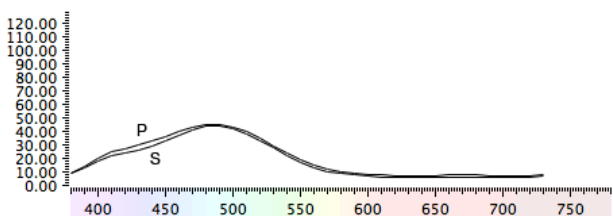
Orange/G1



Purple/G4



Red/F4



Cyan/F1

Manufacturing Issues

The SpyderCheckr sample obtained for this report was from the first release. As such it suffers from several quality control problems.

As previously noted, the frame on one grayscale chart was incorrectly placed. Additionally, more than half of the patches had scuff marks or scratches on the surface which could lead to specular reflections in some lighting situations, adversely affecting the resulting color management profile.

Design Issues

One design problem with the SpyderCheckr is that the hinged spine protrudes 15 mm from the pages when opened, so it will not lay flat on a copyboard. It was found that the blocks from a Jenga® game are just about the right size, about 14.5 mm on their narrow dimension, to hold the pages level when a block is placed under each page.

This problem is increased when the SpyderCube is attached with the light trap hole facing forward and the combination is layed on a copyboard. The top of the chart is now elevated about 33 mm above the copyboard, so it takes two Jenga blocks taped together under each side to hold the SpyderCheckr flat.

Lastly, the spring for the retractable 1/4-20 SpyderCube mounting stud is so strong that it makes it very difficult for one person to hold the stud extended while screwing on the SpyderCube. A lower strength spring should be used here for those without pickle jar opening fingers.

Summary

The SpyderCheckr offers a number of good features:

- Tripod mount
- Replaceable pages
- Extended grayscale
- More flesh tone patches
- Very light and very dark color patches

However, there are some disappointments:

- Cannot lay flat on copy stands
- Difficult to stand up for product shots
- Large size is less portable
- Quality control issues

The biggest surprise was the high number of manufacturing defects; the misplaced grid and the scuffed patches. Coming from Datacolor, a company known for good quality products, it was disappointing to find so many quality control issues.

Conclusion

For over 30 years the Munsell division of X-Rite has had the photo color chart market mainly to itself with its ColorChecker products. With the SpyderCheckr Datacolor is trying for a piece of this pie. While it is too soon to tell how well this chart will be received, photographers should benefit from additional choices and perhaps competition will spur both companies to improve their products.






































List price: \$129 SpyderCheckr™ Standard

\$169 SpyderCheckr™ Pro (includes a SpyderCube™)

Rating:  (3 out of 5 possible)

The SpyderCheckr was rated lowly due to its inability to lay flat and the manufacturing quality issues.

