DMX PROTOCOL

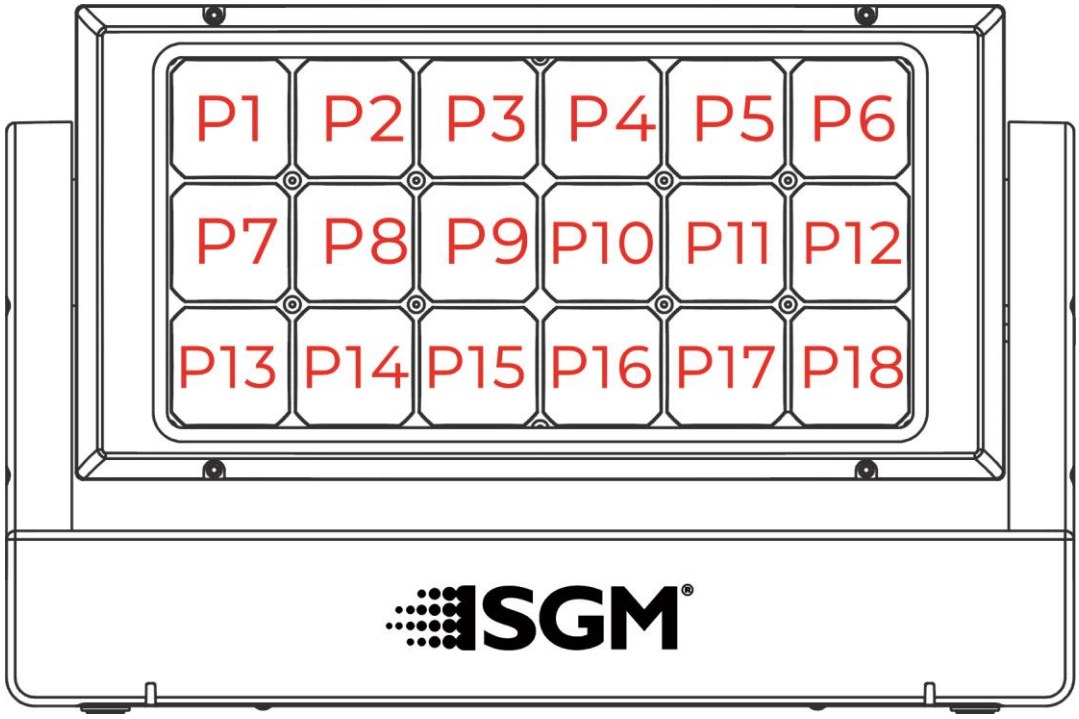
PALCO Z-FX

SGM®

Revision 3 | Valid from firmware version 1.0

CONTENT

PALCO Z-FX SEGMENTS



DMX MODES

STANDARD (15 CHANNELS)

CHANNEL	Name	Resolution	Note
1	Shutter	8Bit	0-7 Closed 8-15 Open 16-151 Variable Strobe 152-175 Pulse Open 176-199 Pulse Close 200-244 Random Strobe 245-255 Open
2-3	Dimmer	16Bit	0-100% (Gamma Filtered)
4	Ctc	8Bit	See CTC Curve sheet
5-6	Tilt Movement	16Bit	
7	Tilt Speed	8Bit	0-225 Max to Min Speed 226-235 Blackout by movement（to be done） 236-255 No Function
8	Tilt Continuous Rotation	8 Bit	0-2 No function 3-126 Forwards Tilt rotation from fast to slow 127-129 No rotation 130-253 Backwards Tilt rotation from slow to fast 254-255 No rotation
9	Zoom	8Bit	0-100%
10-11	Red	16Bit	0-100%
12-13	Green	16Bit	0-100%
14-15	Blue	16Bit	0-100%

EXTENDED (125 CHANNELS)

