

JBL EON 515 & 518S

Active PA speakers

JBL's EON range has proved to be one of the most successful and enduring ranges of lightweight portable loudspeakers on the market. With the launch of the next generation EON 300 and 500 series, we take a look at the flagship new speaker and sub.



Mike Crofts

JBL EON loudspeakers have, for some years, been a very popular choice with performers, installers and mobile PA operators, and the range has recently been extended to include the all-new EON 300 and EON 500 series. The EON 300 options are the powered EON 315, which is a 280W, 15-inch, two-way design, and a passive version designated the EON 305. The more powerful EON 500 range consists of three models: the EON 510, which is a powered 280W, two-way speaker with a 10-inch LF driver; the EON 515, which has a 15-inch bass driver and 450 Watts of (continuous) onboard power; and the EON 518S, a 500W-powered, 18-inch subwoofer.

Construction

To get the basics out of the way first, the EON 515 is a two-way, bass-reflex design, which uses a 15-inch LF driver and a one-inch HF

compression driver, and has an integral amplifier module rated at 450W continuous power. It's built into a stylish moulded grey cabinet and is extremely lightweight considering the output levels it can deliver (more about that later).

To get some idea of what it can do and how it does it, it's worth taking a closer look at the EON 515's feature set, and particularly the amplifier and driver designs. But the first thing I (literally) got to grips with was the enclosure itself, which is a smooth and sleek moulding in the traditional JBL grey, and my initial impression was that it was nicely put together and finished. There are excellent side handles with comfortable and secure rubberised grips and a good deep recess that is large enough to avoid chafed knuckles when lifting and carrying the unit. There's another handle on top, which, again, is a generous size and proper recessed design, making shunting the cabinet around — for example, in the back of a van — an easily accomplished task.

The overall cabinet shape is well-rounded and easy on the eye with no sharp edges or much in the way of straight lines, and as such it's easy to carry, although curvy cabs like this need careful transporting to make sure they don't roll about — I'm sure that a suitable carry bag will be available and would probably be a good investment.

The most noticeable physical thing about the 515s is their weight — or lack of it. At a gnat's over 14kg, they are ridiculously easy to move around, and that's before you even hear what they can do! The enclosure is moulded

in what JBL describe as "PP impact copolymer", which I guess you and I would call plastic. But there's no impression of cheapness or flimsiness; everything on the 515s is neatly fitted and there is a quality feel about them.

The speaker cabinet is designed to do double duty as either a front-of-house speaker or as a floor monitor. The handles have a rubber moulding, allowing the box to sit on its side at the correct angle, and the rubber also has a good gripping effect, which prevents any unwanted sliding about.

Actively speaking

Round the back of the cabinet is the control panel, which is equipped with a three-channel mixer providing two balanced jack inputs and one balanced XLR input, each with separate level controls. Inputs 1 and 2 (TRS jack) can be fed with balanced or unbalanced sources, and operate at nominal +4dB line level for use with music sources, keyboards and the like. Input 3 is the 'main' input and has one of those combi-type connectors, which will accept either an XLR or a standard 6.3mm TRS plug. A small recessed (for safety) switch below input 3 selects either microphone or line sensitivity, thus the EON 515 can take two

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EON 515 **£1035** (each)
& 518S **£1167** (each)

These new EON 500 models are right up there when it comes to loud and light. The built-in mixer makes them suitable for very simple reinforcement jobs, and their high-power capability and flexible connectivity fits them for many wider applications.

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line sources (say, music player and keyboard) plus a mic without the need for any outboard equipment — take note all you travelling one-man bands out there.

The output from the mixer section is fed

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to the preset EQ stage, which offers a choice of three settings, namely Boost, Flat and Cut. These refer to the HF and LF shelving circuits, but in different ways. Boost applies 3.5dB of boost below 200Hz and an extra 3dB above 5.3kHz, and is more or less your traditional ‘loudness’ setting for making low-level music sound fuller and brighter. I found that it does exactly that without introducing too much ‘woof’ down below. The Flat setting effectively bypasses the EQ altogether and is the normal

full-range setting. Selecting Cut reduces low frequencies below 120Hz by 6dB and would be applied, for example, when using the EON 515 in conjunction with a subwoofer or as a stage monitor. The mixer output (post-EQ) can also be switched to appear at a male XLR connector on the back panel, or this connector can be used as a direct link output from the input 3 socket. This is accomplished by setting the Mix/Loop switch, which is another of those little recessed types so that it stays where it’s supposed to be set.