SpyderCheckr™, D65






































Patch		CIELAB 1976					sRGB			Adobe 1998		
		L*	a*	b*	C*	h	R	G	B	R	G	B
A1		60.53	31.04	15.24	34.58	26.15	204	123	120	185	123	120
A2		74.93	0.85	48.04	48.05	88.98	212	180	94	203	180	100
A3		67.65	-28.30	24.02	37.12	139.68	125	176	120	142	176	123
A4		63.07	-19.53	-19.16	27.35	224.45	79	162	184	111	162	184
A5		61.28	0.27	-28.36	28.36	270.55	115	149	196	125	149	195
A6		59.21	31.89	-8.34	32.97	345.34	189	121	157	173	121	155
B1		83.11	2.69	1.31	2.99	25.95	212	204	203	210	204	203
B2		82.93	-4.36	2.82	5.19	147.10	199	208	200	201	208	200
B3		82.98	0.87	-3.04	3.16	286.04	204	205	211	205	205	211
B4		27.27	4.69	1.13	4.82	13.55	74	64	65	71	64	65
B5		26.83	-4.97	1.83	5.30	159.82	59	68	63	62	68	63
B6		28.20	2.14	-5.12	5.55	292.62	68	68	76	68	68	75
C1		85.43	6.03	13.06	14.39	65.20	234	208	188	227	208	189
C2		74.31	5.65	25.57	26.19	77.53	209	176	135	200	176	137
C3		64.38	9.14	34.46	35.65	75.14	189	147	95	179	147	98
C4		44.77	14.52	23.20	27.37	57.96	139	96	70	128	96	71
C5		27.24	4.93	7.59	9.05	57.01	77	64	56	74	64	56
C6		24.63	0.48	-1.10	1.20	293.60	61	61	63	61	61	62
D1		93.41	-0.48	1.44	1.52	108.64	236	236	233	236	236	233
D2		89.62	-0.58	1.34	1.46	113.41	224	225	222	224	225	222
D3		74.10	-0.50	0.99	1.11	116.84	181	181	179	181	181	179
D4		58.05	-0.27	0.39	0.47	124.21	138	138	138	138	138	138
D5		42.83	-0.32	0.55	0.63	120.23	101	101	100	101	101	100
D6		26.98	-0.40	-0.13	0.42	198.51	65	66	66	65	66	66
E1		96.92	-0.47	1.22	1.31	110.94	246	246	243	246	246	243
E2		81.25	-0.44	0.83	0.94	118.02	200	201	199	200	201	199
E3		66.30	-0.48	0.86	0.98	119.01	159	160	158	160	160	158
E4		50.85	-0.38	0.58	0.69	123.60	120	120	119	120	120	119
E5		34.76	-0.11	0.59	0.60	100.11	83	83	82	83	83	82
E6		18.33	-0.12	-0.80	0.80	261.31	48	49	49	48	49	49
F1		50.57	-27.92	-24.96	37.45	221.80	0	134	161	56	134	160
F2		50.12	49.18	-16.85	51.99	341.09	183	83	148	162	83	146
F3		82.81	-1.58	83.57	83.58	91.08	242	202	6	231	202	48
F4		40.07	53.36	24.62	58.76	24.77	174	47	60	151	47	60
F5		55.00	-40.90	33.84	53.09	140.39	71	147	72	100	147	77
F6		28.83	22.91	-49.79	54.81	294.71	44	63	145	50	63	142
G1		59.85	33.67	56.18	65.50	59.07	216	117	45	194	117	51

Patch	CIELAB 1976						sRGB			Adobe 1998		
	L*	a*	b*	C*	h	R	G	B	R	G	B	
G2	40.22	14.49	-42.43	44.84	288.85	70	91	163	77	91	161	
G3	50.02	46.21	13.32	48.09	16.08	193	83	99	170	83	98	
G4	31.50	25.22	-24.53	35.18	315.80	94	63	112	87	63	111	
G5	72.42	-26.60	58.90	64.63	114.31	161	187	63	169	187	74	
G6	71.08	18.85	67.17	69.76	74.33	233	157	45	215	157	56	
H1	71.74	-33.54	3.59	33.73	173.89	99	191	167	133	191	168	
H2	55.83	10.90	-25.45	27.69	293.19	128	129	176	128	129	175	
H3	42.49	-15.65	21.41	26.52	126.18	87	106	66	93	106	68	
H4	50.67	-1.90	-22.58	22.66	265.20	91	123	157	102	123	156	
H5	65.63	14.35	17.92	22.96	51.30	194	148	127	182	148	128	
H6	36.79	12.37	13.02	17.96	46.48	112	80	68	104	80	69	
Left gray large patch	58.36	-0.27	0.46	0.53	120.20	139	139	138	139	139	138	
Right gray large patch	58.15	-0.29	0.34	0.45	130.20	138	139	138	138	139	138	
FadeCheckr	47.79	62.67	33.19	70.91	27.90	211	53	64	183	53	63	

Note 1. All values calculated for a D65 illuminant, CIE 1931 2° observer.

Note 2. These values have been calculated with SpectraShop 3 from spectral measurements from one SpyderCheckr, the values for your chart may be different.

