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Chauvet Professional Ovation B-1965FC

By: Mike Wood

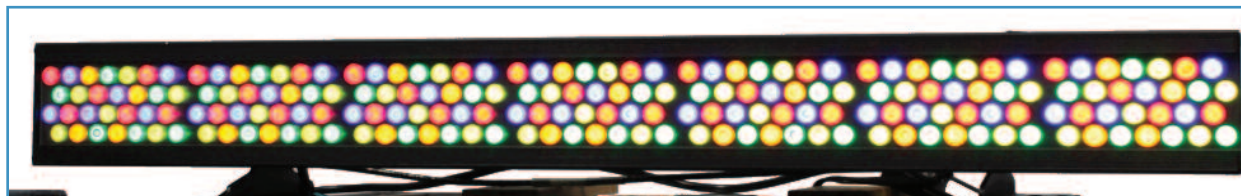


Figure 1: Fixture as tested.

You may have noticed that some reviews are shorter than others; these are for products with fewer things I can measure and report on. I write full reviews every other month, so you'll occasionally see one of these shorter reviews in the months between. There's no difference in style or measuring techniques, just less of it.

This month we return to one of the ever-growing range of products under the Ovation name from Chauvet Professional: The Ovation B-1965FC. The name doesn't roll off the tongue, but there is a logic behind the numbers, or at least I think there is. The B means batten, and 196 refers to 196 LEDs. The FC suffix indicates full color.

For the tests, the Ovation B-1965FC was operated from a nominal 115V 60Hz supply; however, the unit is fitted with an autosensing universal power supply input that is rated from 100V to 240V AC, 50Hz/60Hz (Figure 1).

Light source and optics

As previously mentioned, the Ovation B-1965FC has 196 LEDs in five colors, breaking down as 42 red, 42 green, 42 blue, 28 amber, and 42 lime. These are arranged in seven cells, each with 28 emitters. Figure 2 shows five of the cells each, with just one color illuminated so you can see the layout more clearly. They are all nominally 3W emitters fitted with 20° primary optics. Each LED cell has its own circuit board, which, in turn, is attached to a single large-finned aluminum heat sink that runs the entire length of the unit. This heat sink also forms the structural body of the luminaire to which all other components are attached. There are four cooling fans: two under the rear central electronics housing, and one each under the connector housings at each end of the unit. The layout and cooling is fairly conventional, it's

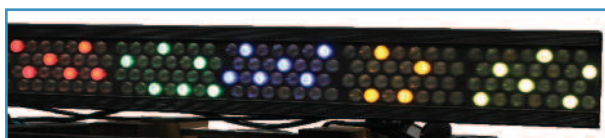


Figure 2: LED colors.

really the different colors of LEDs used that are the main interest. Lime emitters, in particular, are gaining acceptance by a number of manufacturers. Originally developed by Philips for its domestic Hue product line, they provide a lot of lumens and really help with color mixing in the pastel range. They provide a huge improvement from a simple RGB unit. I'd never want to use RGB alone on skin tones, but the addition of lime and amber into the mix makes it very usable.

The B-1965FC also comes fitted with a removable front holographic filter from Luminit, providing some homogenization and color-blending for the individual emitters. Figure 3 shows a cell with half the emitters covered by the filter.



Figure 3: Emitters and filter.

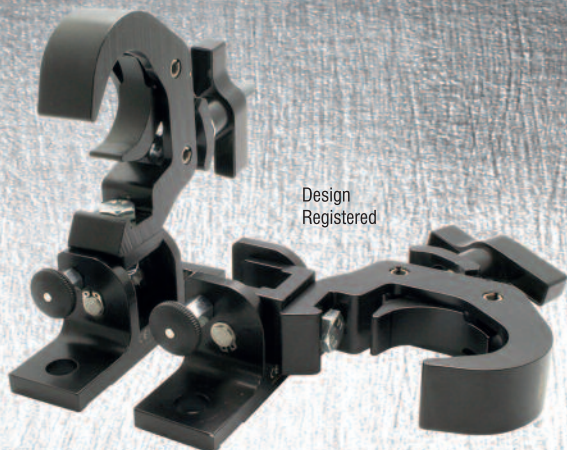
The output is as you would expect from individual LEDs: reasonably smooth at longer throw distances, but some colored shadows at shorter throws. The output from the B-1965FC is symmetrical; this is not an asymmetric cyc light, it's a batten or strip light.

