



DEFINITION MK.IV SPECIFICATIONS

ZU AUDIO DEFINITION Mk.IV [REV-A] LOUDSPEAKER SYSTEM SPECIFICATIONS + INFORMATION

Description	High-efficiency, high-output, floor standing loudspeaker featuring Zu's nano-sanctified full-range high output driver, Zu-Griewe electroacoustic technology, no crossover or filters on full-range driver, complemented by the massive Radian 850 based tweeter. Deep bass is managed through a down-firing Eminence LAB-12 based subwoofer assembly complete with internal Hypex™ amplification and user adjustable filters.
Production	October 2011—
Dimensions H x W x D	49-1/16 x 12-3/4 x 12-3/4" [125 x 32.4 x 32.4cm] // footprint is 12.75" [32.4cm] square
Weight	150 pounds [68kg] // may vary with finish selection
Packaged	FlexPak foam encapsulated 56 x 21 x 21" [142 x 54 x 54cm] 165 pounds [75kg]
Bandwidth	14—20kHz
Efficiency	101dB SPL @ 1W, 1m
Impedance	8Ω, nominal full bandwidth
Group Delay	< 5ms
Acoustic Center	36" [91cm] adjustable via footers and subtle canting of loudspeaker system
Horizontal Listening Window	45°
Vertical Listening Window	15°
Recommended Listening Distance	8 feet [2.5m] or more
Recommended Connector	ZuB3 via speakON 8-pole [ZuB3 convention single channel] Zu cable featuring ZuB3 cable technology recommended
Accepted Connectors Via Adapter	1/4" fork spade [6.3mm], oversized 5/16" [8mm] fork spade, bare wire (banana plugs in a pinch)
Internal Cabling	ZuEventB3/Def4-A
Conventional Solid-State Or Tube Amp	1—4 watt (average room, moderate volume)
Power Recommendations	4—16 watt (large room, loud listening) 16—64 watt (large room, concert levels) 500 watt (maximum input power)
Amplification Considerations	Definition Mk.IV is designed around conventional or parallel mode amps, bridged amplifiers are not recommended (black speaker negative leg [sp-] of bridged amps will see the virtual ground node of the internal bass amp)
Component Tolerance	drivers 0.05% pair matching, 0.01% on electrical components
Tweeter Detail	1x Radian 850 based dynamic tweeter // bandwidth: 12k—20kHz (high-pass Bessel @ 18kHz)
High-Pass Detail	1st order Bessel @ 18kHz (12kHz acoustical) Mundorf Silver/Oil 1uF + Mills 10Ω 12.5W Rs + 10Ω 12.5W Rp
Full-range Driver Array Detail	2x Zu103/ND/G1-16 nanotech full-range driver // bandwidth: 30—12kHz (direct and unfiltered)
Subwoofer System Detail	1x Eminence LAB-12 based subwoofer, sealed // bandwidth: 12—80Hz (user adjustable, actively filtered)
Subwoofer Amp Type	internal Hypex UcD 400-V5 based, high energy toroidal transformer
Subwoofer Amp Input Power	115V (8A max) or 230V (4A max), 50/60Hz (transformer voltage rewire possible, inside case work) 8 watts @ idle
Subwoofer Amp Chassis	machined aluminum case work, rack style fitment allowing in the field service / replacement
Subwoofer Amp User Adjustments	Volume // Low-pass Filter Knee // Parametric EQ Gain // Parametric EQ Frequency // Phase
Cabinet	composite wood plate core; hardwood, aluminum and steel superstructure and stressed members
Spike / Feet Insert Thread	3/8—16 TPI, 9/16" hex nut, 14mm wrench can be used
Included With Loudspeaker	4x hard press-on full-range driver covers, installed 8x hard surface stainless ball-end feet / 8x stainless 9/16" [14mm] jam nuts, installed 8x long carpet spikes, 1x connector cleaning kit, 1x finish cleaning cloth, 1x owners manual
Loudspeaker Options	ZuB3 via speakON 8-pole to Cardas patented binding posts, allowing any cable to be used, grille, custom finish work
Life Expectancy	100 years; cabinet, and drivers, including the Zu 10" drivers; even in direct sunlight
Manufacturers Country Of Origin	U.S.A. all parts and labor excluding a few components. Hypex amp modules are made in the Netherlands
Compliances of Directives	60065 EMC 2004/108/EC 2006/95/EC 55103 RoHS CE WEEE Class-2 subwoofer amplifier
Warranty & Service	5 years limited on cabinet and drivers; 2 years limited on subwoofer amplification—warranty does not cover misuse, abuse, components upstream from the loudspeaker system, modifications or non-factory service.