CHANNEL	Name	Resolution	Note
1-2	Dimmer	16Bit	0-100%
3	Strobe Duration	8Bit	10-90%
4	Strobe rate	8Bit	1-30Hz
5	Effect	8Bit	0-4 No Effect 5-9 Flicker 10-14 RandomStrobe 15-19 RandomStrobePixels 20-24 Flicker_Color 25-29 RandomStrobeColor 30-34 SpikeColors 35-39 SpikesPanel 40-44 PreRed 45-49 PreGreen 50-54 PreBlue 55-59 RGBFlicker 60-64 Lightning 65-69 RollEffectRGB 70-74 Fire 75-79 Ice 80-84 MagentaRedBue 85-89 RandomColorFade 90-94 HalogenAttack 95-99 HalogenDecay 100-255 No Effect
6	Macro	8Bit	0-4 0 Open 5-9 2 Congo/color 1 10-14 Red/color 2 15-19 Green/color 3 20-24 Blue/color 4 25-29 Orange/color 5 30-34 Light green/color 6 40-44 Light blue/ color 8 45-49 Purple/color 9 50-54 Neon green/color 10 55-59 Magenta/color 11 60-64 Cyan/color 12 65-69 Yellow/color 13 70-74 CTC/color 14 75-79 Scroll (CCW) Slow → Fast 80-84 Scroll (CW) Slow → Fast 85-89 Random color See color filter chart 90-180 Color filter emulation 181-255 Open

CHANNEL	Name	Resolution	Note
7	Dimming Curve	8Bit	0-4 Gamma Filtered 5-9 Gamma Raw 10-14 Gamma Halogen 15-19 Linear Filtered 20-24 Linear Raw 25-29 Linear Halogen 30-255 Gamma Filtered
8	Ctc	8Bit	See Ctc Curve sheet
9	Color Path	8Bit	0-127 SGM Standard 128-255 VersaPath
10	Frequecy	8Bit	0-255: 2.6Khz -10Khz
11	Fan	8Bit	0-4: Settings Selected (Auto, Silent, Boost, Off) 5-255: 0-100%
12-13	Tilt Movement	16Bit	
14	Tilt Speed	8Bit	0-225 Max to Min Speed 226-235 Blackout by movement(to be done) 236-255 No Function
15	Tilt Continuous Rotation	8 Bit	0-2 No function 3-126 Forwards Tilt rotation from fast to slow 127-129 No rotation 130-253 Backwards Tilt rotation from slow to fast 254-255 No rotation
16-17	Zoom	16Bit	0-100%
18-19	Red 1	16Bit	0-100%
20-21	Green 1	16Bit	0-100%
22-23	Blue 1	16Bit	0-100%
24-25	Red 2	16Bit	0-100%
26-27	Green 2	16Bit	0-100%
28-29	Blue 2	16Bit	0-100%
30-31	Red 3	16Bit	0-100%
32-33	Green 3	16Bit	0-100%
34-35	Blue 3	16Bit	0-100%
36-37	Red 4	16Bit	0-100%
38-39	Green 4	16Bit	0-100%
40-41	Blue 4	16Bit	0-100%
42-43	Red 5	16Bit	0-100%
44-45	Green 5	16Bit	0-100%
46-47	Blue 5	16Bit	0-100%

CHANNEL	Name	Resolution	Note
48-49	Red 6	16Bit	0-100%
50-51	Green 6	16Bit	0-100%
52-53	Blue 6	16Bit	0-100%
54-55	Red 7	16Bit	0-100%
56-57	Green 7	16Bit	0-100%
58-59	Blue 7	16Bit	0-100%
60-61	Red 8	16Bit	0-100%
62-63	Green 8	16Bit	0-100%
64-65	Blue 8	16Bit	0-100%
66-67	Red 9	16Bit	0-100%
68-69	Green 9	16Bit	0-100%
70-71	Blue 9	16Bit	0-100%
72-73	Red 10	16Bit	0-100%
74-75	Green 10	16Bit	0-100%
76-77	Blue 10	16Bit	0-100%
78-79	Red 11	16Bit	0-100%
80-81	Green 11	16Bit	0-100%
82-83	Blue 11	16Bit	0-100%
84-85	Red 12	16Bit	0-100%
86-87	Green 12	16Bit	0-100%
88-89	Blue 12	16Bit	0-100%
90-91	Red 13	16Bit	0-100%
92-93	Green 13	16Bit	0-100%
94-95	Blue 13	16Bit	0-100%
96-97	Red 14	16Bit	0-100%
98-99	Green 14	16Bit	0-100%
100-101	Blue 14	16Bit	0-100%
102-103	Red 15	16Bit	0-100%
104-105	Green 15	16Bit	0-100%
106-107	Blue 15	16Bit	0-100%
108-109	Red 16	16Bit	0-100%
110-111	Green 16	16Bit	0-100%
112-113	Blue 16	16Bit	0-100%
114-115	Red 17	16Bit	0-100%
116-117	Green 17	16Bit	0-100%
118-119	Blue 17	16Bit	0-100%
120-121	Red 18	16Bit	0-100%
122-123	Green 18	16Bit	0-100%
124-125	Blue 18	16Bit	0-100%

