Abstract Submitted
for the APR13 Meeting of
The American Physical Society

General Theory of Harmonics Generation thru Energy Transformation DON CZYZYK, SRI Int. — Energy, whatever its form, can be converted into an electrical signal. When analyzed is found to be comprised of a continuum of sinusoidal frequencies called a harmonic spectrum H/S. This paper addresses the question of how/why, in general, are these sinusoidal frequencies (harmonics) generated and in particular how they are produced in electronic circuits. To address this question many varied experiments were performed. Some experiments used just batteries while others used mechanical, acoustic, pneumatic, thermal, magnetic, hydraulic or photonic devices. All these devices were used to investigate the nature of harmonic generation from the perspective of the en masse movement of conduction electrons. Primarily performing electronic experiments on the envelope of a single pulse revealed that a pulse of one wavelength can be separated into basic individual segments. The energy of each individual segment, when absorbed by conduction electrons, is transformed into a unique H/S. Recombining all the individual segments that comprise a pulse envelope, involves the constructive or destructive interactions of their harmonic spectrums leading to the amplitudes of some harmonics being increased and others reduced or eliminated. The result is a pulse envelope with a different harmonic series.

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None

Date submitted: 02 Jan 2013 Electronic form version 1.4