

INTISARI

Menganalisis kualitas daya listrik adalah salah satu analisis yang tentu saja telah dilakukan oleh sebagian besar siswa, terutama siswa di bidang teknik elektro. Kualitas daya listrik itu sendiri adalah perubahan dalam bentuk tegangan, arus dan frekuensi pada suatu bangunan yang dapat menyebabkan kegagalan peralatan baik yang dimiliki oleh konsumen maupun PLN. Pengukuran pada gedung E7 UMY adalah untuk mengetahui kualitas daya listrik dengan pengukuran arus, tegangan, harmonisa dan faktor daya yang kemudian melakukan analisis pengamatan yang telah diukur. Pada penelitian ini dilakukan pada gedung E7 UMY untuk mengetahui nilai keseimbangan beban yang terpasang apakah sesuai dengan Badan Standar Nasional Indonesia dan Standar Internasional. Pengukuran daya listrik di gedung E7 UMY menggunakan power metrel 2892. Hasil pengamatan dan pengukuran yang telah dilakukan pada panel SDP E7 UMY frekuensi terukur rata-rata sebesar 50,01 Hz. Nilai tegangan yang terukur masih dalam toleransi. Nilai harmonisa tegangan yang terukur pada fasa RST yaitu 1,963 persen, 1,602 persen dan 1,63 persen masih dalam toleransi 3 persen sampai 5 persen. Nilai ketidak seimbangan tegangan rata-rata 0,77 persen tidak melebihi batas toleransi 5 persen max. Nilai arus fasa RST diperoleh rata-rata sebesar 29,05 A, 18,89 A, 49,11 A. Nilai ketidak seimbangan beban arus pada fasa RST pada panel SDP di gedung E7 UMY didapatkan hasil rata-rata 38,01 persen, melebihi batas toleransi sebesar 20 persen max. Hasil pengukuran nilai cosphi sebesar 0,996. Total power losses yang terjadi di gedung E7 UMY yaitu sebesar 0,1427 persen dalam total keseluruhan daya aktif yang digunakan selama dalam pengukuran.

Kata kunci: Kualitas Daya Listrik, Harmonisa, Cosphi

ABSTRACT

Analyzing the quality of electric power is one analysis that of course has been done by most students, especially students in the field of electrical engineering. The quality of electric power itself is a change in the form of voltage, current and frequency in a building that can cause failure of equipment both owned by consumers and PLN. Measurements in the E7 UMY building are to determine the power quality by measuring current, voltage, harmonics and factors power which then analyzes observations that have been measured. In this study carried out on the E7 building of UMY to find out the load balance value installed whether in accordance with the Indonesian National Standard Agency and International Standards. Measurement of electrical power in building E7 UMY uses power metrel 2892. the measured frequency is an average of 50.01 Hz. The measured voltage value is still in tolerance. The value of voltage harmonics measured in the RST phase is 1.963 percent, 1.602 percent and 1.63 percent is still tolerated 3 percent to 5 percent. Value of voltage imbalance an average of 0.77 percent not exceeding the tolerance limit of 5 percent max. The value of the RST phase current is obtained at an average of 29.05 A, 18.89 A, 49.11 A. The value of the current load imbalance in the RST phase in the SDP panel in the E7 building of UMY has an average yield of 38.01 percent, over the limit tolerance of 20 percent max. Result of measurement of cosphi value is 0.996. The total power losses that occur in the E7 building in UMY are equal to 0.1427 percent in the total active power used during the measurement.

Keywords: Electric Power Quality, Harmonics, Cosphi

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