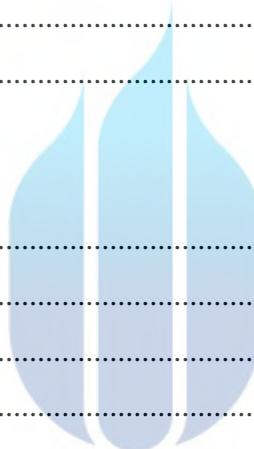


DAFTAR ISI

HALAMAN JUDUL	i
LEMBAR PERNYATAAN	ii
LEMBAR PENGESAHAN	iii
ABSTRAK	iv
KATA PENGANTAR	v
DAFTAR ISI.....	vii
DAFTAR TABEL.....	xi
DAFTAR GAMBAR.....	xii

BAB I PENDAHULUAN

1.1 Latar Belakang	1
1.2 Rumusan Masalah	2
1.3 Tujuan Penelitian	2
1.4 Batasan Masalah.....	2
1.5 Sistematika Penulisan.....	3



UNIVERSITAS

BAB II LANDASAN TEORI

2.1 Studi Literatur	5
2.2 Lampu LED.....	6
2.2.1 Pengertian Lampu LED	6
2.2.2 Cara Kerja Lampu LED	7
2.2.3 Keunggulan Lampu LED	7
2.2.4 Kekurangan Lampu LED	8
2.3 Harmonisa	9
2.3.1 Pengertian Harmonisa	9
2.3.2 Sumber Harmonisa	11
2.3.2.1 Beban Linier	12
2.3.2.2 Beban Non Linier	12

2.3.3	Dampak Harmonisa	13
2.3.4	Batasan Nilai Harmonisa	14
2.3.4.1	Batasan Distorsi Harmonisa Tegangan	14
2.3.4.2	Batasan Distorsi Harmonisa Arus	15
2.3.5	Pengukuran dan Penilaian (Assesment) Harmonisa	17
2.3.5.1	Pengukuran Harmonisa Tegangan	17
2.3.5.2	Pengukuran Harmonisa Arus	18
2.3.5.3	Durasi Pengukuran Harmonisa	19
2.3.5.4	Peralatan Pengukuran Harmonisa	19
2.3.5.5	Jenis Peralatan Pengukuran Harmonisa	19
2.3.6	Penilaian (Assesment) Harmonisa	20
2.3.6.1	Kewajiban Pihak Pelanggan	20
2.3.6.2	Kewajiban PLN/Pihak Utilitas	20
2.4	Mitigasi Pengaruh Harmonisa	20
2.4.1	AC-Line Reactor dan DC-Link Chokes	20
2.4.1.1	AC-Line Reactor	21
2.4.1.2	DC-Link Chokes	22
2.4.2	Passive Filter	23
2.4.3	Active Harmonic Filter	23
2.5	Active Harmonic Filter	24
2.5.1	Pengertian Active Harmonic Filter	24
2.5.2	Perhitungan Kebutuhan Active Harmonic Filter	25
2.5.3	Persyaratan Active Harmonic Filter	26
2.5.4	Standar Referensi	26
2.5.5	Standar Active Filter Harmonic	26
2.5.6	Kompensasi pada Daya Reaktif	27
2.5.7	Persyaratan Active Filter Harmonic	28
2.5.7.1	Konstruksi dan Panel	28
2.5.7.2	Kemampuan Operasional	28
2.5.7.3	Human Machine Interface (HMI)	29
2.5.7.4	Komunikasi	29
2.5.7.5	Current transformers (CT).....	30

2.5.7.6	Kondisi Layanan	30
2.5.7.7	Kondisi Penyimpanan	31
2.5.7.8	Jaminan Kualitas	31

BAB III METODOLOGI PENELITIAN

3.1	Objek Penelitian	32
3.2	Diagram Flowchart	33
3.3	Pengumpulan Data	34
3.3.1	Gambar Mapping lokasi Panel Special Lighting	34
3.3.2	Gambar single diagram sistem Elektrikal	35
3.3.3	Gambar wiring diagram sistem Panel Special Lighting	36
3.3.4	Koordinasi penambahan lampu special lighting area Façade	37
3.4	Persiapan Peralatan Pengukuran	37
3.4.1	Power Quality Energy Analyzers Portable	37
3.4.2	Power Meter Panel	39
3.5	Pengukuran Power Quality	44
3.5.1	Jangka waktu Pengukuran	44
3.5.2	Hasil Pengukuran	45
3.6	Perhitungan Kapasitas active harmonic filter	46
3.7	Pemilihan lokasi pemasangan active filter harmonic	46
3.8	Implementasi active filter harmonic	48
3.9	Pengujian ulang power quality	52
3.10	Batasan THDI sesuai Standard	54

BAB IV HASIL DAN PEMBAHASAN

4.1	Analisa Pengukuran Power Quality	55
4.1.1	Analisa Pengukuran Individual Harmonic Distraction Current (IHDI)	55
4.1.1.1	Nilai Hasmonisa lampu LED	57
4.1.2	Analisa Pengukuran Total Harmonic Distraction Current (THDI)	57

4.1.2.1	Analisa Pengukuran Arus Fundamental	57
4.1.2.2	Analisa Pengukuran THDI	60
4.2	Perhitungan Kapasitas active harmonic filter	61
4.2.1	Perhitungan Beban Existing Special Lighting	62
4.2.2	Perhitungan Beban Additional Special Lighting	63
4.2.3	Kebutuhan Kompensasi Harmonic	64
4.3	Analisa Pengujian ulang power quality	65
4.3.1	Pengujian Arus Fundamental	65
4.3.2	Pengujian THDI (Total Harmonic Distortion Current)	66
4.4	Batasan THDI sesuai Standard	69
BAB V KESIMPULAN DAN SARAN		
5.1	Kesimpulan	70
5.2	Saran	71
DAFTAR PUSTAKA		72
LAMPIRAN.....		74

