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**APPENDICES**

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

**APPENDIX A THE WORDS FOR COLOR PERCEPTION USED FOR  
EXPERIMENTS**

**Table A-1** The words for color perception use for experiment (1)

( Thai words )	( English words )	( Thai words )
สว่าง	Light	Sawang
สด	Fresh	Sod
ใส	Clear	Sai
ร้อน	Warm	Ron
จัด	Intense	Jad
แก่	Deep	Kae
แจ่ม	Shining	Jaem
เข้ม	Deep	Khem
จ้า	Glaring	Jaa
ข้น	Condensed	Kon
แปรรืด	Gaudy	Paed
แรง	Strong	Raeng
แสบ	Penetrating	Saeb
คมชัด	Apparent	Kom Chad
ฉ่ำ	Moist	Cham
แจ้	Luminous	Jae
แปรรื่น	Flashy	Praen
ผ่อง	Sheer	Pong
เจิดจ้า	Distinct	Jerd Jar
เข้มแข็ง	Strong	Khem Kang
เคลื่อนไหว	Dynamic	Kloen Wai
ฉูดฉาด	Gaudy	Chood Chad
มืด	Dark	Mued

**Table A-1** The words for color perception use for experiment (2)

( Thai words )	( English words )	( Thai words )
ทึบ	Turbid	Tube
ทึมน	Dim	Tuem
หม่น	Somber	Mon
มัว	Dusky	Mou
ขมุกขมัว	Vague	Ka Muk Ka Mou
ทมิฬ	Dark	Ta Muen
ครึ้ม	Gloomy	Kruem
หมอง	Dark Grey	Mong
ขุ่น	Mucky	Koon
วาว	Sparkling	Wow
เรื่อ	Pale	Rua
เหลือบ	Glassy brush color	Luab
ประกาย	Glittering	Pra Kay
มัน	Oily	Mann
เลื่อม	Shiny	Luam
แพรวพราว	Colorful	Praew Prao
หวาน	Velvety	Wann
เย็น	Cool	Yen
นวล	Creamy	Nual
โปร่ง	Transparent	Prong
เบา	Light	Bow
นิ่ง	Motionless	Ning
เนียน	Smooth	Nian
สงบนิ่ง	Passive	Sa Ngob Ning
นุ่ม	Soft	Num

**Table A-1** The words for color perception use for experiment (3)

( Thai words )	( English words )	( Thai words )
ซึ่ด	Subdued	Seed
จาง	Pale	Jang
พร่า	Blurry	Praa
จืด	Colorless	Jued
จางจาง	Faded	Jang Jang
อ่อนแอ	Weak	Oan Aer
อึม	Rich	Oim
แห้ง	Dry	Haeng
แข็ง	Hard	Kang
ค้ำน	Dull	Dann
กระด้าง	Rough	Kar dang
หนัก	Heavy	Nuck
บริสุทธิ์	Pure	Bo Ri Sood
เรียบ	Plain	Reab
คล้ำไส	Oily Dark	Klam Sai
เค้น	Striking	Den
คล้ำ	Dark	Klam
ซำ	Dirty	Cham
คุ่น	Grayish	Tun
เนา	Discolored	Nao
แปร่ง	Out Of Tone	Praeng

\*English words that are translated from Thai words show the same meaning but may represent different colors perception

1.EXPERIMENT I

10R 10



10R 11



10R 12

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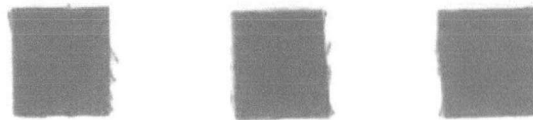


Figure B-1 Color sample of experiment I



## 2. EXPERIMENT II

5R

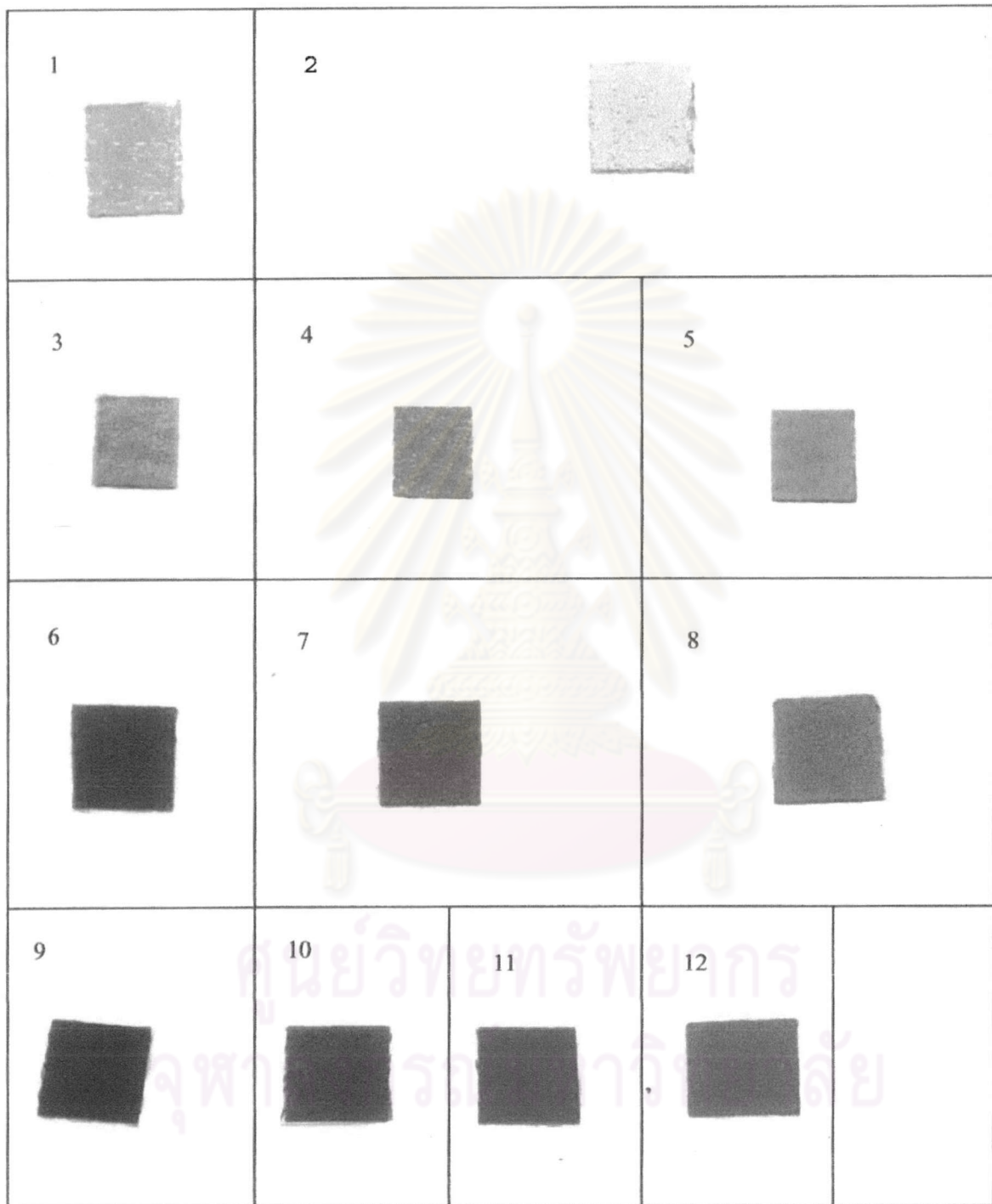


Figure B-2 Color sample of experiment II

**APPENDIX C COLORIMETRIC VALUES AND VISUAL ASSESSMENT  
VALUES.**

**Table C-1** Colorimetric values and visual assessment values (1)

Color Sample	Colorimetric Values				
	a*	b*	L*	C*	h
5R1	3.98	3.78	80.86	5.49	43.56
5R2	14.15	9.17	81.11	16.86	32.94
5R3	3	0.84	71.47	3.12	15.57
5R4	16.31	7.37	70.15	17.9	24.32
5R5	37	17.01	69.74	40.72	24.69
5R6	10.27	3.95	42.35	11	21.04
5R7	26.15	13.16	46.99	29.28	26.71
5R8	51.66	22.82	56.21	56.48	23.83
5R9	10.99	2.49	21.43	11.27	12.77
5R10	29.41	11.31	33.42	31.51	21.04
5R11	44.49	17.04	32.77	47.64	20.96
5R12	62.27	26.06	40.59	67.5	22.71
10R1	5.48	6.89	79.96	8.8	51.49
10R2	10.47	13.42	89.9	17.02	52.03
10R3	3.81	4.16	72.15	5.65	47.51
10R4	23.12	18.69	66.58	29.73	38.95
10R5	29.87	30.14	72.12	42.44	45.26
10R6	10.94	7.93	48.26	13.52	35.93
10R7	22.81	16.47	52.68	28.13	35.82
10R8	46.86	42.58	58.18	63.31	42.26
10R9	7.43	4.52	25.32	8.7	31.33
10R10	27.97	21.05	30.08	32.66	40.13
10R11	42.59	38.08	40.04	57.13	41.8
10R12	58.23	55.72	49.76	80.59	43.74
5YR1	3.53	9.15	74.3	9.81	68.89

