

## Vive Trims and Power Savings

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This document helps the reader understand how the power consumption and lighting output of their luminaires is affected by the dim curve and high-end trim. Like most of Lutron's systems, the Lutron Vive system primarily uses levels and percentages that correspond to how humans would describe light levels changing. Perceived light levels do not map directly to changes in power consumption.

### Background on Power Changes

The Lutron Vive system is primarily concerned with maintaining light output. Many factors can alter actual power consumption including:

1. The age of loads
2. Manufacturing variation
3. Input power conditions

Subsequently if your goal is to affect power consumption Lutron recommends:

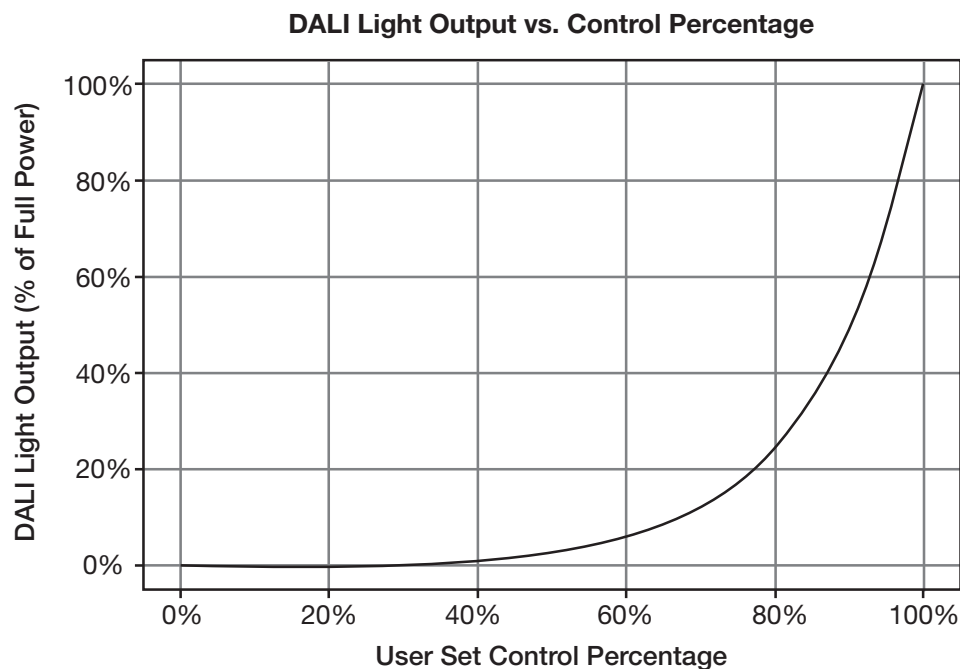
1. You verify power reductions with measurements
2. You employ our Vive devices with integrated power measurement

### DALI and EcoSystem Devices

The following Vive devices utilize DALI and Lutron EcoSystem methods of control:

1. The Vive Integral Fixture Control: DFCSJ-OEM-OCC and DFCSJ-OEM-RF
2. The Vive PowPak Fixture Control, EcoSystem version only: FCJS-ECO
3. The Vive PowPak Single Zone Control Module with EcoSystem: RMJS-ECO32-SZ

All of these devices are based on the IEC 62386 standard. Lutron chose to use a logarithmic dimming curve to help customers understand how bright to expect the lights to be, but it means that trims and levels do not map directly to power consumption. An example of the relationship between level and light output is shown below. The light output and power consumption relationship is approximately linear; replacing light output on this graph with power consumption creates the same curve.



## DALI and EcoSystem Devices (continued)

Some of the key points from the graph on the previous page are included in the table below and provide a good initial high-end trim for a given power savings.

Power Saved	Target Power Maximum	Target Trim
0%	100%	100%
5%	95%	99%
10%	90%	98%
20%	80%	95%
30%	70%	92%

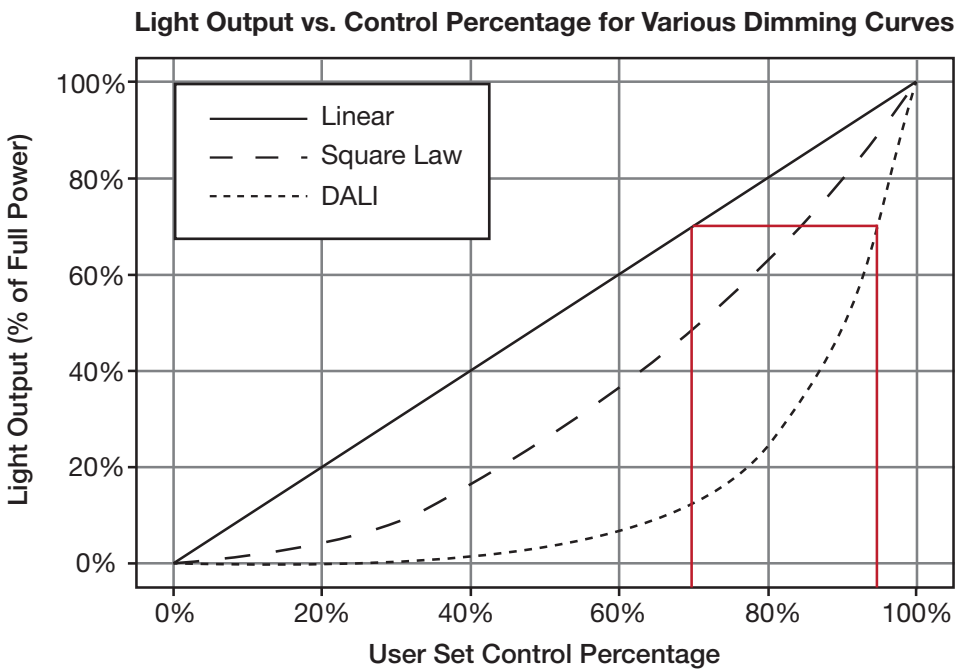
## All Other Vive Devices

All other Vive devices have dimming curves that were optimized across a wide variety of loads. While the intent is that the percentages shown in the Vive app match perceived light levels, this is heavily dependent on the combination of control and load. This means that whatever target high-end trim you choose, you should validate that choice with measurements. There are, however, three common dim curves that highlight how much variation you can expect to find in high-end trims given a target energy savings.

The three common dimming curves are:

1. Linear Power
2. Square Law
3. DALI Logarithmic (outlined in the previous section)

Below is a graph of these three dimming curves. Again you can replace light output with power consumption as a rough approximation.



For example, to save 30% of full power high-end trim may be anywhere from 70% to 92% depending on the load's dimming curve.

## All Other Vive Devices (continued)

For reference, see the table below for target high-end trims based on your target energy savings for the three common dimming curves.

Power Saved	Target Trim for Linear Curve	Target Trim for Square Law	Target Trim for DALI Logarithmic
0%	100%	100%	100%
5%	95%	97%	99%
10%	90%	95%	98%
20%	80%	89%	95%
30%	70%	84%	92%

For devices that fall outside of these three curves the only option available to you is live experimentation. Employ power measurement equipment and try multiple high-end trim values until you achieve your desired power savings at high-end. Use the trim levels provided in this document as a reference only and rely on your measurement equipment as the primary source of information.

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