New Eminence Speakers for 2014

Eminence introduced several new pro audio woofers, musical instrument woofers, and compression drivers for 2014. The new offerings include the following pro audio drivers:

- The Delta Pro 12-450 is a lighter weight version of the Delta Pro 12. It is recommended as a woofer or midrabge/bass in vented enclosures. It also makes a perfect replacement in many portable PA cabinets.
- The Kappa Pro-10LF is an enhanced low-frequency version of the Kappa Pro 10. It excels in compact vented or horn-loaded bass guitar or subwoofer enclosures.
- The LA10850 is a high-power midrange driver in a shallow cast frame with an inverted dust cap for close placement to phase plugs, which are used in many horn-loaded designs. It is also suitable as a high-power midrange/bass driver in small conventional vented enclosures, or as a high-power midrange in compact sealed enclosures.
- The LA12850 is a high-power 12" woofer in a shallow cast frame designed to work in ultra-compact vented systems and enable tight packaging in line arrays or other systems where overall depth is limited.
- The LA15850 is a shallow 15" high-power cast frame woofer with a 4" voice coil and super-strong cone body. The inverted dust cap enables close placement to phase plugs, which are used in many horn-loaded designs.
- The Kappa Pro-15A is recommended for pro audio use in a vented mid-bass or bass enclosure. It is also suitable for bass guitars.
- The Kappa Pro-15B is a 16-Ω version of the popular Kappa Pro 15. It is recommended for pro audio use in a vented mid-bass or bass enclosure, and it is also suitable for bass guitars.

Eminence's new compression drivers include:

- The PSD:2013-16/8 has a 1" throat, a titanium diaphragm, and a ferrite magnet.
- The PSD:3014-16/8 has a 1.4" throat, a titanium diaphragm, and a ferrite magnet.

Eminence's new guitar speakers include:

- The 620H-8/4 is the little brother to the 820H. The 620H is a 4-Ω hemp cone speaker with a warm, full, and clean tone that will make a small, thin amplifier sound bigger and fatter.
- The CV-75 is a new addition to Eminence's Red Coat series. It is described as the epitome of British tone with a complete tonal balance. The CV-75 offers grunt and punch in the low ranges, warm/tailored midranges, and nice, clear, open/airy high ranges.
- The Legend EM12 is a high-power 12" guitar speaker featuring an ultra-clean tone with big, round, punchy lows and warm, smooth midranges and high ranges.
- The Legend 1275 is a British-voiced speaker reminiscent of classic original equipment manufacturer (OEM) tones from the past with tight, punchy lows, warm midranges, and crisp, articulate, open high ranges.
- The GA-SC64 is an extension of the Eric Johnson Signature Series. The Vintage American ceramic magnet tone is approved by legendary amplifer builder George Alessandro. It is well-balanced from top to bottom with tight, full lows, warm midranges, and warm, but open high ranges.

For more information, visit www.eminence.com.

Bozhen New Audio Lab's Speaker Technology

Voice Coil featured a rather innovative and patented ribbon tweeter from Bozhen New Audio Lab in its April

