APPENDIX A3.2.1-9

SOFTWARE REQUIREMENTS SPECIFICATIONS

- Software Requirements Specification: Charger (70 pages)
- Software Requirements Specification: Holder (76 pages)

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SOFTWARE REQUIREMENTS SPECIFICATIONS

PLATFORM: P1

MODEL/GENERATION: 2.4

PRODUCT TYPE: SOFTWARE FOR CHARGER

SOFTWARE VERSION: 1.1

Version N°	Author	Description of change (including reason for change)	Type of change
1.0	Butin, Yannick	Initial revision	1
1.0 SV	Farine, Robin	Submission Version	2

(1: Major change/new version; 2: Minor change; 3: Review without change)

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1 Introduction

1.1 Purpose

The purpose of this document is to provide the detailed requirements for the software of the P1 2.4 Charger. It explains the purpose of the Charger, what it does, interactions with other devices and the environment under which it operates.
This document is intended for software developers and stakeholders who participate in the development of P1 2.4 Charger.

1.2 Scope

The P1 2.4 Charger is an accessory of the P1 2.4 Reduced Risk Products (RRP) system that mainly allows the P1 Holder to be recharged between each inhalation experience. The P1 2.4 Charger is an incremental evolution of the P1 2.2 Charger, commercialized since Q4 2014.

This document includes the description of user and derived software requirements. It also describes how the P1 Charger is intended to be used, in which external conditions and with which devices or accessories it interacts. This document includes also a preliminary risk assessment.

1.3 Definitions

This subsection provides definitions for terms or noun-phrases which have a specific meaning in the context of this document.

1.3.1 Requirement attributes

A requirement specifies a behavior, an improvement or a change over the current situation. A requirement may also state a constraint or a characteristic of the computerized system which limits the designers' options.

The attributes to qualify the requirement are described below:

- **ID**

An ID uniquely identifies a requirement within the scope of this document.

- **Type**

Requirements are classified as functional and non-functional requirements. Many sub-categories exist in order to further detail the classification of non-functional requirements.

- Functional requirements specify the behavior of the RRP system by describing *what* it should do for its user or other actors.
- Non-functional requirements, such as performance or interface requirements, specify *how* the RRP system should operate to satisfy a set of pre-defined constraints.

- **Difficulty**

An estimate of the difficulty of implementing this requirement based on the developer experience. This value can be:

- Low – Feature implementation is basic.
- Medium – Some parts of the feature implementation require investigation.
- High – Complex algorithm or sensitive feature due to multiple constraints.

- **Status**

The current status of this requirement in the development management process. This value can be:

- Proposed
- Approved

1.3.2 Use case attributes

A use case describes a series of related interactions between a primary actor and the system (and optional supporting secondary actors) that enables the primary actor to achieve a goal.

The attributes to qualify the use case are described below:

- **ID**

An ID uniquely identifies a use case within the scope of this document.

- **Status**

The current status of this use case in the development management process. This value can be:

- Proposed
- Approved

- **Related requirements**

This attribute lists the requirements referenced in the use case.

1.3.3 Risk attributes

A risk combines a harm, the probability of occurrence of harm and the severity level of harm. For software, the probability of occurrence is assumed to be 100%, hence it is not part of the risk attributes.

The attributes to qualify the risk are described below:

- **ID**

An ID uniquely identifies a risk within the scope of this document.

- **Status**

The current status of this risk in the development management process. This value can be:

- Proposed
- Approved

- **Severity**

The risk severity value can be:

- Low – No impact on functionality, defect is not noticed by user and no injury to user.
- Medium – Reduced functionality, non-functional product over time, annoying usage or minor injury to user.
- High – Non-functional product, loss of primary function or serious injury to user.

The next section places the system in its context by describing the environment in which the system is intended to be used, other systems it has to interact with and the related interfaces. It then outlines the system functions, design constraints, assumptions and dependencies.

2 Operational domain

The diagrams below illustrate the operational domain model where the device operates.

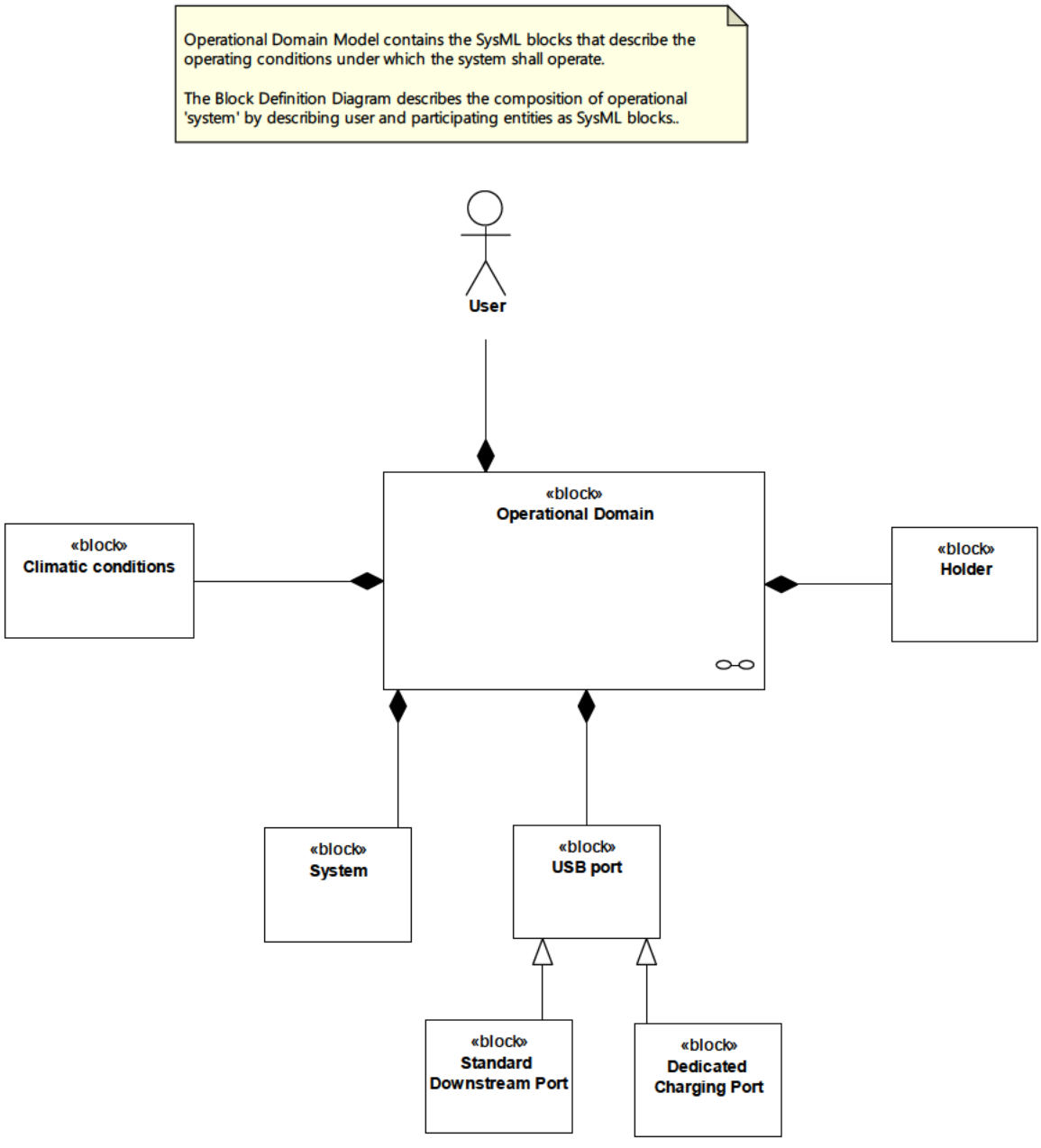


Figure 1: Operational domain overview

2.1 Operational Domain



Figure 2: Operational Domain

2.2 USB port

The USB port is connected to the Charger by the USB cable. The connection allows to have power lines and data lines according to USB specification.

This USB cable can be connected at the other end to a Dedicated Charging Port (i.e. AC/DC adaptor) or to a Standard Downstream Port (i.e. computer).

2.3 Standard Downstream Port

The Standard Downstream Port (SDP) allows (b) (4)

(b) (4) .

(b) (4)
.

2.4 Dedicated Charging Port

The Dedicated Charging Port (DCP) allows only the Charger to be charged.

(b) (4)
.

2.5 Holder

The Holder device is a P1 Holder Model 2.4 or compatible. The connector allows to have power lines (b) (4)
(b) (4)
.

(b) (4)

(b) (4)
.

2.6 Climatic conditions

The climatic conditions restriction is mainly driven by the temperature.

The ambient temperature affects some parameters and behavior inside the Charger.

- (b) (4)

2.7 System

The system provides an interaction between the Charger and the user.

Two buttons are available to capture the user actions. These functions are:

- Start/Stop self-cleaning process on the Holder
- Switch On/Off the Charger

An 8 LED display is available to inform the user about the Charger status. The display is separated in 3 functional areas.

- 4 LED for charger battery gauge (4 LED Gauge)
- 2 LED for holder presence (2 LED Holder)
- 2 LED for holder self-cleaning status (2 LED Cleaning)

Multiple patterns can be displayed to the user:

- 4 LED Gauge steady green: Charger is ON and battery is not charging. The battery remaining capacity is indicated by the number of LEDs displayed.

- 1 LED = 25% or less
- 2 LED = Between 25% and 50%
- 3 LED = Between 50% and 75%
- 4 LED = 75% and more

- 4 LED Gauge flashing green: Charger is ON and the battery is low. The Charger needs to be recharged.

- 1 LED flashing = Low battery

- 4 LED Gauge blinking green: Charger is ON and battery is charging. The battery remaining capacity is indicated by the number of LEDs displayed.

- 1 LED = 25% or less
- 2 LED = Between 25% and 50%
- 3 LED = Between 50% and 75%
- 4 LED = 75% and more

- 4 LED Gauge off: Charger is OFF or in energy saver mode.

- 2 LED Holder off: Holder is not inserted in the Charger, Charger is OFF or in low battery.

- 2 LED Holder steady green: Holder is inside the Charger and ready for next experience.

- 2 LED Holder steady orange: Holder is inside the Charger and some contacts are not correct. Holder might not be ready for next experience.

- 2 LED Holder steady red: Holder is inside the Charger and error is reported by the Holder.

- 2 LED Holder blinking green: Holder is inside the Charger and Holder battery is charging.

- 2 LED Holder blinking orange: Holder is inside the Charger and Holder battery is charging but some contacts are not correct. The charging time will be increased.

- 2 LED Holder blinking red: Holder is inside the Charger and Holder battery is charging but error is reported by the Holder. The charging time can be increased.

- 2 LED Cleaning steady orange: Holder is inside the Charger and cleaning is recommended.

- 2 LED Cleaning blinking green: Holder is inside the Charger and cleaning is in progress.

- 2 LED Holder and 2 LED Cleaning blinking red: Charger error is detected.

The next section lists the functional and non-functional requirements classified by topics. Each topic covers either a family of related system functions with their constraints or a group of constraints not directly related to system functions.

3 Specific requirements

The diagram below illustrates the set of top-level packages which organize the more detailed functional and non-functional requirements into topics.

All the requirements are issued or derived from multiple input documents.

- Functional Design Specifications for Model 2.4 (see [1])
- Hardware Design Description for ASM.000028.RD R5
- Simple Chained Protocol Specifications
- P1 Charger SCP Protocol Specifications
- P1 Holder SCP Protocol Specifications
- Holder Battery Specifications
- Charger Battery Specifications
- Charger Battery Gauge Evaluation Report

All requirements where ID starts with "FR-" are directly extracted from Functional Design Specifications document.

