

Ecolab Hand Hygiene Compliance Monitoring System™

**NEXA HHCM 915 Touch Free Dispenser Beacon User's Guide
92053070**

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Abstract

This document describes basic setup, function, use and maintenance of the 92053026 NEXA HHCM 915 TOUCH FREE DISPENSER BEACON.

Revision History

Revision	Date	By	Description
A	2/21/2019	CL	Initial Release

Reference Documents

Badge States Handout

Badge User Manual

World Health Organization "Your 5 Moments for Hand Hygiene",
<http://www.who.int/gpsc/5may/background/5moments/en>

Ecolab Beacon Installation Tool Users Guide

Terms, Acronyms and Abbreviations

Factory Default	A setting or parameter that is programmed with an initial default value by the manufacturer but that may be modified by the healthcare facility.
HCW	Healthcare Worker
LED	Light Emitting Diode
Patient Contact	Having physical contact with a patient, their immediate surroundings or being in close proximity to an Ecolab Hand Hygiene Compliance Monitoring System equipped patient bed.
Patient Zone	The area around a patient bed that is detectable by an Ecolab HH CMS HCW Badge. Being inside the patient zone will be considered patient contact.
Ecolab HH CMS	Ecolab Hand Hygiene Compliance Monitoring System
WHO	World Health Organization

1. NEXA HHCM 915 TOUCH FREE DISPENSER BEACON Overview

The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON (or NEXA HHCM 915 BCN ASSY, part number 92053070) is an integral component of the Ecolab HH CMS. When the Ecolab HH CMS is installed, Healthcare facilities determine which dispensers they wish to use and have monitored. When Touch Free dispensers are chosen, a NEXA HHCM 915 TOUCH FREE DISPENSER BEACON is installed in each dispenser to be monitored. Each NEXA HHCM 915 TOUCH FREE DISPENSER BEACON has a unique identification address that is assigned during the manufacturing process and associated to a specific physical location during the installation process.

The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON communicates with Ecolab HH CMS Healthcare Worker Badges, to obtain Badge ID and hand hygiene status information during a dispense event. The dispense event communication sets the HCW Badge's hand hygiene status to "Green" or "State 0" and then both the dispenser and the HCW badge ID information is transmitted by the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON to the nearest Hub, along with the time and date of the event, to be relayed to the offsite server for data compilation. Once the information exchange between the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON and the HCW Badge is complete, the dispenser LED will light up Yellow to indicate that the HCW has been credited with the dispense event.

2. NEXA HHCM 915 TOUCH FREE DISPENSER BEACON Set Up

2.1 Installing Batteries

Each NEXA HHCM 915 TOUCH FREE DISPENSER BEACON requires 2 AA alkaline batteries for operation. These must be installed prior to initial installation of the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON in the dispenser. The battery compartment door for the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON can be found on the top side of the device.

To install batteries prior to initial installation into the HH dispenser, complete the following steps:

1. Remove the battery compartment door by gently unscrewing the battery door and lifting it away from the body of the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON.
2. Once the battery compartment door has been removed, install two (2) AA alkaline batteries, aligning the positive (+) and negative (-) terminals of the batteries with the corresponding signs displayed within the battery compartment (Ecolab recommends that only Duracell® Coppertop batteries be used).

Once the batteries have been installed, replace the battery compartment door, firmly tighten the door screw, and make sure the battery compartment door is flush with the body of the beacon before installation in the dispenser.



Figure 1. Battery door location

2.2 Installing the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON in a Nexa™ Touch Free Dispenser

The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON can be used in either the large ("Classic") and small ("Compact") versions of the Nexa Touch Free Dispenser.

To install the dispenser beacon:

- (1) Open the dispenser by depressing the top latch button.
- (2) Remove product bottle (if any) from the dispenser and set aside.
- (3) Remove the rubber communication port cover in the back of the dispenser (see figure 2) and discard.
- (4) Align the plug with the communication port and the housing's captive screw with the screw boss in the back of the dispenser (see figure 2).
- (5) Gently but firmly insert the plug (adjusting the plug may be necessary) into the communication port, until it is firmly seated in the port.
- (6) Tighten the captive screw finger tight into the boss.
- (7) Replace the product bottle within the dispenser.
- (8) Close the dispenser.