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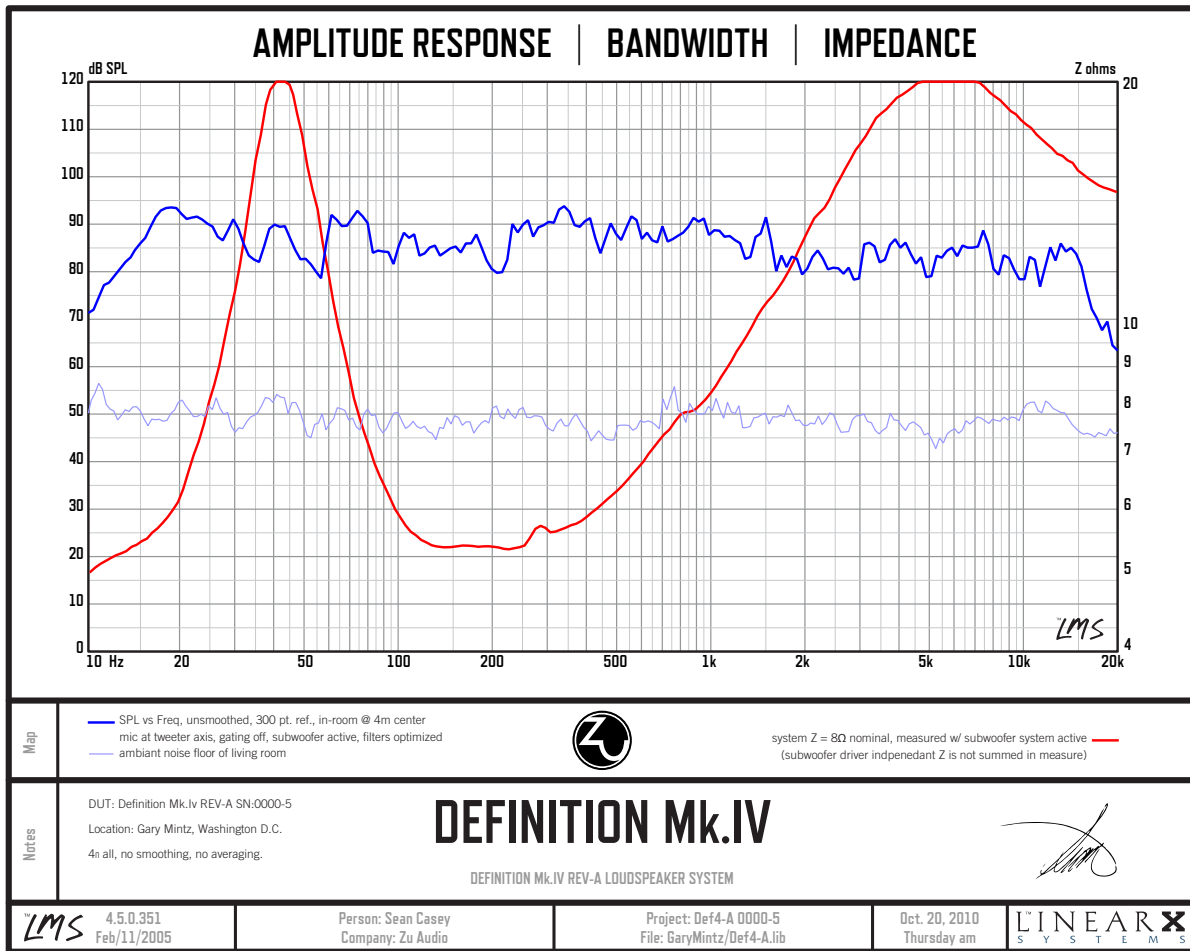
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Subwoofer Amplifier	Definition Mk.IV features a built-in subwoofer audio amplifier. It is a no compromise, state-of-the-art actively filtered subwoofer amplifier that is integrated into the Definition Mk.IV loudspeaker cabinet, visible on the rear of the loudspeaker.
Subwoofer Amp Type	Class D analog switching amp with heavy-duty traditional power supply. Amplifier module is Hypex DS4 UcD 400-V5.
WARNINGS	RISK OF ELECTRIC SHOCK—THERE ARE NO USER SERVICEABLE OR ADJUSTABLE COMPONENTS INSIDE. Dangerous voltages are present inside case during operation. DC output voltage is 50 volts up and down, 100V DC total. Also know that the case is sealed and requires technical knowledge to open and should only be serviced by a qualified technician. System is not intended for outdoor use, do not expose to rain or moisture.
RECOMMENDATIONS	We recommended unplugging your loudspeakers, main amplifier(s) and other regarded electronics during lightning storms or when the playback system will not be used or for an extended period of time.
Safety Classification	Class-2, transformer is also a class-2 double wound isolation toroidal transformer that is switched and fused.
Safety Standards & Compliance	60065 EMC 2004/108/EC 2006/95/EC 55103 RoHS CE WEEE Class-2 subwoofer amplifier
Mains AC Power	50/60Hz, 115 or 230 volt (transformer is 115/230V wound and factory wired for your region).
Mains AC Connection	C13/C14