All requirements where ID starts with "SFT-" are derived from another FR- requirement or other input documents.

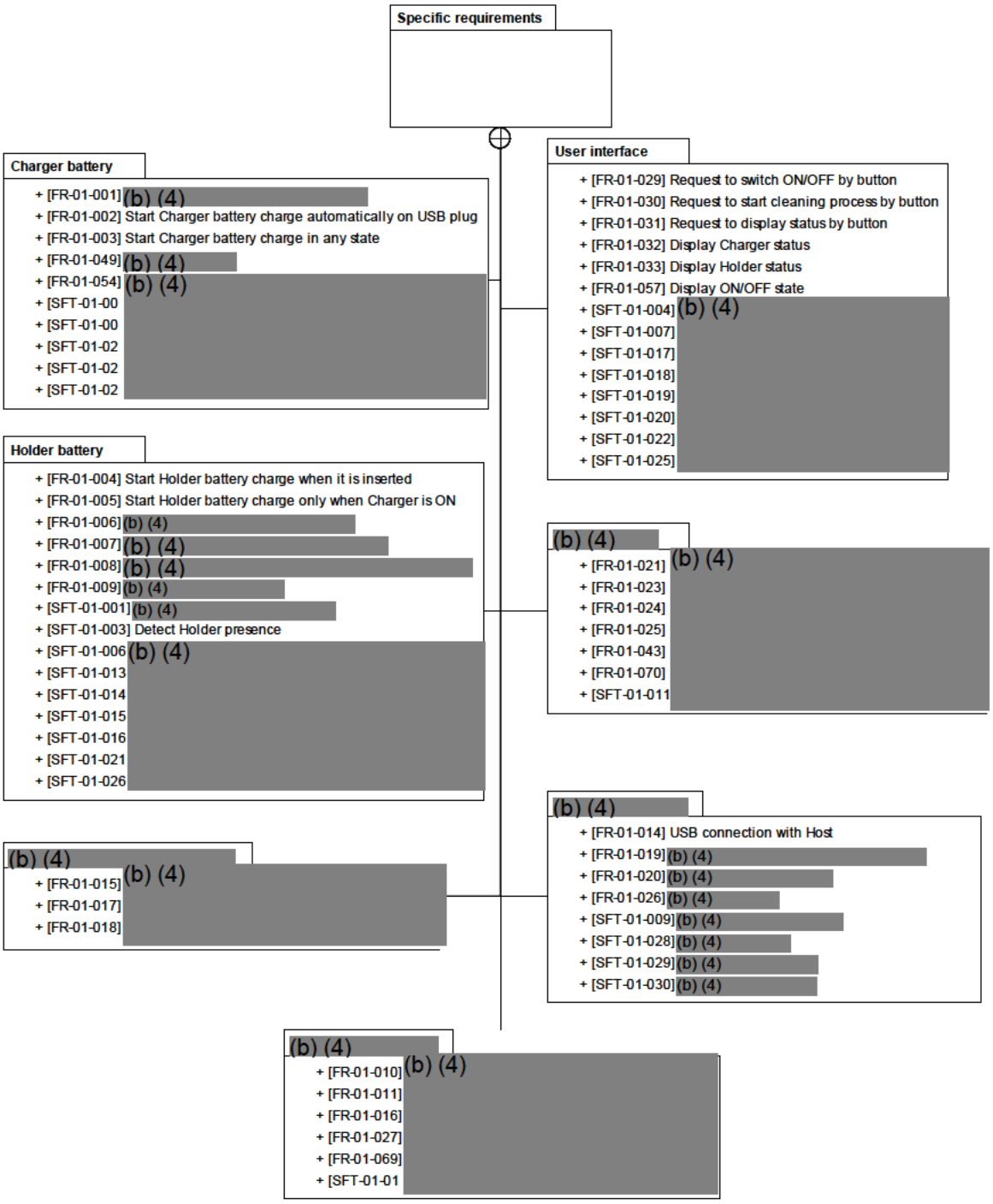


Figure 3: Requirements global overview

3.1 Charger battery

(b) (4)



Figure 4: Charger battery related requirements

3.1.1 [FR-01-001] (b) (4)

(b) (4)

3.1.2 [FR-01-002] Start Charger battery charge automatically on USB plug

The Charger shall start recharging its battery as soon as an external power source is connected.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	10/03/2015	Low

3.1.3 [FR-01-003] Start Charger battery charge in any state

The Charger shall recharge its battery regardless of its status (ON/OFF mode).

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	09/03/2015	Medium

3.1.4 [FR-01-049] (b) (4)

(b) (4) .

(b) (4)

3.1.5 [FR-01-054] (b) (4)

(b) (4) .

(b) (4)

3.1.6 [SFT-01-002] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4) .

3.1.7 [SFT-01-008] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

3.1.8 [SFT-01-023] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

.

3.1.9 [SFT-01-024] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

3.1.10 [SFT-01-027] (b) (4)

(b) (4)

(b) (4)

(b) (4)

.

3.2 Holder battery

(b) (4)

Figure 5: Holder battery related requirements

3.2.1 [FR-01-004] Start Holder battery charge when it is inserted

The Charger shall recharge the Holder when its presence is detected by the Charger and shall maintain charge as long as the Holder stays in the Charger under condition of FR-01-005.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	10/03/2015	Low

3.2.2 [FR-01-005] Start Holder battery charge only when Charger is ON

The Charger shall recharge the Holder only when the Charger is in ON mode.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	10/03/2015	Low

3.2.3 [FR-01-006] (b) (4)

(b) (4)

(b) (4)

3.2.4 [FR-01-007] (b) (4)

(b) (4)

(b) (4)

3.2.5 [FR-01-008] (b) (4)

(b) (4)

(b) (4)

3.2.6 [FR-01-009] (b) (4)

(b) (4)

.

(b) (4)

3.2.7 [SFT-01-001] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

3.2.8 [SFT-01-003] Detect Holder presence

The Charger shall detect the presence of the Holder and its connection status.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	09/03/2015	Medium

Reference:

Hardware Design Description

Rationale:

Some requirements specify that the Charger needs to react automatically to Holder insertion. The Charger device needs to detect if the Holder is present or not.

3.2.9 [SFT-01-006] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

3.2.10 [SFT-01-013] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

.

3.2.11 [SFT-01-014] (b) (4)

(b) (4) .

(b) (4)

Reference:

(b) (4)

Rationale:

(b) (4)

.

3.2.12 [SFT-01-015] (b) (4)

(b) (4)

.

(b) (4)

(b) (4)

.

3.2.13 [SFT-01-016] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

.

3.2.14 [SFT-01-021] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

3.2.15 [SFT-01-026] (b) (4)

(b) (4) .

(b) (4)

3.3 (b) (4)

(b) (4)



Figure 6: (b) (4)

3.3.1 [FR-01-010] (b) (4)

(b) (4)

(b) (4)

3.3.2 [FR-01-011] (b) (4)

(b) (4)

(b) (4)

3.3.3 [FR-01-016] (b) (4)

(b) (4)

(b) (4)

3.3.4 [FR-01-(b) (4)

(b) (4)

(b) (4)

3.3.5 [FR-01-069] (b) (4)

(b) (4)

(b) (4)

3.3.6 [SFT-01-010] (b) (4)

(b) (4) .

Type	Version	Status	Last updated	Difficulty
DesignConstraint	1.0	Approved	31/03/2015	High

Rationale:

(b) (4)

.

3.4 (b) (4)

(b) (4)



Figure 7: (b) (4) related requirements

3.4.1 [FR-01-014] USB connection with Host

The Charger shall connect and communicate with USB Host.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	31/03/2015	Medium

3.4.2 [FR-01-019] (b) (4)

(b) (4) .

(b) (4)

3.4.3 [FR-01-020] (b) (4)

(b) (4) .

(b) (4)

3.4.4 [FR-01-026] (b) (4)

(b) (4) .

(b) (4)

3.4.5 [SFT-01-009] (b) (4)

(b) (4)

(b) (4)

(b) (4)

.

3.4.6 [SFT-01-028] (b) (4)

(b) (4) .

(b) (4)

(b) (4)

.

3.4.7 [SFT-01-029] (b) (4)

(b) (4)

(b) (4)

3.4.8 [SFT-01-030] (b) (4)

(b) (4)

(b) (4)

(b) (4)

3.5 (b) (4)

(b) (4)

Figure 8: (b) (4) related requirements

3.5.1 [FR-01-(b) (4)

(b) (4)

(b) (4)

3.5.2 [FR-01-017] (b) (4)

(b) (4) .

(b) (4)

3.5.3 [FR-01-018] (b) (4)

(b) (4)

(b) (4)

3.6 (b) (4)

(b) (4)



Figure 9: (b) (4) related requirements

3.6.1 [FR-01-021] (b) (4)

(b) (4) .

(b) (4)

3.6.2 [FR-01-023] (b) (4)

(b) (4)

(b) (4)

3.6.3 [FR-01-024] (b) (4)

(b) (4)

(b) (4)

3.6.4 [FR-01-025] (b) (4)

(b) (4)
.

(b) (4)

3.6.5 [FR-01-043] (b) (4)

(b) (4)
.

(b) (4)

3.6.6 [FR-01-070] (b) (4)

(b) (4)

(b) (4)

- (b) (4)
- (b) (4)
- (b) (4)

(b) (4)

Rationale:

(b) (4)

.

3.6.7 [SFT-01-011] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

.

3.7 User interface

(b) (4)



Figure 10: User Interface related requirements

3.7.1 [FR-01-029] Request to switch ON/OFF by button

The Charger User Interface Input shall permit the user to switch ON/OFF Mode the Charger, e.g. disabling/enabling circuitry and enter/exit energy save mode.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	10/03/2015	Low

3.7.2 [FR-01-030] Request to start cleaning process by button

The Charger User Interface Input shall permit the user to initiate manually the cleaning process of the Tobacco Stick Holder.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	10/03/2015	Low

3.7.3 [FR-01-031] Request to display status by button

The Charger User Interface Input shall permit the user to check the current status of the Holder and Charger.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	10/03/2015	Low

3.7.4 [FR-01-032] Display Charger status

The Charger User Interface Display shall display the current status of the Charger, in response to a user request (through the Charger User Interface Input), or in response to a changed condition.

Current status to be displayed through visual indicators:

• Charging state of the Charger

• Error state of the Charger

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	10/03/2015	Low

3.7.5 [FR-01-033] Display Holder status

The Charger User Interface Display shall display the current status of the Holder, in response to a user request (through the Charger User Interface Input), or in response to a changed condition.

Current status to be displayed through visual indicators:

• Presence of the Holder detected in the Charger

• Charging state of the Holder

• Error state of the Holder

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	10/03/2015	Low

3.7.6 [FR-01-057] Display ON/OFF state

The Charger User Interface Display shall display a changed condition in response to a user request (through the Charger User Interface Input).

Changed condition to be displayed through visual indicators:

• ON mode enabled

• OFF mode enabled

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	10/03/2015	Low

3.7.7 [SFT-01-004] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

.

3.7.8 [SFT-01-007] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

3.7.9 [SFT-01-017] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

3.7.10 [SFT-01-018] (b) (4)

(b) (4)

(b) (4)

Reference:

(b) (4)

Rationale:

(b) (4)

3.7.11 [SFT-01-019] (b) (4)

(b) (4) .

(b) (4)

(b) (4)

3.7.12 [SFT-01-020] (b) (4)

(b) (4)

(b) (4)

Rationale:

(b) (4)

3.7.13 [SFT-01-022] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

.

