ABSTRACT

PT.Telkomsel as one of the players in Indonesia ICT is always trying to keep the good competition with the competitors, and in order to give attention for Quality of Service aspects to win the competition and to give a worth guarantee for its customers, have to concern in Quality of Service of UMTS network. One of the most important parts in UMTS architecture is Node B. If Node B down, will cause the loss of potential revenue even earn to result the loss of consumer belief. Therefore be required an efficient and effective maintenance method so that could keep condition of Node B remain to be good.

In order to improve the Quality of Service of cellular phone, qualitative and quantitative analytic are done. Qualitative analytic is done by using Reliability Centered Maintenance (RCM) to determine a proper preventive maintenance task for each component based on its reliability characteristic. In RCM method, several stage of analysis is done such as: system selection and information collection system description, function and functional damage, failure mode and functional damage, logic tree analysis and task selection. Quantitative analytic is done to determine time interval of inspection by using Risk Based Inspection (RBI) Method. Qualitative analytic in this research is only done for critical arranger component of Node B and the task done is based on qualitative analysis.

Result get from qualitative analysis by using RCM method for arranger component for Node B in deciding preventive maintenance policy are 15 *Condition Directed* task, 3 *failure finding*, 0 *Time directed*, and 1 *Run to Failure* components. Whereas, based on quantitative analysis, are determined 3 most critical components, they are WTR, WSP, andn RAU. Inspection for WTR are done on 4^{th} day, WSP on 3^{rd} day, and RAU on 2^{nd} day.

From data-processing result, be obtained the failure characteristics from each component. WTR, WSP, and RAU have *Weibull* distribution. Based on RCM and RBI analyze on this research, be resulted the preventive maintenance policy that can be improve reliability. So that can also improve the QoS and customer satisfaction.