User Serviceable Fuse	115V AC mains = 8A 230V AC mains = 4A Should the fuse blow replace it with an equivalent part. A spare fuse is located within the fuse holder, located just below the power inlet and only accessible when the power cable is not plugged into the inlet. A small flat blade screwdriver is required.
Power Consumption	600 watt maximum // 8 watt idle
Damping Factor	500
Self Protection	output short-circuit
Input Impedance	500Ω
Speaker Level	
Infrasonic Filter	12Hz // 24dB/octave butterworth
Adjustable Gain	-110dB—0dB
Adjustable High-Pass Filter	20—120Hz
High-Pass Filter Slope & Character	18dB/octave linkwitz-riley
PEQ Boost	0—+6dB
PEQ Boost Bandwidth	1/2 octave
PEQ Frequency	20—50Hz
Phase	0—180° // 180°—360°
NO BRIDGED MAIN AMPLIFIERS	Definition Mk.IV presents a virtual ground node to the external main amplifiers' speaker negative (SP-) output. Bridged amplifiers will see this as a short and self protect. Do not use bridged amps to drive Definition Mk.IV loudspeakers. Standard amp types will see an easy 8 ohm load. If main amp does not say BRIDGED there's nothing to worry about.
Warranty & Service	2-year limited. Zu recommends factory service. Removing the amplifier from loudspeaker is simple and will not expose the user to danger. Loudspeaker may still be operated without amplifier installed, and with satisfactory results. Though Zu and Hypex have designed the electronics to the highest standards of fidelity and durability, shit still happens. In the event that service is required, Zu offers an amplifier exchange program so you can quickly get your system back up and running quickly and with minimal hassle.



