

# 519-2022 - IEEE Standard for Harmonic Control in Electric Power Systems

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Text Views**Abstract**[Figures](#)[References](#)[Citations](#)[Keywords](#)[Definitions](#)[Metrics](#)[Versions](#)[Amendments](#)[Footnotes](#)**Abstract:**

Goals for the design of electrical systems that include both linear and nonlinear loads are established in this standard. The voltage and current waveforms that may exist throughout the system are described, and waveform distortion goals for the system designer are established. The interface between sources and loads is described as the point of common coupling and observance of the design goals will reduce interference between electrical equipment. This standard addresses steady-state limitations. Transient conditions exceeding these limitations may be encountered. This document sets the quality of power that is to be provided at the point of common coupling. This document does not cover the effects of radio-frequency interference; however, guidance is offered for wired telephone systems.

**Scope:**

This standard establishes goals for the design of electrical systems that include both linear and nonlinear loads. The voltage and current waveforms that may exist throughout the system are described, and waveform distortion goals for the system designer are established. The interface between sources and loads is described as the point of common coupling and observance of the design goals will reduce interference between electrical equipment. The voltage and current distortion limits in this standard shall apply at the user point of common coupling (PCC) to overall installation containing harmonic producing loads (nonlinear equipment). Users are directed to other applicable standards such as IEEE Std 1547 or IEEE Std 2800 for current distortion limits of inverter-based resources (IBR) installations. When no other applicable standard exists, users shall continue to use footnote "c" under Table 2 through Table 4 in this standard for IBR connected to transmission systems.

**Purpose:**

This standard is to be used for guidance in the design of power systems with nonlinear loads. The limits set are for steady state operating conditions. In any case, the limit values given in this document should not be considered binding in all cases. Some conservatism is present that may not be necessary in all cases. This standard shall be applied at a PCC between system owners or operators and users in the power system. The limits in this standard are intended for application at a PCC between the system owner or operator and a user, where the PCC is usually taken as the point in the power system closest to the user where the system owner or operator could offer service to another user. Frequently for service to industrial users (i.e., manufacturing plants) via a dedicated service transformer, the PCC is at the HV side of the transformer. For commercial users (office parks, shopping malls, etc.) supplied through a common service transformer, the PCC is commonly at the LV side of the service transformer.

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