In terms of protection circuitry, the EON 515 has dynamic limiting built in, with nothing for the user to worry about. There is a single warning LED, which shows that the signal level is about 2dB away from clipping, and provided that this is showing only occasional flashes on peak (and, of course, clean) signals, the system will pump away happily.

The connections and controls are neatly and logically laid out, although the simple signal flow diagram — which is always a good idea and is printed on the panel — confused me slightly to begin with, in that at first glance it seemed to suggest that only input 2 goes to the EQ, and that inputs 1 and 3 are connected to each other. This is obviously not the case, but I did ask a non-technical colleague to take a look and tell me what she took the diagram to mean, and she said, ‘Well, those two join up and that middle one goes to the boost thing.’ So it wasn’t just me, honest.

Special power

At the top of the back panel are the words ‘Powered by Crown’, and indeed the integral power amp stage is a Crown Class-D design, which will deliver a total of 450 Watts of continuous power into the 515’s drivers — there are separate LF and HF amps rated at 350W and 100W respectively. Class D means very high efficiency, with no bulky traditional power supplies needed, and the EON 515 benefits from the resulting cooler running (no fan and a sensible-sized heat sink) and lower weight. The Crown logo looks good on the

back and represents yet another little touch of class and breeding.

Now, having 450 Watts available to power one’s loudspeakers is a very nice thing, especially when one has a Crown power amplifier producing them, but what really

▣ **Controls on the rear of the 515 include a three-channel mixer, two TRS inputs, one XLR/TRS (6.3mm) input, one male XLR connector, a Mic/Line switch, a Mix/Loop switch, and a preset EQ control with Boost, Flat and Cut settings.**

Tech Spec

EON 515

- **Power: 450W continuous, 900W peak.**
- **Frequency range (-10dB): 39Hz – 20kHz (EQ in Flat position).**
- **Frequency response (±3dB): 42Hz – 18kHz (EQ in Flat position).**
- **Coverage pattern (H x V): 100 degrees x 60 degrees nominal.**
- **Maximum SPL: 129dB.**
- **Dimensions (WDH): 438 x 366 x 685mm.**
- **Weight: 14.8kg.**

makes these speakers special is that all this power is connected to a pair of JBL’s own neodymium-equipped drivers, the larger of which features their clever Differential Drive technology. The 15-inch woofer — it’s a model 265F-1, according to the spec — actually has two voice coils, which are connected in series and operate in two separate magnetic gaps. The two coils are wound in opposite directions, and sit in magnetic fields of opposite polarity, which reduces leakage of the available magnetic energy. This design works in a push-pull manner, and because the whole motor structure is symmetrical along the axis of the coil movement, the performance is more linear and operates with less distortion and more control at the extremes of coil travel. The use of neodymium magnets results in a significantly lighter structure (JBL reckon about one third of the



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The rubber moulding on the handles of the 515 allows the speaker to sit at the correct angle when being used as a floor monitor.

» weight of comparable drivers with ferrite magnets), and the dual voice-coil layout gives better heat transfer away from the coil area — which is basically why these speakers are so efficient and can handle so much power. The EON 515's HF output is delivered via a JBL one-inch exit compression driver mounted on a relatively wide-dispersion horn, with horizontal coverage of 100 degrees and 60 degrees vertical.

518S subwoofer

Although the EON 515 is a full-range speaker in its own right, there are times when a bigger sound/setup is called for, and the addition of one or more dedicated subwoofers is the way to go. The other EON model I looked at was the 518S, which is a 500W-powered sub in a single 18-inch format. As part of the EON 500 range, the overall external styling complements the 515, but this time the main body of the cabinet is a more traditional box shape and is made from 18mm plywood, finished in JBL's familiar black textured coating and with a separate front panel moulding that includes the metal grille and ports. Weight-wise, the EON 518S is very manageable at just 29.5kg, and I was able to pick it up and move it around on my own, although I wouldn't try to carry it any distance. As with the EON 515, it's the power-to-weight ratio that is so impressive, and when carried between two people it's no trouble at all — like the other models in this range, it comes equipped with excellent side handles. Interestingly, there are no heat sink fins on the rear panel, just a smooth black metal surface with all the controls and connectors (except mains power) at the top.

