ABSTRACT

Power distribution in an installation becomes important, because it deals with the power received by the load. In the case of many electrical power distribution barriers that cause non-linear electrical power and up to a maximum load usage. This becomes a problem because it will affect the performance and durability of the load, the problem is not the maximum power and not linear many factors one of which is the use of power components such as diodes, thyristors, SCR, TRIAC. The components are non-linear. The use of non-linear loads on an installation lislrik, can cause power quality problems become worse system, among others: the power factor of the system becomes lower, the voltage waveform is distorted system, power loss in the system increases, the transformer overheating and energy use power becomes elisien. The problem of non-linear loads cause harmonic pollution is causing the power distribution is not linear, with the problems it is done due to the harmonic analysis of non-linear loads in office buildings to power loss channel.

The purpose of this study was to determine the non-linear loads are attached and made a settlement of the problem by installing a filter which is then compared between before and after the installation of filters. Object of the research is the Faculty of Engineering, University of Muhammadiyah Bengkulu. Techniques compiling data using direct measurement. The validity of using the comparison tool unkur laboratory measuring instrument with measurement tools that will be used in the field. Data analysis techniques using ETAP software (Electrical Transient Analyser Program) powerstation version 4.0.

The results showed that the use of measurement tools field qualifies as a measuring tool for the comparison of laboratory measuring devices, measuring instruments have characteristics directly proportional. From the calculation THDV on each floor of the bus that the bus load generated and the panels in the installation of the FT-UMB network is still relatively small and does not exceed the IEEE 519-1992 standard value is ≤ 5%. THDi measurement results for the 2nd floor and 1st floor does not exceed the IEEE 519-1992 satandard namely 15%. While on the 3rd floor occurs 31.64% THDi so necessary mounting filter to reduce to below 15%. Installation of filter used is a single tuner pasif filter.

Keywords: Non-Linear Load, THDV, THDi, Tapis,