STANDARD (21 CHANNELS)

CHANNEL	Name	Resolution	Note
1	Shutter	8Bit	0-7 Closed 8-15 Open 16-151 Variable Strobe 152-175 Pulse Open 176-199 Pulse Close 200-244 Random Strobe 245-255 Open
2-3	Dimmer	16Bit	0-100% (Gamma Filtered)
4	Ctc	8Bit	See CTC Curve sheet
5-6	Tilt Movement	16Bit	
7	Tilt Speed	8Bit	0-225 Max to Min Speed 226-235 Blackout by movement（to be done） 236-255 No Function
8	Tilt Continuous Rotation	8 Bit	0-2 No function 3-126 Forwards Tilt rotation from fast to slow 127-129 No rotation 130-253 Backwards Tilt rotation from slow to fast 254-255 No rotation
9	Zoom	8Bit	0-100%
10-11	Red	16Bit	0-100%
12-13	Green	16Bit	0-100%
14-15	Blue	16Bit	0-100%
16	Accessory Led Effect	8Bit	0-3 No Accessory Led Effect 4-255 Preset Accessory LedEffect (See Accessory Led Effect List)
17	Accessory Led Speed	8Bit	0~51 Speed Level 1 (Slow) 52~102 Speed Level 2 103~153 Speed Level 3 154~204 Speed Level 4 205~255 Speed Level 5 (Fast)
18	Accessory Led Red	8Bit	0-100%
19	Accessory Led Green	8Bit	0-100%
20	Accessory Led Blue	8Bit	0-100%
21	Accessory Frost	8Bit	100%-0

EXTENDED (206 CHANNELS)

CHANNEL	Name	Resolution	Note
1-2	Dimmer	16Bit	0-100%
3	Strobe Duration	8Bit	10-90%
4	Strobe rate	8Bit	1-30Hz
5	Effect	8Bit	0-4 No Effect 5-9 Flicker 10-14 RandomStrobe 15-19 RandomStrobePixels 20-24 Flicker_Color 25-29 RandomStrobeColor 30-34 SpikeColors 35-39 SpikesPanel 40-44 PreRed 45-49 PreGreen 50-54 PreBlue 55-59 RGBFlicker 60-64 Lightning 65-69 RollEffectRGB 70-74 Fire 75-79 Ice 80-84 MagentaRedBue 85-89 RandomColorFade 90-94 HalogenAttack 95-99 HalogenDecay 100-255 No Effect

CHANNEL	Name	Resolution	Note
6	Macro	8Bit	0-4 0 Open 5-9 2 Congo/color 1 10-14 Red/color 2 15-19 Green/color 3 20-24 Blue/color 4 25-29 Orange/color 5 30-34 Light green/color 6 40-44 Light blue/ color 8 45-49 Purple/color 9 50-54 Neon green/color 10 55-59 Magenta/color 11 60-64 Cyan/color 12 65-69 Yellow/color 13 70-74 CTC/color 14 75-79 Scroll (CCW) Slow → Fast 80-84 Scroll (CW) Slow → Fast 85-89 Random color See color filter chart 90-180 Color filter emulation 181-255 Open
7	Dimming Curve	8Bit	0-4 Gamma Filtered 5-9 Gamma Raw 10-14 Gamma Halogen 15-19 Linear Filtered 20-24 Linear Raw 25-29 Linear Halogen 30-255 Gamma Filtered
8	Ctc	8Bit	See Ctc Curve sheet
9	Color Path	8Bit	0-127 SGM Standard 128-255 VersaPath
10	Frequecy	8Bit	0-255: 2.6Khz -10Khz
11	Fan	8Bit	0-4: Settings Selected (Auto, Silent, Boost, Off) 5-255: 0-100%
12-13	Tilt Movement	16Bit	
14	Tilt Speed	8Bit	0-225 Max to Min Speed 226-235 Blackout by movement(to be done) 236-255 No Function