3.7.14 [SFT-01-025] (b) (4)

(b) (4) .

(b) (4)

Rationale:

(b) (4)

The next section lists the basic operational functions and their responsible actors. Each use case describes a specific usage scenario to perform it and can be seen as a base for the user guide.

4 Specific use cases

The diagram below illustrates the set of top-level use cases organized with different actors.

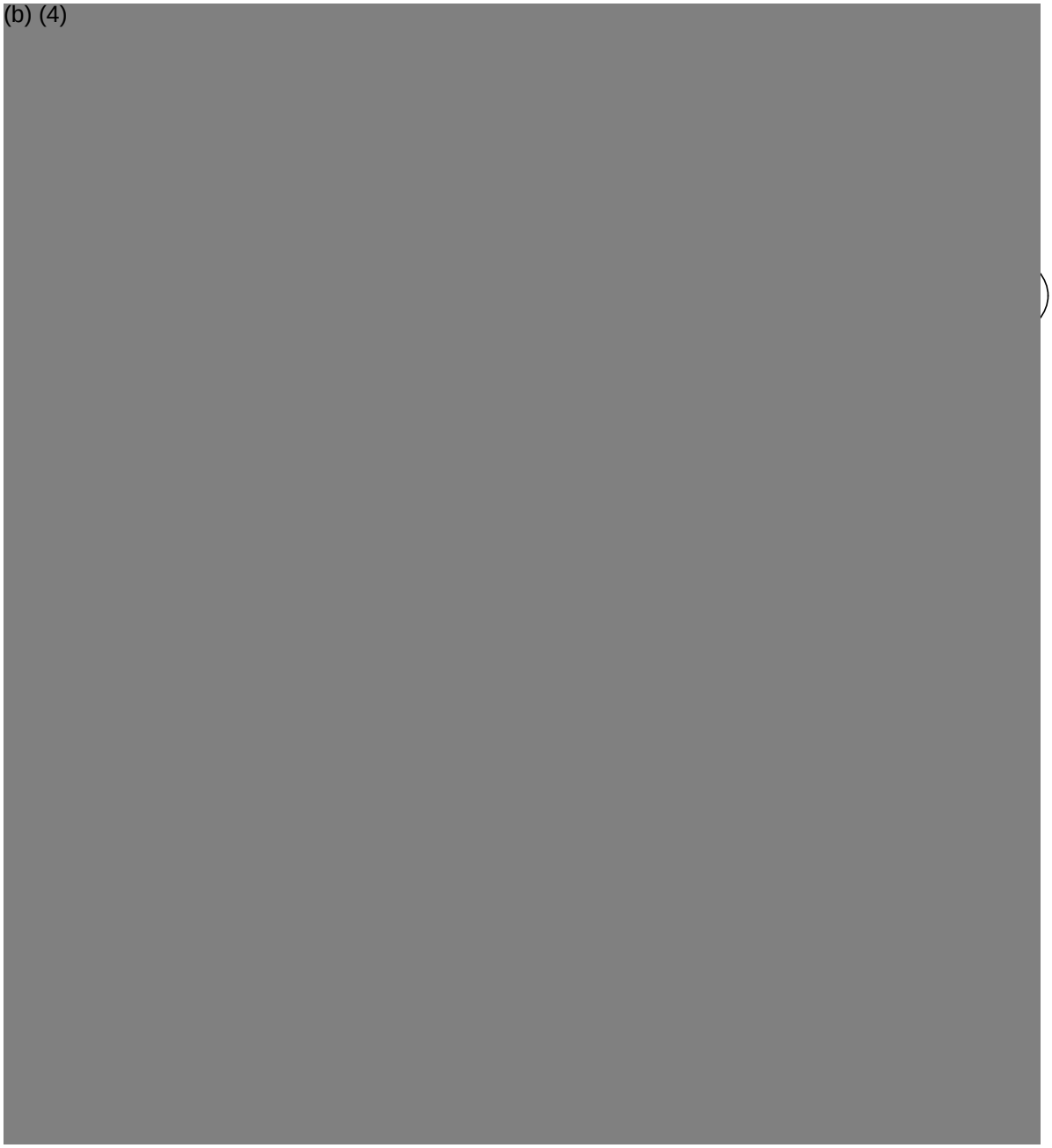


Figure 11: Use Cases

4.1 [UC-01-001] (b) (4)

(b) (4) .

(b) (4)

4.2 [UC-01-002] (b) (4)

(b) (4) .

(b) (4)

4.3 [UC-01-003] Charge the Charger battery

Charge the Charger battery from Host or AC Adaptor.

Version	Status	Last updated	Related requirements
1.0	Approved	20/02/2015	(b) (4)

Basic Path - Basic Path

1: User connects the USB cable to the Host

Alternate: 1a to 2 - Quick charge

2: Charger detects the type of USB connection

3: Charger starts the battery charge

4: Charger displays to User that the charging is in progress

5: Charger detects that battery is fully charged

Alternate: 5a to End - USB cable disconnection

6: Charger stops the charging process

7: Charger displays to User that the charging is completed

Alternate - USB cable disconnection

1: User disconnects the USB cable

2: Charger detects that USB cable is disconnected

3: Charger stops the charging process

4: Charger displays to User that the charging is stopped

Alternate - Quick charge

1: User connects the USB cable to the AC adaptor

4.4 [UC-01-004] Charge the Holder battery

Charge the Holder battery after a heating or cleaning.

Version	Status	Last updated	Related requirements
1.0	Approved	09/03/2015	(b) (4)

Basic Path - Basic Path

1: User inserts the Holder into the Charger

Alternate: 1a to 5 - End of cleaning

Alternate: 1b to 5 - Maintain charge

2: Charger detects presence of Holder

3: (b) (4)

4: [Invokes: [UC-01-002] Adjust Holder clock]

5: Charger starts the Holder battery charge

6: Charger displays to User that the charging is in progress

7: Charger detects that the battery is fully charged

Alternate: 7a to End - Holder extraction

8: Charger stops the charging process

9: Charger sends command to Holder to inform that its battery is charged

10: Charger displays to User that the charging is completed

Alternate - Holder extraction

1: User removes the Holder from the Charger
2: Charger detects the Holder extraction
3: Charger stops the charging process
4: Charger displays to User that the charging is stopped

Alternate - End of cleaning

1: Charger detects end of cleaning process

Alternate - Maintain charge

1: Charger detects that the Holder battery voltage is too low

4.5 [UC-01-005] Clean the Holder

Start and monitor the cleaning process performed in the Holder.

Version	Status	Last updated	Related requirements
1.1	Approved	11/03/2015	(b) (4) [redacted]

Basic Path - Basic Path

1: User presses the Clean button more than 3 seconds
    Alternate: 1a to 2 - Auto-cleaning
2: Charger sends command to Holder to start a cleaning process
3: Charger displays to User that the cleaning is in progress
4: Charger queries the Holder periodically to wait end of smart cleaning process
    Alternate: 4a to End - Holder extraction
    Alternate: 4b to 6 - Cleaning stopped
5: Charger displays to User that the cleaning is completed
6: [Invokes: [UC-01-004] Charge the Holder battery]

Alternate - Holder extraction

1: User removes the Holder from the Charger
2: Charger detects the Holder extraction
3: Charger displays to User that the cleaning is stopped

Alternate - Cleaning stopped

1: User presses the Clean button more than 3 seconds
2: Charger sends command to Holder to stop the cleaning
3: Charger displays to User that the cleaning is stopped

Alternate - Auto-cleaning

1: Holder requests a cleaning and its battery is charged

4.6 [UC-01-006] Display status

Displays Charger and Holder status on the Charger indicators.

Version	Status	Last updated	Related requirements
1.0	Approved	20/02/2015	(b) (4) [redacted]

Basic Path - Basic Path

1: User presses shortly the Power button
    Alternate: 1a to 2 - Status changed
2: Charger displays to User the Charger status
3: Charger displays to User the Holder status
4: Charger waits 10 seconds
    Alternate: 4a to 5 - Manual economy mode
5: Charger switches off the display

Alternate - Manual economy mode

1: User presses shortly the Power button

Alternate - Status changed

1: Charger detects its status has changed

4.7 [UC-01-007] (b) (4)

(b) (4) .

(b) (4)

4.8 [UC-01-008] Enter in OFF mode

Enters the system in OFF mode.

Version	Status	Last updated	Related requirements
1.0	Approved	09/03/2015	(b) (4)

Basic Path - Basic Path

1: User presses the Power button more than 3 seconds
    Alternate: 1a to 3 - Holder inserted during OFF mode
2: Charger displays to the User the power off pattern
3: Charger sends command to Holder to lock it
    Alternate: 3a to End - No Holder inserted
4: Charger stops the interaction with Holder (detection, charge) and sleeps

Alternate - No Holder inserted

1: Charger stops the interaction with Holder (detection, charge) and sleeps

Alternate - Holder inserted during OFF mode

1: Charger wakes up and starts the Holder detection

4.9 [UC-01-009] Leave the OFF mode

Leaves the system from OFF mode.

Version	Status	Last updated	Related requirements
1.0	Approved	09/03/2015	(b) (4)

Basic Path - Basic Path

1: User presses the Power button more than 1 second
2: Charger wakes up and restarts the Holder interaction
3: Charger sends command to Holder to unlock it
    Alternate: 3a to End - No Holder inserted
4: Charger displays to User its status

Alternate - No Holder inserted

1: Charger displays to User its status

4.10 [UC-01-010] (b) (4)

(b) (4) .

(b) (4)



4.11 [UC-01-011] (b) (4)

(b) (4)

(b) (4)



(b) (4)

The next section lists the risks classified by topics. Each topic covers a family of related system functions and provides details of risks.

5 Risk assessment

(b) (4)

(b) (4)

(b) (4)

Figure 12: (b) (4)

5.1 (b) (4)

(b) (4)



Figure 13: (b) (4)

(b) (4)



Figure 14: (b) (4)

5.1.1 [RSK-01-001](b) (4)

(b) (4)

(b) (4)

(b) (4)

5.1.2 [RSK-01-002] (b) (4)

(b) (4)

(b) (4)

5.1.3 [RSK-01-027] (b) (4)

(b) (4)

.

(b) (4)

5.1.4 [RSK-01-029] (b) (4)

(b) (4)

(b) (4)

5.2 (b) (4)



Figure 15: (b) (4)

(b) (4)



Figure 16: (b) (4)

5.2.1 [RSK-01-003] (b) (4)

(b) (4)

.

(b) (4)

5.2.2 [RSK-01-004] (b) (4)

(b) (4)

.

(b) (4)

5.2.3 [RSK-01-005] (b) (4)

(b) (4)

d.

(b) (4)

5.2.4 [RSK-01-006] (b) (4)

(b) (4)

.

