



General Description

This document describes the firmware behavior of the CuePath system.

Contents

General Description	1
Documents Referenced.....	2
1 Introduction	3
2 CuePath Device (Smart Pack) Behavior.....	3
2.1 Production Test Mode.....	3
2.2 Pharmacy Activation Mode	3
Revision History.....	5
Contact Information	5
FCC and IC NOTICES:	6



Documents Referenced

Number	Title
[1]	[TWI 16-08] CueCare Tester Application User Manual

1 Introduction

This document describes the CuePath device Firmware behavior.

2 CuePath Device (Smart Pack) Behavior

1. The device has a push button and 2 LEDs (RED and Green).
2. The device starts in the Deep Sleep State (Shelf Mode). The device could wakeup only by pressing the push button.
3. The device has two modes of operations; the Production Test Mode and the Pharmacy Activation Mode.

2.1 Production Test Mode

1. The production test mode is used to verify the device hardware components. i.e., the push button, the two LEDs, and the resistor matrix connections.
2. By default, the device works in the production test mode.
3. To verify the push button and LED hardware connections, the user short press the push button.
4. With the user's button short press, the device blinks red and green LEDs simultaneously once. The user sees an **orange** color from the LEDs, as both LEDs are ON simultaneously.
5. To initiate the resistor matrix verification procedure, the user has to short press the push button **THREE** consecutive times.
6. The device counts the short presses when the time among consecutive presses is less than 3 seconds. In other words, if the user takes more than 3 seconds to press the button twice, the device neglects the previous press count and start over.
7. After **THREE** short presses, the device measures the resistor matrix values. It then compares their values with the expected resistor range to detect whether the packs are opened, disconnected, or closed.
 - a. The test passes when all resistors are connected and closed. In this case, The device turns the **GREEN** LED on for 5 seconds.
 - b. The test fails when one of the resistors or more are disconnected or opened. In this case, The device turns the **RED** LED on for 5 seconds.
8. The device advertises the test result for 30 seconds. The test result includes the resistor matrix status, the battery value, and the device's unique id. The user could use the CueCare Test App to check the device test result. For more information, please check [1] document for further details.
9. After the 30 seconds of advertising, the device returns to the deep sleep state (Shelf mode).

2.2 Pharmacy Activation Mode

1. The pharmacy activation mode is the customer mode. In this mode, the device continuously checks the resistor matrix value and updates the CueCare App with its results.
2. To start the pharmacy activation mode, the user has to long-press the button for 3 seconds.
3. When the pharmacy activation mode starts, The device blinks the green LED **FOUR** times and then turns the green LED on for 5 seconds.
4. The device measures the resistor matrix, and the battery voltage every 10 mins periodically. When one of the below parameters change between the current and the previous measurements, the device stores the measurement into its internal flash memory and starts advertising with the updated status:



-
- a. The resistor matrix status changes.
 - b. The battery voltage decreased by 0.1 volts.
 - c. The battery voltage is below 2.3 volts.
5. The device has a 3 hours keep-alive timer to initiate advertising even if there is no status change.
 6. The CueCare App connects to the device automatically whenever the device advertises to read the resistor matrix status updates.



Revision History

Revision	Date	Modified By	Changes
Rev 0.1	Dec 14 th , 2020	Ahmed Zaki	Develop TWI Cuepath Firmware Behavior
Rev 0.2	Dec 15 th , 2020	Ahmed Samir	Review and formating

Contact Information

Thirdwayv Inc.

Address: 20 Pacifica, Suite 420, Irvine, California 92618, USA

Phone: +1-(858)-733-9871

Email:

info@thirdwayv.com

Website:

www.thirdwayv.com



FCC and IC NOTICES:

1. FCC Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Caution: any changes or modifications to this device not expressly approved by CuePath could void the user's authority to operate the equipment.

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 does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to 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.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

2. ISED Statements

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

Ce dispositif contient les émetteurs/récepteurs autoriser-exempts qui sont conformes au permis RSS exempt du Canada d'innovation, de la Science et de développement économique. L'opération est sujette aux deux conditions suivantes:

1. Ce dispositif peut ne pas causer l'interférence.
2. Ce dispositif doit accepter n'importe quelle interférence, y compris l'interférence qui peut causer le fonctionnement peu désiré du dispositif.



TWI Cuepath Firmware Behavior

**TWI FW 16-02
REV 0.2**

CAN ICES-3 (B) / NMB-3 (B)

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de classe B est conforme à la norme canadienne ICES-003.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé.

Innovation, Science and Economic Development Canada ICES 003 Compliance Label: CAN ICES-3 (B)/NMB-3(B)