

FURUTECH

Evolution II Series Review

— Guido D. Corona

Positive-Feedback

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Evolution II Connectivity Products

as reviewed by Guido D. Corona

Micro Bio & Professional Disclosure: Guido D. Corona recently retired from IBM Corp. with over 26 years of service. He is currently a web accessibility and US Federal Section 508 consultant. He has contributed equipment reviews to The Absolute Sound, and articles on Access World Online (<http://www.afb.org/aw/main.asp>). Guido Corona is also a professional contributing copywriter to the upcoming Jeff Rowland Design online knowledge base. While his connection with the Rowland database project is minor, Mr. Corona will recuse himself from reviews of Rowland gear. Ye Olde Editor]

My discovery of the magnificent Furutech Evolution II wires is a story of pure serendipity. At the end of 2008, I was in a minor quandary. The slow yet inexorable accretion, addition, and piecemeal upgrade of interconnect cables, speaker wires, and power cords with heterogeneous wires from a variety of well respected manufacturers was starting to introduce subtle anomalies in my system. While I was seeking linearity, the goal was eluding me. Some late and soon abandoned experiments with alternative brands were causing frequency distribution anomalies that resembled the back of a wobbly multi-humped camel. The bass region had become frayed and froth with overhangs, the midrange was an ungainly mixture of unexplainable emphasized areas and harmonic troughs, a subtly disturbing peak had developed in the third octave of the treble, while odd reflections and an annoying glare were showing up in the densest musical passages. Having returned to my beloved reference crew of pedigreed wires—which included 2 lengths of AudioQuest XLR ICs, Cardas Golden Reference speaker wires, a Purist Anniversary power cord on the Esoteric X-01 Limited, Shunyata Helix Anaconda Alpha for the Rowland Capri linestage, and a Cardas Golden Reference cord on the Rowland 312 amplifier—I still experienced suboptimal results with what I could only call a less than perfect linearity. How could I

write a review of the Bel Canto Ref 1000 Mk.2 monoblock amplifiers if my own reference environment was subtly uncooperative?



A call with Jonathan Scull of Scull Communications—marketing consultant for Bel Canto Design—confirmed the validity of my concerns about the less than desirable impact of my hitherto eclectic connectivity strategy, and suggested a possible solution. While my stable of wires vaunted some undeniably excellent products, the overall effect that the individual wires had on one another was subtly anomalous. Jonathan suggested that I may want to restart from the ground up with a uniform suite of interconnects, speaker wires, and power cords that have been created to work together. As my sonic and musical preference is for broad frequency extension combined with neutral linearity that maintains harmonic integrity, he suggested that I try a new set of high value wires from Furutech CO. Ltd.—a well renowned high end audio company whose marketing communications and public relations his firm manages. I would have the rare opportunity of previewing the just updated Evolution II Series product line, which would be released in North America during the 2nd quarter of 2009. Jonathan confidently forecasted that I would be well pleased by the result. Privately, I was slightly skeptical about the ability of any moderately priced wires—designed to satisfy the high performance addiction of "value conscious audiophiles"—to exceed the performance of the highly pedigreed reference level wires populating my home set. Nevertheless, I took Jonathan's implicit challenge. Soon a complete suite of Furutech Evolution II Series connectivity products were delivered to my doorstep, including several 1.8 and 3.5 meter long power cords, 2 pairs of 2 meter long XLR interconnects, and 1 pair of 3 meter long single run speaker wires—terminated by large gold-plated spades at one end and banana plugs at the speaker end.



Technical

Upon first examination of the well-packaged wires, I was immediately struck by the non-imposing elegance and flawlessly constructed nature of the Furutech Evolution II products. These are no oversized and unwieldy Jurassic throwbacks, nor do they handle like ill-tempered tropical moray eels. Rather, I was delighted to discover flexible and slender wires that appear to be meticulously constructed and terminated. The speaker wires for example are merely 14.5mm thick, and are finished with a handsome nylon braided yarn jacket. The ends of my units are terminated with Furutech's own FP-218g 24k gold-plated nonmagnetic pure-copper α (Alpha) spade connectors at one end, and with FP-202g 24k gold-plated nonmagnetic eutectic cast copper alloy α Banana connectors on the speaker side, the latter expandable and lockable by knurled thumb-screws.