(b) (4)

5.3 (b) (4)

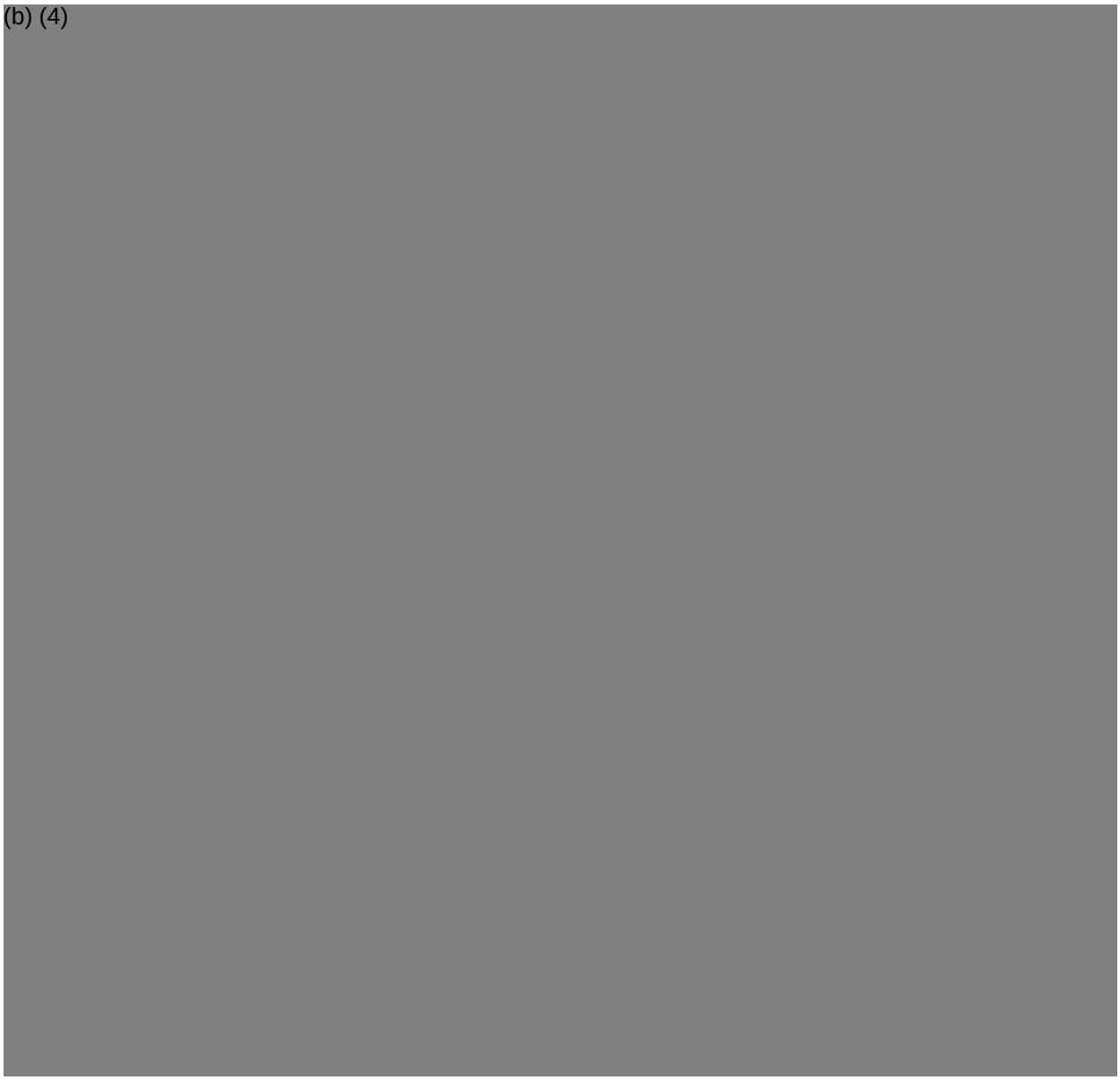


Figure 17: (b) (4)

(b) (4)



Figure 18: (b) (4)

5.3.1 [RSK-01-007] (b) (4)

I(b) (4)

(b) (4)

5.3.2 [RSK-01-008] (b) (4)

(b) (4)

.

(b) (4) .

(b) (4)

5.3.3 [RSK-01-009] (b) (4)

(b) (4)

(b) (4)

(b) (4)

5.3.4 [RSK-01-010] (b) (4)

(b) (4) .

(b) (4)

(b) (4)

5.3.5 [RSK-01-011] (b) (4)

(b) (4)

(b) (4) .

(b) (4)

(b) (4)

- (b) (4)
- (b) (4)

(b) (4)

5.4 (b) (4)

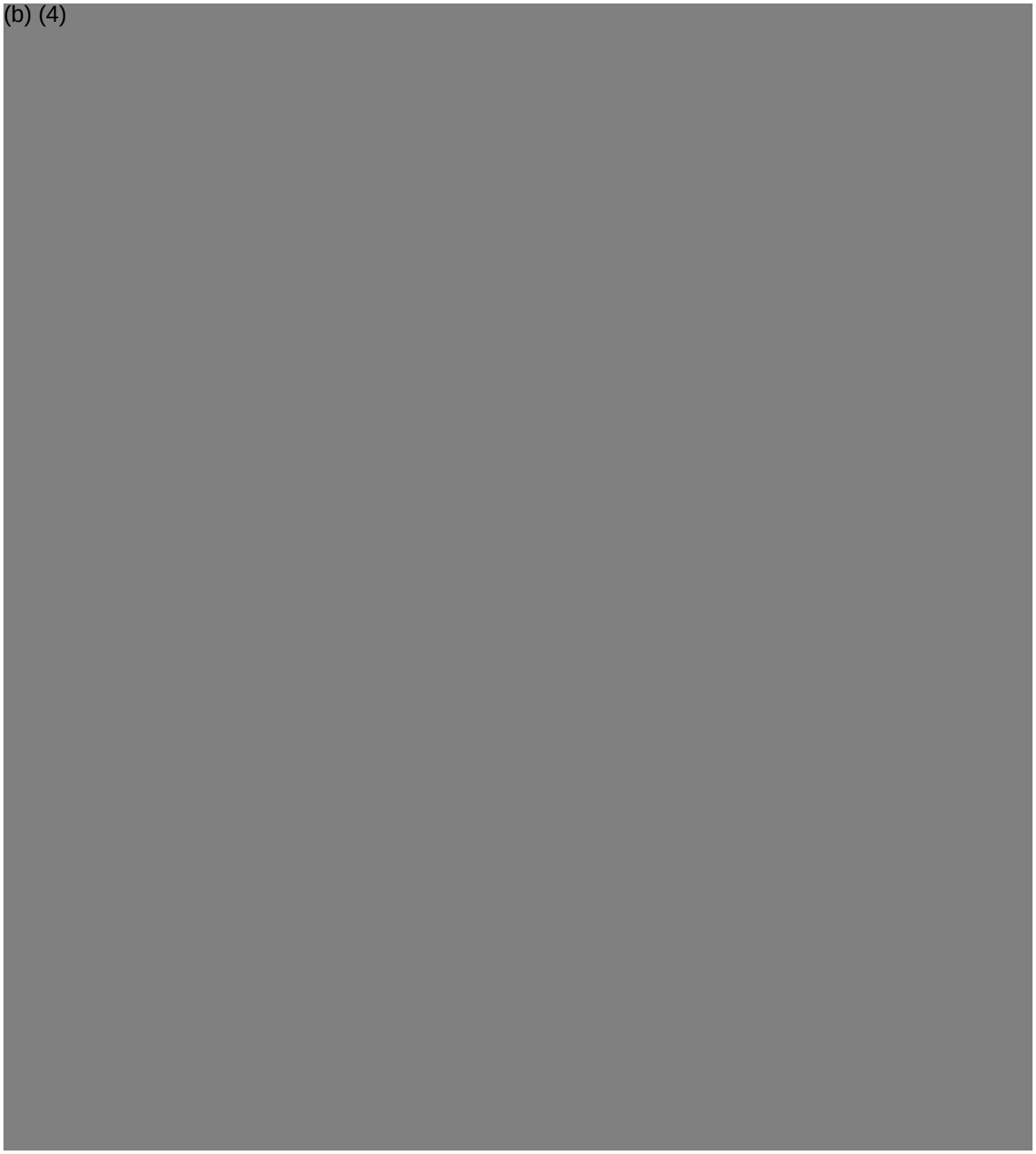


Figure 19: (b) (4)

5.4.1 [RSK-01-012] (b) (4)

(b) (4)

(b) (4)

5.4.2 [RSK-01-024] (b) (4)

(b) (4)

.

(b) (4)

5.4.3 [RSK-01-025] (b) (4)

(b) (4)

.

(b) (4)

5.5 (b) (4)



Figure 20: (b) (4)

(b) (4)

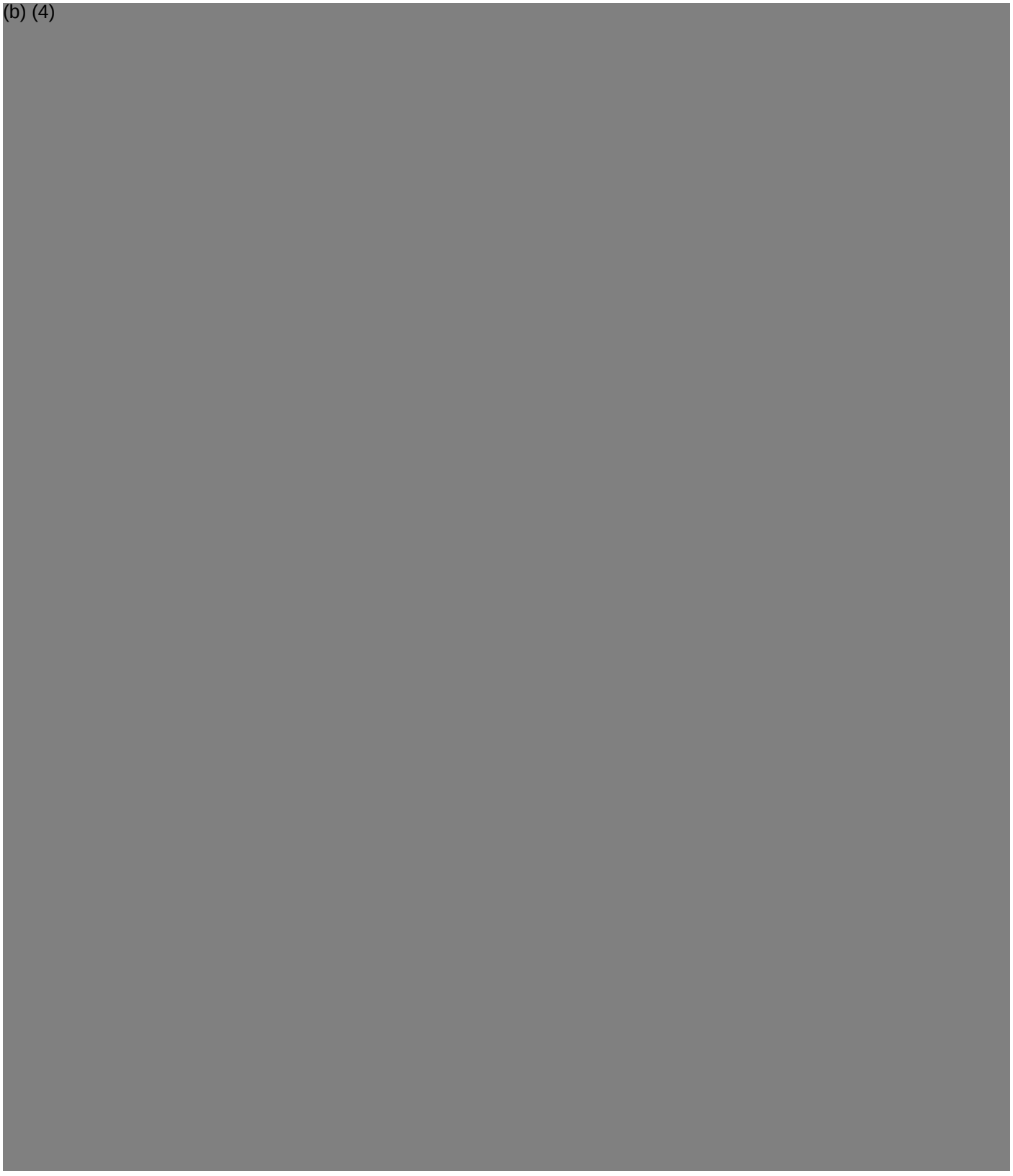


Figure 21: (b) (4)

5.5.1 [RSK-01-013] (b) (4)

(b) (4)

(b) (4)

5.5.2 [RSK-01-014] (b) (4)

(b) (4)

(b) (4)

(b) (4)

5.5.3 [RSK-01-015] (b) (4)

(b) (4)
.

