The device improves signal quality through two distinct physical mechanisms: conductive means and radiative means.

1. Conductive Method: Enhancing Signals via Power Lines
Standard electrical outlets deliver AC power mixed with unpredictable, random electromagnetic noise (white noise). When an audio amplifier processes music, this random noise contaminates the output.

The device alters this dynamic through the following steps:

Injecting a Structured Pulse: The device injects a low-frequency (10 Hz) square wave pulse into the AC line. Mathematically, a square wave consists of a fundamental tone plus an infinite series of odd harmonic sine waves (10 Hz, 30 Hz, 50 Hz, etc.).

Filtering to the Power Rail: After passing through the equipment's rectifier and low-pass filter, the high-frequency parts are filtered out, leaving a clean DC voltage containing these lower harmonic pulses along with filtered noise.

Predictable Enhancement Over Random Noise: An amplifier naturally multiplies incoming music by its DC power rail voltage. Normally, power line noise adds pure randomness to the music. However, multiplying the music by the structured harmonic pulse produces precise frequency sidebands (geometric spikes).

Boosting Signal Peak Strength: Instead of distorting the audio, these mathematical sideband spikes overlap directly with existing audio frequencies. This constructive overlap acts as a harmonic reinforcement, boosting original signal peak strengths and richness without increasing random noise.

2. Radiative Method: Improving Signal Quality via Wireless "Dithering"
Even without a direct wiring connection, the device radiates an electromagnetic field into nearby Devices.

Penetrating Device Shielding: Low-frequency fields decay rapidly over short distances and are blocked by metallic enclosures. However, the higher-frequency harmonics in the square wave pass easily through ventilation slots and chassis seams.

Inducing Micro-Spikes Inside Circuits: Once inside a device, these high-frequency magnetic fields pass over circuit board traces. According to Faraday's Law of Induction, rapid voltage transitions induce tiny, rapid voltage impulses across the circuit traces.

Reducing Color Banding via Dithering: Digital video signals often suffer from color banding (harsh, blocky transitions across smooth gradients like sunsets or dark shadows) due to color quantization.

Smoothing Visual Gradients: The tiny, rapid impulses act as harmonic dither. By oscillating the video signal rapidly back and forth across threshold boundaries, the dither causes boundary pixels to alternate rapidly between adjacent color bit states. To the human eye, this rapid micro-alternation blends harsh step transitions into smooth, natural gradients.

Summary Comparison

Mechanism	Target System	How It Works	Visual / Audible Benefit	Scope for improvement
Conductive (Power Line)	Audio amplifiers	Injects ELF harmonic series into the DC rail.	Enhances signal signal strength and peak richness via structured harmonic overlap.	* Reduction of square wave periodic pulse frequency can further improve signal quality * Reduction of rise/fall time can further improve signal quality.
Radiative (Electromagnetic)	Video players / Displays	Passes high frequency harmonics.	Acts as high frequency "dither," to induce micro-voltage spikes on pcb traces, smoothing out pixel transitions and eliminating color banding. It can also improve other digital signals.	