**Table C-1** Colorimetric values and visual assessment values (2)

Color	Colorimetric Values				
	a*	b*	L*	C*	h
5YR2	15.22	28.21	79.88	32.06	61.65
5YR3	5.08	7.02	69.66	8.67	54.15
5YR4	14.37	23.29	65.48	27.36	58.33
5YR5	25.72	39.21	77.38	46.89	56.74
5YR6	7.12	8.31	40.98	10.94	49.41
5YR7	21.42	28.84	58.4	35.92	53.4
5YR8	38.26	60.63	59.98	71.69	57.74
5YR9	7.57	6.61	24.7	10.04	41.12
5YR10	21.06	32.45	39.3	38.68	57.02
5YR11	27.1	49.62	51.35	56.54	61.36
5YR12	35.78	56.27	52.99	66.69	57.55
10YR1	1.6	9.07	80.32	9.21	80
10YR2	3.5	20.29	88.16	20.59	80.23
10YR3	2.54	8.21	59.89	8.59	72.78
10YR4	5.4	27.23	66.02	27.76	78.78
10YR5	13.58	57.46	79.15	59.04	76.7
10YR6	4.81	10.71	51.05	11.74	65.83
10YR7	14.86	41.79	53.74	44.35	70.43
10YR8	14.76	89.28	76.44	90.49	80.61
10YR9	3.56	8.44	25.18	9.16	67.13
10YR10	7.22	27.95	40.58	28.87	75.51
5Y1	1.04	13.13	81.48	13.17	85.45
5Y2	-2.04	27.32	88.85	27.4	94.27
5Y3	1.14	9.66	71.45	9.72	43.26
5Y4	-2.59	28.59	79.1	28.71	95.17
5Y5	-2.88	61.05	54.22	61.12	92.7

**Table C-1** Colorimetric values and visual assessment values (3)

Color	Colorimetric Values				
	Sample	a*	b*	L*	C*
5Y6	0.18	13.13	52.04	13.13	89.2
5Y7	-0.76	42.69	60.46	42.7	91.03
5Y8	5.15	73.55	68.59	73.73	85.99
5Y9	0.49	10.14	29.97	10.15	87.23
5Y10	5	47.46	49.84	47.13	83.99
10Y1	-2.27	11.09	78.04	11.32	101.6
10Y2	-7.86	28.92	91.1	29.97	105.2
10Y3	-2.34	5.98	63.55	6.42	111.3
10Y4	-8.09	33.08	70.92	34.06	103.8
10Y5	-14.31	67.91	85.03	69.4	101.9
10Y6	-3.82	13.03	39.49	13.58	106.3
10Y7	-7.6	45.76	68.35	46.39	99.43
10Y8	12.44	89.39	83.1	90.25	97.92
10Y9	-2.14	8.76	25.44	9.02	103.7
10Y10	-7.69	33.85	42.07	34.92	102.8
5GY1	-3.67	9.66	81.27	10.33	110.8
5GY2	-6.56	23.27	87.95	24.17	105.8
5GY3	-4.14	6.75	60.45	7.92	121.5
5GY4	-14.94	30.62	75.95	34.07	116
5GY5	-20.94	49.11	82.57	53.39	113.1
5GY6	-8.59	12.85	51.77	15.46	123.8
5GY7	-17.09	33.73	54.56	37.81	116.9
5GY8	-34.92	79.26	79.01	86.61	113.8
5GY9	-4.96	8.03	30.4	9.44	121.7
5GY10	-16.28	34.5	46.89	38.15	115.3
5GY11	-27.56	68.95	69.24	74.25	111.8

**Table C-1** Colorimetric values and visual assessment values (4)

Color	Colorimetric Values				
	a*	b*	L*	C*	h
5GY12	-37.51	71.9	73.47	81.1	117.5
10GY1	-6.91	4.28	82.52	8.12	148.2
10GY2	-13.06	12.96	88.89	18.4	135.2
10GY3	-6.59	4.25	67.17	7.84	147.2
10GY4	-23.21	17.93	72.81	29.33	142.3
10GY6	-11	9.07	47.37	14.26	140.5
10GY7	-33.57	29.1	62.2	44.43	139.1
10GY9	-7.97	4.91	23.92	9.36	148.4
10GY10	-28.41	20.55	40.11	35.06	144.1
10GY11	-46.54	34.92	53.84	58.19	143.1
5G1	-6.61	5.45	84.11	8.57	140.5
5G2	-10.61	8.02	89.58	13.3	142.9
5G3	-9.9	3.84	75.08	9.69	156.6
5G4	-24.45	8.48	70.39	25.88	160.9
5G6	-6.08	1.42	46.54	6.25	166.9
5G7	-31.76	9.03	56.71	33.02	164.1
5G9	-8.59	1.91	27.38	8.8	167.5
5G10	-32.17	8.28	36.41	33.22	165.6
5G11	-48.82	17.48	43.39	51.85	160.3
10G1	-8.95	3.94	83.39	9.78	156.2
10G2	-21.84	5.49	82.72	22.52	165.9
10G3	-5.99	1.82	73.54	6.26	163.1
10G4	-25.05	4.54	72.85	25.45	169.7
10G6	-5.64	0.67	46.48	5.68	173.3
10G7	-39.96	5.59	63.35	34.42	170.7
10G9	-13.73	2.29	24.03	13.92	170.5

**Table C-1** Colorimetric values and visual assessment values (5)

Color	Colorimetric Values				
Sample	a*	b*	L*	C*	h
10G10	-27.42	3.09	33.79	27.59	173.6
10G11	-43.61	5.17	52.02	43.91	173.2
5BG1	-5.89	1.26	74.69	6.02	167.9
5BG2	-12.03	4.7	84.93	12.91	158.7
5BG3	-7.32	-1.9	63.53	7.57	194.5
5BG4	-23.56	-1.58	68.89	23.62	183.8
5BG6	-10.84	-4.18	41.67	11.61	201.1
5BG7	-34.5	-5.47	55.69	34.93	189
5BG9	-7.36	-2.57	24.64	7.79	199.3
5BG10	-31.99	-6.4	38.19	32.63	191.3
5BG11	-28.65	-5.61	44.52	29.19	191.1
10BG1	-3.17	0.88	78.64	3.29	164.6
10BG2	-18.67	-4.23	81.94	19.15	192.8
10BG3	-4.43	-2.08	60.59	4.89	205.2
10BG4	-22.74	-5.44	73.67	23.38	193.5
10BG6	-8.62	-4.18	44.81	9.58	205.9
10BG7	-29.29	-13.7	52.69	32.34	205.1
10BG9	-7.88	-5.21	27.51	9.45	213.5
10BG10	-27.21	-12.17	39.94	29.81	204.1
5B1	-4.43	-0.65	82.49	4.47	188.3
5B2	-12.3	-4.46	86.73	13.08	199.9
5B3	-3.32	-2.58	60.44	4.2	217.8
5B4	-15.01	-10.86	72.27	18.52	215.9
5B6	-6.95	-6.07	46.74	9.23	221.2
5B7	-18.78	-20.82	53.14	28.04	227.9
5B9	-8.89	-10.53	27.17	3.78	229.8