(b) (4)

5.5.4 [RSK-01-016] (b) (4)

(b) (4)
.

(b) (4)

5.5.5 [RSK-01-026] (b) (4)

(b) (4)

(b) (4)

5.5.6 [RSK-01-028] (b) (4)

(b) (4)

(b) (4)

5.6 User interface



Figure 22: (b) (4)

(b) (4)

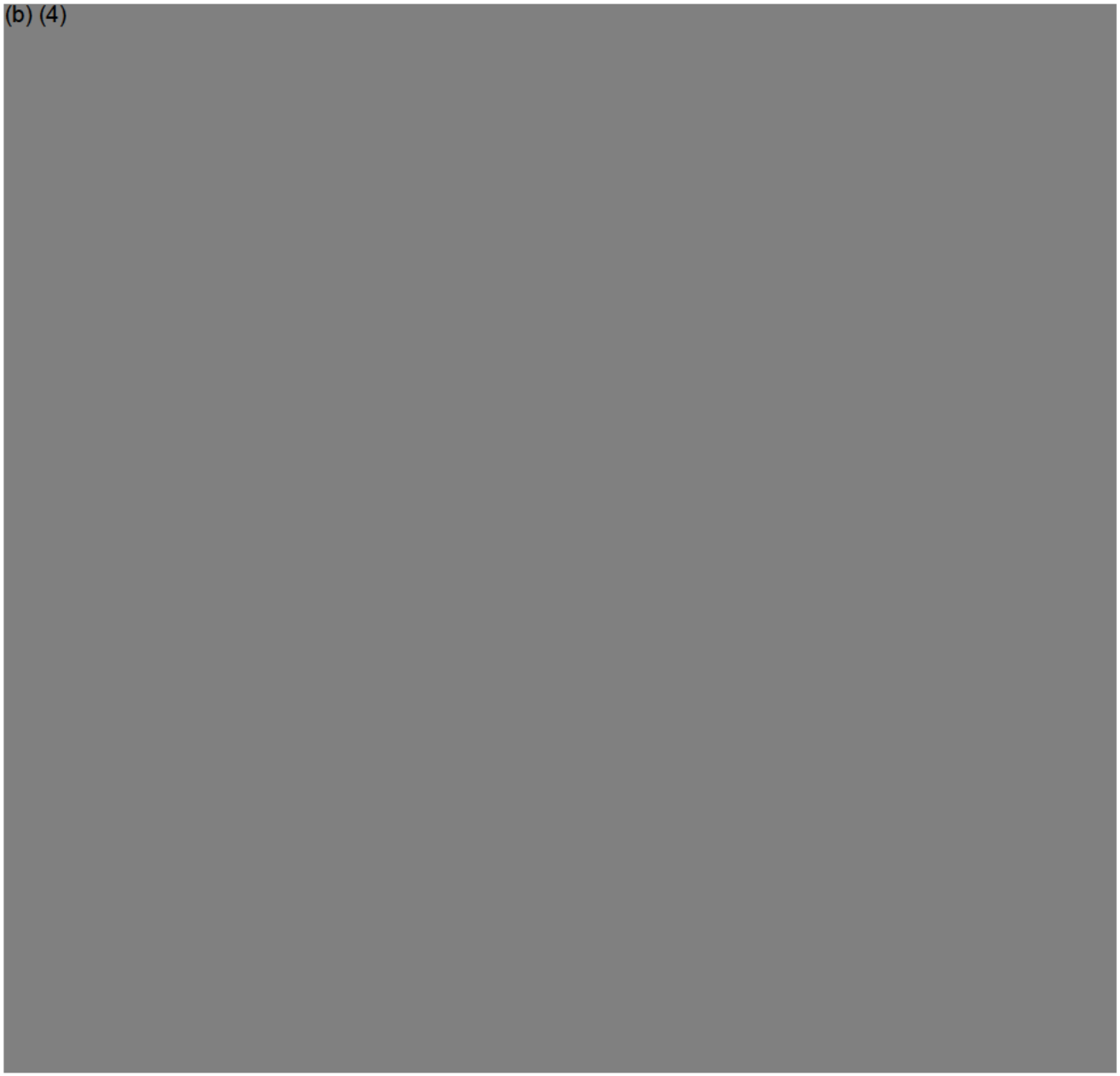


Figure (b) (4)

5.6.1 [RSK-01-017] (b) (4)

(b) (4)

(b) (4)

5.6.2 [RSK-01-018] (b) (4)

(b) (4)

(b) (4)

5.6.3 [RSK-01-019] (b) (4)

(b) (4)

.

(b) (4)

5.6.4 [RSK-01-020] (b) (4)

(b) (4)

(b) (4)

5.6.5 [RSK-01-021] (b) (4)

(b) (4)

.

(b) (4)

5.6.6 [RSK-01-022] (b) (4)

If (b) (4)

(b) (4)

5.6.7 [RSK-01-023] (b) (4)

(b) (4)

.

(b) (4)

The next section lists all the requirements with their associated risks, risk severities and the type of the relation between each requirement and risk.

6 Requirements vs. Risks

6.1 Charger battery

		(b) (4)
[FR-01-001]	(b) (4)	
raise	[RSK-01-002] (b) (4)	
[FR-01-002]	(b) (4)	
raise	[RSK-01-029] (b) (4)	
[FR-01-003]	(b) (4)	
raise	[RSK-01-029] (b) (4)	
[FR-01-049]	(b) (4)	
raise	[RSK-01-027] (b) (4)	
[FR-01-054]	(b) (4)	
raise	[RSK-01-029] (b) (4)	
[SFT-01-002]	(b) (4)	
raise	[RSK-01-001] (b) (4)	
raise	[RSK-01-002] (b) (4)	
raise	[RSK-01-012] (b) (4)	

[SFT-01-008]	(b) (4)
raise	[RSK-01-001] (b) (4)
[SFT-01-023]	(b) (4)
raise	[RSK-01-001] (b) (4)
[SFT-01-024]	(b) (4)
raise	[RSK-01-001] (b) (4)
[SFT-01-027]	(b) (4)
raise	[RSK-01-002] (b) (4)

6.2 Holder battery

[FR-01-004]	(b) (4)
raise	[RSK-01-008] (b) (4)
[FR-01-005]	(b) (4)
raise	[RSK-01-011] (b) (4)
[FR-01-006]	(b) (4)
raise	[RSK-01-004] (b) (4)
[FR-01-007]	(b) (4)
raise	[RSK-01-017] (b) (4)
[FR-01-008]	(b) (4)
raise	[RSK-01-008] (b) (4)
[FR-01-009]	(b) (4)
raise	[RSK-01-004] (b) (4)
[SFT-01-001]	(b) (4)
raise	[RSK-01-004] (b) (4)
[SFT-01-003]	(b) (4)
raise	[RSK-01-007] (b) (4)

(b) (4)

[SFT-01-006]	(b) (4)
raise	[RSK-01-005] (b) (4)
raise	[RSK-01-006] (b) (4)

[SFT-01-013]	(b) (4)
mitigate	[RSK-01-001] (b) (4)

[SFT-01-014]	(b) (4)
raise	[RSK-01-005] (b) (4)
raise	[RSK-01-006] (b) (4)

[SFT-01-015]	(b) (4)
raise	[RSK-01-004] (b) (4)

[SFT-01-016]	(b) (4)
raise	[RSK-01-005] (b) (4)
raise	[RSK-01-003] (b) (4)

[SFT-01-021]	(b) (4)
raise	[RSK-01-004] (b) (4)

[SFT-01-026]	(b) (4)
raise	[RSK-01-005] (b) (4)
raise	[RSK-01-006] (b) (4)

6.3 (b) (4)

[FR-01-010]	(b) (4)
raise	[RSK-01-011] (b) (4)

[FR-01-011]	(b) (4)
raise	[RSK-01-010] (b) (4)
raise	[RSK-01-008] (b) (4)

[FR-01-016]	(b) (4)
raise	[RSK-01-025] (b) (4)

[FR-01-027]	(b) (4)

(b) (4)

raise	[RSK-01-013] (b) (4)

[FR-01-069] (b) (4)	
raise	[RSK-01-009] (b) (4)

[SFT-01-010] (b) (4)	
raise	[RSK-01-007] (b) (4)
raise	[RSK-01-010] (b) (4)
raise	[RSK-01-011] (b) (4)
raise	[RSK-01-009] (b) (4)
raise	[RSK-01-014] (b) (4)

6.4 (b) (4)

[FR-01-014] (b) (4)	
raise	[RSK-01-024] (b) (4)
raise	[RSK-01-025] (b) (4)

[FR-01-019] (b) (4)	
raise	[RSK-01-024] (b) (4)

[FR-01-020] (b) (4)	
raise	[RSK-01-024] (b) (4)

[FR-01-026] (b) (4)	
raise	[RSK-01-013] (b) (4)

[SFT-01-009] (b) (4)	
raise	[RSK-01-013] (b) (4)
raise	[RSK-01-014] (b) (4)

[SFT-01-028] (b) (4)	
raise	[RSK-01-014] (b) (4)
raise	[RSK-01-013] (b) (4)

[SFT-01-029] (b) (4)	
raise	[RSK-01-014] (b) (4)

(b) (4)

[SFT-01-030] (b) (4)	
raise	[RSK-01-014] (b) (4)
raise	[RSK-01-013] (b) (4)

6.5 (b) (4)

[FR-01-015] (b) (4)	
raise	[RSK-01-028] (b) (4)

[FR-01-017] (b) (4)	
raise	[RSK-01-025] (b) (4)

[FR-01-018] (b) (4)	
raise	[RSK-01-025] (b) (4)

6.6 (b) (4)

[FR-01-021] (b) (4)	
raise	[RSK-01-014] (b) (4)
raise	[RSK-01-015] (b) (4)
raise	[RSK-01-016] (b) (4)

[FR-01-023] (b) (4)	
raise	[RSK-01-014] (b) (4)

[FR-01-024] (b) (4)	
raise	[RSK-01-014] (b) (4)

[FR-01-025] (b) (4)	
raise	[RSK-01-016] (b) (4)

[FR-01-043] (b) (4)	
raise	[RSK-01-026] (b) (4)

[FR-01-070] (b) (4)	
raise	[RSK-01-014] (b) (4)

[SFT-01-011]	(b) (4)
raise	[RSK-01-016] (b) (4)
raise	[RSK-01-014] (b) (4)
raise	[RSK-01-015] (b) (4)

6.7 User interface

[FR-01-029]	(b) (4)
raise	[RSK-01-021] (b) (4)
raise	[RSK-01-023] (b) (4)
raise	[RSK-01-022] (b) (4)

[FR-01-030]	(b) (4)
raise	[RSK-01-009] (b) (4)
raise	[RSK-01-018] (b) (4)

[FR-01-031]	(b) (4)
raise	[RSK-01-020] (b) (4)
raise	[RSK-01-019] (b) (4)

[FR-01-032]	(b) (4)
raise	[RSK-01-020] (b) (4)

[FR-01-033]	(b) (4)
raise	[RSK-01-020] (b) (4)

