4400 Series Studio Monitors

For several years JBL 4400 Series Studio Monitors have played a major role in the audio industry. Countless music recordings and movie and television soundtracks have been created with 4400 Series monitors as the critical listening source. Numerous broadcast studios world-wide have relied on 4400 Series systems for studio playback, requiring the monitors to deliver faithful sound reproduction, typically 24 hours a day, every day of the week. In short, 4400 Series monitors have been and continue to be one of, if not the most vital of components in the studio control room.

Yet, something good just got better!

What Makes A Studio Monitor A "Studio Monitor"?

Virtually everything you do in the studio must be listened to. And the monitor loudspeaker you use should accurately and reliably reproduce your work if you are to exercise effective creative and corrective judgement.

At JBL, we have long recognized the fact that there are virtually no standard industry guidelines by which to qualify a loudspeaker system as a "studio monitor." This being the case, we must ask ourselves, "what does make a loudspeaker system a good monitor system?"

Typically, there are two basic schools of thought regarding the qualification of a loudspeaker system as a "studio monitor". Some place a great degree of importance on technical specifications as the benchmark of a loudspeaker's performance. Others are adamant that studio monitor selection should be a predominantly subjective process, that "you should buy what sounds best to you." In fact, both points of view are valid.

At JBL, our goal is to develop systems that are both sonically superior and that yield excellent laboratory test results. It is our belief that these two aspects of performance are inter-twined. On this basis, we believe that the job of separating the serious contenders from the also-rans can be simplified by first comparing quantified performance parameters that do have a definite impact on what you may or may not hear. These are as follows:

Distortion:

The levels of distortion will have a definite impact on clarity, articulation, imaging and listener fatigue. In order for a loudspeaker to be an accurate reproducer, it should exhibit the lowest possible harmonic and phase distortion. Furthermore, it is quite common for a recording engineer to listen to monitors for hours on end. A speaker with high distortion will tend to fatigue the ear much sooner than a speaker with low distortion characteristics. And the level of distortion should be measured at representative listening levels, typically about 96 dB, at 1 meter.

Frequency Response:

A measure of energy balance across the audio spectrum, this is undoubtedly the most used and often misused bit of information on a specification sheet. Simply put, the measured output from the speaker should match the input signal as closely as possible. As a general rule, a "flat" curve is considered ideal though an in depth knowledge of how the ear reacts to minor deviations is crucial (psychoacoustics). However, most published Frequency Response Curves are measured in an anechoic environment and the result of ideal on-axis microphone positioning only. A good monitor loudspeaker system should maintain balanced energy output off-axis as well to achieve good power response characteristics.

Dispersion (Polar Response Curves):

Like Frequency Response, this specification gives you a clear picture of how the loudspeaker system's energy balance changes as you move off axis. In most monitoring environments, much of the sound you hear has been reflected at least once off of the various control room surfaces. When the loudspeaker's frequency response curve is smooth and free of significant peaks and dips, the ear will focus on the first arrival sound and hear it as an accurate reproduction of the signal source. However, reflections will also reach the ear, though fractions of a second later. Because of this, it is of equal concern that the energy balance off axis, that which is likely to be reflected, be as smooth and even as possible.

Power Handling:

Digital Recording, CD (compact disc) and DAT technology allow the recording engineer to retain much of the original dynamic range generated by the various music and sound sources. Moreover, many of the electronically generated sounds, particularly those created in the digital domain, generate extremely wide dynamic range, putting the monitor loudspeaker to the test. A well designed monitor should be rated, not only on the basis of "continuous" capacity, but also with regards to peak or transient power handling capability. Additionally, the monitor should maintain its performance characteristics at all power levels. Often at high operating levels, loudspeakers can experience a condition known as "Power Compression". Power Compression is best described as an audible drop in total acoustic output and/or a change in spectral balance that occurs when high voice coil temperatures cause a rise in voice coil impedance. To minimize this condition, JBL transducers employ large magnets and voice coils which efficiently dissipate heat, allowing them to deliver full acoustic output and dynamic range.

Once the field has been narrowed, the final selection process can be based on critical listening. Not in the showroom, but in the studio... your studio. This type of auditioning takes into account every other factor that will affect or influence monitor performance, in the exact environment where it will be used.

The Science And Art Of Designing A True Studio Monitor.

Designing a loudspeaker system that both measures well in a laboratory environment while also sounding good in the studio is, without a doubt, a formidable, but certainly not an insurmountable challenge. Most "studio monitor" manufacturers utilize off-the-shelf transducers and must be content to work with the best they can find for the specific task. At JBL, our engineering staff starts by designing the individual transducers for optimum performance.

4400 Series low frequency transducers are the result of years of transducer design experience, employing proven technology. Symmetrical Field Geometry (SFG™) magnet structures minimize harmonic distortion resulting in maximum definition of bass and low midrange information. Large diameter voice coils provide excellent transient response characteristics and outstanding power handling.

A new titanium dome tweeter has been developed to further minimize distortion levels, delivering even smoother, clearer high frequency information. And the tweeters are oriented to the create "Left" and "Right" models, achieving mirror-imaged pairs for excellent imaging.

Computer aided design, along with extensive listening sessions conducted in a variety of studio environments, gave JBL engineers the information and experience necessary to further refine crossover network design. Employing conjugate circuit topology and tight tolerance components, 4400 Series monitors exhibit superb control over amplitude and phase characteristics providing you, the listener, with absolutely smooth transitions between transducers for perfect imaging and unparalleled power response.

