Technical Report: TR101

Title: LEDEXT-10X (Pulse-Hybrid) FCC Documentation
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Date: June 6th, 2016 **Telephone: 603-464-7267**

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1. Operation Description

ZEVO® Pulse Product Description

Customize your vehicle's look with the ZEVO® PULSE, a universal LED product designed to add color to your headlights. Simple to install and run, ZEVO® Pulse is a small disk with a chrome finish that connects directly to any 12V source and blends in with your headlight assembly making it barely visible. Using Bluetooth® technology, once paired the free SYLVANIA ZEVO® app allows you to control color, mode and multiple compatible products with one device.

The LEDs are controlled via wireless Bluetooth Smart Low Energy technology and connectivity is with a smart phone or other smart device. BT allows audio and data transfer over short range radio connections.

The product consists of an LED controller module and a right and left LED assembly, each consists of RED, GREEN and BLUE LEDs. The LEDs can sync to the user's voice, to music or be controlled manually.

ZEVO Controller Electronics

The battery voltage is fed to an EMI filter, the filtered battery voltage is then fed to a constant voltage Buck pre-regulator which takes the filtered battery voltage and creates a regulated 5.2VDC output. This 5.2VDC is then fed to 6 individual constant current linear drivers. Each constant current linear driver regulates the current through each LED (2 red, 2 green, 2 blue). There are 3 PWM control signals to vary the duty cycle which control the 3 LED colors.

The ZEVO product sends a signal to advertise their ability to connect. With the ZEVO APP the user actively connects to the ZEVO Hybrid or Pulse. When the user selects a lighting scene using the ZEVO APP, the data is sent in packets over Bluetooth Smart Low Energy technology. The ZEVO controller receives the data via a PCB antenna and with the internal circuitry consisting of an Integrated Circuit with a microcontroller, an RF radio receiver and radio transmitter and external interfaces. The data from the user's scene request is received and the internal microcontroller and circuitry with the ZEVO software sends 3 PWM signals of varying duty cycles to control the 6 LEDs. 1 of the 3 PWM signals control the right and left Red LEDs, the right and left Blue LEDs and the right and left Green LEDs.