**Table C-1** Colorimetric values and visual assessment values (6)

Color	Colorimetric Values				
	a*	b*	L*	C*	h
5B10	-12.63	-16.83	32	21.04	233.1
10B1	-2.06	1.11	83.55	2.34	151.7
10B2	-7.21	-9.25	79.82	11.73	232.1
10B3	-2.07	-3.14	67.68	3.77	236.6
10B4	-12.41	-18.88	67.25	22.59	236.7
10B5	-15.67	-22.2	71.83	27.17	234.8
10B6	-4.69	-8.91	44.58	10.07	242.3
10B7	-12.61	-21.61	55.01	25.02	239.7
10B8	-16.13	-34.79	56.13	38.48	245.2
10B9	-2.92	-9.7	24.06	10.13	253.2
10B10	-6.19	-25.81	32.63	26.55	256.5
5PB1	-0.54	-0.08	81.98	0.55	188
5PB2	-2.56	-6.18	81.9	6.69	247.5
5PB3	-0.97	-3.96	64.23	4.07	256.2
5PB4	-1.39	-13.09	62.83	13.17	264
5PB5	-0.83	-27.34	65.63	27.35	268.3
5PB6	-1.04	-5.77	41.27	5.87	259.8
5PB7	2.33	-30.13	45.72	30.22	274.4
5PB8	0.76	-44.63	50.46	44.64	271
5PB9	1.73	-11.23	21.3	11.36	278.8
5PB10	1.11	-27.62	27.5	27.7	272.3
5PB11	6.61	-36.62	29.68	37.21	280.2
5PB12	3.67	-48.98	38.57	49.12	274.3
10PB1	0.24	0.27	78.27	0.36	48.68
10PB2	3.61	-7.16	82.16	8.02	296.8
10PB3	0.73	-2.54	66.61	2.65	286

**Table C-1** Colorimetric values and visual assessment values (7)

<b>Color</b>	<b>Colorimetric Values</b>				
<b>Sample</b>	<b>a*</b>	<b>b*</b>	<b>L*</b>	<b>C*</b>	<b>h</b>
10PB4	4.69	-14.31	69.32	15.06	288.1
10PB5	11.43	-29.95	65.86	32.06	290.9
10PB6	3.11	-5.83	39.09	6.6	298.1
10PB7	12.46	-27.62	36.98	30.31	294.3
10PB8	25.41	-43.31	46.58	50.22	300.4
10PB9	5.59	-10.98	23.13	12.32	297
10PB10	12.52	-24.44	26.29	27.46	297.1
10PB11	24.16	-37.79	31	44.85	302.6
10PB12	30.97	-48.81	31.16	57.81	302.4
5P1	5.59	-2.36	73.8	3.5	317.6
5P2	5.22	-3.91	81.28	6.52	323.2
5P3	1.82	-2.36	60.81	2.98	307.6
5P4	10.87	-11.87	58.62	16.1	312.5
5P5	30.81	-29.12	61.75	42.39	316.6
5P6	5.35	-5.33	38.39	7.55	315.1
5P7	21.31	-22.95	39.02	31.32	312.9
5P8	40.42	-37.98	47.8	55.47	316.8
5P9	5.82	-6.88	22.11	9.01	310.9
5P10	20.66	-19.65	25.87	28.51	316.4
5P11	33.91	-34.95	28.91	48.37	314.5
5P12	45.78	-41.74	30.34	61.95	317.6
10P1	2.26	1.46	81.04	2.69	32.75
10P2	7.32	-0.56	83.36	7.34	355.7
10P3	2.21	-1.09	59.69	2.46	333.8
10P4	13.3	-5.53	68.79	14.4	337.4
10P5	27.56	-10.62	72.76	29.53	338.9



**Table C-1** Colorimetric values and visual assessment values (8)

Color	Colorimetric Values				
	Sample	a*	b*	L*	C*
10P6	3.48	-1.96	40.79	3.99	330.6
10P7	23.87	-15.49	39.42	28.48	327.1
10P8	43.16	-23.31	49.62	49.05	331.6
10P9	8.54	-5.37	27.41	10.09	327.8
10P10	22.89	-12.5	27.03	26.08	331.4
10P11	36.86	-22.76	26.71	43.32	328.3
10P12	57.19	-33.5	32.65	66.28	329.6
5RP1	3.66	3.79	82.55	5.27	46.01
5RP2	9.01	3.07	86.48	9.52	18.78
5RP3	3.92	1.7	58.12	4.27	23.38
5RP4	15.56	-0.12	61.81	15.56	359.5
5RP5	35.21	-0.2	72.11	35.21	359.7
5RP6	12.05	-3.23	33.02	12.47	345
5RP7	30.7	-4.29	40.25	31	352
5RP8	55.26	-2.68	57.36	55.33	357.2
5RP9	9.86	-2.38	26.14	10.14	346.4
5RP10	29.51	-7.24	30.59	30.38	346.8
5RP11	42.03	-12	30.09	43.71	344.1
5RP12	56.38	-8.21	36.79	56.78	351.7
10RP1	3.67	3.72	85.01	5.23	45.37
10RP2	10.75	5.25	86.98	11.96	26.05
10RP3	5.93	1.14	68.77	6.04	10.92
10RP4	17.22	3.44	68.74	17.56	11.3
10RP5	32.37	8.53	66.28	38.34	12.86
10RP6	8.64	1.08	47.13	8.71	7.14
10RP7	25.71	2.64	48.55	25.84	5.87

**Table C-1** Colorimetric values and visual assessment values (9)

Color	Colorimetric Values				
	a*	b*	L*	C*	h
10RP7	25.71	2.64	48.55	25.84	5.87
10RP8	49.3	12.65	56.47	50.9	14.39
10RP9	18.69	-0.87	22.15	18.71	357.3
10RP10	26.82	1.74	32.25	26.88	3.71
10RP11	44.07	3.51	35.76	44.21	4.56
10RP12	62.97	7.46	41.36	63.41	6.76
N1	-0.04	-0.54	17.11	0.55	266.1
N2	0.11	-2.41	20.79	2.41	272.5
N4	0.27	0.13	40.42	0.3	25.3
N6	-0.65	-1.38	60.98	1.52	244.7
N8	-1.32	4.94	82.31	5.11	105
N9.5	-0.56	4.02	93.39	4.06	97.88

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## APPENDIX D QUESTIONNAIRE THE VISUAL EXPERIMENT

### 1. EXPERIMENT I

คำแนะนำ : ในแต่ละรหัสสีพร้อมตัวอย่างสีประกอบที่จัดเรียงทางซ้ายมือ ให้ผู้ประเมินทำการเลือกคำศัพท์ที่เตรียมไว้ให้ โดยกาเครื่องหมาย / ลงในช่องที่ผู้ทำการประเมินคิดว่าคำพ็ทนั้นมีความหมายตรงกับรหัสสีแต่ละสี ซึ่งแต่ละรหัสสีจะมีจำนวนคำศัพท์เท่าไรขึ้นอยู่กับความมาลึกในการรับรู้สีของผู้ทำการประเมิน



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## 2. EXPERIMENT II

คำแนะนำ : ในแต่ละคำศัพท์ที่จัดเรียงทางซ้ายมือ ให้ผู้ประเมินทำการเลือกสีจากชุดตัวอย่างสีที่เตรียมไว้ให้ โดยกาเครื่องหมาย / ลงในช่องที่ผู้ทำการประเมินคิดว่ารหัสสีนั้นมีความหมายตรงกับคำศัพท์แต่ละคำ ซึ่งแต่ละคำศัพท์จะมีจำนวนรหัสสีเท่าไรขึ้นอยู่กับความมาสิ่กในการรับรู้สีของผู้ทำการประเมิน



