

July 19, 2010

Chief, Authorizations Branch  
Federal Communications Commission  
7435 Oakland Mills Road  
Columbia, MD 21046

Subject: Request for Unlicensed Modular Transmitter Approval.

Reference: FCC 07-56A1 47 CFR 15.212

To Whom It May Concern:

Alereon, Inc. hereby requests FCC Equipment Authorization as a Single Modular Transmitter of the Alereon, Inc. Model AL5740 Wireless A/V Adapter Module, FCC ID: U9YAL5740. Alereon, Inc. intends to manufacture this device and market it as a computer modular component. This letter addresses the information required by points one through eight of 47 CFR 15.212.

1. The modular transmitter must have its own RF shielding. All shielding necessary for normal operation is accomplished by the multi-layer construction of the printed wiring board which incorporates multiple grounded conductor layers shielding all critical radio-frequency circuits including the frequency-determining components. As this transmitter is designed to operate stand-alone in its own enclosure, connected to industry-standard interfaces, no additional shielding is incorporated to minimize coupling such as might occur if the module were incorporated within another unit.

The shield shown in equipment photographs encloses the HDMI encoding circuitry and is for the purpose of preventing self-interference from the HDMI circuitry to the UWB receiver.

2. The modular transmitter must have buffered modulation/data inputs. The Alereon AL5740 receives data via the industry-standard HDMI or VGA and USB interfaces. The HDMI interface is implemented within the SII9034 integrated circuit as may be seen on sheets thirteen and fourteen of the schematic diagram included in the filing for FCC Equipment Authorization. The VGA interface is implemented within the DL125 integrated circuit as may be seen on sheets thirteen and fifteen of the schematic diagram included in the filing for FCC Equipment Authorization. The USB interface is implemented by an SMSC USB2514 USB Hub as may be seen on sheets nine and nineteen of the schematic diagram. These digital interfaces limit the data rate and transmitter modulation.

3. The modular transmitter must have its own power supply regulation. The Alereon AL5740 receives power from an external +5.0 Volt power unit. The +5.0 Volt source is conditioned on the module to power a +3.3V domain and the +1.2V digital subsystem domain plus three additional power domains required by the module circuitry; +2.6V, +2.4V and +1.8V. The power regulation topology may be seen on sheet twenty of the schematic diagram included in the filing for FCC Equipment Authorization.

4. The modular transmitter antenna must comply with the antenna and transmission system requirements of sections 15.203, 15.204(b) and 15.204(c). The antenna used with the Alereon AL5740 is one of two types: The ADM6P which is a sleeve dipole omni-directional whip type antenna or the AL51000 which is a directional dipole type. The antenna is intended to be permanently mounted to the product housing and the connector is not accessible to the user. The U.FL connector RF complies with the requirement of FCC 15.203 for a unique coupling.

5. The modular transmitter must be tested in a stand-alone configuration. As described in section 1.3 of the test report included in the filing for FCC Equipment Authorization, the AL5740 UWB Module plus antenna was tested without a housing. For the tests reported the AL5740 was connected to the USB port of a standard P.C. using a USB interface board to furnish connection to the factory test port on the AL5740 PCBA. This arrangement of the unit, interface board and P.C., represents the factory test and calibration configuration, not accessible to the user but which provides the necessary control of the unit to execute the FCC required tests for compliance. The AL5740 is designed with an industry-standard HDMI connector as its electrical and mechanical interface to the host system, the industry standard Mini-D video connector as its electrical and mechanical interface to an attached VGA display device, a standard stereo jack for speakers connection and an industry-standard Type A connector for the USB connection.

6. The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying its FCC identification number. The Alereon AL5740 is intended to be placed within an enclosure unique to the brand I.D. under which it is marketed. The prescribed label with the FCC Identifier will be applied to the outside of the housing. Additionally, the module will have a label affixed to the PCBA which includes the FCC identifier. An example of the label which will be used is included in the filing for FCC Equipment Authorization.

7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter. Part 15.519 of the FCC rules and Regulations requires that a UWB transmitter shall transmit only when it is sending information to an associated receiver. That rules part also requires that the UWB intentional radiator shall cease transmission within 10 seconds unless it receives an acknowledgement from the associated receiver that its transmission is being received. An acknowledgment of reception must continue to be received by the UWB intentional radiator at least every 10 seconds or the UWB device must cease transmitting. This requirement is met by design and is implemented by the firmware encoded into the device.

8. The modular transmitter must comply with any applicable RF exposure requirements in its final configuration. There are no RF exposure requirements for UWB devices operating under subpart F of the FCC Rules and Regulations.

A handwritten signature in black ink, appearing to read 'David M. Dickson', with a stylized flourish at the end.

David M. Dickson  
Sr. Principal RF Engineer  
Alereon, Inc.