CHANNEL	Name	Resolution	Note
15	Tilt Continuous Rotation	8 Bit	0-2 No function 3-126 Forwards Tilt rotation from fast to slow 127-129 No rotation 130-253 Backwards Tilt rotation from slow to fast 254-255 No rotation
16-17	Zoom	16Bit	0-100%
18-19	Red 1	16Bit	0-100%
20-21	Green 1	16Bit	0-100%
22-23	Blue 1	16Bit	0-100%
24-25	Red 2	16Bit	0-100%
26-27	Green 2	16Bit	0-100%
28-29	Blue 2	16Bit	0-100%
30-31	Red 3	16Bit	0-100%
32-33	Green 3	16Bit	0-100%
34-35	Blue 3	16Bit	0-100%
36-37	Red 4	16Bit	0-100%
38-39	Green 4	16Bit	0-100%
40-41	Blue 4	16Bit	0-100%
42-43	Red 5	16Bit	0-100%
44-45	Green 5	16Bit	0-100%
46-47	Blue 5	16Bit	0-100%
48-49	Red 6	16Bit	0-100%
50-51	Green 6	16Bit	0-100%
52-53	Blue 6	16Bit	0-100%
54-55	Red 7	16Bit	0-100%
56-57	Green 7	16Bit	0-100%
58-59	Blue 7	16Bit	0-100%
60-61	Red 8	16Bit	0-100%
62-63	Green 8	16Bit	0-100%
64-65	Blue 8	16Bit	0-100%
66-67	Red 9	16Bit	0-100%
68-69	Green 9	16Bit	0-100%
70-71	Blue 9	16Bit	0-100%
72-73	Red 10	16Bit	0-100%

CHANNEL	Name	Resolution	Note
74-75	Green 10	16Bit	0-100%
76-77	Blue 10	16Bit	0-100%
78-79	Red 11	16Bit	0-100%
80-81	Green 11	16Bit	0-100%
82-83	Blue 11	16Bit	0-100%
84-85	Red 12	16Bit	0-100%
86-87	Green 12	16Bit	0-100%
88-89	Blue 12	16Bit	0-100%
90-91	Red 13	16Bit	0-100%
92-93	Green 13	16Bit	0-100%
94-95	Blue 13	16Bit	0-100%
96-97	Red 14	16Bit	0-100%
98-99	Green 14	16Bit	0-100%
100-101	Blue 14	16Bit	0-100%
102-103	Red 15	16Bit	0-100%
104-105	Green 15	16Bit	0-100%
106-107	Blue 15	16Bit	0-100%
108-109	Red 16	16Bit	0-100%
110-111	Green 16	16Bit	0-100%
112-113	Blue 16	16Bit	0-100%
114-115	Red 17	16Bit	0-100%
116-117	Green 17	16Bit	0-100%
118-119	Blue 17	16Bit	0-100%
120-121	Red 18	16Bit	0-100%
122-123	Green 18	16Bit	0-100%
124-125	Blue 18	16Bit	0-100%
126	Accessory Led Effect	8Bit	0-3 No Accessory Led Effect 4-255 Preset Accessory Led Effect (See Accessory Led Effect List)
127	Accessory Led Speed	8Bit	0~51 Speed Level 1 (Slow) 52~102 Speed Level 2 103~153 Speed Level 3 154~204 Speed Level 4 205~255 Speed Level 5 (Fast)

CHANNEL	Name	Resolution	Note
128	Accessory Led Red 1	8Bit	0-100%
129	Accessory Led Green 1	8Bit	0-100%
130	Accessory Led Blue 1	8Bit	0-100%
131	Accessory Led Red 2	8Bit	0-100%
132	Accessory Led Green 2	8Bit	0-100%
133	Accessory Led Blue 2	8Bit	0-100%
134	Accessory Led Red 3	8Bit	0-100%
135	Accessory Led Green 3	8Bit	0-100%
136	Accessory Led Blue 3	8Bit	0-100%
137	Accessory Led Red 4	8Bit	0-100%
138	Accessory Led Green 4	8Bit	0-100%
139	Accessory Led Blue 4	8Bit	0-100%
140	Accessory Led Red 5	8Bit	0-100%
141	Accessory Led Green 5	8Bit	0-100%
142	Accessory Led Blue 5	8Bit	0-100%
143	Accessory Led Red 6	8Bit	0-100%
144	Accessory Led Green 6	8Bit	0-100%
145	Accessory Led Blue 6	8Bit	0-100%
146	Accessory Led Red 7	8Bit	0-100%
147	Accessory Led Green 7	8Bit	0-100%
148	Accessory Led Blue 7	8Bit	0-100%
149	Accessory Led Red 8	8Bit	0-100%

