

K2HD: Restoring the Missing Emotion

The original development of K2 Technology was in direct response to calls from recording engineers in the prestigious Victor Studio, Japan. They were troubled by the clear difference between the sound quality of their original master recordings and digitally copied sub-masters; the sub-masters were **emotionally flat** and **lifeless**.

K2 was co-developed by audio equipment engineers at JVCKENWOOD in collaboration with the engineers at Victor Studio – this allowed for rounds of development, where studio engineers could sonically evaluate a working prototype - designed by the hardware engineers - and suggest improvements for the next. This allowed for a uniquely human approach, a perfect marriage of **science** and **art** – relying on their instinctive feel and their human expertise.



Victor Studio, Japan – where K2 was created.

After meticulously comparing countless finished recordings with the digital copies by ear, they found the original version of K2; a hardware solution, named the “K2 Interface.”



Breakdown of K2 Technologies. Source: JVCKENWOOD website.

“K2 Technology” is now an umbrella term for diversified K2-related technologies; the technology has evolved and expanded from being featured in playback equipment to the remastering of songs, cutting records and more.

For example, JVCKENWOOD has implemented K2 Technology into music playback devices, including wireless earphones, DACs, mini-Hi-Fi, CD players and CDs.



A Victor/JVC XL-Z999 CD player that used a JCE4300 ‘K2’ chip.



A JVC 'XRCD24' CD from 2006.

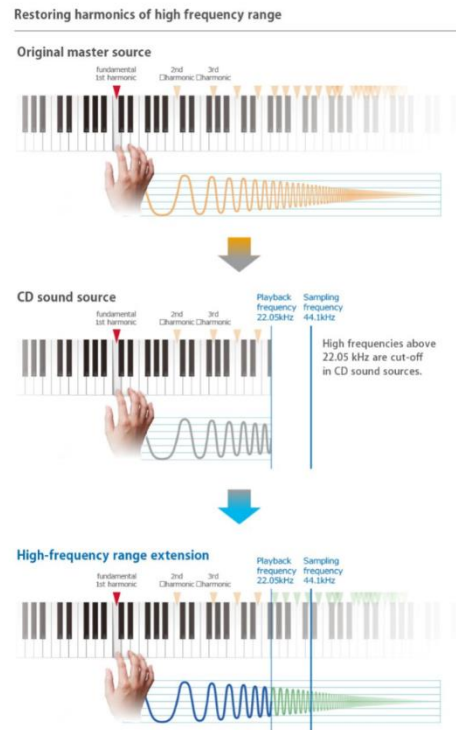
K2 Mastered CDs and products with K2 Technology are famously held in high regard by music lovers for their natural and musical sound. To date, more than 1,000 K2HD Pro Mastering CDs have been released and well received in both Japan and overseas.

The K2HD Process Engine was developed in 2003, derived from one of the fundamental principles of K2 - to correctly restore music data to match the original source. Due to CD specifications being limited to 44.1kHz/16-bit, any master recordings recorded at higher rates or depths would be down sampled and dithered, having a noticeably adverse effect on audio quality.

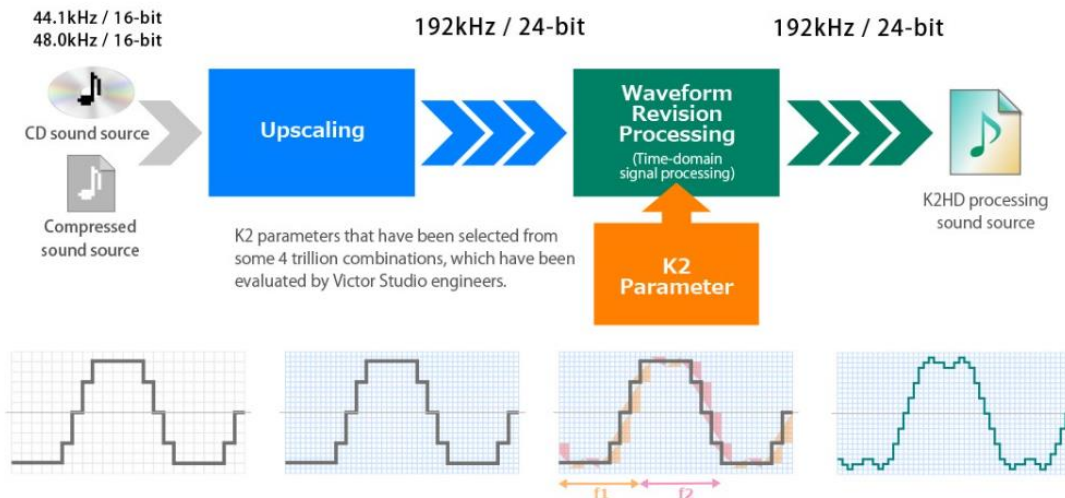
Any recordings captured at higher rates and depths being mastered for CD were having their signal resolution diminished by 256 times (from 16,777,216 steps, to 65,536 steps) and all content above ~22kHz cut off completely.

This isn't even limited to CDs specifically – **Spotify's entire library is compressed to 44.1kHz/16-bit.**

K2HD's advanced processing optionally upscales incoming data streams to 192kHz/24-bit and applies waveform revision processing, with specific "K2 parameters" that have been hand-selected from some 4 trillion combinations and evaluated by Victor Studio engineers. This processes the time-domain, **not** the frequency domain. The unparalleled originality of K2HD lies in its advanced high-frequency extension, enabling the restoration of natural harmonics and overtones beyond 22kHz, delivering audio quality that is close to the original master.



Visual explanation of K2HD Processing.
Source: JVCKENWOOD website.



Visual breakdown of K2HD Processing. Source: JVCKENWOOD website.

K2HD processing restores music data lost during digitalisation; revives rich, natural harmonics into the sterile, detached digital sound - adding an organic quality unlike any other.

K2HD revitalises the studio recording sound, infusing it with life once again.

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About iFi

iFi audio is a part of AGL and is headquartered in Southport, UK. It owns the Hi-Fi brand Abbingdon Music Research (AMR). They respectively design and manufacture portable and desktop ‘ultra-fidelity’ audio products and high-end audio ‘home-based’ components. The combined in-house hardware and software-development team enables iFi audio and AMR to bring to market advanced audio products.

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