Yet, even more important than their outer shells, are the meticulously engineered geometries of conductors and insulators that are hidden inside the Evolution II speaker wires' black nylon jackets. Six 2.18mm diameter bundles of 20-strand 0.18mm α (Alpha) conductors (composed of fine OCC wire strands treated with Furutech's Super Cryogenic and Demagnetizing Process), μ -OFC conductors (annealed Oxygen Free Copper) are immersed in special polyethylene forming 5.1mm diameter insulators that are wound around two 2.46mm-thick PE (polyethylene) low-dielectric cores. These are twisted together with low mass cotton yarn, and are then sheathed in RoHS-compliant flexible PVC tubing of 13.5mm diameter. The resulting assembly is finally inserted into the final nylon jackets of the finished product.

Not to be outdone, the handsome 10mm thick Evolution II interconnects "feature 80-strand α OCC (Ohno Continuous Cast) conductors with a special polypropylene insulation/dielectric. The single ended versions are terminated with RCA connector backbones fashioned of nonmagnetic 24k gold-plated eutectic cast copper alloy mounted inside a copper alloy outer α locking shell. The center pin is 24k gold-plated nonmagnetic α OCC conductor with a Teflon dielectric.

Their balanced counterparts, the version used in this review, sports FP-701 Mg XLR male and FP-702 Fg female connectors. XLR pins are made of an α eutectic cast brass alloy combined with a treated PBT (Polybutylene

Terephthalate) dielectric, sporting bodies and housings of nonmagnetic copper alloy. Furutech explains that the XLR FP-701Mg (male) and FP-702Fg (female) connectors utilize PBT insulation, while the RCA FP-110g connectors employ Teflon insulation. The reason for the different materials is manufacturing optimization. The molded construction of the XLRs requires moldable PBT whereas Teflon can be easily cut to fit the RCA pin and housings.

The Evolution II power cords are almost as slender at a mere 18.5mm diameter. They feature positive, negative and ground Alpha μ -OFC conductors, protected by a special polyethylene dielectric insulation formulated to withstand high voltage and heat for lower capacitance and better mechanical damping. This is combined with Furutech's unique Floating Field Damper system (see below), and the extremely stable connections afforded by Furutech's W-shaped clamping system. The power cords are terminated with FI-11r IEC connectors, and FI-11Mr male AC connectors, both sporting nonmagnetic α pure-copper conductors.

Furutech Evolution II wires are not only engineered to be electromagnetic thoroughbreds, but exemplify Furutech's commitment to green and environmentally friendly technologies: the upgraded PVC dielectric/insulation materials used throughout the product line—which also incorporate anti-resonance carbon particles for superior mechanical damping—are lead free, and comply with the stringent European Union's RoHS (Removal of Hazardous Substances) environmental regulations.



Further Technical Notes

The "Field Damper" system used in Evolution II power cords [is said to drain] small eddy currents and EMI (Electromagnetic Interference) generated by the metal hardware [fastening] the connector shell (US Patent No. 6,669,491). Current flowing through a connector creates a magnetic field that—Furutech engineers have discovered—induces an unwanted current flow (and thus a magnetic field), even in the screws holding the connector together. These admittedly weak magnetic fields, so close to the connector, appear to interfere with the stability of the larger magnetic field around the current flowing through the conductor and connector, with inherent detrimental

implications to downstream musical reproduction. The Furutech solution to this problem is to create a Floating Field Damper system, which connects the securing screws to a ground terminal within the plug, and according to Furutech engineers completely eliminates the related field disturbance by "dumping" residual stray fields to ground through a series of interlocking parts connected to the ground line.

Furutech's employs an advanced "W" wire-clamping system that is engineered for firm contacts and pure, stable power transmission.

The Furutech α (Alpha) conductor is fashioned from fine OCC wire strands treated with Furutech's Super Cryogenic and Demagnetizing Process, while OCC stands for Ohno Continuous Cast Single-Crystal Oxygen-Free copper. Ohno is no acronym, but is the last name of professor Ohno of the Chiba Institute of Technology in Japan, who in 1986 patented a novel metallurgical process applied to the production of single crystal copper by heated mold continuous casting. Single crystal rods of ultra-pure Oxygen Free copper can then be drawn in very fine single crystal wires up to 700 feet long, and display electrical, magnetic, and mechanical properties that are believed to make them particularly desirable for manufacturing extremely high quality audio wires.