[FR-01-057]	(b) (4)
raise	[RSK-01-021] (b) (4)
raise	[RSK-01-022] (b) (4)

[SFT-01-004]	(b) (4)
raise	[RSK-01-017] (b) (4)

[SFT-01-007]	(b) (4)
raise	[RSK-01-019] (b) (4)
raise	[RSK-01-023] (b) (4)
raise	[RSK-01-018] (b) (4)

[SFT-01-017] (b) (4)
mitigate [RSK-01-003] (b) (4) Medium

[SFT-01-018] (b) (4)
mitigate [RSK-01-001] (b) (4) Medium

[SFT-01-019] (b) (4) e
mitigate [RSK-01-001] (b) (4) Medium

[SFT-01-020] (b) (4)
mitigate [RSK-01-005] (b) (4) Medium

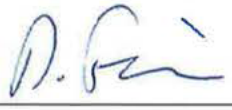
[SFT-01-022] (b) (4)
raise [RSK-01-020] (b) (4) Medium

[SFT-01-025] (b) (4)
raise [RSK-01-008] (b) (4) High

7 References

[1] A3.1-2 Functional Design Specifications - Device

8 Approvals

	Name	Role	Signature	Date
Author	Robin Farine	Senior Engineer, Software Development		2016-07-13
Owner	Eric Mariacher	Manager Sofware Development		2016.7.13
QA Review	Florence Kapp	QA Officer		20 JUL 2016

SOFTWARE REQUIREMENTS SPECIFICATIONS

PLATFORM: P1

MODEL / GENERATION: 2.4

PRODUCT TYPE: SOFTWARE FOR HOLDER

SOFTWARE VERSION: 1.1

Version N°	Author	Description of change (including reason for change)	Type of change
1.0	Talon, Pascal	First document	1
1.0 SV	Farine, Robin	Submission Version	2

(1: Major change/new version; 2: Minor change; 3: Review without change)

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4.1.8 [RSK-02-008] (b) (4) 52
4.2 (b) (4) 53
4.2.1 [RSK-02-009] (b) (4) 53
4.2.2 [RSK-02-029] (b) (4) 54
4.3 (b) (4) 54
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4.5 (b) (4) 58
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4.6 E(b) (4) 60
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4.7 (b) (4) 61
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4.7.2 [RSK-02-020] (b) (4) 63
4.8 (b) (4) 63
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4.9 (b) (4) 64
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5.1 (b) (4) 68
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5.3 (b) (4) 71
5.4 (b) (4) 72
5.5 (b) (4) 72
5.6 (b) (4) 72
5.7 (b) (4) 73
5.8 (b) (4) 73
5.9 (b) (4) 75
5.10 (b) (4) 75
5.11 (b) (4) 76
5.12 (b) (4) 76
6 (b) (4) 76
7 (b) (4) 76

1 Introduction

1.1 Purpose

The purpose of this document is to provide the detailed requirements for the software of P1 2.4 Holder. It explains the purpose of the Holder, what it does, interactions with other devices and the environment under which it operates.
This document is intended for software developers and stakeholders who participate in the development of P1 2.4 Holder.

1.2 Scope

The P1 2.4 Holder is an accessory of the P1 2.4 Reduced Risk Products (RRP) system that mainly allows the P1 Holder to heat sticks. The P1 2.4 Holder is an incremental evolution of the P1 2.2 Holder, commercialized since Q4 2014.

This document includes the description of user and derived software requirements. It also describes how the P1 Holder is intended to be used, in which external conditions and with which devices or accessories it interacts. This document includes also a preliminary risk assessment.

1.3 Definitions

This subsection provides definitions for terms or noun-phrases which have a specific meaning in the context of this document.

1.3.1 Requirements attributes

A requirement specifies a behavior, an improvement or a change over the current situation. A requirement may also state a constraint or a characteristic of the computerized system which limits the designers' options.

The attributes to qualify the requirement are described below:

- **ID**

An ID uniquely identifies a requirement within the scope of this document.

- **Type**

Requirements are classified as functional and non-functional requirements. Many sub-categories exist in order to further detail the classification of non-functional requirements.

- Functional requirements specify the behavior of the RRP system by describing *what* it should do for its user or other actors.
- Non-functional requirements, such as performance or interface requirements, specify *how* the RRP system should operate to satisfy a set of pre-defined constraints.

- **Difficulty**

An estimate of the difficulty of implementing this requirement based on the developer experience. This value can be:

- Low – Feature implementation is basic.
- Medium – Some parts of the feature implementation require investigation.
- High – Complex algorithm or sensitive feature due to multiple constraints.

- **Status**

The current status of this requirement in the development management process. This value can be:

- Approved
- Proposed

1.3.2 Use case attributes

A use case describes a series of related interactions between a primary actor and the system (and optional supporting secondary actors) that enables the primary actor to achieve a goal.

The attributes to qualify the use case are described below:

- **ID**

An ID uniquely identifies a use case within the scope of this document.

- **Status**

The current status of this use case in the development management process. This value can be:

- Proposed
- Approved

- **Related requirements**

This attribute lists the requirements referenced in the use case.

1.3.3 Risk attributes

A risk combines a harm, the probability of occurrence of harm and the severity level of harm. For software, the probability of occurrence is assumed to be 100%, hence it is not part of the risk attributes.

The attributes to qualify the risk are described below:

- **ID**

An ID uniquely identifies a risk within the scope of this document.

- **Status**

The current status of this risk in the development management process. This value can be:

- Approved
- Proposed

- **Severity**

The risk severity value can be:

- Low – No impact on functionality, defect is not noticed by user or no injury to user
- Medium – Reduced functionality or non-functional product over time, annoying usage or minor injury to user
- High – Non-functional product or loss of primary function or serious injury to user

The next section places the system in its context by describing the environment in which the system is intended to be used, other systems it has to interact with and the related interfaces. It then outlines the system functions, design constraints, assumptions and dependencies.

2 Operational Domain

(b) (4)



Figure 1: Operational Domain

2.1 System interactions

Interaction of the Holder with the other components to the operational domain.

(b) (4)



Figure 2: System interactions

2.2 Holder

Holder parts.

(b) (4)



Figure 3: Holder domain

2.2.1 Battery

The battery powers microprocessor and heating system.

2.2.2 Button

The button allows user to request status or start heating.

2.2.3 Communication

The communication allows charger to monitor holder status.

2.2.4 Heater

The heater is the heating tool and heating temperature measurement tool.

2.2.5 LED

Visualize system status.

2.2.6 Microcontroller

The unit where the program is running.

2.2.7 Switch

Interrupter for power distribution.

2.2.8 Thermometer

Ambient temperature measure.

2.3 Charger

The charger allows holder battery charging.

2.4 Computer

The computer can retrieve the holder usage data or update it.

2.5 Environment

Environment usage.

2.6 Pocket charger

A pocket charger charges the holder battery from its own battery.

2.7 Table charger

A home charger charges the holder battery from domestics power supply.

2.8 Stick

When heated, the stick provides aerosol to user.

2.9 Holder states

(b) (4)





Figure 4: Holder states



The next section lists the functional and non-functional requirements classified by topics. Each topic covers either a family of related system functions with their constraints or a group of constraints not directly related to system functions.

3 Specific requirements

This diagram presents requirements by functional groups.

All the requirements are issued or derived from multiple input documents, including:

[1]: Functional Design Specification (FDS) for P1 Model 2.4 Holder

All requirements where ID starts with "FR-" are directly extracted from Functional Design Specifications document.

All requirements where ID starts with "SFT-" are derived from another FR- requirement or others input documents.

In the following diagrams, the link SFT to FR is marked by the word "derivedReqt", a shortcut for "derived requirements".

(b) (4)



3.1 Heating - Cleaning

(b) (4)

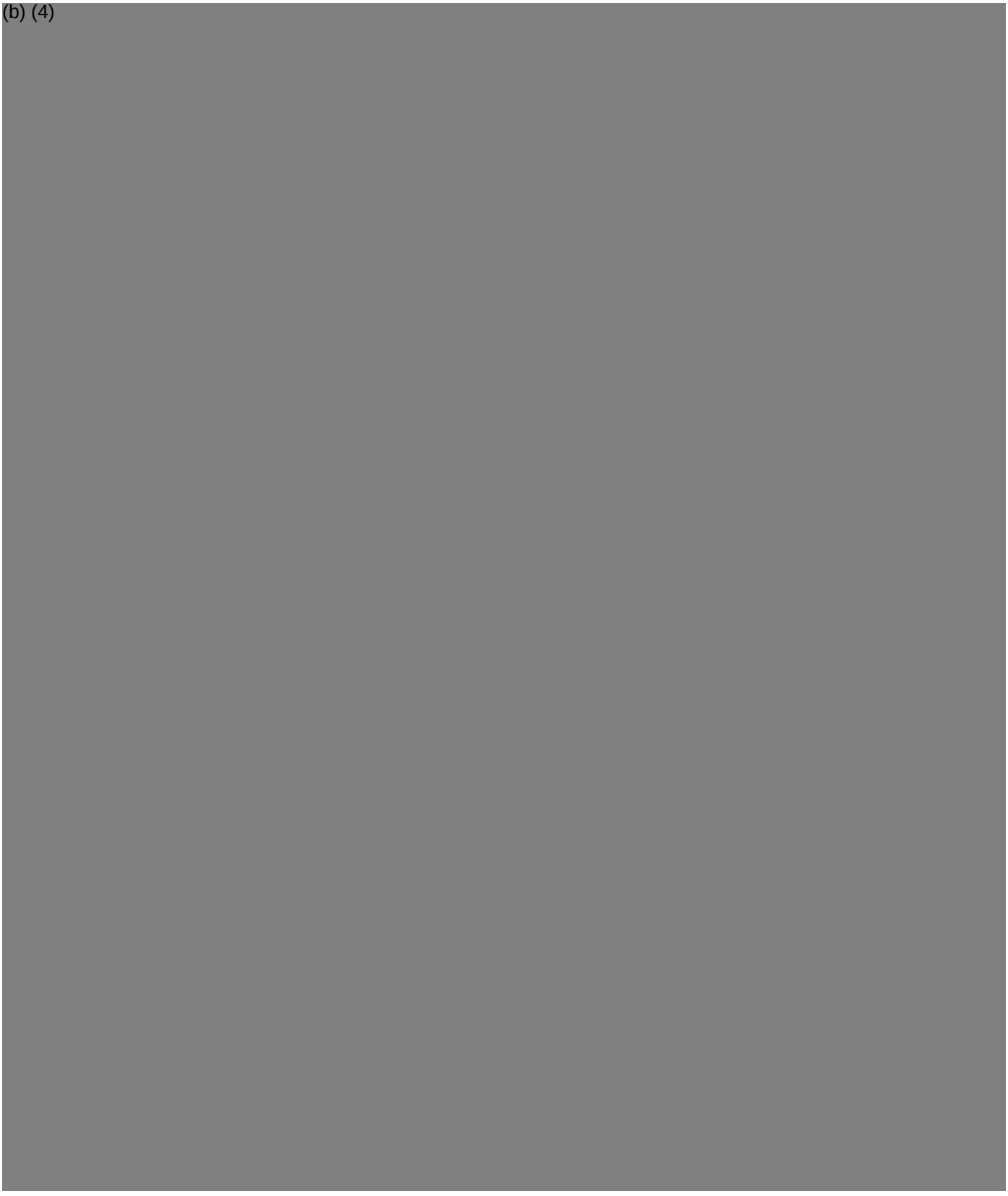


Figure 6: Common



Figure 7: Heating



Figure 8: Cleaning

3.1.1 [FR-02-004] (b) (4)

(b) (4)

(b) (4)

3.1.2 [FR-02-005] (b) (4)

(b) (4)

.