Output

As I've done with other non-radially symmetric cyc or batten units, I measured light output by just using one of the seven cells; the final results are based on multiplying that by a factor of seven to get the total output from the entire unit. (Note, however, that I report the horizontal and vertical

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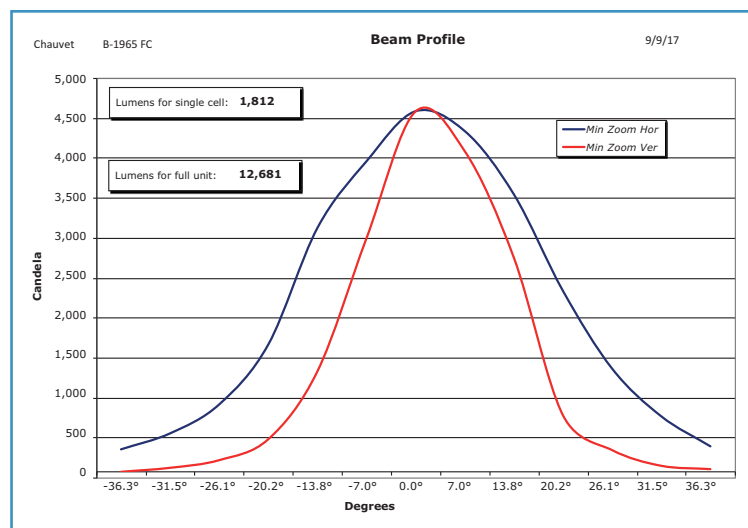


Figure 4: Light output.

beam profiles as from that single cell; this is a more useful way to show the data, as it describes how the end cells of a run of luminaires will behave.)

Figure 3 shows the output from the Ovation B-1965FC, with all channels of LEDs at full and with the homogenizing filter fitted. I measured 12,680 lumens with a field angle vertically of around 40° and horizontally of 73° (Figure 3). The output was smooth, blending well between adjacent cells. This blending should continue along a run of units mounted side-by-side. Figure 4 shows a comparison in the shadowing at short throws between a single cell (right), where the shadows are very visible, and with all cells running (left) where they tend to wash each other out.

One concern with additive color LED units with more than three colors is mixing the color you want. With five colors, it is not always obvious how you get the hue you want, along with a good level of brightness. Chauvet Professional has provided a range of premixed colors on a virtual color wheel channel, along with a range of whites at various color temperatures. Figure 5 shows the spectra for each of the nine provided white mixes: 2,800K, 3,200K, 3,500K, 4,000K, 4,500K, 5,000K, 5,600K, 6,000K, and 6,500K, along with the actual color temperature measured in each case. You can see the largest differences in the red and blue peaks as the



Figure 5: Colored shadows.

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color temperature rises, with the broad peaks of lime and amber filling in the middle of the spectrum around the green spike. Color rendering was around 80 in these preset whites. Thermal droop was quite low, I measured a drop from 100% output to 95% in five minutes, and 90% in 30 minutes when run at full power on all cells.

Dimming and strobe

Dimming of the Ovation B-1965FC was very good. I ran the unit in a mode where I had individual 16-bit control of every color in every cell independently. Fades were smooth and step-free, all the way down to black. Color mixing changed slightly at the very bottom end, with blues and greens dimming slightly more quickly, giving an overall very small change downwards in color temperature. There is also a DMX channel option to set the response speed of the dimming to give it a more incandescent feel. Figure 6 shows the dimming curve, which was very close to linear. I measured the PWM frequency as the unit was supplied at 1,200Hz; however, it is possible to select a range of speeds from 600Hz to 25kHz. Strobe rates, through a dedicated strobe channel, were measured ranging from 1Hz to 28Hz.

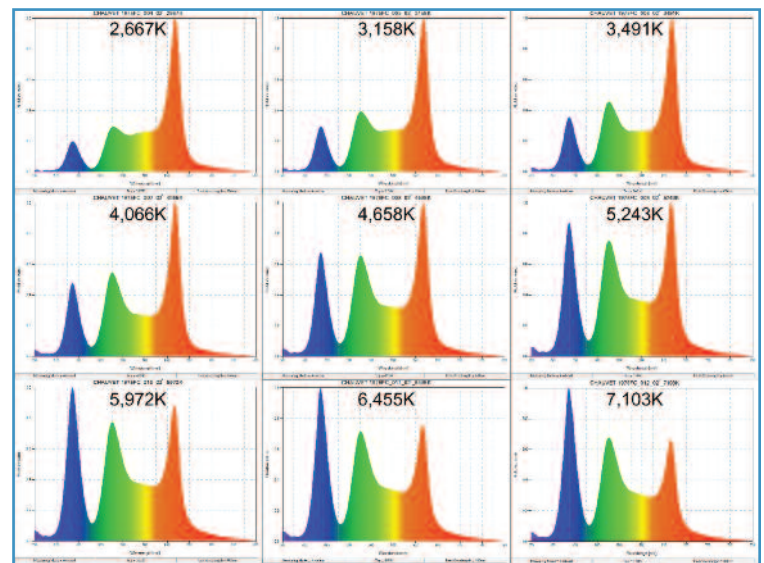


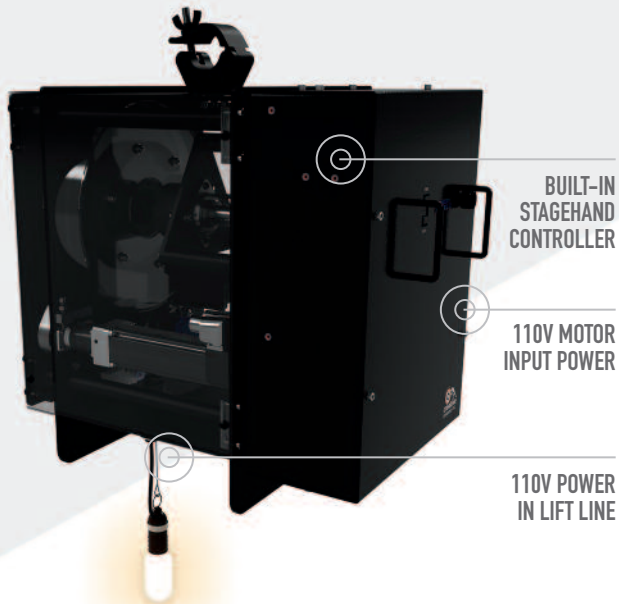
Figure 6: Spectra.

