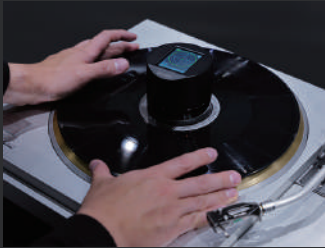


Center the Groove  
Hear the Truth

**ES 002**  
REFERENCE / CORE



# Details



## You Can’t Reduce Wow & Flutter Without Eliminating Record Eccentricity

The dominant cause of wow & flutter in analog playback is not the turntable itself, but the eccentricity of the record. No matter how precise or expensive your turntable may be, as long as the record is off-center, wow & flutter cannot be truly reduced. For example, a record with an eccentricity of just 0.34 mm can generate wow levels more than 20 times greater than those of the turntable alone—even if the turntable boasts a wow & flutter rating of just 0.008%. This means that record eccentricity severely degrades the rotational accuracy of the entire playback system, making it impossible to achieve faithful sound reproduction, regardless of the hardware quality. By accurately correcting the record’s eccentricity, you can dramatically reduce total wow & flutter—allowing your turntable system to finally perform to its full potential.

## Two Major Problems Caused by Record Eccentricity

When a record is off-center, it increases wow & flutter and causes two major problems in playback accuracy and sound quality. The first issue is instability in playback frequency. For example, even if a 3kHz tone is originally recorded into the groove, excessive wow & flutter will prevent it from being reproduced accurately at 3kHz. This is a fundamental flaw for any system that aims to faithfully reproduce the recorded material. The second issue is mechanical instability. As the tonearm traces an off-center record, the cartridge is constantly shaken from side to side. This causes it to move away from its ideal operating center, resulting in interchannel phase shift, which can lead to audible muddiness and unstable imaging. To eliminate these issues and allow your audio system to reach its full potential, it is essential to reduce record eccentricity as much as possible.

## Precise Centering in 3 Simple Steps

**STEP 1 Measurement** : Start by turning on your record player. While the platter is rotating, gently hold down the top of the stabilizer to stop its own rotation. This triggers the stabilizer to detect platter movement and enter measurement mode automatically. Once in measurement mode, the outer ring display will begin to rotate, and a message saying “Tap screen to start measurement” will appear. Tap the screen, and the message will change to “Measuring…” After approximately 2 seconds, the measurement is complete.

**STEP 2 Adjustment** : Stop the turntable and refer to the display. A cross mark (representing the center of rotation) will appear on the screen. Press and slightly shift the record so that the cross mark aligns as closely as possible with the absolute center of the screen. The display’s color elements—outer ring, cross mark, and “After” bar—visually indicate the degree of eccentricity.

**STEP 3 Restart** : Once the cross mark is aligned with the true center, restart the record player to confirm that the eccentricity has been corrected. Then, enjoy playback with minimized wow & flutter and enhanced audio performance.

## Further Pursuit of Perfection in the ES-002

The ES-001 eccentricity detection stabilizer earned high praise from analog audio enthusiasts. Inheriting its core design, the ES-002 introduces carefully considered improvements to achieve a higher level of perfection. Enhancements in structure, materials, and balance ensure superior reliability and ease of use in practical applications. The ES-002 is a meticulously refined evolution of the ES-001, enhancing durability, reliability, and operability in every aspect. The difference is in the details.

### Simplified and Robust Construction

The number of components has been reduced, resulting in a more streamlined and reinforced design. This simplicity contributes to improved reliability and structural stability.

### Improved Housing Durability

The battery compartment has been redesigned, and new materials have been adopted for the sensor unit, further enhancing durability during extended use.

### Optimized Center of Gravity for Greater Stability

The internal configuration has been rebalanced to achieve ideal rotational performance. This refinement enables the stabilizer to deliver smoother, more natural operation.

## ES-002 Reference (Reference Model)

Building upon the design philosophy of the ES-001, the ES-002 Reference is a reference model that pursues an even higher level of refinement. Prioritizing sound quality above all, it is constructed using only the finest grade components. Combining outstanding audio performance with highly accurate eccentricity detection, this model represents the culmination of DS Audio’s stabilizer technology.



ES-002 Reference	
Dimensions	φ 80mm × H70mm
Weight	620g
Body Material	Aluminum (A5052)
Exterior Finish	Black anodizing + Glossy black nickel plating
Bottom Plate	Non-magnetic tungsten
Internal Parts	Sound-quality prioritized metal components (partial use)
Dedicated Case	Included
Batteries	Two AA batteries
Accessories	Battery set Screwdriver Reamer USB cable

## ES-002 Core (Core Model)

Offering the same measurement accuracy and core functionality as the Reference model, the ES-002 Core is a practical option designed with cost-efficiency in mind. By replacing the most expensive tungsten components with brass, using resin for internal parts, and simplifying the accessories, it maintains identical performance while being more accessible.



ES-002 Core	
Dimensions	φ 80mm × H70mm
Weight	540g
Body Material	Aluminum (A5052)
Exterior Finish	Black anodizing + Gray anodizing
Bottom Plate	Brass
Internal Parts	Lightweight-prioritized resin components (partial use)
Dedicated Case	Not included
Batteries	Two AA batteries
Accessories	Battery set Screwdriver Reamer —

※Both models feature the same eccentricity detection performance