

## EFFECTS OF POWER QUALITY TERMS ON PASSIVE POWER FILTERS

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### ABSTRACT

Power quality is becoming a major problem of modern power systems. Harmonics, which are the most significant power quality term, can have substantial effects on electrical devices. Nonlinear loads as electric arc furnaces, power electronic devices cause harmonic problems on power systems, due to their voltage-current characteristics. Passive Power Filters (PPF) are used effectively for harmonic mitigation in power systems. In this study, harmonic measurement data of a steel-iron plant which are obtained from National Power Quality Project supported by The Scientific And Technological Research Council Of Turkey (TUBITAK) are used. A passive harmonic filter is designed for a nonlinear load which is measured within the context of the project. In the case of distorted power quality conditions such as voltage variations, frequency fluctuations, unsteady loads and changes in phase angles, behaviour of the designed passive filter is analyzed with simulation studies and obtained results are presented.

**Keywords:** Power Quality, Harmonics, Passive Power Filter, Iron-Steel Industry.