(b) (4)

3.1.3 [FR-02-006] (b) (4)

(b) (4)

(b) (4)

3.1.4 [FR-02-008] (b) (4)

(b) (4)

.

(b) (4)

3.1.5 [FR-02-014] (b) (4)

(b) (4)

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(b) (4)

3.1.6 [FR-02-015] (b) (4)

(b) (4)

(b) (4)

3.1.7 [FR-02-016] (b) (4)

(b) (4) .

(b) (4)

3.1.8 [FR-02-058] (b) (4)

(b) (4) .

(b) (4)

3.1.9 [SFT-02-004] (b) (4)

(b) (4) .

(b) (4)

Rationale

(b) (4)).

3.1.10 [SFT-02-005] (b) (4)

(b) (4)

(b) (4)

3.1.11 [SFT-02-009] (b) (4)

(b) (4) (b) (4) .

(b) (4)

(b) (4)

(b) (4)

3.1.12 [SFT-02-029] (b) (4)

(b) (4) .

(b) (4)

Rationale

(b) (4)

.

3.1.13 [SFT-02-031] (b) (4)

(b) (4) .

(b) (4)

Rationale

(b) (4)

(b) (4) .

(b) (4) .

(b) (4)

3.1.14 [SFT-02-033] (b) (4)

(b) (4)

(b) (4)

(b) (4) .

3.1.15 [SFT-02-040] (b) (4)

(b) (4) .

(b) (4)

3.1.16 [SFT-02-041] (b) (4)

(b) (4) .

(b) (4)

3.1.17 [SFT-02-043] (b) (4)

(b) (4)

(b) (4)

(b) (4) .

(b) (4)

3.1.18 [SFT-02-048] (b) (4)

(b) (4)

(b) (4)

Rationale

(b) (4)

3.1.19 [SFT-02-050] (b) (4)

(b) (4)

(b) (4)

Rationale

(b) (4)

3.2 User Input Interface

(b) (4)



Figure 9: User Input Interface

3.2.1 [FR-02-034] Start heating from UI

The Holder User Interface Input shall permit the user to start the heating process.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	2/26/2015	Medium

3.2.2 [FR-02-035] Stop heating from UI

The Holder User Interface Input shall permit the user to stop the heating process at any time.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	2/20/2015	Medium

3.2.3 [FR-02-036] Request status from UI

The Holder User Interface Input shall permit the user to check the status of the Holder.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	2/20/2015	Medium

3.2.4 [SFT-02-020] (b) (4)

(b) (4)

(b) (4)

3.2.5 [SFT-02-021] (b) (4)

(b) (4)

(b) (4)

3.2.6 [SFT-02-022] (b) (4)

(b) (4)

(b) (4)

Rationale

(b) (4)

3.2.7 [SFT-02-051] (b) (4)

(b) (4) .

(b) (4)



3.3 User Output Interface

(b) (4)



Figure 10: User Output Interface

3.3.1 [FR-02-037] (b) (4)

(b) (4)

(b) (4) :

- (b) (4)

(b) (4)

(b) (4)

3.3.2 [FR-02-038] (b) (4)

(b) (4)

(b) (4)

- (b) (4)
- (b) (4)
- (b) (4) (see FR-02-048)
- (b) (4)
- (b) (4)
- (b) (4)
- (b) (4)
- (b) (4)

(b) (4)

3.3.3 [SFT-02-010] Display ready to heat status

The system shall display green LED, or orange LED when aged battery is detected, during 3 s when it is ready to heat.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.4 [SFT-02-011] Display low battery status

The system shall display red LED during 3 s when its battery is insufficiently charged.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.5 [SFT-02-012] Display malfunction status

The system shall display blinking (ON 200 ms, OFF 200 ms) red LED during 3 s when it detects malfunction on device.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.6 [SFT-02-013] Display pre-heat status

The system shall display blinking (OFF 800 ms, ON 200 ms) green LED, or orange LED when aged battery is detected, during pre-heating.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.7 [SFT-02-014] Display heating status

The system shall display green LED, or orange LED when aged battery is detected, until near end of heat indication.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.8 [SFT-02-015] Display end of heating status

The system shall display orange LED until end of heat.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

(b) (4)

3.3.9 [SFT-02-016] Display cleaning status

The system shall display blinking orange LED (ON 50 ms, OFF 2000 ms) until end of cleaning.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.10 [SFT-02-017] Display charging status

The system shall display blinking green LED (ON 500 ms, OFF 500 ms) until end of charge.

Type	Version	Status	Last updated	Difficulty
InterfaceRequirement	1.0	Approved	3/31/2015	Medium

3.3.11 [SFT-02-018] (b) (4)

(b) (4)

C.

(b) (4)

Rationale

- (b) (4)

3.4 Low energy consumption



Figure 11: Low energy consumption

3.4.1 [FR-02-003] (b) (4)

(b) (4) .

(b) (4)

3.4.2 [FR-02-053] (b) (4)

(b) (4) .

(b) (4)

3.4.3 [SFT-02-045] (b) (4)

(b) (4) .

(b) (4)

Rationale

(b) (4) .

(b) (4)

3.5 Measures

(b) (4)

Figure 12: Measures

3.5.1 [SFT-02-007] (b) (4)

(b) (4)
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(b) (4)

(b) (4)
(b) (4)
- (b) (4) .
- (b) (4) .
- (b) (4) .

(b) (4)

3.6 Safety



Figure 13: Safety

3.6.1 [FR-02-024] (b) (4)

(b) (4)

.

(b) (4)

3.6.2 [SFT-02-030] (b) (4)

(b) (4)

(b) (4)

3.6.3 [SFT-02-032] (b) (4)

(b) (4)

3.6.4 [SFT-02-035] (b) (4)

(b) (4) .

(b) (4)

3.6.5 [SFT-02-036] (b) (4)

(b) (4)

(b) (4)

3.6.6 [SFT-02-037] (b) (4)

(b) (4)

(b) (4)

3.6.7 [SFT-02-042] (b) (4)

(b) (4)

(b) (4)

3.6.8 [SFT-02-049] (b) (4)

(b) (4)

(b) (4)

3.7 Environmental

(b) (4)



Figure 14: Environmental

3.7.1 [FR-02-048] (b) (4)

(b) (4)

(b) (4)

3.7.2 [SFT-02-026] (b) (4)

(b) (4)

(b) (4)

3.8 (b) (4)

(b) (4)

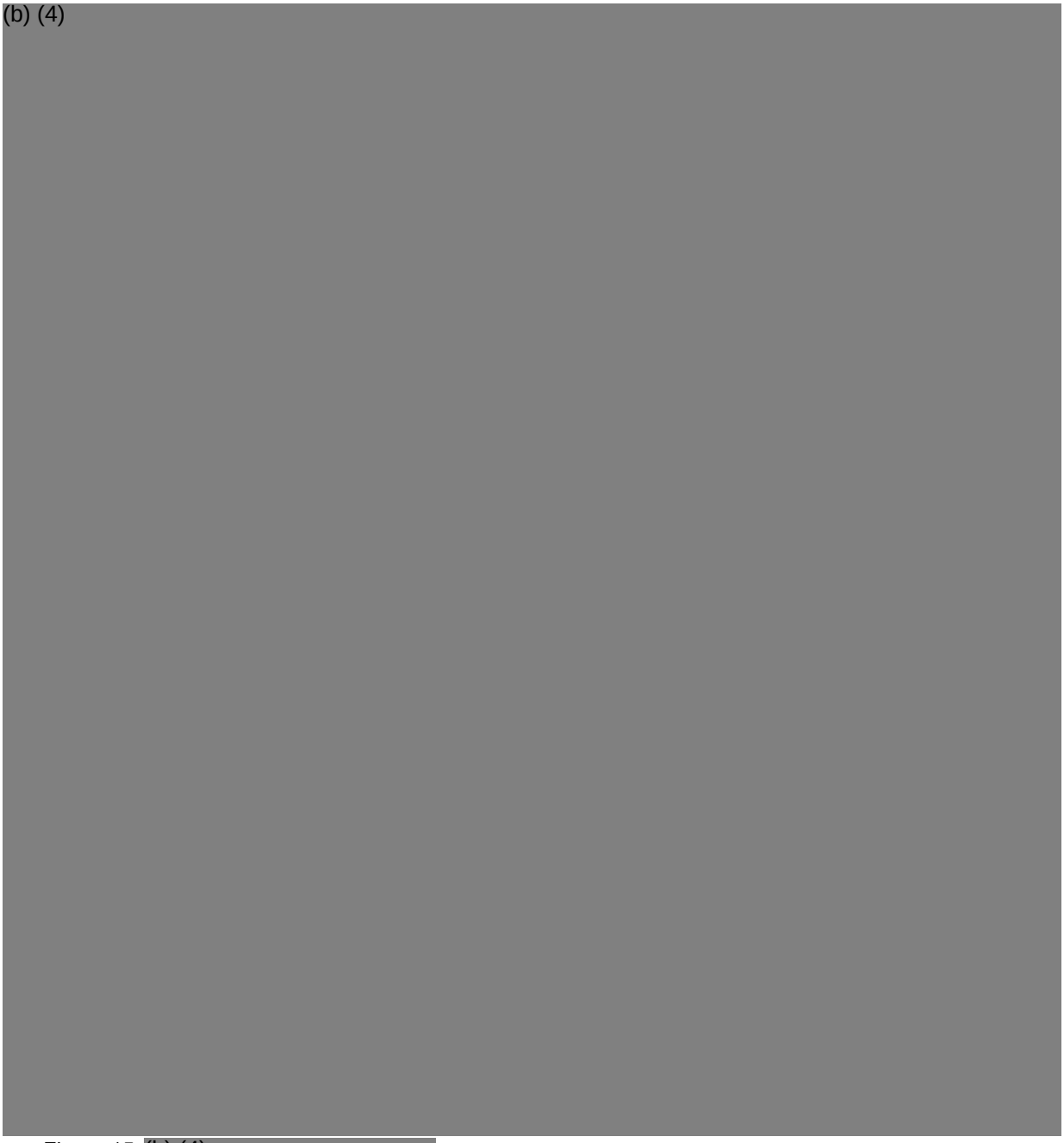


Figure 15: (b) (4)

3.8.1 [FR-02-009] (b) (4)

(b) (4)

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(b) (4)

3.8.2 [FR-02-012] (b) (4)

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(b) (4)

3.8.3 [FR-02-013] (b) (4)

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(b) (4)

3.8.4 [FR-02-019] (b) (4)

(b) (4)

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(b) (4)

3.8.5 [FR-02-020] (b) (4)

(b) (4)

.

(b) (4)

3.8.6 [FR-02-022] (b) (4)

(b) (4)

(b) (4)

3.8.7 [FR-02-026] (b) (4)

(b) (4)

.

(b) (4)

3.8.8 [FR-02-033] (b) (4)

(b) (4)

Content of the report:

- (b) (4)
- (b) (4))
- (b) (4)
- (b) (4)

(b) (4)

3.8.9 [FR-02-059] (b) (4)

(b) (4)

(b) (4)

3.8.10 [FR-02-060] (b) (4)

(b) (4)

(b) (4)

3.8.11 [FR-03-002] (b) (4)

(b) (4) .

(b) (4)

3.8.12 [FR-03-004] Detect charger

The Interface shall provide means to detect the presence or absence of a Holder in the Charger.

