



**CREE**  <sup>TM</sup>

# VERTICAL FARMING (B+R) LINEAR REFERENCE DESIGN

# Horticulture Reference Design: (Blue + Red) Linear



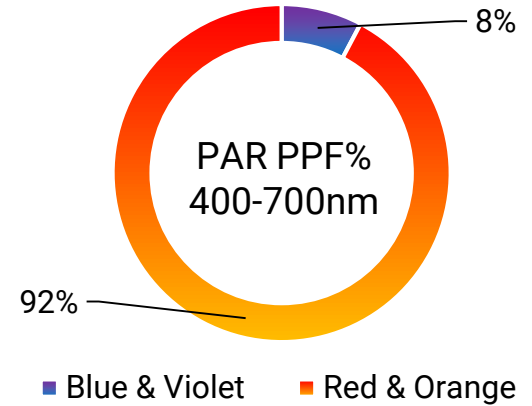
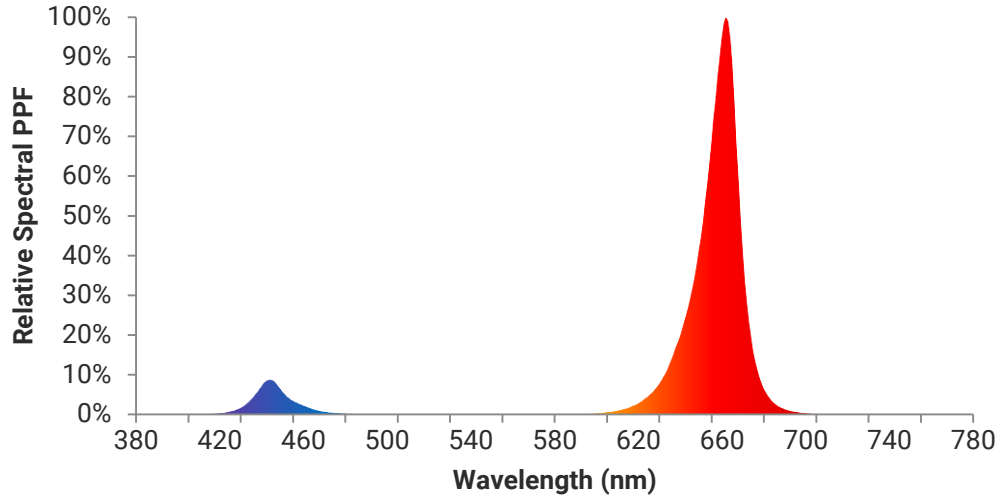
- Incredible performance: up to 3.2 PPF/W
- Long lifetimes proven by LM-80 testing
- Passively cooled design

<b>LEDs (Count)</b>	(104) XLamp XP-E HE Photo Red (4) XLamp XP-G3 Royal Blue		
<b>Output Mode</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>
<b>PPF (<math>\mu\text{mol} / \text{s}</math>)</b>	<b>129</b>	<b>231</b>	<b>314</b>
<b>PPF/W (<math>\mu\text{mol} / \text{J}</math>) *</b>	<b>3.2</b>	<b>2.9</b>	<b>2.7</b>
<b>Power</b>	48.8W	79.7W	117.9W
<b>Tsp</b>	45°C	65°C	90°C
<b>Current</b>	750 mA	1400 mA	2000 mA
<b>Dimensions (LWH)</b>	24" x 2.5" x 3" / 60.9 x 6.4 x 7.6 cm		
<b>Weight</b>	2 lbs / 0.91 kg		
<b>Lifetime</b>	R90(10k) > 60.5k hrs		

\* Note: PPF/W excludes driver losses

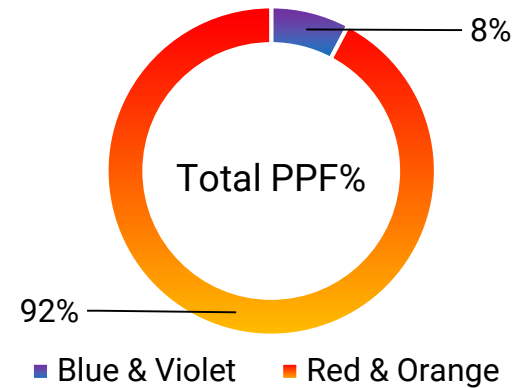
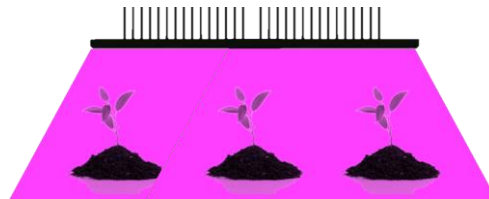


