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Autore	Lian Ryan Kuo-Lung
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Sommario/riassunto

"The ac electric power systems are essentially designed to operate with sinusoidal voltages and currents at frequencies of 50 or 60 Hz. However, certain types of power components or loads produce currents and voltages with frequencies that are integer multiples of these frequencies (i.e. the fundamental frequencies). These higher frequencies are a form of electrical pollution known as power system harmonics. Power system harmonics are not a new phenomenon, and it is as old as the distribution of alternating current, which began in 1895-1896 [5]. It is reported that in 1893, Charles Proteus Steinmetz had worked on the problem of motor heating while working at Thomson-Houston [6]. After rigorous calculations and experimental validation, Steinmetz concluded that the problem was due to the resonance in the transmission circuit feeding the plant and a generator with a substantial amount of waveform distortion. Consequently, Steinmetz proposed two solutions to overcome this harmonic problem. The first was to reduce the system frequency to one-half of its original value. That is, to reduce the original frequency value of 125 Hz to a new value of 62.5 Hz. Note that at that time, most of the single-phase generator were operated at 125 Hz, 140 Hz or 1331"--