Highest quality transducers and crossover networks are only useful if they achieve a specific set of performance goals. And while one of the primary goals should be how they sound as a system, the scientific approach establishes methods of comparison with respect to performance, the ability to identify and quantify problem areas and, most importantly, a way to measure the impact and benefits of intended design improvements. Before you choose a monitor, compare 4400 Series with any other loudspeakers you are considering. No doubt you'll find that a good thing just got better.

4408A
2-Way
200 mm (8 in)
Studio Monitor

A two-way compact monitor system ideal for the smaller recording studio or for broadcast control rooms.

4410A
3-Way
280 mm (10 in)
Studio Monitor

A three-way monitor loudspeaker system designed as a vertical line array. This system delivers incredibly fine transient response characteristics and spatial detail.

4412A
3-Way
300 mm (12 in)
Studio Monitor

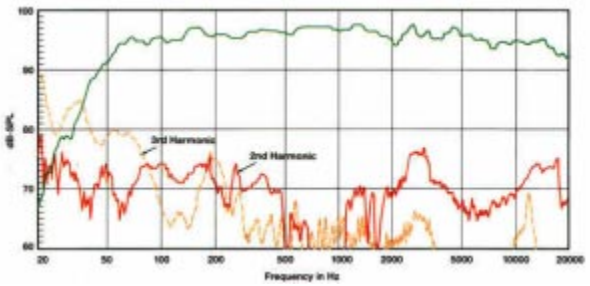
For applications requiring maximum low frequency output from a bookshelf-sized monitor, this 3-way system tightly clusters its transducer complement for accurate close proximity listening. A great all-purpose monitor for any application.

4400 Series Studio Monitors

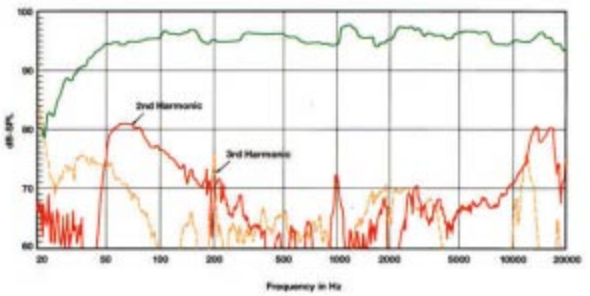
Specifications

	4408A	4410A	4412A
SYSTEM:			
Frequency Range (-10dB):	35 Hz - 30 kHz	33 Hz - 30 kHz	30 Hz - 30kHz
Frequency Response (±2dB):	50 Hz - 20 kHz	45 Hz - 20 kHz	45 Hz - 20 kHz
Power Rating:	100 watts, pink noise	125 watts, pink noise	150 watts, pink noise
Sensitivity:	89 dB SPL, 2.83 V @ 1 meter	90 dB SPL, 2.83 V @ 1 meter	89 dB SPL, 2.83 V @ 1 meter
Nominal Impedance:	8 ohms	8 ohms	8 ohms
Crossover Frequency:	2.5 kHz	900 Hz, 4.0 kHz	850 Hz, 4.0 kHz
Transducer Complement:	200 mm (8 in) LF Felted Cone 25 mm (1 in) HF Pure Titanium Dome	250 mm (10 in) LF Aquaplas Laminate Cone 125 mm (5 in) Midrange Cone 25 mm (1 in) HF Pure Titanium Dome	300 mm (12 in) LF Aquaplas Laminate Cone 125 mm (5 in) Midrange Cone 25 mm (1 in) HF Pure Titanium Dome
GENERAL:			
Finish:	Matte Gray Laminate	Matte Gray Laminate	Matte Gray Laminate
Grille Color:	Charcoal	Charcoal	Charcoal
Dimensions (HxWxD):	438 x 305 x 293 mm 17 1/4 x 12 x 11 5/8 in	597 x 362 x 286 mm 23 1/2 x 14 1/4x11 1/4 in	362 x 597 x 286 mm 14 1/4 x 23 1/2 x 11 1/4 in
Weight (each):	12 kg (26 lbs)	19 kg (43 lbs)	21 kg (47 lbs)
Shipping Weight (each):	13.6 kg (30 lbs)	23kg (50 lbs)	24 kg (53 lbs)

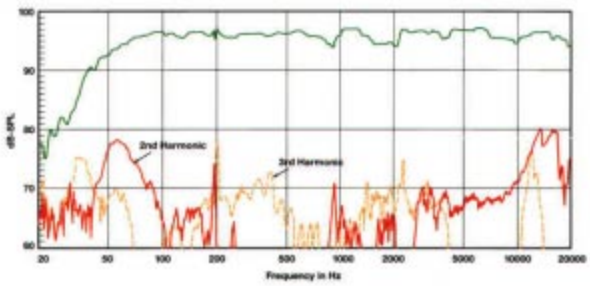
4408A
Frequency Response, 2.83 V at 1 m;
Distortion vs. Frequency, 96 dB SPL at 1 m,
(distortion raised 20 dB)



4410A
Frequency Response, 2.83 V at 1 m;
Distortion vs. Frequency, 96 dB SPL at 1 m,
(distortion raised 20 dB)



4412A
Frequency Response, 2.83 V at 1 m;
Distortion vs. Frequency, 96 dB SPL at 1 m,
(distortion raised 20 dB)



9/96 15M
CRP

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