CHANNEL	Name	Resolution	Note
150	Accessory Led Green 8	8Bit	0-100%
151	Accessory Led Blue 8	8Bit	0-100%
152	Accessory Led Red 9	8Bit	0-100%
153	Accessory Led Green 9	8Bit	0-100%
154	Accessory Led Blue 9	8Bit	0-100%
155	Accessory Led Red 10	8Bit	0-100%
156	Accessory Led Green 10	8Bit	0-100%
157	Accessory Led Blue 10	8Bit	0-100%
158	Accessory Led Red 11	8Bit	0-100%
159	Accessory Led Green 11	8Bit	0-100%
160	Accessory Led Blue 11	8Bit	0-100%
161	Accessory Led Red 12	8Bit	0-100%
162	Accessory Led Green 12	8Bit	0-100%
163	Accessory Led Blue 12	8Bit	0-100%
164	Accessory Led Red 13	8Bit	0-100%
165	Accessory Led Green 13	8Bit	0-100%
166	Accessory Led Blue 13	8Bit	0-100%
167	Accessory Led Red 14	8Bit	0-100%
168	Accessory Led Green 14	8Bit	0-100%
169	Accessory Led Blue 14	8Bit	0-100%
170	Accessory Led Red 15	8Bit	0-100%
171	Accessory Led Green 15	8Bit	0-100%

CHANNEL	Name	Resolution	Note
172	Accessory Led Blue 15	8Bit	0-100%
173	Accessory Led Red 16	8Bit	0-100%
174	Accessory Led Green 16	8Bit	0-100%
175	Accessory Led Blue 16	8Bit	0-100%
176	Accessory Led Red 17	8Bit	0-100%
177	Accessory Led Green 17	8Bit	0-100%
178	Accessory Led Blue 17	8Bit	0-100%
179	Accessory Led Red 18	8Bit	0-100%
180	Accessory Led Green 18	8Bit	0-100%
181	Accessory Led Blue 18	8Bit	0-100%
182	Accessory Led Red 19	8Bit	0-100%
183	Accessory Led Green 19	8Bit	0-100%
184	Accessory Led Blue 19	8Bit	0-100%
185	Accessory Led Red 20	8Bit	0-100%
186	Accessory Led Green 20	8Bit	0-100%
187	Accessory Led Blue 20	8Bit	0-100%
188	Accessory Led Red 21	8Bit	0-100%
189	Accessory Led Green 21	8Bit	0-100%
190	Accessory Led Blue 21	8Bit	0-100%
191	Accessory Led Red 22	8Bit	0-100%
192	Accessory Led Green 22	8Bit	0-100%
193	Accessory Led Blue 22	8Bit	0-100%

CHANNEL	Name	Resolution	Note
194	Accessory Led Red 23	8Bit	0-100%
195	Accessory Led Green 23	8Bit	0-100%
196	Accessory Led Blue 23	8Bit	0-100%
197	Accessory Led Red 24	8Bit	0-100%
198	Accessory Led Green 24	8Bit	0-100%
199	Accessory Led Blue 24	8Bit	0-100%
200	Accessory Led Red 25	8Bit	0-100%
201	Accessory Led Green 25	8Bit	0-100%
202	Accessory Led Blue 25	8Bit	0-100%
203	Accessory Led Red 26	8Bit	0-100%
204	Accessory Led Green 26	8Bit	0-100%
205	Accessory Led Blue 26	8Bit	0-100%
206	Accessory Frost	8Bit	100%-0

NOTE 1

When the CTC channel is set to value 000, the fixture will output a 5600 Kelvin white.