Two balanced XLR inputs are provided for connecting left/right stereo signals, which are combined and routed to the onboard amp, and each has an associated link output — not controlled by the sub Level knob — which can be switched either to full pass-through or high-pass (above 120Hz), depending on whether you want to daisy-chain it to another sub or feed into a mid/high speaker. The JBL

user manual makes a good point here about not selecting the high-pass option on the sub and using the Cut EQ setting on the EON 515 at the same time, because this will affect the crossover characteristic (as they both operate at 120Hz, it will presumably sharpen and reduce the smoothness of the effect). But I like the fact that this exists as an additional option just in case it's ever needed, and the fact that the 515 and the 518S are both equipped with filters makes each more versatile when used with other equipment. A slightly unusual feature is the provision of a speaker level input

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via a TS (mono) standard jack, which would be used for adding the EON 518S as a bolt-on sub to a passive system by simply connecting it in parallel with a full-range speaker to obtain instant sub performance without loading your existing amplifier.

As with the EON 515, the EON 518S uses an efficient and cool-running Class-D amplifier module (although I didn't see a 'Powered by Crown' legend or Crown logo on the sub), which delivers 500 Watts of continuous power into the internal speaker (another of JBL's own Differential Drive designs), and the sub's rated maximum SPL is a useful 129dB.

Wired and ready

Rigging up the EON system is as easy as a four-box active system gets, and I like the fact that both the top boxes and subs are each provided with filtered outputs, which enables them to be used in conjunction with speakers from other systems that may not already have integral filters. The normal way of wiring this system would be to run the full-range signals into the subs and take the high-pass outputs to the EON 515 speakers, but you could equally as well use the 'thru' outputs from the

515s and run them into the 518S subwoofer.

I first set up the 515s on their own in a fairly dead, carpeted lecture room about 15 x 8 metres, and used various speech and music sources to see what they sounded like. I didn't really expect them to sound anything but good, and I wasn't disappointed. Speech was clear and warm, and I found the Cut EQ setting to be most effective in this acoustic, as there was still plenty of low-end warmth for audio-visual presentations. When I turned up the level to 'party' volume and set the EQ back to Flat, the 515s sounded very lively with plenty of top-end 'zizz' and ample thump to use in a small venue without the subs. Using a single speaker to cover the whole room worked very well indeed too. The spec says that the horizontal coverage is 100 degrees, and with one 515 to the side of the presentation area, the intelligibility throughout the room was very good with no particular problem spots.

I did — briefly — try using the full system in this space, but I couldn't really get anywhere near to a decent test volume, so I took the whole lot outside and treated the surrounding countryside to about half an hour of everything on my favourite test CDs. In the open air, it was noticeable how much power there is on tap from the new EONs. The bass was satisfyingly deep and solid (I especially enjoyed one little piece of Americana that has

some very low and very nice bass playing), and I found the middle range and top end to be clear, open and not at all fatiguing to listen to, even at pretty high volume. Projection is good too, and with the 515s pole-mounted overhead height, the sound remained well balanced and full-sounding at a respectable open-air distance.

I had arranged to take the EON system along to use with a live band, but unfortunately the winter weather intervened and so I spent another couple of hours indoors listening to recorded tracks, including uncompressed vocals and drums from my multitrack. I try very hard

Tech Spec

EON 518S

- Power: 500W continuous, 1000W peak.
- Frequency range (-10dB): 36Hz – 130Hz.
- Frequency response (±3dB): 42Hz – 100Hz.
- Maximum SPL: 129dB.
- Crossover frequency: 120Hz (selectable HPF on outputs).
- Dimensions (WDH): 569 x 652 x 617mm.
- Weight: 29.5kg.



▲ The control panel on the rear of the 518S is equipped with two balanced XLR inputs and associated link outputs, a Speaker Level Input and control, High Pass Filter switch with full pass-through or high-pass options, and a Polarity switch.

not to use the word 'punchy' when describing speakers, but I have to say... After only a few hours' use I was becoming quite attached to

the new EONs, and every time I moved and re-rigged them over a period of a week or so I appreciated their light weight and excellent

carry handles. Getting the 518s up on stands is an easy job to do single-handed, and you can't say the same for all two-way, active 15-inch boxes, by any means.

Verdict

For medium-sized venues, which would include just about any pub or community space I can think of, a pair of EON 515s and one or two 518S subs would be more than adequate. These speakers not only have the manners for quality presentations and refined live performance, but, unquestionably, also have enough power in reserve to kick out some serious rock & roll on demand. As floor monitors, the EON 515s work very well and the vocal clarity is excellent, with a usable 60 degrees of HF coverage when the cabinets are turned on their sides.

JBL's latest EON speakers sound good, look good (much nicer than the old models, in my humble opinion, and you can even switch on an illuminated orange JBL logo on the front if that's your thing) and they are dead easy to transport, set up and use. I'd happily use the EON 515/518S system on any number of live sound gigs, and I just might — for the first time ever — actually look forward to the packing up part! ■ **PM**

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