SpyderCheckr™, D50

Patch		CIELAB 1976					eciRGBv2			ProPhoto		
		L*	a*	b*	C*	h	R	G	B	R	G	B
A1		61.44	32.84	16.96	36.96	27.32	189	134	131	159	117	104
A2		75.51	4.42	48.25	48.45	84.76	206	189	112	179	169	93
A3		67.40	-26.27	22.72	34.73	139.15	150	183	132	126	155	110
A4		62.29	-22.57	-20.79	30.69	222.65	123	167	189	112	140	168
A5		60.73	-3.55	-29.16	29.38	263.05	137	154	199	123	130	178
A6		59.79	31.99	-6.84	32.72	347.93	179	130	163	152	113	137
B1		83.18	3.06	1.37	3.35	24.09	214	208	208	200	195	194
B2		82.88	-4.14	2.55	4.86	148.37	206	212	205	191	197	191
B3		82.95	0.75	-3.14	3.23	283.46	209	209	215	196	195	202
B4		27.38	5.20	1.35	5.37	14.52	80	73	74	53	48	48
B5		26.76	-4.92	1.62	5.18	161.82	71	77	72	46	49	47
B6		28.16	1.59	-5.12	5.36	287.30	77	76	84	52	51	57
C1		85.75	7.95	13.31	15.51	59.17	229	213	195	214	201	180
C2		74.76	8.70	25.89	27.31	71.43	204	184	147	179	165	125
C3		65.00	12.53	35.00	37.17	70.29	183	157	110	153	135	87
C4		45.38	17.04	23.98	29.42	54.60	136	107	82	102	82	58
C5		27.45	5.79	7.88	9.78	53.69	83	73	65	53	48	41
C6		24.62	0.41	-1.10	1.18	290.56	70	70	71	45	44	46
D1		93.42	-0.24	1.33	1.35	100.17	237	237	235	231	231	229
D2		89.62	-0.35	1.23	1.28	106.06	227	227	225	218	218	216
D3		74.10	-0.40	0.93	1.01	113.39	187	187	185	167	168	166
D4		58.05	-0.24	0.35	0.43	124.46	146	147	146	120	121	120
D5		42.83	-0.32	0.54	0.63	120.91	110	110	109	82	82	82
D6		26.97	-0.44	-0.15	0.46	198.57	74	75	75	48	49	49
E1		96.93	-0.19	1.06	1.08	100.12	247	247	245	244	244	242
E2		81.26	-0.34	0.76	0.83	114.28	205	205	204	190	190	189
E3		66.31	-0.42	0.81	0.91	117.09	167	167	166	144	144	143
E4		50.85	-0.37	0.55	0.66	123.89	129	129	128	102	102	101
E5		34.77	-0.12	0.61	0.62	100.86	92	92	91	64	64	64
E6		18.32	-0.23	-0.80	0.83	253.75	56	57	58	33	34	34
F1		49.44	-31.84	-27.56	42.11	220.88	74	138	167	72	107	141
F2		51.04	49.49	-14.51	51.57	343.66	171	92	154	140	83	125
F3		83.58	3.32	83.31	83.37	87.72	230	211	66	205	195	65
F4		41.70	56.55	27.52	62.89	25.95	159	59	73	121	57	46
F5		54.65	-39.32	32.25	50.85	140.64	108	155	86	83	122	67
F6		27.98	15.89	-51.25	53.65	287.23	64	65	150	56	48	120
G1		61.19	36.70	58.30	68.89	57.81	197	131	67	163	114	49

Patch	CIELAB 1976						eciRGBv2			ProPhoto		
	L*	a*	b*	C*	h	R	G	B	R	G	B	
G2	39.55	8.28	-43.25	44.04	280.84	90	96	167	77	74	139	
G3	51.29	48.64	15.75	51.12	17.94	177	95	110	142	83	81	
G4	31.65	22.86	-23.57	32.84	314.12	97	70	119	71	52	88	
G5	72.54	-22.85	57.78	62.13	111.58	173	195	85	145	169	74	
G6	72.17	22.68	68.36	72.03	71.65	215	169	72	185	151	60	
H1	71.11	-33.80	1.74	33.85	177.05	143	195	175	128	169	155	
H2	55.57	8.32	-25.67	26.98	287.96	139	135	181	119	112	156	
H3	42.46	-14.19	21.03	25.37	124.00	102	116	78	73	85	55	
H4	50.20	-5.38	-23.11	23.73	256.90	113	129	163	94	102	136	
H5	66.16	17.30	18.46	25.30	46.86	188	157	139	160	136	114	
H6	37.24	14.04	13.72	19.63	44.33	113	90	79	79	65	53	
Left gray large patch	58.37	-0.25	0.42	0.49	120.23	147	147	147	121	122	121	
Right gray large patch	58.15	-0.29	0.31	0.42	132.97	147	147	146	121	121	120	
FadeCheckr	49.74	65.60	36.73	75.19	29.25	189	67	79	152	70	52	

Note 1. All values calculated for a D50 illuminant, CIE 1931 2° observer.

Note 2. These values have been calculated with SpectraShop 3 from spectral measurements from one SpyderCheckr, the values for your chart may be different.

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