



## Modular Approval Letter

2018-01-24

FEDERAL COMMUNICATIONS COMMISSIONS

Authorization and Evaluation Division

7435 Oakland Mills Road

Columbia, MD 21046

Subject: Limited Modular Approval Letter

The Device, FCC ID: 2AE5A-RSW200A, is seeking FCC authorization as a limited modular transmitter. The EUT meets the requirement for limited modular approval as detailed in FCC Public Notice DA 00-1407. Compliance to each of the requirements is described below:

1. The modular transmitter must have its own RF shielding.

The Roost RSW200A Limited Modular Transmitter contain a mass-manufactured integrated circuit containing Complete WiFi Transceiver minus a few peripheral components. The Transmitter itself is fully integrated into the ATMEL WINC1500 IC and appropriate shielding and differential signaling techniques are employed within the Integrated Circuit to minimize electromagnetic emissions. Further radiation shielding to limit fields of external signals has been employed in the internal and external copper layers of the Roost RSW200A Limited Modular Transmitter PCB such that no further physical can shielding is required to be implemented in order to meet required limits. See results of emissions testing of the RSW200A Limited Modular Transmitter test board as well as repeated Spurious Emissions Testing of the RSW200A Limited Modular Transmitter when mounted inside the TOSV2 Smoke Alarm Sensor and RSW-200A Smart Water Leak and Freeze Detector.

2. The modular transmitter must have buffered modulation/data inputs

The Roost RSW200A Limited Modular Transmitter contains a ATMEL WINC1500 with fully integrated WiFi transceiver and applications microprocessor. The Modulation inputs are not directly accessible to external circuitry and are only available to the internal WINC1500 Application processor. External circuitry provides the WiFi data to the WINC1500 through the Applications processor UART interface. The UART interface on the WINC1500 Applications Processor utilizes ESD and short circuit protected, configurable buffer circuitry to allow for proper power management configuration and general electro-static and short circuit protection. The data which is transceived via the WINC1500 radio, is buffered further when it is passed To/From an external processor ( ST Microelectronics STM32L051 microprocessor for the Roost RSW-200A Smart Water Leak and Freeze Detector product and TOSV2 Smoke Alarm Monitor products) integrated in the same board as the Roost RSW200A Limited Modular Transmitter. There are no user accessible modulation/data inputs on the Roost RSW200A Limited Modular Transmitter

3. The modular transmitter must have its own power supply regulator

The Roost RSW200A Limited Modular Transmitter contains an ATMEL WINC1500 integrated WiFi transceiver which contains its own integrated switched regulator circuitry within the WINC1500 die. For additional protection and consistency, Roost has incorporated an additional Texas Instruments 3.3V switching regulator TPS6100994 to provide a consistent 3.3V power source to the WINC1500 from the input 3V alkaline

or Lithium power source batteries.

4. The modular transmitter must comply with the antenna requirement of section 15.203 and 15.204(c)

The Roost RSW200A Limited Modular Transmitter is a fully integrated module including WiFi transceiver and antennae. There are no user accessible points of entry between the transceiver and antennae. The antenna is a Johanson ceramic chip antenna (2450AT42E0100E) soldered directly to the Roost RSW200A Limited Modular Transmitter PCBA. The antenna gain is theoretically limited to a peak gain of -2.0dBi, However, the Roost RSW200A Limited Modular Transmitter layout implementation further limits the peak gains to below -5.3dBi. The WiFi transceiver integrated circuit (WINC1500) is a single multiplexed port design allowing for transmit and receive on the same port in a time multiplexed fashion which disallows hacking /splicing in of any additional external transmit amplification due to the dependence Tx/Rx signals in the 802.11 interoperability standard.

5. The modular transmitter must be tested in a stand-alone configuration

The Roost RSW200A Limited Modular Transmitter Test PCB was tested for FCC, IC (ISED), and ETSI requirements by the certification lab in a standalone configuration, outside of and separate from the RSW-200A Smart Water Leak and Freeze Detector and TOSV2 Smoke Alarm Monitor consumer products.

6. The modular transmitter must be labeled with its own FCC ID number

The FCC ID and IC ID are properly marked in the SilkScreen TOP Layer of the Roost RSW200A Limited Modular Transmitter PCBA

7. The modular transmitter must comply with any specific rule or operating requirements and the manufacturer must provide adequate instruction along with the module to explain any such requirements

The Roost RSW200A Limited Modular Transmitter does not require any additional 'special' rules or operating requirements, however, any requirements which do exist are outlined in the Roost RSW200A Limited Modular Transmitter User Manual.

8. The modular transmitter must comply with any applicable RF exposure requirements

The Roost RSW200A Limited Modular Transmitter complies with all RF exposure requirements and this is identified in the Roost RSW200A Limited Modular Transmitter User Manual.

Sincerely Yours,



Client's signature  
James Machiorletti  
[jimmac@roostlabs.com](mailto:jimmac@roostlabs.com)  
Phone: 408-419-9500