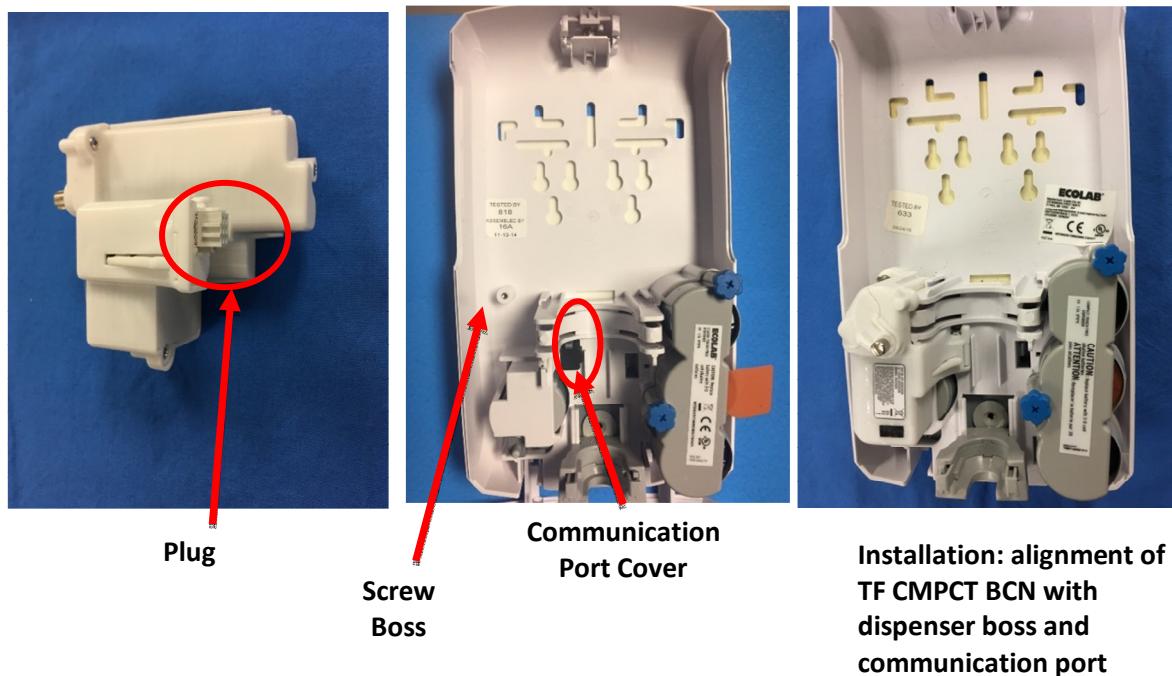


Figure 2. NEXA HHCM 915 TOUCH FREE DISPENSER BEACON Installation into Nexa™ Touch Free Dispenser

2.3 Adjusting Communication Range

The Beacon Installation Tool is used to adjust the communication range on the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON.

To adjust the communication range:

1. With the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON installed in the dispenser, hold the Installation Tool within 10 inches of the dispenser and select mode "Range Adjust" (Refer to Ecolab Beacon Installation Tool Users Guide). Activate the dispenser (*i.e.*, dispense product) to establish communication between the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON and the Installation Tool. Note: both yellow and red LED on the Installation Tool will flash when it has successfully communicated with the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON. The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON address (device ID number) and its current range setting should be displayed on the Installation Tool screen (See Figure 3).
2. To adjust the communication range, press the UP  (increase) or Down (decrease)  key on the Installation Tool until the desired range setting is displayed, then press the "Select" button. An audible confirmation from the Installation Tool should be heard. Activate the dispenser to complete the update to the range setting on NEXA HHCM 915 TOUCH FREE DISPENSER BEACON. Note: The LED on the dispenser will flash two (2) times when the range setting has successfully updated.