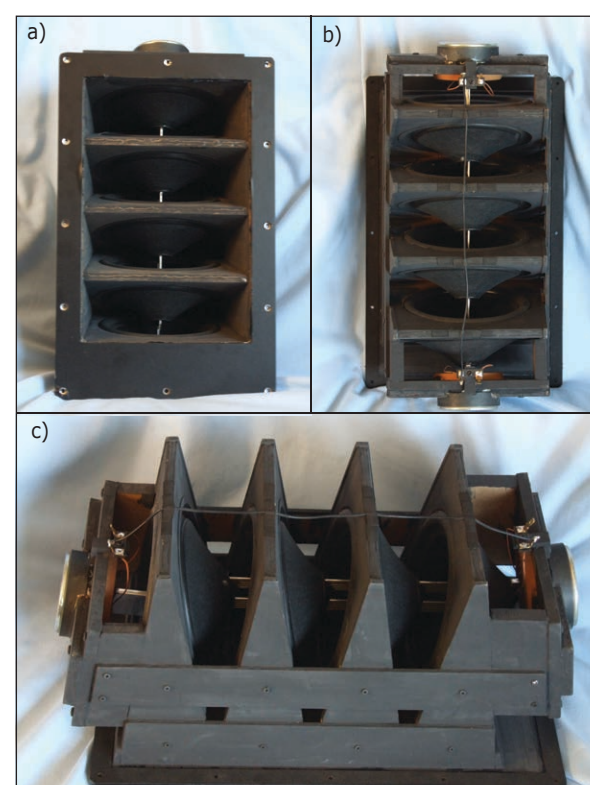

Photo 2: The DDQ prototype's front (a), back (b), and horizontal (c) views are shown.

2013 issue. The company, founded in Shenzhen, China, in 1995, recently sent me another patented loudspeaker it developed as the DDQ series. DDQ is the acronym in Chinese Pinyin for "Duolian Duichen Qudong," which means multi-folded symmetrical driving technology. Its structure is completely different from traditional cone-type woofers.

However, its concept is similar to the Tymphany Linear Array Transducer (LAT). *Voice Coil* featured the Tymphany LAT 500 and the Tymphany LAT 700 in Test Bench (April 2008 and June 2008).

The problem Bozhen New Audio Lab solved was how to apply the same transducer array principle found in the Tymphany LAT 500 and 700 using a flat baffle mounting configuration. One of the issues—if you want to call it that—with the LAT drivers was that it protruded out of the flat baffle mounting by a distance equal to approximately one-half of the diameter of the woofers used in the array. The Bozhen technology enables you to use a flat baffle mounting (see **Photo 2**).

Bozhen New Audio Lab describes the technology as a unique design that comprises the following parts:

Legend
(see Figures 1–3)

1	Frame
2	Surround
3	Cone-A
4	Cone-B
5	Transmission plate-A
6	Transmission plate-B
7	Transmission pole A
8	Transmission pole B
9	Single long pole
10	Driver unit-A
11	Driver unit-B
12	Joint hole
13	Through hole
14	Side plate
15	Front installation panel

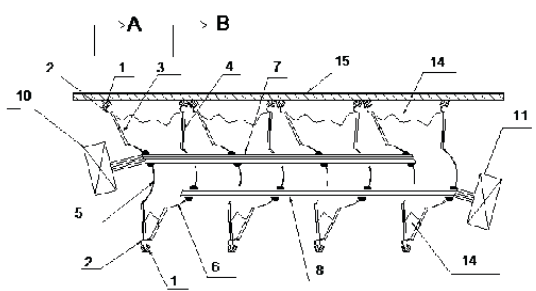

Figure 1: The DDQ driver format's structural cut-away view

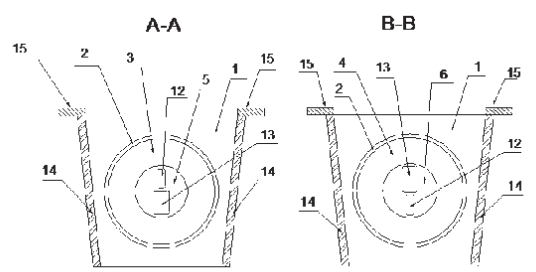

Figure 2: The DDQ substructure view

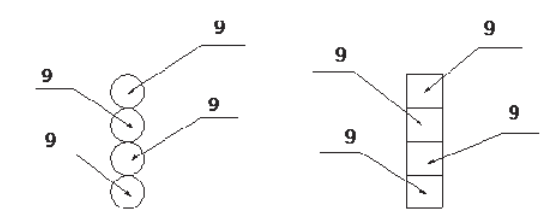

Figure 3: The transmission pole structure

Model	DDQ4.5-4	DDQ6.5-4
Frequency range	55–1,600 Hz ±3 db	45–1,300 Hz ±3 db
Sensitivity	87 dB at 1 W/1 m	87 dB at 1 W/1 m
Impedance	8 Ω	8 Ω
F_0	65 Hz ±10%	55 Hz ±10%
Rated power	50 W	50 VA
Dimension	33 cm × 20 cm × 15 cm	38 cm × 24 cm × 20 cm

