Modular Approval Letter

2017-03-27

FEDERAL COMMUNICATIONS COMMISSIONS

Authorization and Evaluation Division

7435 Oakland Mills Road

Columbia, MD 21046

Subject: Modular Approval Letter

The Device, FCC ID: 2AE5A-RSW200, is seeking FCC authorization as a modular transmitter. The EUT meets the requirement for 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 RSW-200 Wireless Module Board contains a mass-manufactured integrated plastic encapsulated SiP module subassembly which contains Complete WiFi Transceiver. See Fig 1 below

Fig 1

This SB-WM-N04 SiP module is produced by SPIL. In SPIL's words 'the silver package of SPIL SB-WM-N04 SiP outside is metallic, material is stainless'. The SPIL module is based on the Broadcom BCM4390 Integrated Circuit. The BCM4390 Integrated Circuit.

The Roost RSW-200 wireless module fixes the use of the SB-WM-N04 SiP to a single application and does not contain any additional electromagnetic shielding beyond the shielding integrated into the SB-WM-N04 SiP. Emissions testing has shown the Roost RSW-200 wireless module meets all requirements of FCC and Industry Canada (ISEDC) requirements. Previous FCC Testing of the TOSVW Roost product also yielded identical emissions results and confirmed the RSW-200 module also meets European CE emissions requirements also. The Roost consumer products using the RSW-200 wireless module do not contain any additional electromagnetic shielding.

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

The Roost RSW-200 Modular Transmitter module contains a Broadcom BCM4390 fully integrated WiFi transceiver and applications microprocessor. The Modulation inputs are not directly accessible to external circuitry and are only available to the internal Application processor. External circuitry provides the WiFi data to the BCM4390 through the Applications processor UART interface. The UART interface on the BCM4390 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 BCM4390 radio, is passed To/From a ST Microelectronics STM32L051 microprocessor also contained on the same Roost RSW-200 module. There are no user accessible modulation/data inputs on the Roost RSW-200 module. The module is intended for, and can only be used, in cloud based product applications

which utilize a separate software application operating on a mobile device (cell phone or tablet) allowing the user to determine the content of the WiFi transceiver data packets. A cloud based SW is further required to interpret the mobile device application instructions to finalize the WiFi transceiver data packet content.

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

The Roost RSW-200 Modular Transmitter module contains a Broadcom BCM4390 integrated WiFi transceiver which contains its own integrated switched regulator circuitry within the BCM4390 die. For additional protection and consistency, Roost has incorporated an additional Texas Instruments 3.3V switching regulator to provide a consistent 3.3V power source to the BCM4390 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 RSW-200 Modular Transmitter module is a fully integrated module including WiFi transceiver and antennae. There are no user accessible points of entry between the transceiver and antennae. The antennae are Johanson ceramic chip antenna (2450AT18A100) soldered directly to the RSW-200 module PCB. The antenna gain is theoretically limited to a peak gain of 0.5dBi, however, the Roost RSW-200 PCB layout implementation further limits the peak gains to below -5dBi. The WiFi transceiver integrated circuit (Broadcom BCM4390) 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 RSW-200 Modular Transmitter PCB was tested for FCC and IC (ISEDC) by the certification lab in a standalone configuration, outside of and separate from the RSW-200 Smart Water Leak and Freeze Detector consumer product.

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

In the event that the Roost RSW-200 Modular Transmitter is used in additional products beyond the RSW-200 Smart Water Leak and Freeze Detector consumer product, the Roost RSW-200 module is labeled with its own FCC ID number (as well as IC (ISEDC) number) as shown in the accompanying document entitled 'Label Location RSW-200'.

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 RSW-200 Modular Transmitter module does not require any additional 'special' rules or operating requirements, however, any requirements which do exist are outlined in the RSW-200 Modular Transmitter User Manual.

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

The Roost RSW-200 Modular Transmitter complies with all RF exposure requirements and this is identified in the RSW-200 Modular Transmitter User Manual.

Sincerely Yours,

Client's signature
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