NOTE 2

With the Color Path set to **VersaPath™** , the color emulation reacts in the same way as a physical filter over a specific native color temperature (from 2000K to 10000K), editable via the CTC channel.

When Dimming Curve channel is set to Halogen, a “tungsten-lamp with color filter” look can be achieved.

When the Color Path is set to **VersaPath™**, the CTC channel can be used to move the RGB color mix over the
black-body curve. In order to achieve this, at least 2 primary colors need to have values above 000.

NOTE 3

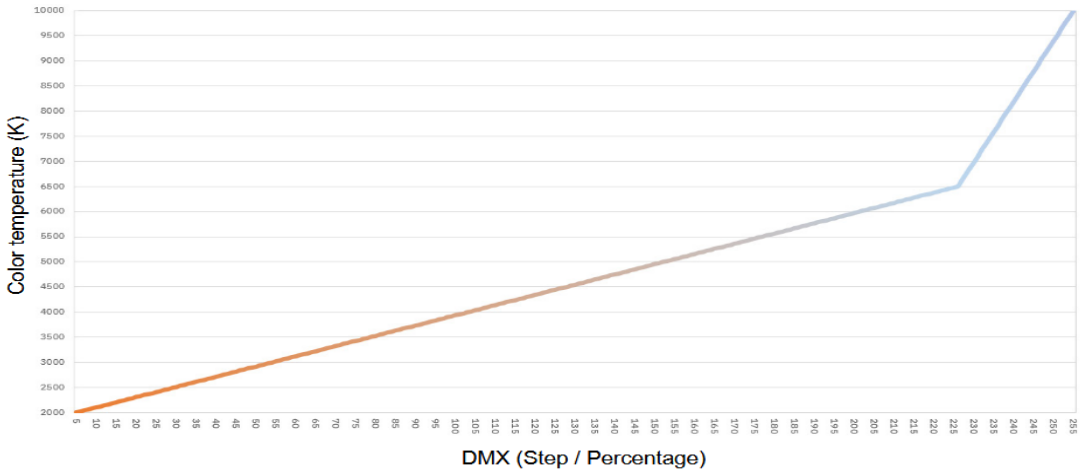
Gamma or **Linear** corrected.

Filtered filters input signal

Raw allows for a faster response

Halogen creates an organic delay, similar to a tungsten lamp

CTC CHART



CTC	DMX	DMX PERCENTAGE	COLOR TEMPERATURE
2000K → 10000K	5	2.0%	2000K
	15	5.9%	2200K
	25	9.8%	2400K
	35	13.7%	2600K
	45	17.6%	2800K
	55	21.6%	3000K
	65	25.5%	3200K
	75	29.4%	3400K
	85	33.3%	3600K
	95	37.3%	3800K
	105	41.1%	4000K
	115	45.1%	4200K
	125	49.0%	4400K
	135	53.0%	4600K
	145	56.9%	4800K
	155	60.8%	5000K
	165	64.7%	5200K
	175	68.6%	5400K
	185	72.6%	5600K
	195	76.5%	5900K
	205	80.4%	6100K
	215	84.3%	6300K
	225	88.2%	6500K
	235	92.2%	7500K
	245	96.1%	8800K
	255	100%	10000K

