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FINAL REPORT OF DIPLOMA PROJECT

**ONE PHASE VOLTAGE AND CURRENT HARMONIC
ANALYSIS**

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ABSTRACT

Harmonic is one of part in power quality issues that it has grown and it has been discussed as major issues. Command problem in harmonics analysis are voltage and current harmonics which creating harmonics distortion. Nowadays, linear and non linear load used widely around the world and it give all engineers concern for harmonics distortion especially in AC power system.

In this project, the investigation about this problem will be done and it is involving voltage and current harmonics analysis, due to non linear loads application. From the analysis result, the passive filter will be designed to reduce the harmonics distortion and it also improved the quality of AC power.

Our mission is to analyze the harmonics and the way how can we reduces it with the filter that we have describe below in the following chapter. The filter that will be used will be designed by ourselves if we can manage it.

TABLE OF CONTENTS	PAGE
Acknowledgement	i
Abstract	ii
1. INTRODUCTION	
1.1 Background	1
1.2 Scope of work	4
1.3 Objective of project	6
2. CURRENT AND VOLTAGE HARMONICS	
2.1 What are Harmonic	7
2.2 What do harmonics do	9
2.3 The major contributors of Harmonics	11
2.4 How to determine if a harmonic problem exists	12
2.5 How to address a harmonic problem	13
2.6 Harmonic Sources	15
2.7 Consequences of Harmonics	16
3. FILTER	
3.1 What is filter	17
3.2 Type of filter	18
3.3 The comparison between types of filter	27
4. CIRCUIT EXPERIMENT	
4.1 Circuit Experiment Figure	29
4.2 Circuit Experiment Explanations	30

CHAPTER 1

INTRODUCTION

1.1 Background

It was over a century ago, in 1893 that George Westinghouse built and demonstrated the first practical Alternating Current (AC) power system. The competition with the then already established Thomas Edisons DC, to establish AC Power System as a standard, is a story with which most of Engineers like us are familiar. However, ever since then, the well reputed AC Power System has been very popular. This Power System has very recently once again come in focus, due to the deterioration in the level of Power Quality , at the consumers end.

It may be mentioned that the distribution system of today is connected to a variety of load on its sub-station, some of which may be highly vulnerable. Such loads popularly known as non-linear loads, generate a wide spectrum of disturbances, such as voltage Spikes, Electro Magnetic Interference (EMI), Radio Frequency Interference (RFI), Transients, Sags , Swells, Harmonics, Brownouts and Blackouts. Figure 1 depicts the voltage waveform of a typical distribution sub-station, consisting of nearly all such disturbances.

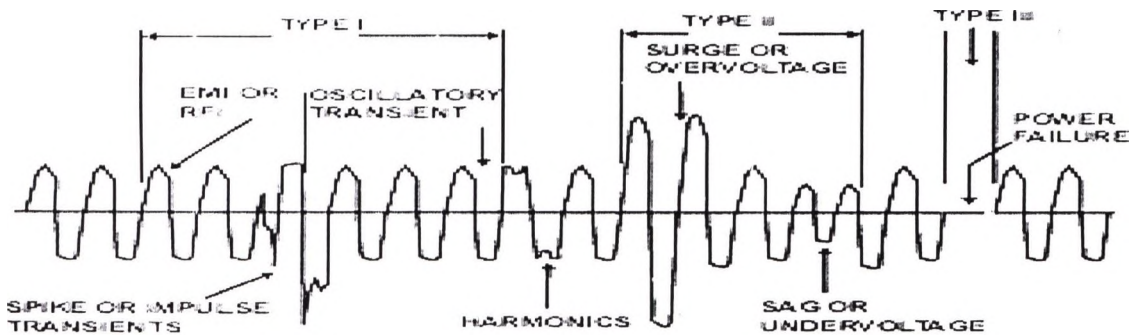


Fig. 1: Types of Power Disturbance.