
# Utica 2.4 GHz CIC 312 URS

GQ-SPEC-00969

# Utica 2.4 GHz CIC 312 URS

# 1 Introduction

## 1.1 Purpose

**UTICA-2304,** **-** Info: The purpose of this document is to define the User Needs for the Utica 2.4GHz CIC with 312 battery . It can also be used to generate the validation test plan.

## 1.2 Scope/Vision

**UTICA-2306,** **-** Info: The Utica 2.4GHz CIC 312 will be Starkey's first CIC HA product featuring 2.4GHz wireless functionality and a size 312 battery. It will use the NP5-based platform, contain an IMU (Inertial Measurement Unit), and have E2E data and audio connectivity. This CIC will reuse existing faceplates.

## 1.3 Intended Use

**MASTER-73400,** **-** Info: The hearing aid is a wearable sound-amplifying device that is intended to compensate for impaired hearing.

## 1.4 Intended User

**MASTER-73398,** **-** Info: Starkey Hearing Aids and Multiflex Tinnitus are intended for use by a lay person in a home environment.

## 1.5 Intended Purpose

**MASTER-73402,** **-** Info: **Hearing aid:** An air conduction hearing aid is a wearable sound-amplifying device intended to compensate for impaired hearing. Hearing instruments are available in multiple gain/output levels appropriate to treat hearing losses ranging from mild-to-profound.

**MASTER-73403,** **-** Info: **Tinnitus Multiflex:** The Multiflex Tinnitus Technology is a tool to generate sounds to be used in a Tinnitus Management program to relieve patients suffering from tinnitus. The target population is primarily the adult population over 18 years of age.

**MASTER-73401,** **-** Info: **Multiflex Tinnitus Technology** is targeted for healthcare professionals, which are treating patients suffering from tinnitus, as well as conventional hearing disorders. The fitting of Multiflex Tinnitus Technology must be done by a hearing healthcare professional participating in a Tinnitus Management Program.

# 2 Component Requirements

## 2.1 Radio

**UTICA-28732,** - Info: There are no radio constraints.

### 2.1.1 User Stories

## 2.2 Hearing Aid Case

**UTICA-28733,** - Info: There are no user stories for the hearing aid case.

## 2.3 Right and Left Indicators

### 2.3.1 Hardware Constraints

**MASTER-6234,** - Info: There are no Hardware Constraints for this component.

### 2.3.2 User Stories

## 2.4 Battery

### 2.4.1 User Stories

## 2.5 Battery Door

### 2.5.1 Hardware Constraints

### 2.5.2 User Stories

## 2.6 User Controls

### 2.6.1 Hardware Constraints

### 2.6.2 User Stories

### 2.7 Microphone

#### 2.7.1 Hardware Constraints

#### 2.7.2 User Stories

**MASTER-6300,** **-** Info: There are no User Stories for this component.

### 2.8 Microphone Cover

#### 2.8.1 Hardware Constraints

#### 2.8.2 User Stories

### 2.9 Magnetic Switch

#### 2.9.1 Hardware Constraints

#### 2.9.2 User Stories

### 2.10 Inertial Measurement Unit (IMU)

#### 2.10.1 Hardware Constraints

#### 2.10.2 User Stories

### 2.11 Wax Prevention

#### 2.11.1 Hardware Constraints

#### 2.11.2 User Stories

## 3 Features and Functionality

### 3.1 Channels

**UTICA-28734,** R **-** As a professional, I want the ability to adjust the HA gain and output in each channel so that I can fit a variety of hearing losses. **[**1. **]**

### 3.2 HA Pairing and Updating

### 3.3 HA Session Connection and Restoration

### 3.4 User Controls

### 3.5 Tinnitus Stimulus Level

**UTICA-28735,** R **-** As a patient, I want the ability to increase/decrease my Tinnitus Therapy Stimulus Level with my HA User Control independently of my HA volume so that I can find an appropriate balance between my Tinnitus Therapy Stimulus Level and environmental sounds. **[**1. **]**

**UTICA-28736,** R **-** As a patient, I want the ability to increase/decrease my Tinnitus Therapy Stimulus Level independent of my HA volume so that I can find an appropriate balance between my Tinnitus Therapy Stimulus Level and environmental sounds. **[**1. **]**