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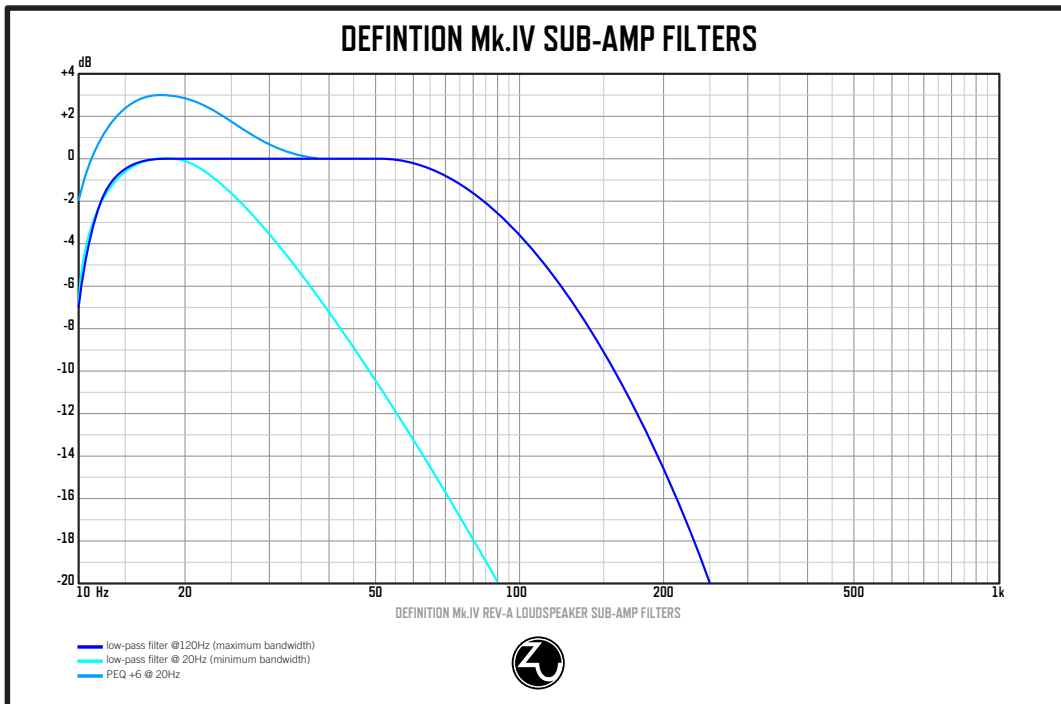
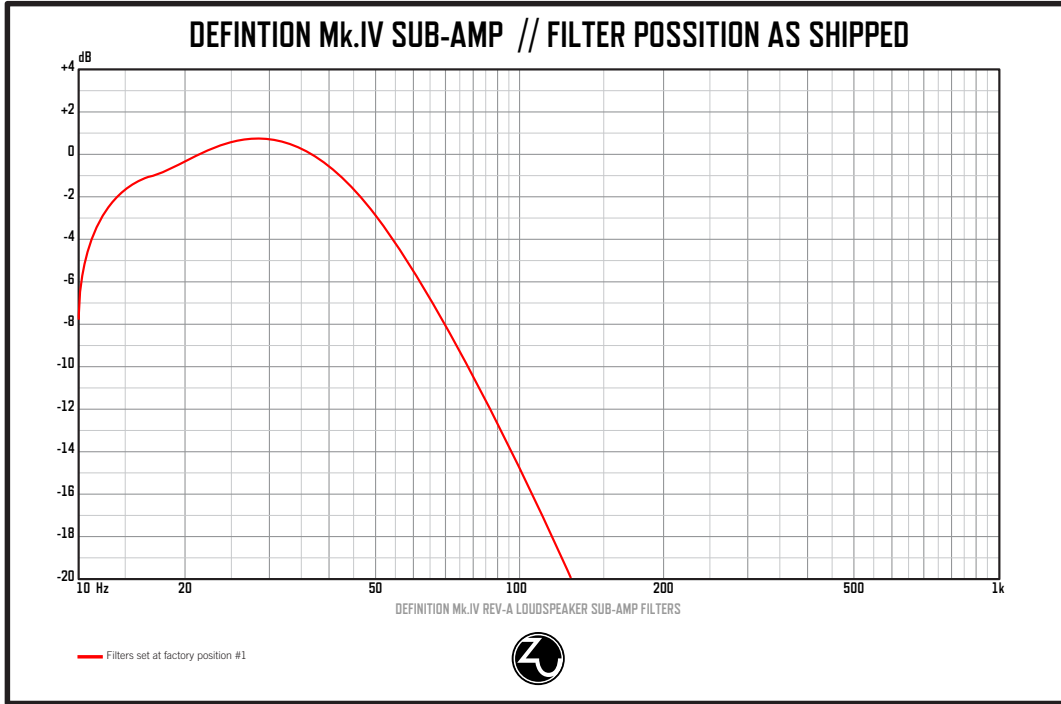
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LOUDSPEAKER SYSTEM OVERVIEW AND SALES COPY