Table 1: Specifications for Bozhen New Audio Labs' two new prototype models

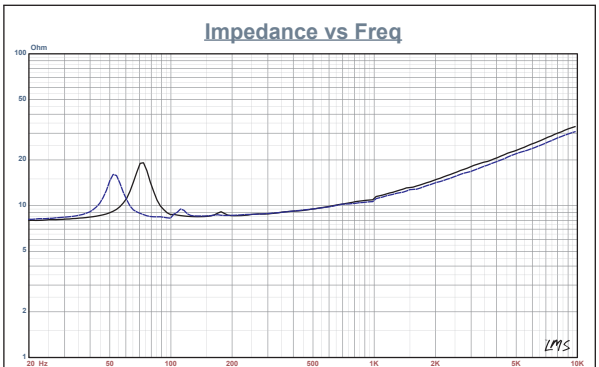

Figure 4: The black curve shows the impedance for DDQ4.5-4. The blue dash curve shows the impedance for the DDQ6.5-4.

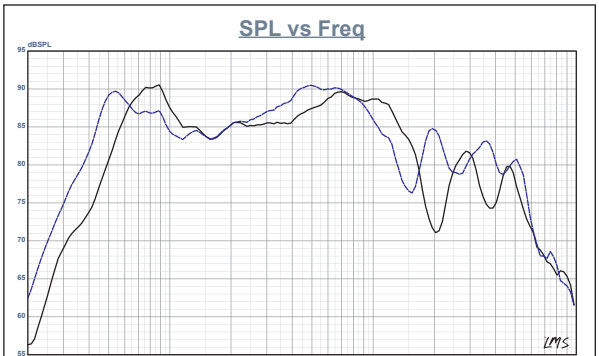

Figure 5: The black curve shows the DDQ Model 4.5's on-axis frequency response. The blue dash cuve shows the DDQ Model 6.5's on-axis frequency response.

- Several "V" type substructures that mainly comprise one framework and two cones
- Two symmetrical driving units installed on its two ends
- Two specially designed high-rigidity transmission poles that go through each "V" substructure's center
- Two transmission poles that are separately driven by one driving unit each
- Each transmission pole drives one side cone in each "V" substructure that it goes through (i.e., if the DDQ has four "V" substructures, one transmission pole will simultaneously drive four cones

When the DDQ is operating, two symmetrical driving units push every "V"-type substructure's cones by the transmission poles. These two cones in each "V"-type substructure then move in opposite directions. Through this motion, the air is pulled in or pushed out to produce sound. **Figures 1–3** along with the legend illustrate the DDQ transducer's construction.

The DDQ transducer's specific features include:

- The DDQ's low-end limit is F_0. Notice its sound pressure level (SPL) has no rolloff on its F_0 point. Usually, a traditional woofer has a typical 3 to 6-dB rolloff at its F_0. Boshen New Audio Lab's DDQ4.5-4 has a F_0 at 65 Hz, its SPL has no rolloff at 65 Hz, and −3 dB at 55 Hz. Its DDQ6.5-4 has a F_0 at 55 Hz, its SPL has no rolloff at 55 Hz, and −3 dB at 45 Hz.
- The DDQ adopts a symmetrical driving structure. The motion direction between the adjacent cone is opposite and has nearly zero resultant forces. When installed in the speaker box, it brings very slight vibration, so the bass quality is much purer.
- The DDQ has several "V"-type substructures. Each "V"-type substructure acts as a sound source when it works. Each "V"-type substructure has two cones driven by separate transmission poles. When it works, these two cones will pull in or push out the air to produce sound. Because this "V"-type structure has a particular compression ratio, the DDQ has almost no power compression in its low end.

Bozhen New Audio Labs has two prototype models available, the 4.5" based DDQ4.5-4, and the 6.5" based DDQ6.5-4. **Table 1** lists the specifications for these two models.

Bozhen New Audio Labs provided measured data for both drivers. **Figure 4** shows the impedance of both the 4.5" and 6.5" models. **Figure 5** shows the on-axis frequency response of both models. For more information, visit www.bzspeakers.com. ***VC***