Noise

As previously mentioned, the Ovation B-1965FC has three fans on the rear of the unit. By default, these are in auto mode and ramp up and down as needed to keep things cool. You can also choose to turn them to permanent full power, or to turn them off. The fans are the only noise producers. When running the unit at full power in an ambient of 28° C they ramped up over 30 minutes to 36.2dBA, very little more than the background ambient in my test area of less than 35dBA at 1m.

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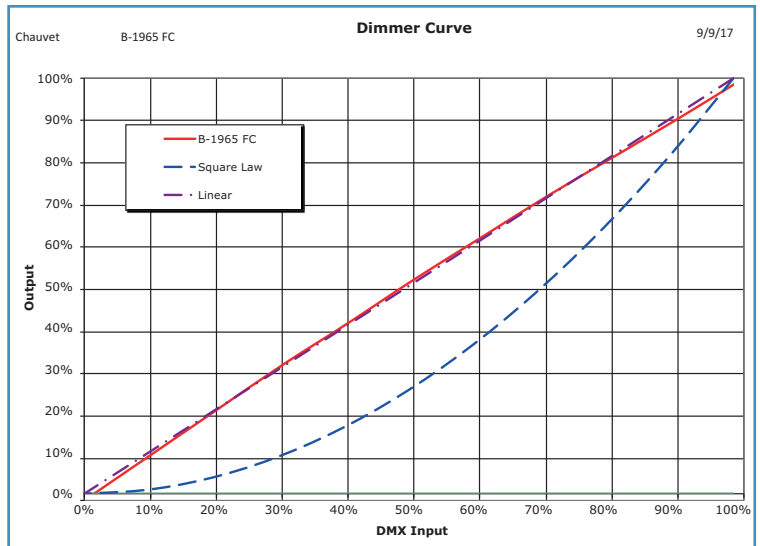


Figure 7: Dimmer curve.



Figure 8: Connectors IN.

Electrical Parameters

POWER CONSUMPTION AS TESTED AT 1150V		
	Current, Power	Power Factor
Quiescent Load	0.18A, 11W	0.56
All LEDs illuminated	3.68A, 430W	0.99

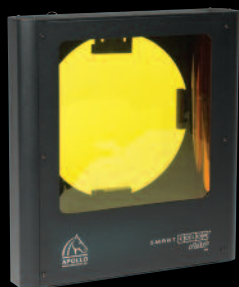
Initialization time from power up to output was around three seconds.

Electronics and control

Power in and out is through daisy-chained Neutrik powerCON connectors. Control is either through DMX512, on both standard five-pin XLRs and non-standard three-pin, or through an RJ45 supporting E1.31 sACN and Art-Net. I also tested RDM support, and the unit responded correctly

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Figure 9: Display.

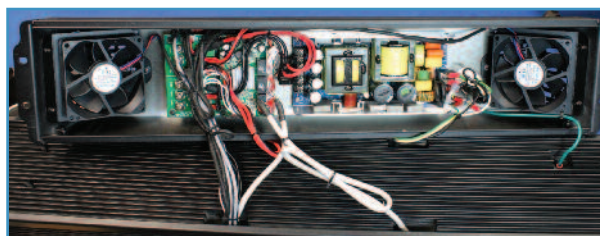


Figure 10: Main electronics.

to standard RDM from my City Theatrical DMXcat. Figure 8 shows the connectors at the input end of the unit; the output connectors are similar but at the other end. The Ovation B-1965FC offers a control menu through a monochrome LCD display and standard up/down, menu/enter buttons as shown in Figure 9. This allows the setup of control parameters and stand-alone mode. Inside the center housing are a couple of stacked driver boards, along with the power supply and the menu as shown in Figure 10.

Construction

The construction is simple, based around the main aluminum extrusion of the body. I have one concern: The supplied floor trunnions are sturdy, but they are attached to the relatively thin die-cast aluminum electronic boxes. It's fine for their designed floor use, but not for hanging. When hanging this unit, make sure to use the direct tapped clamp mounting holes on the back of the unit and don't hang it from the floor trunnions.

Conclusions

There you have it, a five-color straightforward LED batten from Chauvet Professional, the Ovation B-1965FC. Would it suit you and your venue? I hope I've provided enough data to help you make that decision—but, as always, it's up to you to make the final call. 📶

Mike Wood provides design, technical and intellectual property consulting services to the entertainment technology industry. He can be contacted at mike@mikewoodconsulting.com.

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