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## Minimization of Harmonics Amplification Due to Resonance

Dr. K. R. Valluvan

**Abstract** - It has been observed from literature that nonlinear loads produce current harmonics . The harmonic current flowing through the non zero impedance of the electrical network, produce harmonics in supply voltage . Harmonics in power systems causes many ill effects and economic losses . to minimize the losses . IEEE : 519 - 1992 has specified limits on voltage and current harmonics . Inductive loads like induction motors produce lagging power factor of less than unity . Capacitors are often used to improve the power factor by adding them in shunt with inductive loads . When high frequency harmonic current flow through the network , due to the combination of inductive and capacitive loads ( which are linear ), resonance occurs. This causes an amplification of harmonics. Consequently , the increased harmonics affect the linear loads and produce more losses . This paper explains the results of harmonic measurements by a class of neural network, ADALINE implemented von a Digital Signal Processor. Measurements are carried out when capacitors were grouped in one place and after their relocation nearer to the linear loads . The results show that , relocation of capacitors have minimized both voltage and current harmonics significantly . This methodology is very economical since it does not require any additional equipment for filtering of harmonics .