COLOR FILTER EMULATION CHART

MACRO	DMX	DMX PERCENTAGE	COLOR NAME	FILTER
Color Filter Emulation	90	35.3%	Med Bast Amber	LEE 004
	91	35.7%	Med Yellow	LEE 010
	92	36.1%	Straw Tint	LEE 013
	93	36.5%	Surprise Peach	LEE 017
	94	36.9%	Fire	LEE 019
	95	37.3%	Med Amber	LEE 020
	96	37.6%	Gold Amber	LEE 021
	97	38.0%	Dark Amber	LEE 022
	98	38.4%	Sunset red	LEE 025
	99	38.8%	Bright red	LEE 026
	100	39.2%	Light Pink	LEE 035
	101	39.6%	Med Pink	LEE 036
	102	40.0%	Medium Purple	LEE 049
	103	40.4%	Lt Lavender	LEE 052
	104	40.8%	Lavender	LEE 058
	105	41.2%	Sky Blue	LEE 068
	106	41.6%	Tokyo Blue	LEE 071
	107	42.0%	Just Blue	LEE 079
	108	42.4%	Lime Green	LEE 088
	109	42.7%	Moss Green	LEE 089
	110	43.1%	Dk Yellow/Green	LEE 090
	111	43.5%	Spring Yellow	LEE 100
	112	43.9%	Lt Amber	LEE 102
	113	44.3%	Straw	LEE 103
	114	44.7%	Deep Amber	LEE 104
	115	45.1%	Orange	LEE 105
	116	45.5%	Primary Red	LEE 106
	117	45.9%	Lt. Rose	LEE 107
	118	46.3%	English Rose	LEE 108
	119	46.7%	Lt. Salmon	LEE 109
	120	47.1%	Middle Rose	LEE 110
	121	47.5%	Dark Pink	LEE 111
	122	47.8%	Magenta	LEE 113
	123	48.2%	Peacock Blue	LEE 115
	124	48.6%	Med Blue-Green	LEE 116
	125	49.0%	Steel Blue	LEE 117
	126	49.4%	Light Blue	LEE 118

MACRO	DMX	DMX PERCENTAGE	COLOR NAME	FILTER
Color Filter Emulation	127	49.8%	Dark Blue	LEE 119
	128	50.2%	Deep Blue	LEE 120
	129	50.6%	Lee Green	LEE 121
	130	51.0%	Fern Green	LEE 122
	131	51.4%	Dark Green	LEE 124
	132	51.8%	Mauve	LEE 126
	133	52.2%	Bright Pink	LEE 128
	134	52.5%	Marine Blue	LEE 131
	135	52.9%	Med Blue	LEE 132
	136	53.3%	Golden Amber	LEE 134
	137	53.7%	Deep Golden Amber	LEE 135
	138	54.1%	Pale Lavender	LEE 136
	139	54.5%	Spec Lavender	LEE 137
	140	54.9%	Pale Green	LEE 138
	141	55.3%	Primary Green	LEE 139
	142	55.7%	Summer Blue	LEE 140
	143	56.1%	Bright Blue	LEE 141
	144	56.5%	Pale Navy Blue	LEE 143
	145	56.9%	Apricot	LEE 147
	146	57.3%	Bright Rose	LEE 148
	147	57.6%	Pale Gold35	LEE 152
	148	58.0%	Pale Rose	LEE 154
	149	58.4%	Pink	LEE 157
	150	58.8%	Deep Orange	LEE 158
	151	59.2%	Slate Blue	LEE 161
	152	59.6%	Bastard Amber	LEE 162
	153	60.0%	Flame Red	LEE 164
	154	60.4%	Daylight Blue	LEE 165
	155	60.8%	Lilac Tint	LEE 169
	156	61.2%	Deep Lavender	LEE 170
	157	61.6%	Lagoon Blue	LEE 172
	158	62.0%	Dk Steel Blue	LEE 174
	159	62.4%	Chrome Orange	LEE 179
	160	62.7%	Dark Lavender	LEE 180
	161	63.1%	Congo Blue	LEE 181
	162	63.5%	Light Red	LEE 182
	163	63.9%	Surprise Pink	LEE 194
	164	64.3%	Alice Blue	LEE 197
	165	64.7%	Double C.T. Blue	LEE 200

MACRO	DMX	DMX PERCENTAGE	COLOR NAME	FILTER
Color Filter Emulation	166	65.1%	Full C.T. Blue36	LEE 201
	167	65.5%	1/2 C.T. Blue	LEE 202
	168	65.9%	1/4 C.T. Blue	LEE 203
	169	66.3%	Full C.T. Orange	LEE 204
	170	66.7%	1/4 C.T. Orange	LEE 206
	171	67.1%	Fluorescent Green	LEE 219
	172	67.5%	Lee Minus Green	LEE 247
	173	67.8%	1/2 Minus Green	LEE 248
	174	68.2%	3/4 C.T. Blue	LEE 281
	175	68.6%	3/4 C.T. Orange	LEE 285
	176	69.0%	Follies Pink	LEE 328
	177	69.4%	S Spec Rose Pink	LEE 332
	178	69.8%	Fuchsia Pink	LEE 345
	179	70.2%	Glacier Blue	LEE 352
	180	70.6%	Lighter Blue	LEE 353

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