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## APPENDIX E LIST OF GROUP WORDS AND ASSESSMENT VALUES

**Table E-1** List of group words and assessment values (1)

Group1	สีม่วง	Sawang	Light			
	Sample	a*	b*	L*	C*	h
	5Y5	-2.88	61.05	54.22	61.12	92.7
	10Y8	12.44	89.39	83.1	90.25	97.92
	10Y5	-14.31	67.91	85.03	69.4	101.9
	10YR8	14.76	89.28	76.44	90.49	80.61
	10YR2	3.5	20.29	88.16	20.59	80.23
	10Y2	-7.86	28.92	91.1	29.97	105.2
	10BG2	-18.67	-4.23	81.94	19.15	192.8
	5B2	-12.3	-4.46	86.73	13.08	199.9
	5GY5	-20.94	49.11	82.57	53.39	113.1
	10B5	-15.67	-22.22	71.83	27.17	234.8
	10R5	29.87	30.14	72.12	42.44	45.26
	5YR5	25.72	39.21	77.38	46.89	56.74
	5GY8	-34.92	79.26	79.01	86.61	113.8
	5P5	30.81	-29.12	61.75	42.39	316.6
	5R5	37	17.01	69.74	40.72	24.69
	10P5	27.56	-10.62	72.76	29.53	3338.9
	5RP5	35.21	-0.2	72.11	35.21	359.7
	10YR5	13.58	57.46	79.15	59.04	76.7
	5BG2	-12.03	4.7	84.93	12.91	158.7
	10BG4	-22.74	-5.44	73.67	23.38	193.5
	10PB5	11.43	-29.95	65.63	32.06	290.9

**Table E-1** Lists of group words and assessment values (2)

สด	Fresh	Sod			
Sample	a*	b*	L*	C*	h
5RP8	55.26	-2.68	57.36	55.33	357.2
10YR8	14.76	89.28	76.44	90.49	80.61
10Y8	12.44	89.39	83.1	90.25	97.92
10RP12	62.97	7.46	41.36	63.41	6.76
5R12	62.27	26.06	40.59	67.5	22.71
10B8	-16.13	-34.79	56.13	38.48	245.2
10PB8	25.41	-43.31	46.58	50.22	300.4
10R12	58.23	55.72	49.76	80.59	43.74
5PB8	0.76	-44.63	50.46	44.64	271
5P8	40.42	-37.98	47.8	55.47	316.8
5BG7	-34.5	-5.47	55.69	34.93	189
10R8	46.86	42.58	58.18	63.31	42.26
5Y5	-2.88	61.05	54.22	61.12	92.7
5GY8	-34.92	79.26	79.01	86.61	113.8
10BG7	-29.29	-13.7	52.69	32.34	205.1
10P8	43.16	-23.31	49.62	49.05	331.6
10P12	57.19	-33.5	32.65	66.28	329.6
5GY12	-37.51	71.9	73.47	81.1	117.5
10PB12	30.97	-48.81	31.16	57.81	302.4
5RP12	56.38	-8.21	36.79	56.78	351.7
10G11	-43.61	5.17	52.02	43.91	173.2
5PB12	3.67	-48.98	38.57	49.12	274.3
10Y5	-14.31	67.91	85.03	69.4	101.9



**Table E-1** Lists of group words and assessment values (3)

10GY11	-46.54	34.92	53.84	58.19	143.1
5B7	-18.78	-20.82	53.14	28.04	227.9

ร้อนน	Ron	Warm			
Sample	a*	b*	L*	C*	h
5R12	62.27	26.06	40.59	67.5	22.71
10R12	58.23	55.72	49.76	80.59	43.74
10RP12	62.97	7.46	41.36	63.41	6.76

จ้ด	Jad	Intense			
Sample	a*	b*	L*	C*	h
10PB12	30.97	-48.81	31.16	57.81	302.4
5P12	45.78	-41.74	30.34	61.95	317.6
10P12	57.19	-33.5	32.65	66.28	329.6
5R12	62.27	26.06	40.59	67.5	22.71
5PB12	3.67	-48.98	38.57	49.12	274.3
5RP12	56.38	-8.21	36.79	56.78	351.7
10R12	58.23	55.72	49.76	80.59	43.74
10RP12	62.97	7.46	41.36	63.41	6.76

จู้ดจาด	Chood Chad	Gaudy			
Sample	a*	b*	L*	C*	h
10R12	58.23	55.72	49.76	80.59	43.74
10YR8	14.76	89.28	76.44	90.49	80.61
10P12	57.19	-33.5	32.65	66.28	329.6

**Table E-1** Lists of group words and assessment values (4)

5R12	62.27	26.06	40.59	67.5	22.71
5RP8	55.26	-2.68	57.36	55.33	357.2
10Y8	12.44	89.39	83.1	90.25	97.92
5GY8	-34.92	79.26	79.01	86.61	113.8

จำแนก	Jaem	Shining			
Sample	a*	b*	L*	C*	h
10YR8	14.76	89.28	76.44	90.49	80.61
10PB8	25.41	-43.31	46.58	50.22	300.4
10B8	-16.13	-34.79	56.13	38.48	245.2
10R12	58.23	55.72	49.76	80.59	43.74
10Y8	12.44	89.39	83.1	90.25	97.92
5R12	62.27	26.06	40.59	67.5	22.71
5PB8	0.76	-44.63	50.46	44.64	271
5P8	40.42	-37.98	47.8	55.47	316.8
10PB12	30.97	-48.81	31.16	57.81	302.4
10P8	43.16	-23.31	49.62	49.05	331.6
5PB8	0.76	-44.63	50.46	44.64	271
10RP8	49.3	12.65	56.47	50.9	14.39
5RP12	56.38	-8.21	36.79	56.78	351.7
10R8	46.86	42.58	58.18	63.31	42.26
10RP9	18.69	-0.87	22.15	18.71	357.3
10RP12	62.97	7.46	41.36	63.41	6.76

**Table E-1** Lists of group words and assessment values (5)

จ้า	Jaa	Glaring			
Sample	a*	b*	L*	C*	h
5GY8	-34.92	79.26	79.01	86.61	113.8
10R12	58.23	55.72	49.76	80.59	43.74
10YR8	14.76	89.28	76.44	90.49	80.61
10Y8	12.44	89.39	83.1	90.25	97.92
5RP8	55.26	-2.68	57.36	55.33	357.2
10B8	-16.13	-34.79	56.13	38.48	245.2
10P12	57.19	-33.5	32.65	66.28	329.6

แปร์ด	Paed	Gaudy			
Sample	a*	b*	L*	C*	h
5R12	62.27	26.06	40.59	67.5	22.71
10P12	57.19	-33.5	32.65	66.28	329.6
10Y8	12.44	89.39	83.1	90.25	97.92
5GY8	-34.92	79.26	79.01	86.61	113.8
10R12	58.23	55.72	49.76	80.59	43.74
10YR8	14.76	89.28	76.44	90.49	80.61

แวง	Raeng	Strong			
Sample	a*	b*	L*	C*	h
10R12	58.23	55.72	49.76	80.59	43.74

**Table E-1** Lists of group words and assessment values (6)

แล็บ	Saeb	Penetrating			
Sample	a*	b*	L*	C*	h
10R12	58.23	55.72	49.76	80.59	43.74
10YR8	14.76	89.28	76.44	90.49	80.61

คมชัด	Kom Chad	Apparent			
Sample	a*	b*	L*	C*	h
10PB12	30.97	-48.81	31.16	57.81	302.4
5RP12	56.38	-8.21	36.79	56.78	351.7
10RP12	62.97	7.46	41.36	63.41	6.76
5PB12	3.67	-48.98	38.57	49.12	274.3
5P12	45.78	-41.74	30.34	61.95	317.6
10P12	57.19	-33.5	32.65	66.28	329.6
10YR8	14.76	89.28	76.44	90.49	80.61
10G11	-43.61	5.17	52.02	43.91	173.2
10B8	-16.13	-34.79	56.13	38.48	245.2

เด่น	Den	Striking			
Sample	a*	b*	L*	C*	h
10YR8	14.76	89.28	76.44	90.49	80.61
10B8	-16.13	-34.79	56.13	38.48	245.2
10Y8	12.44	89.39	83.1	90.25	97.92
5GY8	-34.92	79.26	79.01	86.61	113.8
5R12	62.27	26.06	40.59	67.5	22.71
10RP12	62.97	7.46	41.36	63.41	6.76