# Blue + Red Linear: Spectral Content



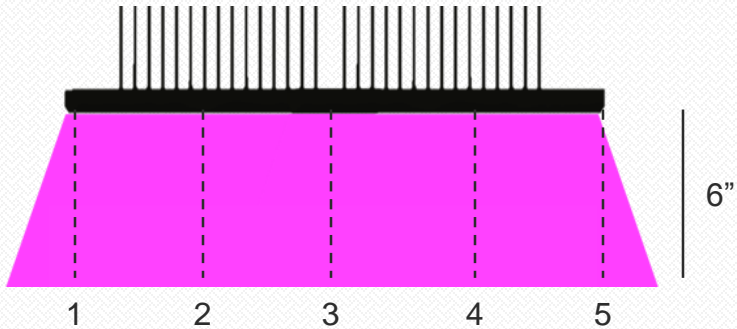
Measured perfect spectral uniformity @ 6" away from fixture.

Visual Color

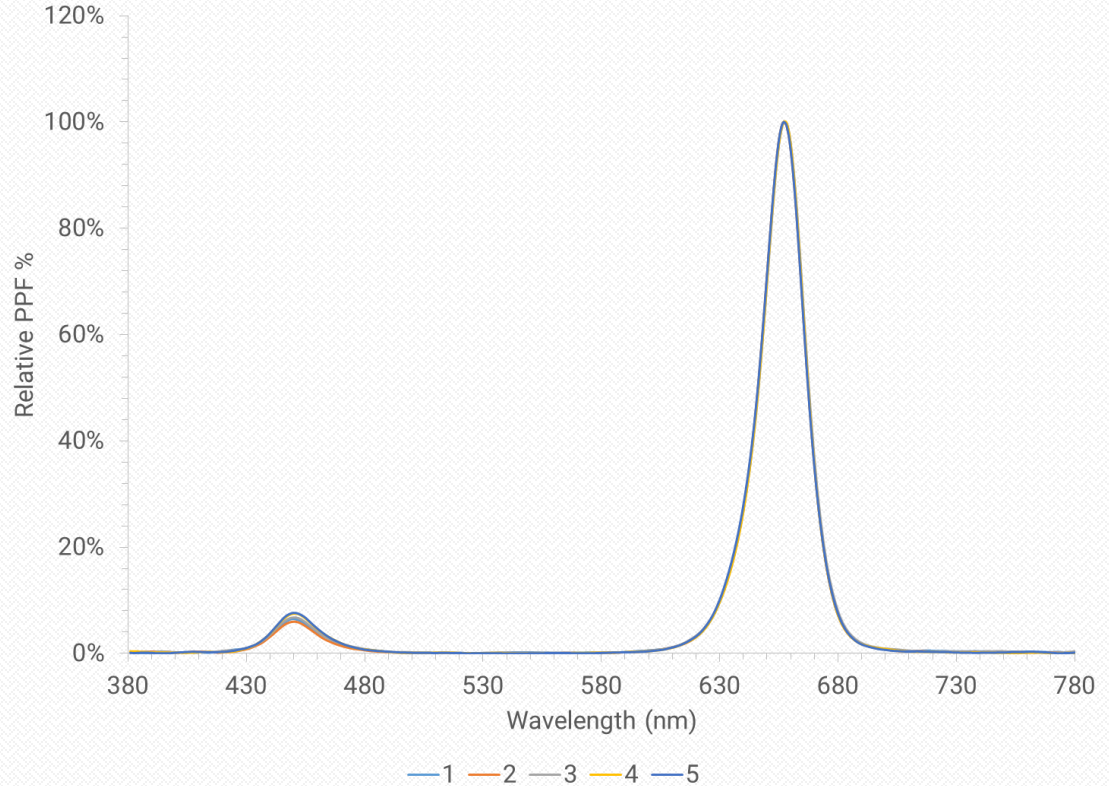


# Vertical Farming | Recipe #1: Chlorophyll Bloom

Perfect Uniformity.