**UTICA-28737,** R **-** As a professional, I want the ability to configure the Tinnitus Therapy Stimulus Settings (for example, Step Size, Reserve Output, and Steps Below Reserve Output) so that a patient can adjust his/her Tinnitus Therapy Stimulus Levels for better listening comfort in diverse environments. **[**1. **]**

### 3.6 Multi-Memory

**UTICA-28738,** R **-** As a patient, I want the ability to create, save, and access customized memory environments using a Starkey Mobile App so that I can fine-tune my HA settings. **[**1. **]**

### 3.7 Volume Control (VC)

**UTICA-28739,** R **-** As a patient, I want the ability to directly increase and decrease my HA volume so that I can improve audibility and listening comfort in diverse environments. **[**1. **]**

### 3.8 Adaptation in Different Sound Environments

**UTICA-28740,** R **-** As a patient, I want a HA that automatically adapts to various sound environments (for example, Wind, Machine Noise, Music, Speech-in-Noise, etc.) so that the sound level is comfortable and sound quality is optimized. **[**1. **]**

**UTICA-28741,** R **-** As a patient, I want a HA that automatically adapts to noisy environments so that the sound level is comfortable and sound quality is optimized. **[**1. **]**

**UTICA-28742,** R **-** As a user who struggles to understand conversation in background noise, I want features that reduce the background noise and/or enhance the speech that I'm interested in so that I can better understand and interact in conversations that I am a part of. **[**1. **]**

### 3.9 Expansion and Compression

**UTICA-28743,** R **-** As a patient, I want the HA to make speech audible while providing preferred loudness for soft, moderate and loud sounds so that speech intelligibility and sound quality are maximized. **[**1. **]**

**UTICA-28744,** R **-** As a patient, I do not want to experience objectionable artifacts or distortion so that sound quality is maximized. **[**1. **]**

**UTICA-28745,** R **-** As a professional, I want the ability to adjust the aggressiveness of expansion so that I can maximize sound quality for the patient for soft sounds. **[**1. **]**

**UTICA-28746,** R **-** As a patient, I want the HA to be quiet in quiet environments so that I am not bothered by internal HA noise or low-level external sounds. **[**1. **]**

**UTICA-28747,** R **-** As a patient, I want the HA to be perceptually transparent for sounds that fluctuate between soft and average loudness so that sound quality is maximized and speech intelligibility is unaffected. **[**1. **]**

**UTICA-28748,** R **-** As a professional, I want the ability to adjust OCL thresholds so that a patient does not experience discomfort or distortion in loud environments. **[**1. **]**

**UTICA-28749,** R **-** As a patient, I want loud inputs to not sound distorted or uncomfortable so that sound quality is maximized. **[**1. **]**

### 3.10 Feedback Cancellation

### 3.11 Telephone Functionality

### 3.12 Ear-to-Ear Phone Streaming

### 3.13 Data Log

### 3.14 Mute

### 3.15 Audible Indicators

#### 3.15.1 Low Battery and Shutdown Indicators

#### 3.15.2 Power On Indicators

#### 3.15.3 Memory Change Indicators

#### 3.15.4 Volume Control Indicators

#### 3.15.5 Streaming Volume Control Indicators

#### 3.15.6 Tinnitus Stimulus Indicators

#### 3.15.7 Telephone Indicators

#### 3.15.8 Mute Indicators

#### 3.15.9 Special Feature Indicators

#### 3.15.10 Speech Indicators

#### 3.15.11 Specific iOS Event Indicators

#### 3.15.12 IMU Indicators

#### 3.15.13 Fall Management and Manual Alert Indicators

### 3.16 Power On Delay

### 3.17 Audio Streaming

#### 3.17.1 Automatic Streaming (StreamBoost)

### 3.18 Wireless Accessories

#### 3.18.1 Remote Control

#### 3.18.2 TV Streamer

#### 3.18.3 Multi-Function Accessory (MFA)

#### 3.18.4 Companion Microphone

#### 3.18.5 iOS Devices

#### 3.18.6 Android Devices

**MASTER-59963,** **-** Info: Direct Android streaming is only available on specific Android phones (e.g., Google Pixel).