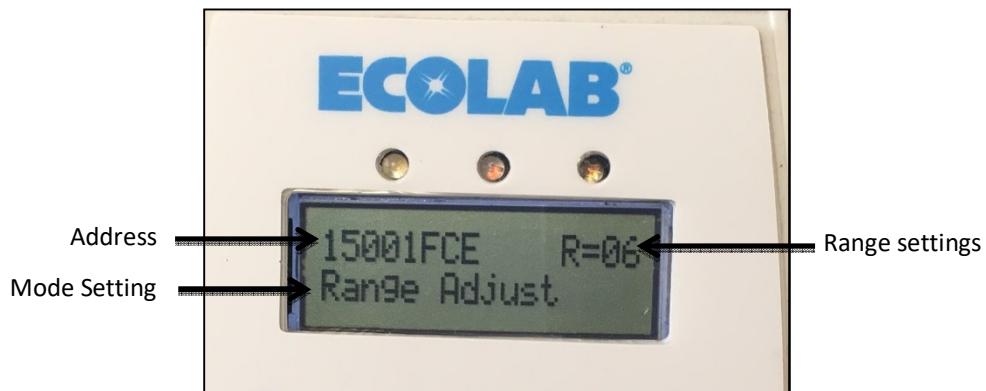


Figure 3. Installation Tool screen

2.4 Removal of the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON from a NEXA™ Touch Free Dispenser

To remove the dispenser beacon:

- (1) Open the dispenser by depressing the top latch button.
- (2) Remove product bottle (if any) from the dispenser and set aside
- (3) Unscrew the captive screw from the boss, to release the beacon and allow it to be removed.
- (4) Gently grasp and pull on the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON to disengage the plug from the communication port.

3. How the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON Works

The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON is a wireless device that detects and communicates with Ecolab HH CMS HCW badges and Hubs. The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON communicates with a HCW badge based on its proximity to the device. When the HCW dispenses soap or sanitizer by placing their hand under the dispenser, a proximity bubble is created around the dispenser. The proximity bubble wakes up the HCW Badge and begins the information exchange between the devices. The dispenser then communicates time, date, badge status and ID information (the dispenser ID and badge ID) to a Hub, which relays it on to the remote server.

3.1 Interaction with a Healthcare Worker's Badge

When the touch free dispenser dispenses product, the attached Encompass HH CMS the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON will momentarily create a proximity bubble around itself and the dispenser. If the Badge worn by the HCW activating the dispenser is within the proximity bubble, the Badge will communicate with the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON and then will change to the proper hand hygiene status level. If the Badge is not within the proximity bubble, it will not communicate with the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON nor will its hand hygiene status level change. This will result in the HCW not receiving credit for using the dispenser.

The default range of the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON's proximity bubble is about 24 inches in all directions but the range can be adjusted if necessary. It is important for the HCW to wear their Badge in a location that insures it is within the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON'S proximity bubble whenever a dispenser is activated. It is also important that only one Badge is within the proximity bubble when a dispenser is activated. If more than one Badge is within the proximity bubble, the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON may unintentionally communicate with the wrong Badge (*i.e.*, a Badge belonging to a HCW that did not activate the dispenser). If this happens, the wrong Badge will change its hand hygiene status level and the wrong HCW will receive credit for using the dispenser.

The NEXA Touch Free dispenser is equipped with a user feedback LED (gold light). This LED is in the same spot as the battery indicator light, but is a different color (yellow/gold). The feedback LED will only flash when the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON has successfully communicated with a Badge. The LED flash will occur during or immediately after dispenser activation. If the LED does not flash, the Badge may not have been within the proximity bubble or there was an error in communications. If this occurs, the HCW should move closer to the dispenser and activate it again.

Please take the following steps to insure proper Badge communications and correct HCW credit when using a dispenser.

1. Verify that the Badge is being worn in a location that will be within a NEXA HHCM 915 TOUCH FREE DISPENSER BEACON's 24-inch proximity bubble.
2. Before activating a dispenser, verify that other HCWs are not within the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON'S 24-inch proximity bubble. If there are other HCWs near the dispenser, kindly ask them to move away before activating.

3. Verify that the dispenser's yellow LED flashed when the dispenser was activated. If the LED did not flash, move closer to the dispenser and activate it again.