**Table E-1** Lists of group words and assessment values (7)

10R12	58.23	55.72	49.76	80.59	43.74
10PB8	25.41	-43.31	46.58	50.22	300.4

แจ้	Jae	Luminous			
Sample	a*	b*	L*	C*	h
10R12	58.23	55.72	49.76	80.59	43.74
10YR8	14.76	89.28	76.44	90.49	80.61

แปร้น	Praen	Flashy			
Sample	a*	b*	L*	C*	h
10R12	58.23	55.72	49.76	80.59	43.74
5GY8	-34.92	79.26	79.01	86.61	113.8
10P12	57.19	-33.5	32.65	66.28	329.6

ผ่อง	Pong	Sheer			
Sample	a*	b*	L*	C*	h
10YR8	14.76	89.28	76.44	90.49	80.61
10R5	29.87	30.14	72.12	42.44	45.26
5Y5	-2.88	61.05	54.22	61.12	92.7
10B5	-15.67	-22.2	71.83	27.17	234.8
10P5	27.56	-10.62	72.76	29.53	338.9
5GY5	-20.94	49.11	82.57	53.39	113.1

**Table E-1** Lists of group words and assessment values (8)

เจ็ดจ๋า	Jerd Jar	Distinct			
Sample	a*	b*	L*	C*	h
10R12	58.23	55.72	49.76	80.59	43.74
10Y8	12.44	89.39	83.1	90.25	97.92
10YR8	14.76	89.28	76.44	90.49	80.61
5RP8	55.26	-2.68	57.36	55.33	357.2
5GY8	-34.92	79.26	79.01	86.61	113.8
10R8	46.86	42.58	58.18	63.31	42.26
10B8	-16.13	-34.79	56.13	38.48	245.2
5P8	40.42	-37.98	47.8	55.47	316.8
10P12	57.19	-33.5	32.65	66.28	329.6

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**Table E-1** Lists of group words and assessment values (9)**Group2**

สี มืด	Mued	Dark			
Sample	a*	b*	L*	C*	h
10R9	7.43	4.52	25.32	8.7	31.33
5PB9	1.73	-11.23	21.3	11.36	278.8
5GY9	-4.96	8.03	30.4	9.44	121.7
5P9	5.82	-6.88	22.11	9.01	310.9
10G9	-13.73	2.29	24.03	13.92	170.5
5B9	-8.89	-10.53	27.17	3.78	229.8
10P9	8.54	-5.37	27.41	10.09	327.8
5RP9	9.86	-2.38	26.14	10.14	346.4
10RP9	18.69	-0.87	22.15	18.71	357.3
5R9	10.99	2.49	21.43	11.27	12.77
5Y10	5	47.46	49.84	47.13	83.99
10B9	-2.92	-9.7	24.06	10.13	253.2
5YR9	7.57	6.61	24.7	10.04	41.12
10YR10	7.22	27.95	40.58	28.87	75.51
10GY9	-7.97	4.91	23.92	9.36	148.4
5BG9	-7.36	-2.57	24.64	7.79	199.3
5G9	-8.59	1.91	27.38	8.8	167.5
10BG9	-7.88	-5.21	27.51	9.45	213.5
10PB9	5.59	-10.98	23.13	12.32	297
10Y9	-2.14	8.76	25.44	9.02	103.7
5R6	10.27	3.95	42.35	11	21.04
10PB10	12.52	-24.44	26.29	27.46	297.1

**Table E-1** Lists of group words and assessment values (10)

สี	Tube	Turbid			
Sample	a*	b*	L*	C*	h
10R9	7.43	4.52	25.32	8.7	31.33
5B9	-8.89	-10.53	27.17	3.78	229.8
10RP9	18.69	-0.87	22.15	18.71	357.3
5YR9	7.57	6.61	24.7	10.04	41.12
5Y9	0.49	10.14	29.97	10.15	87.23
5GY9	-4.96	8.03	30.4	9.44	121.7
5R9	10.99	2.49	21.43	11.27	12.77
10BG9	-7.88	-5.21	27.51	9.45	213.5
5PB9	1.73	-11.23	21.3	11.36	278.8
5RP9	9.86	-2.38	26.14	10.14	346.4
10G9	-13.73	2.29	24.03	13.92	170.5
10GY9	-7.97	4.91	23.92	9.36	148.4
10BG6	-8.62	-4.18	44.81	9.58	205.9
5PB10	1.11	-27.62	27.5	27.7	272.3
10Y6	-3.82	13.03	39.49	13.58	106.3
10B9	-2.92	-9.7	24.06	10.13	253.2
10PB9	5.59	-10.98	23.13	12.32	297
10PB10	12.52	-24.44	26.29	27.46	297.1
5R6	10.27	3.95	42.35	11	21.04
10Y9	-2.14	8.76	25.44	9.02	103.7
5BG9	-7.36	-2.57	24.64	7.79	199.3
5P10	20.66	-19.65	25.87	28.51	316.4
10P10	22.89	-12.5	27.03	26.08	331.4



**Table E-1** Lists of group words and assessment values (11)

5R10	29.41	11.31	33.42	31.51	21.04
5G9	-8.59	1.91	27.38	8.8	167.5
5BG10	-31.99	-6.4	38.19	32.63	191.3
5B10	-12.63	-16.83	32	21.04	233.1
5YR10	21.06	32.45	39.3	38.68	57.02
10G6	-5.64	0.67	46.48	5.68	173.3
5BG6	-10.84	-4.18	41.67	11.61	201.1
5YR6	7.12	8.31	40.98	10.94	49.41
10B6	-4.69	-8.91	44.58	10.07	242.3
10B10	-6.19	-25.81	32.63	26.55	256.5

กลุ่ม	Tuem	Dim			
Sample	a*	b*	L*	C*	h
10R6	10.94	7.93	48.26	13.52	35.93
5BG6	-10.84	-4.18	41.67	11.61	201.1
5B6	-6.95	-6.07	46.74	9.23	221.2
5YR6	7.12	8.31	40.98	10.94	49.41
10GY6	-11	9.07	47.37	14.26	140.5
10G6	-5.64	0.67	46.48	5.68	173.3
10BG6	-8.62	-4.18	44.81	9.58	205.9
10YR6	4.81	10.71	51.05	11.74	65.83
10B6	-4.69	-8.91	44.58	10.07	242.3
10Y7	-7.6	45.76	68.35	46.39	99.43
5YR9	7.57	6.61	24.7	10.04	41.12
5Y9	0.49	10.14	29.97	10.15	87.23

**Table E-1** Lists of group words and assessment values (12)

5PB6	-1.04	-5.77	41.27	5.87	259.8
10P6	3.48	-1.96	40.79	3.99	330.6
10P9	8.54	-5.37	27.41	10.09	327.8
10RP10	26.82	1.74	32.25	26.88	3.71
10PB6	3.11	-5.83	39.09	6.6	298.1

ขมุกขมัว	Ka Muk Ka Mou	Vague			
Sample	a*	b*	L*	C*	h
10BG1	-3.17	0.88	78.64	3.29	164.6

ทึมน	Ta Muen	Dark			
Sample	a*	b*	L*	C*	h
5YR9	7.57	6.61	24.7	10.04	41.12
5R9	10.99	2.49	21.43	11.27	12.77
10R8	46.86	42.58	58.18	63.31	42.26
10B9	-2.92	-9.7	24.06	10.13	253.2
5BG9	-7.36	-2.57	24.64	7.79	199.3
10YR9	3.56	8.44	25.18	9.16	67.13
5Y9	0.49	10.14	29.97	10.15	87.23
10Y9	-2.14	8.76	25.44	9.02	103.7
5RP9	9.86	-2.38	26.14	10.14	346.4
5GY9	-4.96	8.03	30.4	9.44	121.7
10BG9	-7.88	-5.21	27.51	9.45	213.5
10PB9	5.59	-10.98	23.13	12.32	297
10P9	8.54	-5.37	27.41	10.09	327.8

**Table E-1** Lists of group words and assessment values (13)

10RP9	18.69	-0.87	22.15	18.71	357.3
10GY9	-7.97	4.91	23.92	9.36	148.4
10G9	-13.73	2.29	24.03	13.92	170.5
5PB9	1.73	-11.23	21.3	11.36	278.8
5B9	-8.89	-10.53	27.17	3.78	229.8

