

## INTISARI

Beban-beban non-linier merupakan salah satu faktor penting yang mempengaruhi kualitas daya listrik pada konsumen. Beban ini merupakan sumber harmonik yang dapat menurunkan kualitas daya listrik. Beban non-linier pada umumnya merupakan komponen semikonduktor, yang dimana beban ini membutuhkan arus yang tidak tetap pada periode waktunya. Gedung E2 UMY memiliki banyak peralatan hemat energi yang digunakan seperti lampu LED, Air Conditioner (AC) yang menggunakan teknologi VRF, komputer serta komponen elektronika lainnya yang termasuk kedalam jenis beban non-linier. Metode penelitian yang digunakan adalah metode kuantitatif. Pada penelitian ini dilakukan pengukuran di Sub Distribution Panel gedung E2 dan diketahui bahwa terdapat arus netral maksimal sebesar 112,22 A akibat *unbalance*, nilai Total Harmonic Distortion tegangan pada fasa R rata-ratanya 5,11%, fasa S rata-ratanya 5,11% dan fasa T rata-ratanya 5,01%, dan nilai Total Harmonic Distortion arus minimum pada fasa R sebesar 7,03%, fasa S sebesar 6,25%, dan fasa T sebesar 6,75%. Nilai THD tegangan maupun arus tidak sesuai dengan standar IEEE 192-2014. Berdasarkan hasil penelitian dan analisis data, untuk mereduksi harmonik dilakukan perencanaan pemasangan Filter pasif single tuned pada gedung E2.

Kata kunci: Harmonisa, Total harmonic Distortion, Beban non linier.

## **ABSTRACT**

*Non-linear loads are one of the important factors that affect the quality of electric power to consumers. This load is a harmonic source that can reduce the quality of electric power. Non-linear load is generally a semiconductor component, where this load requires a current that is not fixed in the time period. UMY E2 building has a lot of energy saving equipment used such as LED lights, air conditioners (AC) that use VRF technology, computers and other electronic components which are included in non-linear load types. The research method used is a quantitative method. In this study, measurements were taken at the Sub Distribution Panel of E2 building and it was found that there was a maximum neutral current of 112.22 A due to unbalance, the value of Total Harmonic Distortion voltage on the R phase was 5.11%, the average S phase was 5.11 % and the T phase are on average 5.01%, and the value of the Total Harmonic Distortion of the minimum current in the R phase is 7.03%, the S phase is 6.25%, and the T phase is 6.75%. Voltage and current THD values do not comply with the IEEE 192-2014 standard. Based on the results of research and data analysis, to reduce harmonic planning is done to install a single tuned passive filter on E2 building.*

*Keywords: Harmonics, Total harmonic Distortion, Non-linear load.*