3.2 Interaction with a Hub

All NEXA HHCM 915 TOUCH FREE DISPENSER BEACON's are equipped with a longer-range radio that allows them to transmit information to the Ecolab HH CMS Hubs. The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON will transmit to the Hub that is closest to it or from which it gets the strongest signal. At time of system install, it is verified that all NEXA HHCM 915 TOUCH FREE DISPENSER BEACONS are in range of at least one Hub.

When the NEXA touch free dispenser dispenses product, the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON is activated, will create a proximity bubble and search for HCW badges. If the user is wearing a badge, the Badge's HH status will be updated by the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON. The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON will then transmit the Badge's HH status (both just prior to and immediately after the dispense) to the Hub. The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON will also transmit the time, date and location of the event, along with the battery status of the HCW badge and the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON. If the user is not wearing a badge, or is not within the proximity bubble, the time, date and dispenser ID for the product dispense event will be relayed to the hub as a "non-badged dispense".

In addition to communication of dispense event data, all NEXA HHCM 915 TOUCH FREE DISPENSER BEACONS proactively send their ID and battery status information to a Hub on an approximately hourly basis. If communication to a Hub is lost, all NEXA HHCM 915 TOUCH FREE DISPENSER BEACONS have the capability to store up to 512 events in their on-board memory.

4. NEXA HHCM 915 TOUCH FREE DISPENSER BEACON Status Information

The Dispenser Beacon proactively sends its battery level and status information to a Hub at least once per hour, or when product is dispensed. This information can be accessed through the Dashboard, to generate a report showing Dispenser Beacons with low battery level. If communication to a Hub is temporarily lost, each NEXA HHCM 915 TOUCH FREE DISPENSER BEACON has the capability to store up to 512 events. If this number of events is exceeded before communication to the Hub is restored, the oldest events will be overwritten, thus resulting in some loss of data.

4.1 Yellow LED – Successful Communication Between HCW Badge and Dispenser Beacon.

The Yellow LED, which flashes once during or immediately after a dispense event, indicates that the HCW badge information has successfully been communicated to the Dispenser Beacon. The Dispenser Beacon will then send this information to a Hub for relay on to a Gateway, and eventually to the offsite server for compilation and archiving.

4.2 When an Empty Product Bottle is Removed and a New Bottle is Installed

The Yellow LED will flash twice when the old bottle is removed, and the Yellow LED will flash once when a new bottle is installed. The dispenser beacon will send a signal to the hub indicating removal or installation of a product bottle.

5. NEXA HHCM 915 TOUCH FREE DISPENSER BEACON Care and Maintenance

5.1 Handling

The NEXA HHCM 915 TOUCH FREE DISPENSER BEACON is an electronic device and should be handled with care. Like other electronic devices such as a cell phone, the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON must be protected from extreme heat, cold and moisture. Avoid handling the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON with wet hands or exposing it to water. Dropping or tossing the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON can result in damage to the internal electronics.

5.2 Cleaning

Under normal conditions of use, the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON should not require cleaning. On the infrequent occasions where the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON might become soiled, it should be cleaned by wiping with a soft cloth. The cloth may be dry or slightly damp but not dripping wet. Only the exterior of the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON may be cleaned. Do not attempt to clean any interior surface of the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON, as this can damage the circuitry. Do not use abrasive cleaners or spray cleaning products.

5.3 Battery Replacement

Typical Dispenser Beacon battery life is about 1 year but this may vary depending on use. When a Dispenser Beacon's battery is dead it will no longer communicate with other Ecolab HH CMS devices. The Ecolab HH CMS Dashboard software also monitors the battery level of each NEXA HHCM 915 TOUCH FREE DISPENSER BEACON. It will send an email alert to a designated maintenance person, assigned by the healthcare facility, when a NEXA HHCM 915 TOUCH FREE DISPENSER BEACON'S batteries are low (20% or less remaining battery capacity). The maintenance person should replace the batteries as soon as possible to prevent loss of data.