ครีม	Kruem	Gloomy			
Sample	a*	b*	L*	C*	h
10GY6	-11	9.07	47.37	14.26	140.5
5BG6	-10.84	-4.18	41.67	11.61	201.1
10P6	3.48	-1.96	40.79	3.99	330.6

คล้ำ	Klam	Dark			
Sample	a*	b*	L*	C*	h
5R6	10.27	3.95	42.35	11	21.04

**Group3**

หวาน	Wann	Velvety			
Sample	a*	b*	L*	C*	h
10P5	27.56	-10.62	72.76	29.53	338.9
5R5	37	17.01	69.74	40.72	24.69
10BG2	-18.67	-4.23	81.94	19.15	192.8
5B2	-12.3	-4.46	86.73	13.08	199.9
10R2	10.47	13.42	89.9	17.02	52.03
5RP5	35.21	-0.2	72.11	35.21	359.7

**Table E-1** Lists of group words and assessment values (14)

10G2	-21.84	5.49	82.72	22.52	165.9
10B5	-15.67	-22.2	71.83	27.17	234.8
5PB5	-0.83	-27.34	65.63	27.35	268.3

เย็น	Yen	Cool			
Sample	a*	b*	L*	C*	h
10R2	10.47	13.42	89.9	17.02	52.03
10BG2	-18.67	-4.23	81.94	19.15	192.8
10Y2	-7.86	28.92	91.1	29.97	105.2
5B2	-12.3	-4.46	86.73	13.08	199.9
10B2	-7.21	-9.25	79.82	11.73	232.1
10RP2	10.75	5.25	86.98	11.96	26.05
5GY2	-6.56	23.27	87.95	24.17	105.8
10GY2	-13.06	12.96	88.89	18.4	135.2
5BG2	-12.03	4.7	84.93	12.91	158.7
5Y2	-2.04	27.32	88.85	27.4	94.27

นวล	Nual	Creamy			
Sample	a*	b*	L*	C*	h
10Y2	-7.86	28.92	91.1	29.97	105.2
5Y2	-2.04	27.32	88.85	27.4	94.27
5GY2	-6.56	23.27	87.95	24.17	105.8
10R2	10.47	13.42	89.9	17.02	52.03
10GY2	-13.06	12.96	88.89	18.4	135.2
5BG2	-12.03	4.7	84.93	12.91	158.7

**Table E-1** Lists of group words and assessment values (15)

5B2	-12.3	-4.46	86.73	13.08	199.9
5RP2	9.01	3.07	86.48	9.52	18.78
10YR2	3.5	20.29	88.16	20.59	80.23
10BG2	-18.67	-4.23	81.94	19.15	192.8
5G2	-10.61	8.02	89.58	13.3	142.9
10P2	7.32	-0.56	83.36	7.34	355.7
5YR2	15.22	28.21	79.88	32.06	61.65
10B2	-7.21	-9.25	79.82	11.73	232.1

ໂປ່ງ	Prong	Transparent			
Sample	a*	b*	L*	C*	h
10Y2	-7.86	28.92	91.1	29.97	105.2
10R2	10.47	13.42	89.9	17.02	52.03
10GY2	-13.06	12.96	88.89	18.4	135.2
5Y2	-2.04	27.32	88.85	27.4	94.27
5BG2	-12.03	4.7	84.93	12.91	158.7
5B2	-12.3	-4.46	86.73	13.08	199.9
5YR2	15.22	28.21	79.88	32.06	61.65
10YR2	3.5	20.29	88.16	20.59	80.23
5GY2	-6.56	23.27	87.95	24.17	105.8
10BG2	-18.67	-4.23	81.94	19.15	192.8
5RP2	9.01	3.07	86.48	9.52	18.78

**Table E-1** Lists of group words and assessment values (16)

ประเภท	Bow	Light			
Sample	a*	b*	L*	C*	h
10R2	10.47	13.42	89.9	17.02	52.03
10GY2	-13.06	12.96	88.89	18.4	135.2
10P2	7.32	-0.56	83.36	7.34	355.7
10YR2	3.5	20.29	88.16	20.59	80.23
10Y2	-7.86	28.92	91.1	29.97	105.2
5RP2	9.01	3.07	86.48	9.52	18.78
5Y2	-2.04	27.32	88.85	27.4	94.27
5GY2	-6.56	23.27	87.95	24.17	105.8
5BG2	-12.03	4.7	84.93	12.91	158.7
10BG2	-18.67	-4.23	81.94	19.15	192.8
10RP2	10.75	5.25	86.98	11.96	26.05
5G2	-10.61	8.02	89.58	13.3	142.9
5B2	-12.3	-4.46	86.73	13.08	199.9
5PB2	-2.56	-6.18	81.9	6.69	247.5
10RP1	3.67	3.72	85.01	5.23	45.37
5Y1	1.04	13.13	81.48	13.17	85.45
10B2	-7.21	-9.25	79.82	11.73	232.1
5P2	5.22	-3.91	81.28	6.52	323.2
10PB2	3.61	-7.16	82.16	8.02	296.8

**Table E-1** Lists of group words and assessment values (17)

นิ่ง	Ning	Motionless			
Sample	a*	b*	L*	C*	h
5Y2	-2.04	27.32	88.85	27.4	94.27

เนียน	Nian	Smooth			
Sample	a*	b*	L*	C*	h
10R2	10.47	13.42	89.9	17.02	52.03
5Y2	-2.04	27.32	88.85	27.4	94.27
5B2	-12.3	-4.46	86.73	13.08	199.9
10Y2	-7.86	28.92	91.1	29.97	105.2

สงบนิ่ง	Sa Ngob Ning	Passive			
Sample	a*	b*	L*	C*	h
10YR3	2.54	8.21	59.89	8.59	72.78

นุ่ม	Num	Soft			
Sample	a*	b*	L*	C*	h
5RP2	9.01	3.07	86.48	9.52	18.78
10B2	-7.21	-9.25	79.82	11.73	232.1
5BG2	-12.03	4.7	84.93	12.91	158.7
10Y2	-7.86	28.92	91.1	29.97	105.2
5GY2	-6.56	23.27	87.95	24.17	105.8
10RP2	10.75	5.25	86.98	11.96	26.05
5YR2	15.22	28.21	79.88	32.06	61.65

**Table E-1** Lists of group words and assessment values (18)

ชนิด	Seed	Subdued			
Sample	a*	b*	L*	C*	h
10R2	10.47	13.42	89.9	17.02	52.03
5R1	3.98	3.78	80.86	5.49	43.56
5P2	5.22	-3.91	81.28	6.52	323.2
5PB2	-2.56	-6.18	81.9	6.69	247.5
5GY2	-6.56	23.27	87.95	24.17	105.8
10P2	7.32	-0.56	83.36	7.34	355.7
10YR2	3.5	20.29	88.16	20.59	80.23
10Y2	-7.86	28.92	91.1	29.97	105.2
10PB2	3.61	-7.16	82.16	8.02	296.8
10YR1	1.6	9.07	80.32	9.21	80
10RP2	10.75	5.25	86.98	11.96	26.05
5YR2	15.22	28.21	79.88	32.06	61.65
5BG2	-12.03	4.7	84.93	12.91	158.7

จาง	Jang	Pale			
Sample	a*	b*	L*	C*	h
10R2	10.47	13.42	89.9	17.02	52.03
5P2	5.22	-3.91	81.28	6.52	323.2
10YR2	3.5	20.29	88.16	20.59	80.23
5PB2	-2.56	-6.18	81.9	6.69	247.5
10P2	7.32	-0.56	83.36	7.34	355.7
10PB2	3.61	-7.16	82.16	8.02	296.8



**Table E-1** Lists of group words and assessment values (19)

พัว	Praa	Blurry			
Sample	a*	b*	L*	C*	h
5R1	3.98	3.78	80.86	5.49	43.56

จืด	Jued	Colorless			
Sample	a*	b*	L*	C*	h
5R2	14.15	9.17	81.11	16.86	32.94
10R2	10.47	13.42	89.9	17.02	52.03
10P2	7.32	-0.56	83.36	7.34	355.7
5P2	5.22	-3.91	81.28	6.52	323.2
5Y1	1.04	13.13	81.48	13.17	85.45
5GY2	-6.56	23.27	87.95	24.17	105.8
10Y2	-7.86	28.92	91.1	29.97	105.2
5Y2	-2.04	27.32	88.85	27.4	94.27
5PB2	-2.56	-6.18	81.9	6.69	247.5
10RP2	10.75	5.25	86.98	11.96	26.05
5YR2	15.22	28.21	79.88	32.06	61.65