Definition Mk.IV is designed to give its best performance in midsize and larger rooms, on the end of any good sounding amps, tubes or solid-state. Definition Mk.IV distills everything we've learned from creating our flagship loudspeaker, Dominance, into a loudspeaker within reach of mere mortals.

Definition Mk.IV takes from Dominance our new nanotech full-range drivers, the fabulous Radian 850 based tweeter and our Event cable. It uses our Zu-Griewe acoustics technologies for the full-range drivers, and cabinet engineering that addresses noise and framework function across all fronts: materials, structural, bonding and building technique. The resulting combinations of engineered plate, hardwoods, damping compounds and metal alloys create a wonderfully inert structure.

Old Definition's rear-firing sub-woofers are replaced with a single massively motored 12" subwoofer driver, mounted on a super rigged, machined-from-billet 2" [50mm] thick block of aluminum, firing straight down into the floor—this is powered by our new deep bass amplifier built around the highly regarded Hypex UcD 400 module. This new on-board subwoofer amplifier system is not only as good as it gets in quality power, it also provides transparent filter processing of deep bass signals, most of which are user adjustable so you can dial-out room modes without compromising the analogue integrity of the music fed from your main amplifier. These components, and the sophisticated cabinet, work together to deliver what we genuinely believe to be the state-of-the-art in any loudspeaker south of \$30k. It's hugely dynamic, massively sensitive, capable of handling high power if you really want to die young, and so wonderfully, gloriously coherent, unflappable and downright true to the gorgeousness of music that we might as well retire now and go home.

The most visible change for Definition Mk.IV is the machined aluminum plinth and subwoofer assembly. And while the cabinet size and shape look very similar to previous Definition models, the Mk.IV cabinet design solves resonance and baffle issues in a completely new way, focusing on structural and materials engineering and only using weight and mass where useful. The substructure is a 30 degree raked dual wall superstructure that solves material resonance and acoustics issues through elegant design simplicity. The baffle is the most unsound section of any loudspeaker cabinet, yet it's the portion of the cabinet with the greatest impact on fidelity. With Definition Mk.IV we use the massive tweeter assembly as a stressed member of the framework, compressing 10 pounds [4.5kg] of 1-3/4" [38mm] thick steel alloy and 1-3/4" [38mm] thick billet 6061 aluminum to constrain the cabinet core right between our two full-range drivers, exactly where all this mass and strength will do the most good. The cabinet core material is a combination of engineered and solid woods. Joints are first mitered then strong-backed. The plinth / bass assembly is bolted into the cabinet's superstructure to realize a structurally strong, well-damped cabinet without the end result weighing a ton of bricks.