### 3.19 Noise Control

### 3.20 Frequency Translation

### 3.21 Subjective Space

### 3.22 Tinnitus Therapy

**UTICA-28751,** **-** As a professional, I want the ability for the HA to generate a broadband stimulus so that I can utilize sound therapy to treat my patients affected by tinnitus. **[**1. **]**

**UTICA-28750,** **-** As a patient, I want the ability to have a Tinnitus Stimulus presented in my HA simultaneously with audio from my HA microphone so that I may have some relief from my tinnitus. **[**1. **]**

**UTICA-28752,** **-** As a professional, I want to be able to select a Tinnitus Stimulus with frequency shaping based on the patient's hearing loss, so that my patient may find some relief from their Tinnitus. **[**1. **]**

#### 6.1.1 Hardware Constraints

#### 6.1.2 User Stories

**MASTER-39842,** **-** Info: There are no User Stories for this Component.

### 6.2 Wireless Programming Interfaces

#### 6.2.1 Hardware Constraints

#### 6.2.2 User Stories

### 6.3 Wireless Accessory Interfaces

#### 6.3.1 Hardware Constraints

**MASTER-6693,** **-** Info: There are no Hardware Constraints for this component.

#### 6.3.2 User Stories

## 7 Compliance, Labeling, and Manufacturing

## 8 Reference Documents

**MASTER-35650,** **-** Info: Document Services assigned identifier of **XXXX-XXX**.

**MASTER-6710,** **-** Info: [TBD -- Specific HA Project Charter]

.....Include http:// link

NOTES:

* This will be a different Project Charter document for each HA.

* Add hyperlink to Project charter so you can click on link to access document.

* Project Charter should be stored on project site. It is not under doc control. URS and/or SyRS should control all the same details that were in the Project Charter.

# 9 Document Revision Log

Current document version **2.2** has not been **approved.**

| Document Version | Status | Polarion Revision | Date | Change |
|---|---|---|---|---|
| 1 | In Review | 361047 | 2021-01-28 10:21 | review draft, added CR Utica 01 |
| A | In Review | 361332 | 2021-01-29 08:39 | need to add approvers |
| 1 | In Review | 364508 | 2021-02-16 12:02 | Added CR 01, removed out of date reqs |
| 1 | Approved | 366208 | 2021-02-24 13:32 | Added CR 01, removed out of date reqs |
| A | In Review | 366794 | 2021-02-26 14:22 | correct matrices offered - removed 110/35 |
| A | Approved | 366796 | 2021-02-26 14:22 | correct matrices offered - removed 110/35 |
| A | In Review | 372542 | 2021-03-29 14:49 | Update with Utica CR 02 |
| A | Approved | 372547 | 2021-03-29 14:50 | Update with Utica CR 02 |
| A | In Review | 392761 | 2021-06-01 11:23 | Update with CR Utica 03 |
| A | Approved | 392766 | 2021-06-01 11:24 | Update with CR Utica 03 |
| B | In Review | 394085 | 2021-06-03 17:33 | Rev'd to B after CR 03 |
| B | Approved | 394087 | 2021-06-03 17:34 | Rev'd to B after CR 03 |
| B | In Review | 423854 | 2021-08-16 14:09 | CR Utica 04 remove balance training/in app purchase |
| B | Approved | 423856 | 2021-08-16 14:09 | CR Utica 04 remove balance training/in app purchase |
| | In | | 2021-08-16 | |

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|---|---|---|---|---|
| 1.0 | Review | 423918 | 16:22 | updated from Windchill # 23657 - GA # 00969 |
| 1.0 | Approved | 423920 | 2021-08-16 16:23 | updated from Windchill # 23657 - GA # 00969 |
| 1.0 | In Review | 425521 | 2021-08-19 09:56 | Updated links, no requirement changes |
| 1.0 | Approved | 425523 | 2021-08-19 09:57 | Updated links, no requirement changes |
| 2 | In Review | 435393 | 2021-09-17 10:10 | Add CR 07 - LEA2 Master 61607 to iOS section |
| 2 | Approved | 435395 | 2021-09-17 10:11 | Add CR 07 - LEA2 Master 61607 to iOS section |
| 2.1 | In Review | 593431 | 2023-02-15 13:10 | A small number of requirements that could not be validated were removed. |
| 2.1 | Approved | 593959 | 2023-02-17 11:13 | Approved with Original Utica CIC Approvers. |