จางจาง	Jang Jang	Faded			
Sample	a*	b*	L*	C*	h
10Y2	-7.86	28.92	91.1	29.97	105.2

อ่อนแอ	Oan Aer	Weak			
Sample	a*	b*	L*	C*	h
5P2	5.22	-3.91	81.28	6.52	323.2

**Table E-1** Lists of group words and assessment values (20)

5R1	3.98	3.78	80.86	5.49	43.56
10R2	10.47	13.42	89.9	17.02	52.03
10YR2	3.5	20.29	88.16	20.59	80.23
10Y2	-7.86	28.92	91.1	29.97	105.2
10P2	7.32	-0.56	83.36	7.34	355.7
5RP2	9.01	3.07	86.48	9.52	18.78
5R2	14.15	9.17	81.11	16.86	32.94
5YR2	15.22	28.21	79.88	32.06	61.65
10B2	-7.21	-9.25	79.82	11.73	232.1
10RP2	10.75	5.25	86.98	11.96	26.05

ฟ้า	Nao	Discolored			
Sample	a*	b*	L*	C*	h
5GY10	-16.28	34.5	46.89	38.15	115.3

แปรง	Praeng	Out Of Tone			
Sample	a*	b*	L*	C*	h
5Y10	5	47.46	49.84	47.13	83.99

ซี	Cham	Dirty			
Sample	a*	b*	L*	C*	h
10YR4	5.4	27.23	66.02	27.76	78.78
10YR10	7.22	27.95	40.58	28.87	75.51
10Y4	-8.09	33.08	70.92	34.06	103.8
10Y7	-7.6	45.76	68.35	46.39	99.43

**Table E-1** Lists of group words and assessment values (21)

คล้ายใส	Klam Sai	Oily Dark			
Sample	a*	b*	L*	C*	h
10R3	3.81	4.16	72.15	5.65	47.51
5GY7	-17.09	33.73	54.56	37.81	116.9
5P4	10.87	-11.87	58.62	16.1	312.5
10RP4	17.22	3.44	68.74	17.56	11.3

บริสุทธิ์	Bo Ri Sood	Pure			
Sample	a*	b*	L*	C*	h
5BG2	-12.03	4.7	84.93	12.91	158.7

เรียบ	Reab	Plain			
Sample	a*	b*	L*	C*	h
10R2	10.47	13.42	89.9	17.02	52.03
5GY2	-6.56	23.27	87.95	24.17	105.8
5B2	-12.3	-4.46	86.73	13.08	199.9

ใส	Sai	Clear			
Sample	a*	b*	L*	C*	h
10P5	27.56	-10.62	72.76	29.53	338.9
5Y5	-2.88	61.05	54.22	61.12	92.7
10B5	-15.67	-22.2	71.83	27.17	234.8
5B2	-12.3	-4.46	86.73	13.08	199.9
5RP5	35.21	-0.2	72.11	35.21	359.7
5BG2	-12.03	4.7	84.93	12.91	158.7

**Table E-1** Lists of group words and assessment values (22)

10R5	29.87	30.14	72.12	42.44	45.26
10Y2	-7.86	28.92	91.1	29.97	105.2
5GY8	-34.92	79.26	79.01	86.61	113.8
10YR8	14.76	89.28	76.44	90.49	80.61
10Y8	12.44	89.39	83.1	90.25	97.92

สี	Sai	Clear			
Sample	a*	b*	L*	C*	h
10B2	-7.21	-9.25	79.82	11.73	232.1
10RP2	10.75	5.25	86.98	11.96	26.05
5Y2	-2.04	27.32	88.85	27.4	94.27
5GY5	-20.94	49.11	82.57	53.39	113.1

**Group4**

สี	Khem	Deep			
Sample	a*	b*	L*	C*	h
10R10	27.97	21.05	30.08	32.66	40.13
10B10	-6.19	-25.81	32.63	26.55	256.5
5BG10	-31.99	-6.4	38.19	32.63	191.3
10BG10	-27.21	-12.17	39.94	29.81	204.1
5B10	-12.63	-16.83	32	21.04	233.1
5PB11	6.61	-36.62	29.68	37.21	280.2
5RP11	42.03	-12	30.09	43.71	344.1
10R9	7.43	4.52	25.32	8.7	31.33
5YR9	7.57	6.61	24.7	10.04	41.12

**Table E-1** Lists of group words and assessment values (23)

5G10	-32.17	8.28	36.41	33.22	165.6
5PB10	1.11	-27.62	27.5	27.7	272.3
10G10	-27.42	3.09	33.79	27.59	173.6
5P11	33.91	-34.95	28.91	48.37	314.5
5YR10	21.06	32.45	39.3	38.68	57.02
5BG9	-7.36	-2.57	24.64	7.79	199.3
10P11	36.86	-22.76	26.71	43.32	328.3
10RP10	26.82	1.74	32.25	26.88	3.71
5R9	10.99	2.49	21.43	11.27	12.77
10YR9	3.56	8.44	25.18	9.16	67.13
10Y9	-2.14	8.76	25.44	9.02	103.7
5BG11	-28.65	-5.61	44.52	29.19	191.1
10PB12	30.97	-48.81	31.16	57.81	302.4
10P10	22.89	-12.5	27.03	26.08	331.4
5RP10	29.51	-7.24	30.59	30.38	346.8
5R11	44.49	17.04	32.77	47.64	20.96
10G9	-13.73	2.29	24.03	13.92	170.5
10PB10	12.52	-24.44	26.29	27.46	297.1
5R10	29.41	11.31	33.42	31.51	21.04
10R6	10.94	7.93	48.26	13.52	35.93
10R11	42.59	38.08	40.04	57.13	41.8
10Y6	-3.82	13.03	39.49	13.58	106.3
5P10	20.66	-19.65	25.87	28.51	316.4
10RP9	18.69	-0.87	22.15	18.71	357.3

**Table E-1** Lists of group words and assessment values (24)

คำ	Kae	Deep			
Sample	a*	b*	L*	C*	h
5R9	10.99	2.49	21.43	11.27	12.77
10G10	-27.42	3.09	33.79	27.59	173.6
5YR10	21.06	32.45	39.3	38.68	57.02
5BG10	-31.99	-6.4	38.19	32.63	191.3
5PB10	1.11	-27.62	27.5	27.7	272.3
10RP10	26.82	1.74	32.25	26.88	3.71
10R9	7.43	4.52	25.32	8.7	31.33
10Y9	-2.14	8.76	25.44	9.02	103.7
5B9	-8.89	-10.53	27.17	3.78	229.8
10P11	36.86	-22.76	26.71	43.32	328.3
5R11	44.49	17.04	32.77	47.64	20.96
10R10	27.97	21.05	30.08	32.66	40.13
5YR9	7.57	6.61	24.7	10.04	41.12
10YR9	3.56	8.44	25.18	9.16	67.13
10BG9	-7.88	-5.21	27.51	9.45	213.5
10BG10	-27.21	-12.17	39.94	29.81	204.1
5B10	-12.63	-16.83	32	21.04	233.1
10P10	22.89	-12.5	27.03	26.08	331.4
5RP11	42.03	-12	30.09	43.71	344.1
5R10	29.41	11.31	33.42	31.51	21.04
10YR10	7.22	27.95	40.58	28.87	75.51
5G10	-32.17	8.28	36.41	33.22	165.6
10B10	-6.19	-25.81	32.63	26.55	256.5