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POINTS OF ENGINEERING & PERFORMANCE

- Zu nanotech full-range 16 ohm drivers parallel-wired presenting an 8 ohm system impedance to the amp (32 ohm latent option for amps needing such a load e.g. OTL)
- Radian 850-based tweeter assembly (if there's better... we haven't found it)
- completely new cabinet design using expanded materials pallet
- Zu-Griewe acoustic design principles applied to internal damping
- Event B3 based cable harness
- ZuB3 interface via speakON 8-pole
- Hypex 400UcD V5 based internal bass amplifier
- user controls and parametric tuning of deep bass
- machined aluminum enclosure for electronics
- engineered for in-field serviceability

Definition Mk.IV is real high-fidelity, a sincere expression of our musical values—of what we create and build at Zu. You can see the strategic use of the mixed materials pallet, judicious use of silver in the cabling and high-pass network, and the uncompromising and intense focus given to all the drive units and the way in which they work together as a whole and interface with the cabinet—and how the whole loudspeaker system works within the room.

Like all Zu products, Definition Mk.IV is centered and weighted around the critical human voice (A1, 55Hz, through A6 and all the possible harmonics, to approximately 10kHz). Serving this critical region of tone is our nanotech 10" paper cone substrate-based full-range driver—the same developed and used in the Dominance. So with tone, texture and definition realized in the meat of the range, we've set about redefining the frequency extremes with Definition Mk.IV—in very real terms as evidenced in the driver selection, and demonstrably evident to your ears, chest, and soul.

THIRD GENERATION ZU-GRIEWE ELECTROACOUSTICS LOADING

Zu-Griewe driver / cabinet / room loading technology as applied in Definition Mk.IV exploits the high efficiency full-range drivers' bass performance. This affords a seamless integration of the subterranean tone and textures reproduced by the system's subwoofer.

Zu-Griewe technology was developed by Ron Griewe and Sean Casey, with its beginnings in competition two and four-cycle motorcycle engine exhaust systems for improving power output, with increased bandwidth, while reducing noise and sound pressure levels over convention. More on the Zu-Griewe tech can be found in the FAQ section.



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NEW NANOTECH (ZU103ND/G1-16) FULL-RANGE 10" DRIVER

This new Zu driver delivers stunning attack, shove, resolution and bandwidth—as they should, being lifted straight from our flagship loudspeaker, Dominance. Features include a maximal motor for expanded dynamic contrast and reduced harmonic distortion; a lightweight neutrally hung voice-coil assembly featuring a paper/Kapton former; a linear in-line layout of the inner cone for best resolution of detail; a diamagnetic shorting assembly for dynamic damping of the moving mass when playing at concert levels; nanotech paper cones designed to support wide bandwidth; and a billet phase cone with concentric maximal length sequence diffusion for smooth high frequencies. All this is anchored to a heavy cast aluminum alloy frame with overbuilt bonded and riveted yoke/magnet/top-plate assembly.

In 2004 we began to experiment with cutting-edge DuPont nano-engineered coatings and solids. The initial reasons were to realize the best possible gloss finish and one that would also be far tougher. These nanotechnology engineered liquid solid ceramics, fibers and synthetic resins performed as promised—so naturally we got busy experimenting on driver applications. Here's what we've achieved: the driver's cone is a paper pulp substrate, processed with a liquid solid matrix utilizing several nanoengineered materials. Some key components and compounds include: nanosphere ceramics, synthetic epoxy, cristobalite, plus the use of amorphous fumed silica and aircraft dope. The nano materials and application process reduce weight and increase strength and propagation velocity without incurring any sacrifices in damping. The end results are stunning—our new nano-sanctified full-range drivers sound dramatically better than any previous generation Zu FRD. Expect to see a lot more of them!

We continue to watch and experiment with new fibers and mats as they are very promising, especially what's being done with buckypaper. For us however a tone-promising pulp-free combination of these new materials has not yet been identified. Nothing has proven to be as well behaved as natural fibers. There's just something about paper. Its balance of strength, propagation velocity and damping all contribute to that tone, texture and fidelity we pursue. But add the right combination of old coating technologies plus nanoengineered materials and adhesives... paper maintains its advantages well into the 21st century. For more info please see the FAQ section of ZuAudio.com