CHAPTER 4

RESULT AND DISCUSSION

For this chapter. The data was summarized in table 3-2 and 3-3. The SPSS for Window version 9.8 was applied. Data from table 3-2 and 3-3 was used in the statistical model. Dependent variable, PROB, was the result of independent variable, MI and Illumination respecively. Statistical results will be carried out at confident interval = 0.05

4.1 Case I Customer Observer

Statistical result of customer is shown in table 4-1. We can write the result in equation term as follow :

$$\underset{}{PROB} = \underset{(33.528)}{1.579} - \underset{(-14.933)}{0.0003116}\ ILLUM - \underset{(-19.407)}{0.893}\ MI \quad ...(4.1)$$

Where ILLUM : Illumination, Units = lux

MI : Mottle Index, value

PROB : Accepted to total ratio (between good printing result/total population)

The tables in parentesis was t-statistic. From the t-table which we use degree of freedom equal to 137 (n-k-1).

Hypothesis testing for dependent variable (see Appendix C) show that t-value from the t-table at the level of significant = 95%, $t_{0.95,\ 137} = 1.64$. The data which gain from the table, 1.64, lower than the t-statisties results from calculation in absolute value comparing with 33.528, 14.933 and 19.407. This result can prove that MI

and ILLUM have significantly relevant to the prediction of customer's perception, or $H_1 \neq 0$.

F-test (see Appendix D), Hypothesis test for F-test, $F_{0.95, k, n-k-1}$, $F_{0.95, 2, 137}$ from F-table equal to 3.00 the data from model F = 299.824 so we can prove that at least 1 independent variable have relationship with PROB.

The R^2 shown that MI and ILLUM can explain PROB at 0.81

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	ILLUM, MI[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: PROB

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902[a]	.814	.811	.1416

a. Predictors: (Constant), ILLUM, MI

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.016	2	6.008	299.824	.000[a]
	Residual	2.745	137	2.004E-02		
	Total	14.761	139			

a. Predictors: (Constant), ILLUM, MI

b. Dependent Variable: PROB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.579	.047		33.528	.000
	MI	-.893	.060	-.550	-14.933	.000
	ILLUM	-3.116E-04	.000	-.715	-19.407	.000

a. Dependent Variable: PROB

Table 4-1 Customer statistical result

4.2 Case II Printer Observer

Statistical result of printer is shown in table 4-2. We can write the result in equation term as follow :

$$\underset{}{PROB} = \underset{(34.558)}{1.327} - \underset{(-11.361)}{0.0003412}\ ILLUM - \underset{(-26.067)}{0.554}\ MI \quad ...(4.2)$$

Where ILLUM : Illumination, Units = lux

MI : Mottle Index, value

PROB : Accepted to total ratio (between good printing result/total population)

The tables in parentesis was t-statistic. From the t-table which we use degree of freedom equal to 137 (n-k-1).

t-test from t-table, $t_{0.95,\ 137} = 1.64$ the data gain from calculation result is higher than data from the table, than mean MI and ILLUM have significantly relationship with printer's perception.

F-test, for $F_{0.95,\ 2,\ 137}$ from F-table equal to 3.00, and the F from the model = 404.282. So we can, again, prove that at least 1 independent variable, either MI or ILLUM have significantly relationship with PROB.

The R^2 shown that MI and ILLUM can explain PROB at 0.85

Regression

Variables Entered/Removed[b]

Model	Variables Entered	Variables Removed	Method
1	ILLUM, MI[a]	.	Enter

a. All requested variables entered.

b. Dependent Variable: PROB

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.925[a]	.855	.853	.1154

a. Predictors: (Constant), ILLUM, MI

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.768	2	5.384	404.282	.000[a]
	Residual	1.824	137	1.332E-02		
	Total	12.592	139			

a. Predictors: (Constant), ILLUM, MI

b. Dependent Variable: PROB

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.327	.038		34.558	.000
	MI	-.554	.049	-.369	-11.361	.000
	ILLUM	-3.412E-04	.000	-.848	-26.067	.000

a. Dependent Variable: PROB

Table 4-2 Printer statistical result

From case I and II, statistical analysis shown that PROB (accepted ratio) has negative result with illumination and MI-RANK. It was, therefore, shown that human can notice the incomplete of solid tone more or less up on the light (Illumination) and result of mottle index. The negative sign shown that if illumination is high, human can notice the in complete more, so the chance to refuse the quality is also high. We can write the empirical result in the Figure 4-1 as follow :

	Illumination		**MI**	
	HIGH	**LOW**	**HIGH**	**LOW**
Accept		✓		✓
Refuse	✓		✓	

Figure 4-1 Accepted ratio of customer and printer results

The results from the equation 4.1 and 4.2 confirm that human accept solid tone print quality negatively, depending on illumination and mottle index. The equation also stated that the actual quality of printing (Mottle Index) has more effect of the acceptance of human than the illumination by comparing between -0.893/0.0003116 and -0.554/0.0003412. The results are also implied that the quality of printing is the most important factor for the acceptance of human.