Furutech has further refined the process and has adapted it to the α (Alpha)-OCC conductor material used in its transmission products.

According to Furutech, "a high temperature heated mold produces mono- or single-crystal ultra-pure copper wire with insignificant traces of oxygen and hydrogen, reducing the ratio of stress to strain within the wire. Since Ohno Continuous Casting produces a flexible wire, a higher specific gravity and higher "Q", its mechanical isolation and resistance to electromagnetically induced vibration is excellent. Furutech OCC monocrystal wire has no crystal grain boundaries within the conductor, resulting in [vanishingly] low distortion."

Furutech's OCC variant includes a 2-Stage Cryogenic and Demagnetizing sub-Process that begins "with a deep, conditioning cryogenic freeze of all metal parts, including conductors and connectors. Using high-end refrigerants—liquid Nitrogen or Helium—Furutech achieves between -196 to -250C. At these extreme temperatures, the metal parts [are thought to] change molecular structure, removing internal stress. Molecules bond together more tightly and the overall structure [is said to become] more stable, while enhancing electrical conductivity, power and signal transfer.

Stage two in the α (Alpha) Process exposes these same parts to [Furutech's] patented Ring Demagnetization Treatment... [which] uses controlled attenuation to eliminate all magnetic field effects... and further enhances conductivity of all treated materials."

The Music

The discussion above supports the assertion that Furutech is a company with a superb technical background. Yet, any engineering wizardry must correlate positively to musical results, or it is for naught. Thus, in final analysis, I was quite keen to explore the sonic prowess of these elegant looking wires. Cable connection was a breeze. All cables—power cords included—confirmed my first impression: they quickly proved to be as mechanically nimble and easy to work with as they were outwardly solidly built. I decided to allow approximately 2 weeks of break in for a total of perhaps 300 hours of continuous playing time, spinning disks on repeat 24/7 on my TEAC Esoteric X-01 Limited, supported by the JRDG Capri, alternating between the Bel canto Ref 1000 Mk2 and my amplifier reference—the Rowland 312, before venturing

any serious pronouncements. Predictably, the first 50 hours were filled with the usual cycling of performance inconsistencies, mildly distorting artifacts, and sonic fluctuations. Yet, before the 1st week had elapsed, I started to develop a growing feeling that the true graceful nature of these wires may be gradually emerging from the initial break-in morass, and that Mr. Scull may have been correct after all. By the end of the 2nd week of playing time I was sold, the impressive technologies incorporated in the Furutech Evolution II wires are in fact profoundly synergistic, and do appear to deliver on the promise of 'Pure Transmission' discussed in Furutech company literature. The wires appear to have a 'normalizing' effect on my system: much of the slight residual glare in the mid treble has been reabsorbed, while the high treble becomes more extended without added harshness. Some residual bass overhang, which I imputed to my admittedly bass-happy Vienna Mahler speakers, is largely flattened. Bass reproduction appears to reach deeper into the low frequency region, while maintaining a certain diaphanous lightness, which—I suspect—was associated with the Rowland Capri preamplifier. The midrange is harmonically complex, and has lost any trace of a certain residual ripeness, which had occasionally annoyed me in the past. Inna Poroscina's masterly piano performance of Dvorak's characteristic short work "The Ruins Of The Old Castle" (Brilliant Classics Redbook) confirms that low level information and detail was enhanced, as I perceived the kaleidoscopic ripple of decaying harmonics more clearly than in earlier times, while the infamous noise from the air conditioning equipment in the recording venue—during the vanishing *sostenuto ppp* of the last 10 seconds of the track—is more distinct than ever. The delicately breathy voice of Norah Jones, in her charmingly retro rendition of Sinking Soon from the 2007 Redbook album Too Late now, is immersed in a substantive 3-dimensional virtual stage. Staging was definitely somewhat flatter when my old reference set of wires were still deployed in the system. Yet, while the plucked string bass in the work appears to be essentially linear and well pitched, and is much better defined than when I still used the ARC Reference 3 linestage, I can't help detecting that the Evolution II wires expose what is perhaps the only obvious flaw in the Capri preamplifier—a certain delicacy and diaphanous lightness in the otherwise extended and well defined bass region.