**Table E-1** Lists of group words and assessment values (25)

10PB10	12.52	-24.44	26.29	27.46	297.1
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ชื่อ	Kon	Condensed			
Sample	a*	b*	L*	C*	h
10G10	-27.42	3.09	33.79	27.59	173.6
5BG10	-31.99	-6.4	38.19	32.63	191.3
5RP11	42.03	-12	30.09	43.71	344.1
5B9	-8.89	-10.53	27.17	3.78	229.8
5PB10	1.11	-27.62	27.5	27.7	272.3
10P10	22.89	-12.5	27.03	26.08	331.4
10R10	27.97	21.05	30.08	32.66	40.13
5YR10	21.06	32.45	39.3	38.68	57.02
5RP10	29.51	-7.24	30.59	30.38	346.8

ชื่อ	Khem Kang	Strong			
Sample	a*	b*	L*	C*	h
5Y9	0.49	10.14	29.97	10.15	87.23
5BG9	-7.36	-2.57	24.64	7.79	199.3
10R9	7.43	4.52	25.32	8.7	31.33
5YR9	7.57	6.61	24.7	10.04	41.12
10R10	27.97	21.05	30.08	32.66	40.13
5Y9	0.49	10.14	29.97	10.15	87.23
5B9	-8.89	-10.53	27.17	3.78	229.8
10P10	22.89	-12.5	27.03	26.08	331.4
5RP11	42.03	-12	30.09	43.71	344.1

**Table E-1** Lists of group words and assessment values (26)

5R12	62.27	26.06	40.59	67.5	22.71
10G10	-27.42	3.09	33.79	27.59	173.6
5PB10	1.11	-27.62	27.5	27.7	272.3
5R9	10.99	2.49	21.43	11.27	12.77
10YR9	3.56	8.44	25.18	9.16	67.13
5BG10	-31.99	-6.4	38.19	32.63	191.3
5PB11	6.61	-36.62	29.68	37.21	280.2
5P10	20.66	-19.65	25.87	28.51	316.4
5RP10	29.51	-7.24	30.59	30.38	346.8

เคลือบผิว	Kloen Wai	Dynamic			
Sample	a*	b*	L*	C*	h
5R8	51.66	22.82	56.21	56.48	23.83

แข็ง	Kang	Hard			
Sample	a*	b*	L*	C*	h
5B9	-8.89	-10.53	27.17	3.78	229.8
10R9	7.43	4.52	25.32	8.7	31.33
10PB9	5.59	-10.98	23.13	12.32	297
10Y9	-2.14	8.76	25.44	9.02	103.7
5BG9	-7.36	-2.57	24.64	7.79	199.3
10B9	-2.92	-9.7	24.06	10.13	253.2
5R9	10.99	2.49	21.43	11.27	12.77
5GY9	-4.96	8.03	30.4	9.44	121.7
10BG9	-7.88	-5.21	27.51	9.45	213.5



**Table E-1** Lists of group words and assessment values (27)

10G9	-13.73	2.29	24.03	13.92	170.5
หน้า	Nuck	Heavy			
Sample	a*	b*	L*	C*	h
10R9	7.43	4.52	25.32	8.7	31.33
5R9	10.99	2.49	21.43	11.27	12.77
10Y9	-2.14	8.76	25.44	9.02	103.7
10B9	-2.92	-9.7	24.06	10.13	253.2
10BG9	-7.88	-5.21	27.51	9.45	213.5
5B9	-8.89	-10.53	27.17	3.78	229.8
5PB9	1.73	-11.23	21.3	11.36	278.8
10YR9	3.56	8.44	25.18	9.16	67.13
10G9	-13.73	2.29	24.03	13.92	170.5
5BG9	-7.36	-2.57	24.64	7.79	199.3
10RP9	18.69	-0.87	22.15	18.71	357.3
5YR9	7.57	6.61	24.7	10.04	41.12
10GY9	-7.97	4.91	23.92	9.36	148.4
5BG10	-31.99	-6.4	38.19	32.63	191.3
5Y9	0.49	10.14	29.97	10.15	87.23
5RP11	42.03	-12	30.09	43.71	344.1
5B10	-12.63	-16.83	32	21.04	233.1
10B10	-6.19	-25.81	32.63	26.55	256.5
5R10	29.41	11.31	33.42	31.51	21.04
5GY9	-4.96	8.03	30.4	9.44	121.7
5G9	-8.59	1.91	27.38	8.8	167.5

**Table E-1** Lists of group words and assessment values (28)

5PB10	1.11	-27.62	27.5	27.7	272.3
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**Group5**

วาว	Wow	Sparkling			
Sample	a*	b*	L*	C*	h
5Y1	1.04	13.13	81.48	13.17	85.45
10YR1	1.6	9.07	80.32	9.21	80

แว้ง	Rua	Pale			
Sample	a*	b*	L*	C*	h
10P2	7.32	-0.56	83.36	7.34	355.7
10RP2	10.75	5.25	86.98	11.96	26.05

เหวี่ยง	Luab	Glassy brush color			
Sample	a*	b*	L*	C*	h
5R4	16.31	7.37	70.15	17.9	24.32
10Y7	-7.6	45.76	68.35	46.39	99.43

ประกาย	Pra Kay	Glittering			
Sample	a*	b*	L*	C*	h
5P5	30.81	-29.12	61.75	42.39	316.6

**Table E-1** Lists of group words and assessment values (29)

มัน	Mann	Oily			
Sample	a*	b*	L*	C*	h
10YR1	1.6	9.07	80.32	9.21	80

เลื่อม	Luam	Shiny			
Sample	a*	b*	L*	C*	h
10Y7	-7.6	45.76	68.35	46.39	99.43
5RP1	3.66	3.79	82.55	5.27	46.01

แพรวพราว	Praew Prao	Colorful			
Sample	a*	b*	L*	C*	h
5RP8	55.26	-2.68	57.36	55.33	357.2

ชุ่ม	Cham	Moist			
Sample	a*	b*	L*	C*	h
5RP8	55.26	-2.68	57.36	55.33	357.2

อิม	Oim	Rich			
Sample	a*	b*	L*	C*	h
10B8	-16.13	-34.79	56.13	38.48	245.2
10YR8	14.76	89.28	76.44	90.49	80.61

**Table E-1** Lists of group words and assessment values (30)**Group6**

แห้ง	Haeng	Dry			
Sample	a*	b*	L*	C*	h
10BG10	-27.21	-12.17	39.94	29.81	204.1

ด้าน	Dann	Dull			
Sample	a*	b*	L*	C*	h
10R9	7.43	4.52	25.32	8.7	31.33

กระด้าง	Kar dang	Rough			
Sample	a*	b*	L*	C*	h
10YR10	7.22	27.95	40.58	28.87	75.51
5PB9	1.73	-11.23	21.3	11.36	278.8

หมอง	Mong	Dark Grey			
Sample	a*	b*	L*	C*	h
10RP1	3.67	3.72	85.01	5.23	45.37

ขุ่น	Koon	Mucky			
Sample	a*	b*	L*	C*	h
10B3	-2.07	-3.14	67.68	3.77	236.6
10PB3	0.73	-2.54	66.61	2.65	286
5R3	3	0.84	71.47	3.12	15.57
5YR3	5.08	7.02	69.66	8.67	54.15
10BG1	-3.17	0.88	78.64	3.29	164.6

**Table E-1** Lists of group words and assessment values (31)

5P3	1.82	-2.36	60.81	2.98	307.6
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ตุ่น	Tun	Grayish			
Sample	a*	b*	L*	C*	h
5R4	16.31	7.37	70.15	17.9	24.32
5PB3	-0.97	-3.96	64.23	4.07	256.2
10R6	10.94	7.93	48.26	13.52	35.93

หม่น	Mon	Somber			
Sample	a*	b*	L*	C*	h
5R3	3	0.84	71.47	3.12	15.57
5BG1	-5.89	1.26	74.69	6.02	167.9

มัว	Mou	Dusky			
Sample	a*	b*	L*	C*	h
10BG1	-3.17	0.88	78.64	3.29	164.6
10Y3	-2.34	5.98	63.55	6.42	111.3

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

## VITA

Mr. Olarn Promsaka Na Sakolnakorn was born on October 1, 1977 in Bangkok, Thailand. He received his B.Sc.degree in Science from the Faculty of Agro-Industry, Kasetsart University in 1998, and he has been a graduate student in the Imaging Technology Program, Graduate school, Chulalongkorn University since 1999.



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย