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Performance Analysis of Shunt Active Power Filter for Various Reference Current Generation Techniques

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Abstract : A number of reference current generation have been developed for analysis of shunt active power filter to mitigate the load compensation. Depending upon the type of load the technique has to be chosen. In this paper, six reference current generation techniques viz. instantaneous reactive power theory(IRP), Synchronous reference frame theory(SRF), Perfect harmonic cancellation(PHC), Unity power factor method(UPF), Self-tuning filter method(STF), Predictive filtering method(PFM) are compared for different operating conditions. The harmonics are introduced because of non-linear loads in the system. These harmonics are eliminated using above techniques. The results and performance of system simulated on MATLAB/Simulink platform. The system is experimentally implemented using DS1104 card of dSPACE system.

Keywords : SAPF, power quality, THD, IRP, SRF, dSPACE module DS1104
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