

DJ SOUND SYSTEMS GUIDE

FOR MOBILE DJs STARTING UP

UNDERSTANDING:

- ✓ ACTIVE VS PASSIVE LOUDSPEAKERS
- ✓ AMPLIFIERS & DSP PROCESSING
- ✓ COLUMN ARRAY SYSTEMS
- ✓ SYSTEM CONFIGURATION & SETUP
- ✓ SOUND COVERAGE & DISPERSION
- ✓ REAL-WORLD ADVICE FROM 50+ YEARS OF INDUSTRY EXPERIENCE



**EXPERT INSIGHTS FOR
MOBILE DJs, EVENT
PROFESSIONALS &
SOUND ENGINEERS**

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HELPING DJs MAKE INFORMED SOUND SYSTEM DECISIONS
BASED ON PERFORMANCE, RELIABILITY AND VALUE.

Sound Systems for Mobile DJs

I have been reading advice and comments on the various social media platforms regarding new and inexperienced DJs seeking recommendations for sound systems.

With more than 50 years of experience as a DJ, nightclub sound and lighting specifier/installer, provider of large-scale sound systems for leading house music events, live sound engineer working internationally, and Export Marketing Director for a loudspeaker manufacturer, I felt this would be a good opportunity to put pen to paper and share some practical advice based on real-world knowledge and experience.

Before I delve into the technical aspects, I would like to make one important statement:

“There Are No Bad Sound Systems”

Sound systems can be compared to cars, where price often reflects the quality, engineering, reliability, and overall performance of the product.

AD Systems, the loudspeaker manufacturer for which I worked, was founded in the early 1970s by two Dutch engineers based in Altea, Spain. The company was the first to successfully incorporate polymer horns into its loudspeaker designs and received numerous awards over the years, including "Product of the Show" at Musikmesse Frankfurt in 1994 for developing the world's first digital loudspeaker management system.

AD Systems may not be a brand that many readers are familiar with, but it produced exceptional products. If you visit many of the larger fiestas throughout Spain today, you will still find AD Systems equipment in regular use, despite the company founders retiring in 2006.

The company's philosophy was simple: build the best possible loudspeaker enclosures and source the finest components available from specialist manufacturers around the world. This approach enabled AD Systems to deliver products with outstanding performance and reliability, although inevitably at a premium price.

Major manufacturers such as JBL, EV, RCF, Bose, and others design and manufacture many of their own components in-house. While this offers advantages in terms of production control and cost efficiency, it can sometimes result in a balance between cost and performance that influences the final product specification.

This article is not intended to recommend specific brands or products. The purpose is to provide guidance that will help readers determine which sound system best meets their individual requirements, expectations, and budget.

Active vs Passive

Active loudspeakers have everything required built into the cabinet, including the amplifier, DSP (Digital Signal Processor), crossover, and protection circuitry. This allows the manufacturer to optimise all components, so they work together efficiently, helping to ensure the best possible performance, reliability, and protection.

Active systems are an excellent choice for the beginner or mobile DJ, as they are quick to set up and require minimal technical knowledge. However, if you plan to expand or upgrade your system over time as your budget allows, an active system may not always be the most flexible option. Upgrading often requires replacing complete loudspeaker cabinets rather than individual components.

Passive loudspeakers require external amplifiers and, in many cases, signal processing or speaker management systems. While this increases system complexity, it offers greater flexibility when designing or expanding a sound system.

The advantages of passive systems include a clearer upgrade path, as amplifiers, processors, and loudspeakers can be upgraded independently. In addition, because there are no built-in amplifiers or power supplies, passive loudspeakers are generally lighter and easier to transport.

Neither active nor passive systems are inherently better. The best choice depends on your application, technical requirements, future expansion plans, and budget.

If we compare a pair of 15-inch loudspeakers capable of producing an output level of approximately 120 dB, the average cost of an equivalent passive and active system would be as follows:

Passive £1,795.00 – Active £1,152.00

Column Array Loudspeakers

I would also like to touch on the subject of **column array loudspeakers**, which have become increasingly popular among mobile DJs in recent years.

There are two principal advantages to this type of system:

1. Wider Coverage

Column arrays typically offer a dispersion pattern of around **120° horizontal by 30° vertical**, enabling them to provide more consistent coverage throughout a venue. This wider horizontal dispersion can help ensure that audiences receive an even listening experience across the room.

2. Reduced Sound Loss Over Distance

A line-source column array generally experiences a sound level reduction of approximately **3 dB per double the distance**, compared with approximately **6 dB per doubling of distance** from a conventional point-source loudspeaker. This means that sound levels remain more consistent between the front and rear of a venue.

For example, in a room measuring 16 metres in length, if a sound pressure level of **100 dB** is required at the rear of the room, a column array system would need to produce approximately **112 dB** at source. A conventional loudspeaker system, by comparison, would need to produce approximately **124 dB** at source to achieve the same level at the back of the venue.

