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Client: Goldline Controls, Inc.  
Model #: G1-011024 & G1-011029  
Standards: FCC 15.247 & RSS-210  
ID's: RNW-MD-FH-09-01 & 5110A-MDFH0901  
Report #: 2006167

## **Appendix E: FCC Modular Approval Request**

Please refer to the following pages.



A HAYWARD COMPANY

11/16/2006

Federal Communications Commission  
7435 Oakland Mills Road  
Columbia, MD 21046-1609

To Whom It May Concern:

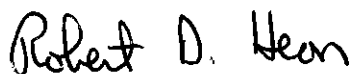
In reference to the application for FCC ID#: RNW-MD-FH-09-01 Generation II FHSS radio module, this device is being submitted for limited MODULAR TRANSMITTER APPROVAL based on the guidelines in FCC Publication DA 00-1407. We believe that this transmitter meets all 8 criterion listed in DA 00-1407 as detailed in the paragraphs below.

- 1) RNW-MD-FH-09-01 does not contain a metallic shield over the RF portion of the circuitry, but does contain a layer of broadband microwave absorber material. All testing performed showed that the addition of a metallic shield made no significant improvement to radiated emissions performance, while the addition of the microwave absorber made a significant improvement. Further, all finished devices in which this radio will be mounted will be subjected to Part 15.209 radiated emissions testing to Class B.
- 2) RNW-MD-FH-09-01 has fully buffered inputs on all digital lines. Overdriving one or more of the digital inputs will have no affect on the transmitter output.
- 3) RNW-MD-FH-09-01 contains a linear voltage regulator that powers the transmitter as well as all other circuitry on the module. The module is designed to accept between 4 and 26 volts DC at it's input, which is then regulated down to 3.3 volts DC. If the input voltage were to be exceeded this would cause the linear regulator to overheat while still maintaining regulation, up to the point where the pass transistor fails and voltage to the transmitter is cut off. The transmitter output will not be affected if input voltage is exceeded. Further, since the module will only be used in Goldline products, Goldline has full control of the power supply to the module and will insure that the correct voltage is provided to the module.
- 4) RNW-MD-FH-09-01 will always be used with one of a family of approved antennas, which are permanently mounted (along with the radio) inside of a finished product. The antennas are not user accessible in the completed product. There is one configuration (wall mount AQL2 terminal) in which the device is

shipped in two pieces and final assembly occurs when the product is installed; in this case installation requires a professional installer. For this reason all antenna configurations can be considered to meet the Part 15.203 antenna requirement. All of the antennas in the family have been tested with the radio module as part of the modular approval; test results are included with the application. If the radio is to be used with a new antenna design, further testing will be performed and a Class II permissive change will be obtained to include the new antenna.

- 5) RNW-MD-FH-09-01 was tested in a stand-alone configuration, outside of any Goldline product.
- 6) RNW-MD-FH-09-01 comes in two configurations that are two different sizes. It will carry a label containing the FCC ID number in the (larger) Base Station configuration; a drawing showing this module label and it's location has been provided as part of the application. There is no room for a label on the Remote Terminal configuration. All products containing this module will have the statement "Contains FCC ID: RNW-MD-FH-09-01" clearly visible on an external product label. Examples of these external labels as well as location drawings have been provided as part of the application.
- 7) RNW-MD-FH-09-01 will only be used with Goldline Controls products; this includes products built by Goldline that may be branded for other companies. Thus Goldline will maintain full control over the use of the module and can guaranty that all conditions for use will be met in any product that the module is installed in.
- 8) Most of the products that contain RNW-MD-FH-09-01 will be table top or wall mounted devices subject to Part 2.1091 of the FCC rules and defined as mobile devices. There are a few products that contain RNW-MD-FH-09-01 that will be hand held (but not body worn) devices subject to part 2.1093 of the FCC rules and defined as portable devices. However, the output power from this radio module (typically 10 dBm conducted) is so small that it will easily meet all RF exposure requirements and does not require SAR testing.

Sincerely,



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