# Full Color LED (Light Emitting Diode) Fresnel-style product (Fresnel)

## General

### The product shall be an Ovation F-415FC and/or F-915FC as manufactured by Chauvet & Sons, LLC or approved equal.

#### Compact, RGBAL Fresnel for tight spaces and on-location lighting.

#### The products shall conform to CSA C22.2 No. 166 and UL 1573 stage and studio use as well as UL 8750 LED standards, tested via MET to conform to the aforementioned UL specifications, product shall hold MET and CE markings.

#### The product shall comply with the USITT DMX-512 standard.

#### The product shall comply with the current PLASA ANSI E1.20-2010 remote device management (RDM) standard.

#### All LED products shall be provided by a single manufacturer to ensure color consistency.

### Each LED optic shall be spaced for optimal photometric performance.

#### PHYSICAL

### The product shall be constructed of rugged, cast aluminum housing, free of defects or imperfections.

### The dimensions of the F-415FC fixture shall be 15.8 x 11.22 x 9.51in (401.46 x 285 x 241.65mm) weighing approximately 12lb (5.6kg) and the F-915FC fixture shall be 22.41 x 12.59 x 10.82in (569.44 x 320 x 275mm) and weigh approximately 19lb (8.6kg).

### The following shall be provided:

#### Ovation F-415FC or Ovation F-915FC

#### Neutrik powerCON power cord

#### Gel Frame: 6.25 in or 7.5 in

### The housing shall have a black coat finish.

### Power supply, cooling and electronics shall be integral to each product.

## Environmental and Agency Compliance

### The product shall conform to UL 1573, CSA C22.2 No. 166, and UL 8750 LED standards, tested via MET to conform to the aforementioned UL specifications, the product shall hold both MET and CE markings.

### The product shall conform to Part 15 of the FCC rules.

### The product shall be rated for IP-20 for dry/indoor location use.

## Thermal

### Product heat management shall be achieved through forced cooling.

### The product shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use.

### The product shall operate in an ambient temperature range of -4° F (-20° C)minimum**,** to 113° F (45° C) maximum, ambient temperature.

## Electrical

### The product shall be equipped with an auto ranging 100 V to 240 V 50/60 Hz internal power supply.

### The product shall support power in and thru operation.

#### Power in shall be via Neutrik powerCON input connector.

#### Power thru shall be via Neutrik powerCON output connector.

#### Product power wiring and accessory power cables shall be rated to support linking of 13 F-415FC products and 6 F-915FC products at 120 V.

### The product requires power from a non-dim source.

### Products shall have thermal output compensation to prevent thermal shift of color or intensity.

### Product power input shall have current-limiting fuse protection.

### Power supply shall have power factor correction.

### OPTICAL DATA

### The product shall contain a RGBAL LED color system to provide color characteristics as described in the Color section below.

### All LEDs used in the product shall be high brightness and proven quality from established and reputable LED manufacturers.

### Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.

### LED emitters should be rated for nominal 50,000-hour LED life to 70% intensity.

### All LED products (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.

### LED system shall comply with all relevant patents.

## Color

### The product shall utilize the following LED emitters.

#### The F-415FC emitters shall be composed of (46) 3-5W LEDs with 10 Red, 10 Green, 6 Blue, 8 Amber, and 12 Lime LEDs.

#### The F-915FC emitters shall be composed of (89) 3W LEDs with 18 Red, 18 Green, 16 Blue, 16 Amber, and 21 Lime LEDs.

###### The color rendering index (CRI) shall be:

#### F-415FC- 82.4 at 3208 K and 79.9 at 5609 K

#### F-915FC- 87.4 at 3179 K and 85.7 at 5586 K

### The product shall be able to provide TM 30-18 scores of:

#### F-415FC- with a Color Fidelity value of Rf 85.6 with a Gamut of Rg 113.5 at 3208 K and Color Fidelity value of Rf 83.1 with a Gamut of Rg 115 at 5609 K

#### F-915FC- with a Color Fidelity value of Rf 86.9 with a Gamut of Rg 111.4 at 3179 K and Color Fidelity value of Rf 84.9 with a Gamut of Rg 110.6 at 5586 K

1. The color temperature shall be 2800° K to 6500° K

## Dimming

### The LED system shall use 16-bit nonlinear scaling techniques for high-resolution dimming.

### The product shall have a selectable dimming curve to simulate incandescent dimming curves.

### Dimming curve shall be optimized for smooth dimming over longer timed fades.

### The LED system shall be digitally driven using high-speed pulse width modulation (PWM).

### LED control shall be compatible with broadcast equipment in the following ways:

### PWM control of LED levels shall be imperceptible to video cameras and related equipment.

### PWM shall be capable of being set on the control via on board controls or via RDM from 600Hz, 1,200 Hz, 2,000 Hz, 4,000 Hz, 6,000 Hz, or 25,000 Hz.

## REQUIRED FEATURE SET

### The product shall offer motorized zoom.

#### The product shall offer rear mounted controls for adjusting color temperature, dimming, and zoom.

### The product shall offer a user selectable Red Shift function to mimic conventional dimming.

### The product shall offer a Virtual Color Wheel with more than 30 premixed colors.

#### The product shall offer 10 user selectable Color Temperature settings.

### Products without the required feature set described above shall not be acceptable.

## Control and User interface

### The product shall be USITT DMX 512A-compatible via in and thru 3- and/or 5-Pin XLR DMX connectors.

### The product shall offer control via DMX, RDM.

### The product shall be compatible with the ANSI RDM E1.20 standard.

#### All product functions shall be accessible via RDM protocol for modification from suitably equipped control console or RDM controller.

#### Temperature sensor within the luminaire shall be viewable in real time via RDM and on the control panel of the product.

#### Products not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be allowed.

### The product shall be equipped with an LED display with 5 lines of text.

### The product shall be equipped with a 4-button user-interface.

### The product shall offer RGBAL, direct and single channel control.

### A variable-rate strobe channel shall be provided.

### The product shall offer stand-alone functionality eliminating the need for a console.

#### Product shall ship with 31 preset colors accessible as a stand-alone feature.

#### Product shall ship with 5 auto sequences with speed control accessible as a stand-alone feature.

#### Product can be linked together with standard DMX cables and controlled from designated master product.

#### Products without stand-alone operation features described above shall not be acceptable.

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