It should be noted that we operate a number of column array systems within our rental inventory, primarily for conference and corporate presentation applications.

Our experience has shown that the smaller systems can sometimes struggle when used for high-level music playback, and we have encountered instances of component failure under these conditions.

However, the larger column array systems have delivered excellent results and have proven highly effective for both speech reinforcement and musical applications when specified correctly.

Conclusion

As with all sound reinforcement products, success is largely determined by selecting a system that is appropriate for the application. Column arrays can offer excellent coverage and speech intelligibility, but prospective buyers should carefully consider venue size, audience numbers, and the type of programme material before making a purchasing decision. For some applications, a conventional loudspeaker system may remain the better choice.

So, Where Should a New DJ Start?

With the information provided, where should a new DJ begin when choosing sound equipment?

Over the years, I have used many different sound systems, ranging from small mobile setups to large-scale systems for major events. At my age, the **weight, size, and portability** of my equipment have become just as important as sound quality and performance.

My current setup consists of a **Pioneer DDJ-SX2**, an **ASUS ZenBook 13-inch laptop running Serato Pro**, a **Dynacord Powermate 600/3**, a pair of **EV SX300 loudspeakers mounted on stands**, and a **Shure SM58 microphone**. In addition, I host an online radio show, which I occasionally broadcast remotely using a **Roland UVC-02** interface.

The entire system fits comfortably into a small hatchback, making transportation simple while still delivering the performance required for the majority of my work.

I purchased my EV SX300 loudspeakers in 1998 and later expanded the system by adding two birch-ply 15-inch bass cabinets loaded with **JBL 2224H** drivers. At that time, the amplifier rack contained a **1,500W @ 4Ω amplifier**, a **1,200W @ 4Ω amplifier**, and an **EV crossover**, with a combined weight of around 35 kg.

The system was exceptional and consistently delivered excellent results. In fact, I still own all of the equipment today and power it up annually to ensure everything remains operational. However, the complete system has not been used since 2003, largely because my requirements changed and portability became a much greater consideration.

What this demonstrates is that a pair of quality 12-inch loudspeakers can reliably deliver the sound levels required for many mobile DJ applications without the need for overly large or complex systems.

For those just starting out, my advice would be simple: **buy the best sound system you can comfortably afford, paying particular attention to reliability, portability, and sound quality rather than headline power ratings**. A well-designed system from a reputable manufacturer will usually outperform a larger, cheaper alternative, while also providing greater reliability and a better long-term investment.

Best Practices

Once you have purchased your sound system, the next priority is getting the best possible performance while avoiding equipment failure or damage when working on the road.

Rule No. 1: Watch Your Signal Levels

Your mixer or controller will typically feature LED level meters displaying **green**, **amber**, and **red** indicators.

Think of these as traffic lights. When driving, a red light means stop. The same principle applies to your sound system. If the level indicators are showing a **solid red**, reduce the output level immediately. Prolonged operation in the red can result in distortion, amplifier clipping, and potential loudspeaker damage.

An occasional flashing red peak indicator is generally acceptable, but a constant red light is a warning that the system is being driven too hard.

Rule No. 2: Trust Your Meters, Not Just Your Ears

Your ears are connected directly to your brain, and the brain has an effective way of protecting your hearing. When exposed to high sound levels for extended periods, your perception of volume changes, making the music seem quieter than it actually is.

This often leads DJs to keep increasing the volume throughout the night.

Avoid starting at maximum output. Begin at a sensible level and gradually increase as the room fills and energy builds. If you start too loud, you'll have nowhere to go when you need additional impact later in the event.

Rule No. 3: Speaker Placement Is Critical

The two biggest enemies of sound coverage are **distance** and **obstacles**.

Whenever possible, place your full-range or mid/high loudspeakers on stands so that the high-frequency drivers are above head height. This allows the sound to travel over the audience rather than being absorbed by people standing between the speakers and the dance floor.

Correct speaker placement can often improve coverage more effectively than simply adding more power.

Rule No. 4: Avoid Excessive Equalisation

Remember that professional PA systems are not hi-fi systems designed for personal listening preferences.

Avoid making large EQ adjustments simply because you prefer a certain sound. In particular, reducing the midrange around **500 Hz** to make the system sound "warmer" often results in a loss of vocal clarity and overall sound level.

As a general rule, start with all EQ controls flat and, where possible, use the manufacturer's recommended settings. The loudspeaker designers have usually spent considerable time optimising the system's frequency response.

Final Thought

The most expensive sound system in the world can still sound poor if it is driven incorrectly, while a modest system can deliver excellent results when used properly. Understanding gain structure, controlling sound levels, positioning loudspeakers correctly, and resisting the temptation to over-adjust the EQ will do more for your performance than simply buying more powerful equipment.

And Finally

Remember.....

I hear I forget – I see and I Remember

You may have a great sound system, but, if you don't look the part then you are doing yourself a disservice. Spend as much as you can on your lighting.