Measurements performed 6" away from fixture.



# Vertical Farming | Recipe #1: Chlorophyll Bloom

**Unrivaled Performance.**

**Up to 3.2 PPF/W**

**Proven Reliability.**

**R90 > 5.9 years at 105C**

**R90 > 8.3 years at 105C**

## 1 Module Performance<sup>1</sup>

Input Power	45W	82W	119W
PAR PPF	144	240	311
PAR PPF/W	3.2	2.9	2.6
Tsp (°C)	45	65	90

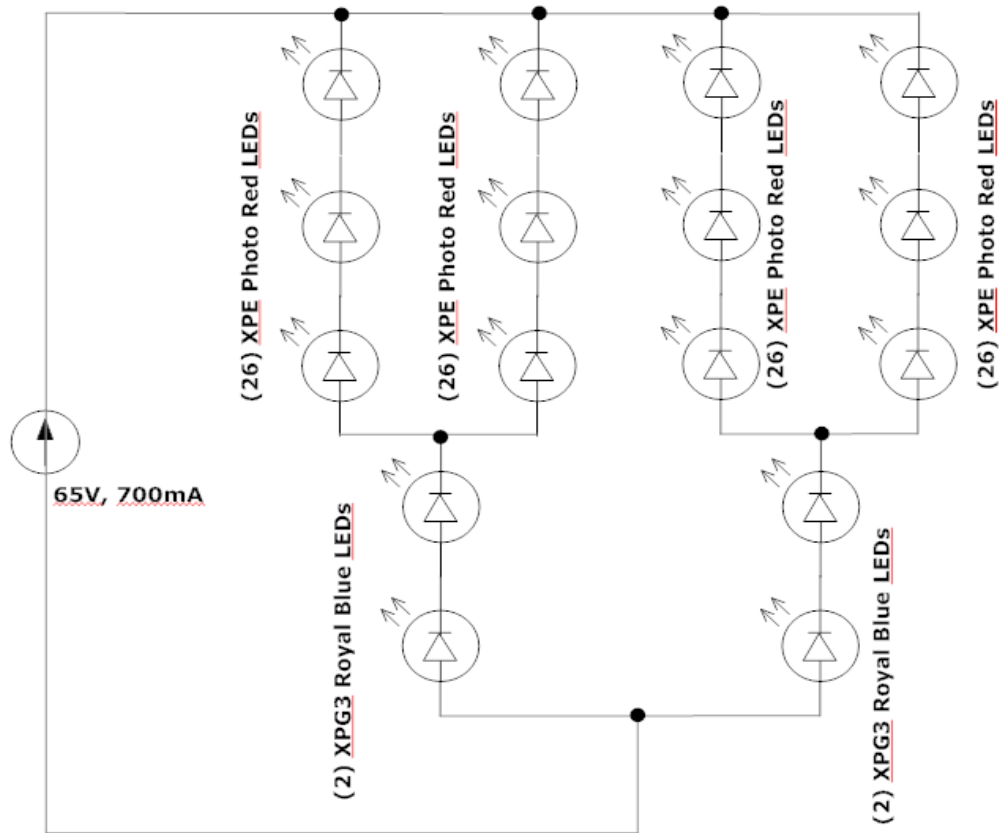
LED Count	108
Ratio	1 : 26 (Blue : Red)
Reported Lifetime <sup>2</sup>	R90 >
Color Stability <sup>2</sup>	<2 nm

<sup>1</sup> Does not include driver efficiency

<sup>2</sup> 1A, 105C 660nm ; 1A, 105C 450nm



# Schematic



# Parts List

Part	Description	P/N	Qty
LED	Cree	XPEEPR	104
LED	Cree	XP-G3 RB	4
Optic	Brightview Smoothing Film	Custom	1
PCB	Galaxy Circuits Inc. MCPCB	Available Gerber files from Cree	1
Heatsink	Aavid	Custom	1
TIM	Graftech .25 Foil	GMTOEG0015 HT1210	1
Driver	ERP	SLM100W-1.7-56-TA	1