5.3.1 Supplies

The following supplies are required to replace the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON'S battery:

1. Two (2) alkaline AA Duracell® Coppertop Batteries

5.3.2 Battery Replacement Steps

The following steps describe how to remove and replace the batteries on the NEXA HHCM 915 TOUCH FREE DISPENSER BEACON:

1. Open the dispenser by depressing the top latch button.
2. Remove product bottle (if any) from the dispenser and set aside.
3. Unscrew the battery compartment door and gently remove the old batteries.
4. Once the battery compartment door has been removed, install two (2) AA alkaline batteries, aligning the positive (+) and negative (-) terminals of the batteries with the corresponding signs displayed within the battery compartment (Ecolab recommends that only Duracell® Coppertop batteries be used to power the module.)
5. Once the batteries have been installed, screw the battery compartment door back onto NEXA HHCM 915 TOUCH FREE DISPENSER BEACON.
6. Replace the product bottle within the dispenser.
7. Close the dispenser.
8. Dispose of the old batteries. Check with the healthcare facility for the proper disposal procedure

Appendix A - Certification and Safety Approvals

FCC Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WARNING: Changes or modifications not expressly approved by Ecolab could void the user's authority to operate the equipment.

RF Exposure: This equipment complies with FCC radiation exposure limits set forth for an Uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Magnetic Loop Antenna

Helical antenna -1.96 dBi

RF Exposure: This equipment complies with Industry Canada radiation exposure limits set forth for an Uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Exposition aux radiofréquences : Cet équipement est conforme aux limites d'exposition par rayonnements définies par l'industrie du Canada pour une utilisation dans un environnement non clos. Cet équipement doit être utilisé à une distance minimale de 20 cm entre l'émetteur de radiation et votre corps. Cet émetteur ne doit pas être situé au même endroit qu'un autre émetteur et ne doit pas être connecté à une antenne différente.

FCC & IC Label Information

The FCC & IC label information that contains the FCC ID Number, IC ID Number, Device Model Number, and FCC Statement
"THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:

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(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION." is located on the front portion of the module (See Figure 4).

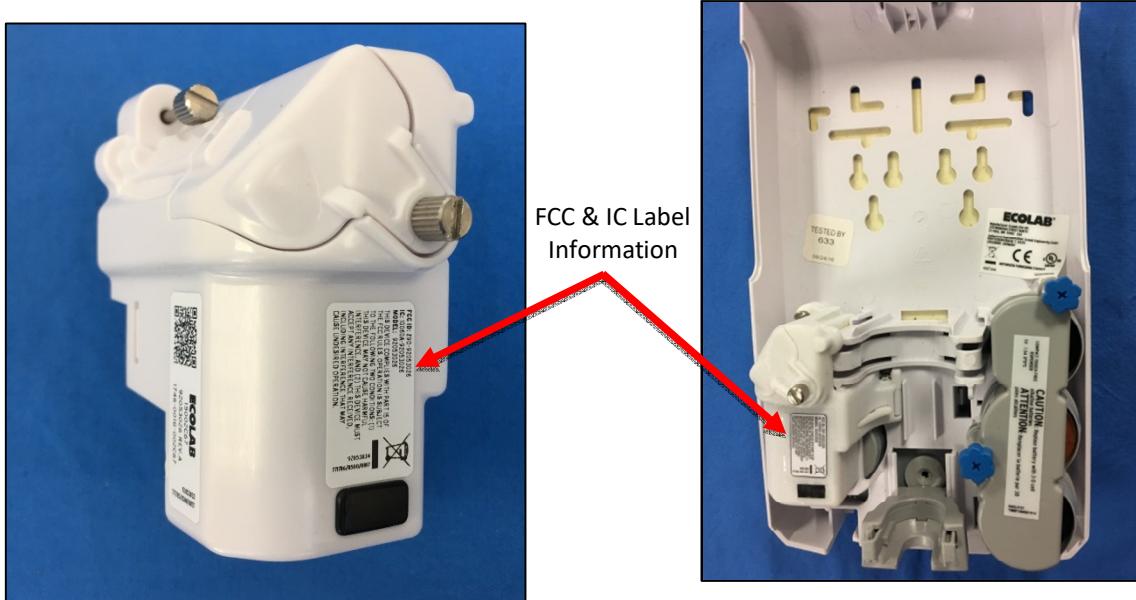


Figure 4. FCC & IC Label Information