A New Arrival

The applicability of a reference level wire should withstand component changes. In other words, a truly superior wire cannot become the limiting factor when a significant upgrade is applied to the audio component chain. Thus, I was moderately anxious when in July I replaced the Capri with the just released Rowland Criterion twin chassis linestage, a long awaited flagship device sporting both AC and DC battery operations. As I approach completion of Criterion's break-in at about 700 hours, I realize that I need not worry: The Furutech Evolution II are more than up to the challenge, and are far from reaching their point of diminishing returns. The wires remain consistent to Furutech's operative philosophy of 'Pure Transmission'. They reveal a bass that has acquired full authority, without having lost any of its former grace. Harmonic exposure is even more textured, while the treble continues its progress towards the supremely nuanced. Through the Furutech wiring, I now receive the impact of a 3-dimensional venue that is firmly brought into my living space, rather than my living space partially blending into the virtual listening venue.

Comparisons

Some A/B tests with my old wires confirm that the Furutech Evolution II products are magnificent performers.

The Cardas Golden Reference power cords, inserted in both CD player and power amplifier, seem outwardly more open than the Furutech, yet they add a slight etch or excess energy to the higher treble piano range, as well as an unorthodox sheen to Jones's voice, particularly during the more dynamic passages. The soundstage in *Sinking Soon* is shifted forward toward the listener, while images are subtly flattened. Jones's studio ensemble yields a vague sense of being a

non-denominational cardboard cutout, with bass instruments sounding marginally thuddy: the word 'plain' comes to mind.

Anaconda Alpha Helix is delightful feeding the Rowland 312: mayhap it sounds slightly more open than the Furutech, and produces a fine sense of space around the instruments. Treble is very sweet with only minor episodes of stress in denser passages, like the loudest sections in the Dvorak's work. Yet, the Evolution II power cord negotiates these more challenging segments with even greater aplomb. Undeniably, the Anaconda's Harmonic development is exceptional. The bass range is clean and extremely well defined, if perhaps missing ultimate gravitas. On the 312 amplifier, I am inclined to prefer the Evolution II, as the Furutech cord extracts ever-greater amounts of musical information from most recordings, while I raise the volume on the Criterion to unusually high SPLs, without appreciable listener's fatigue.

Having returned the Furutech to the 312, I connect the Anaconda to the X-01 Limited. The results are intriguing. Furutech on the 312 supplies all the required authority and gravitas to the system, yet the Anaconda is quite synergistic on the X-01, where it yields a beguiling amount of ethereal detail and air to Poroscina and Jones, with a deliciously focused energy and crisp imaging that makes me smile with delight.

Compared to Evolution II, the AudioQuest Sky interconnects are an experience of subtly disconcerting compromises: very good stagers indeed, they reproduce a convincing image of the Dvorak String Quintet in G Op. 77 (with Double Bass), performed by the Stamitz Quartet (Brilliant Classics). Their ability to separate instrument images is outwardly masterful, and they prove an enviable control of treble Intermodulation in dense passages. Yet, their mid bass reproduction falls short of a stellar mark, as a hump of *unspecificity* often masks the cello and the double bass, resulting in a smeared image of half of the string ensemble. Their undesirable behavior is confirmed in the Jones track, where the bass line bears traces of *boxiness*. By contrast, the Furutech interconnects come close to the Sky's ability to control artifacts in the treble, while their bass reproduction is crisp, tuneful, and essentially free of overhangs, resulting in a more satisfying and fatigue free listening experience.

Conclusions

In the end, Jonathan Scull's confident prediction is correct: the Furutech Evolution II wires have proved to be exceptional achievers in my audio system, and their consistent behavior have made them my current reference wiring set. The Evolution II's high quality construction is perhaps only exceeded by their broad-spectrum of high sonic and musical reproduction abilities, and by their relative insensitivity to positional preference. Conversely, other wires in my stable—including some significantly more expensive cables—appear to suffer from a variety of artifacts, or become synergistic only when placed in specific positions within my component chain. The concept of "Pure Transmission" is no idle boast in Furutech product literature. Rather, it reflects the Evolution II product suite's ability to exist as a solid reference point in a reference-level audio system. **Guido D. Corona**