Type	Version	Status	Last updated	Difficulty
FunctionalRequirement	1.0	Approved	3/2/2015	Medium

3.8.13 [SFT-02-008] (b) (4)

(b) (4)

(b) (4)

3.8.14 [SFT-02-024] (b) (4)

(b) (4) .

(b) (4)

(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)
(b) (4)

3.8.15 [SFT-02-028] Detect charger presence

The system shall detect the insertion/removal of the holder into/from the charger.

Type	Version	Status	Last updated	Difficulty
PerformanceRequirement	1.0	Approved	3/31/2015	Medium

(b) (4)
- (b) (4)
.
- (b) (4)
.

3.8.16 [SFT-02-034] (b) (4)

(b) (4) .

(b) (4)

3.8.17 [SFT-02-044] (b) (4)

(b) (4)

(b) (4)

(b) (4)

3.9.1 [FR-02-027] (b) (4)

(b) (4)

(b) (4)

3.9.2 [SFT-02-046] (b) (4)

(b) (4)

(b) (4)

3.9.3 [SFT-02-047] (b) (4)

(b) (4) .

(b) (4)

3.10 (b) (4)

(b) (4)

3.10.1 [FR-02-021] (b) (4)

(b) (4)

3.10.2 [FR-02-062] (b) (4)

(b) (4) .

(b) (4) :

- (b) (4)
- (b) (4)

(b) (4)

3.10.3 [SFT-02-(b) (4)

(b) (4) .

(b) (4)

3.10.4 [SFT-02-023] (b) (4)

(b) (4) .

(b) (4)

3.11 (b) (4)

(b) (4)

3.11.1 [SFT-02-003] (b) (4)

(b) (4) .

(b) (4)

3.11.2 [SFT-02-006] (b) (4)

(b) (4) .

(b) (4)

3.12 Testing

(b) (4)



Figure 19: Testing

3.12.1 [SFT-02-039] (b) (4)

(b) (4)

The next section lists the risks classified by topics. Each topic covers a family of related system functions and provides details of risks.

4 Risk assessment

4.1 (b) (4)

(b) (4)

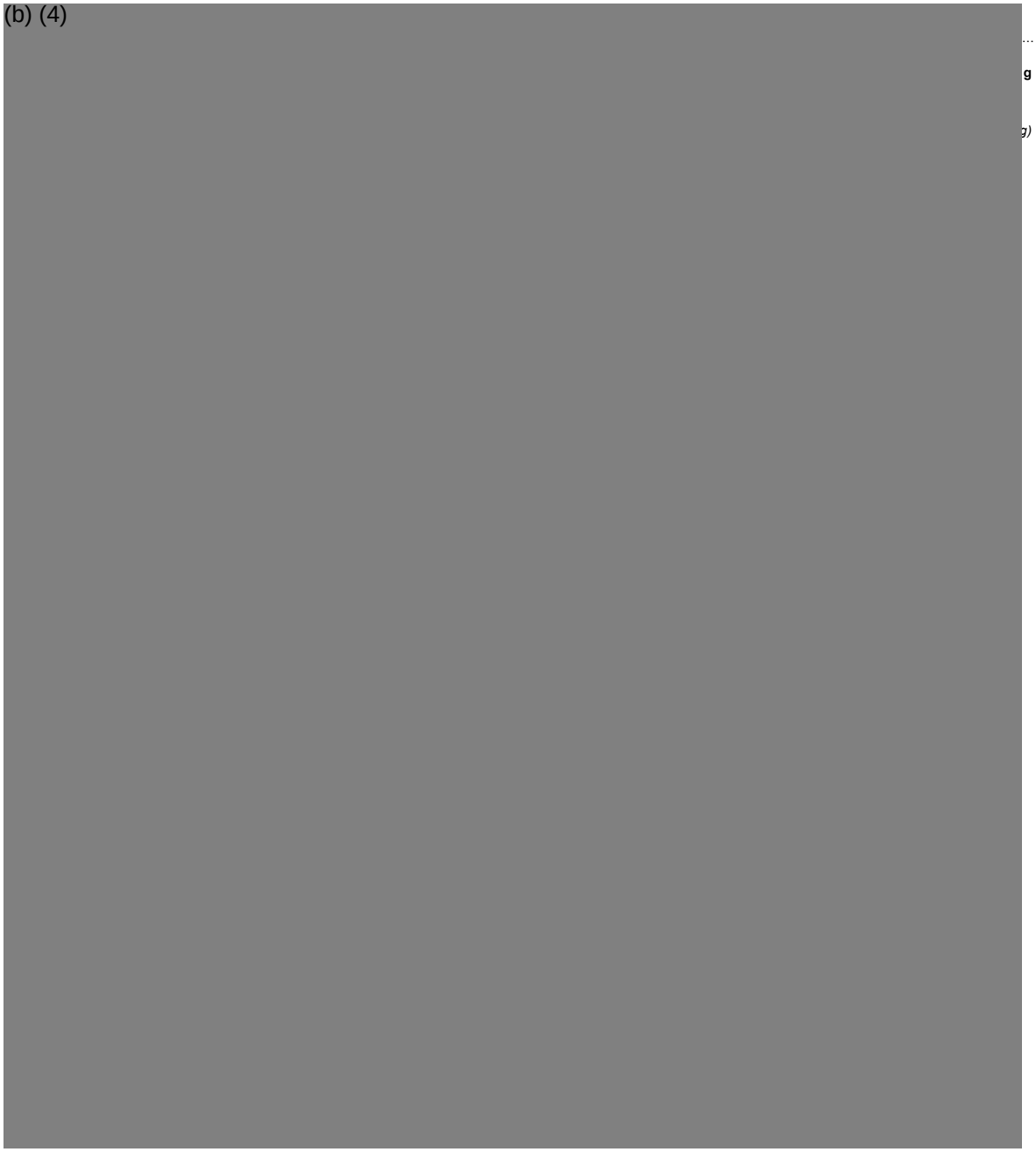


Figure 20: (b) (4)

(b) (4)



Figure 21: (b) (4)

(b) (4)



Figure 22: (b) (4)

4.1.1 [RSK-02-001] (b) (4)

(b) (4)



4.1.2 [RSK-02-002] (b) (4)

(b) (4)

(b) (4)

4.1.3 [RSK-02-003] (b) (4)

(b) (4)

4.1.4 [RSK-02-004] (b) (4)

(b) (4)

4.1.5 [RSK-02-005] (b) (4)

(b) (4)

(b) (4) .

(b) (4)

4.1.6 [RSK-02-006] (b) (4)

(b) (4)

4.1.7 [RSK-02-007] (b) (4)

(b) (4)

4.1.8 [RSK-02-008] (b) (4)

(b) (4)

(b) (4)

4.2 (b) (4)

(b) (4)

Figure 23: (b) (4)

4.2.1 [RSK-02-009] (b) (4)

(b) (4)

(b) (4)

4.2.2 [RSK-02-029] (b) (4)

(b) (4)

4.3 (b) (4)

(b) (4)

Figure 24: (b) (4)

(b) (4)

Figure 25: (b) (4) s

4.3.1 [RSK-02-010] (b) (4)

(b) (4)

(b) (4)

4.3.2 [RSK-02-011] (b) (4)

(b) (4)

4.4 (b) (4)



Figure 26: (b) (4)

(b) (4)



(b) (4)

4.4.2 [RSK-02-013] (b) (4)

(b) (4)

4.5 (b) (4)

(b) (4)



Figure 27: (b) (4)

4.5.1 [RSK-02-(b) (4)

(b) (4)



4.5.2 [RSK-02-015] (b) (4)

(b) (4)

4.5.3 [RSK-02-016] (b) (4)

(b) (4)

4.6 (b) (4)

(b) (4)

Figure 28 (b) (4)

4.6.1 [RSK-02-017] (b) (4)

(b) (4)

4.6.2 [RSK-02-018] (b) (4)

(b) (4)

4.7 (b) (4)

(b) (4)



Figure 29: (b) (4)

4.7.1 [RSK-02-019] (b) (4)

(b) (4)



(b) (4)

4.7.2 [RSK-02-020] (b) (4)

(b) (4)

4.8 (b) (4)

(b) (4)

Figure 30: (b) (4)

4.8.1 [RSK-02-021] (b) (4)

(b) (4)

(b) (4)

4.9(b) (4)

(b) (4)

Figure 31: (b) (4)

4.9.1 [RSK-02-022] (b) (4)

(b) (4)

(b) (4)

(b) (4)

4.9.3 [RSK-02-024] (b) (4)

(b) (4)

4.10 (b) (4)

(b) (4)



Figure 32: (b) (4)

4.10.1 [RSK-02-025] (b) (4)

(b) (4)



4.10.2 [RSK-02-026] (b) (4)

(b) (4)



(b) (4)

4.11 (b) (4)

(b) (4)

Figure 33: (b) (4)

4.11.1 [RSK-02-027] (b) (4)

(b) (4)

4.11.2 [RSK-02-028] (b) (4)

(b) (4)

(b) (4)

5 (b) (4)

5.1 (b) (4)

(b) (4) .

[FR-02-004]	(b) (4)	(b) (4)
raise	[RSK-02-005] (b) (4)	
raise	[RSK-02-012] (b) (4)	
raise	[RSK-02-007] (b) (4)	
[FR-02-005]	(b) (4)	
raise	[RSK-02-001] (b) (4)	
raise	[RSK-02-002] (b) (4)	
[FR-02-006]	(b) (4)	
raise	[RSK-02-002] (b) (4)	
raise	[RSK-02-001] (b) (4)	
[FR-02-008]	(b) (4)	
raise	[RSK-02-006] (b) (4)	
[FR-02-014]	(b) (4)	
raise	[RSK-02-001] (b) (4)	

raise	[RSK-02-002] (b) (4)	(b) (4)
[FR-02-015] (b) (4)		
raise	[RSK-02-002] (b) (4)	
raise	[RSK-02-001] (b) (4)	
[FR-02-016] (b) (4)		
raise	[RSK-02-008] (b) (4)	
[FR-02-058] (b) (4)		
raise	[RSK-02-003] (b) (4)	
raise	[RSK-02-004] (b) (4)	
raise	[RSK-02-006] (b) (4)	
[SFT-02-004] (b) (4)		
raise	[RSK-02-001] (b) (4)	
[SFT-02-005] (b) (4)		
raise	[RSK-02-003] (b) (4)	
raise	[RSK-02-004] (b) (4)	
[SFT-02-009] (b) (4)		
raise	[RSK-02-001] (b) (4)	
raise	[RSK-02-002] (b) (4)	
[SFT-02-029] (b) (4)		
raise	[RSK-02-001] (b) (4)	
[SFT-02-031] (b) (4)		
raise	[RSK-02-002] (b) (4)	
[SFT-02-033] (b) (4)		
raise	[RSK-02-005] (b) (4)	
raise	[RSK-02-007] (b) (4)	
[SFT-02-040] (b) (4)		
raise	[RSK-02-002] (b) (4)	
raise	[RSK-02-001] (b) (4)	

(b) (4)

[SFT-02-041]	(b) (4)
raise	[RSK-02-002] (b) (4)
raise	[RSK-02-00 (b) (4)

[SFT-02-043]	(b) (4)
raise	[RSK-02-002] (b) (4)

[SFT-02-048]	(b) (4)
raise	[RSK-02-008] (b) (4)
raise	[RSK-02-006] (b) (4)

[SFT-02-050]	(b) (4)
raise	[RSK-02-001] (b) (4)

5.2 (b) (4)

(b) (4)

[FR-02-034]	(b) (4)
raise	[RSK-02-005] (b) (4)

[FR-02-035]	(b) (4)
raise	[RSK-02-008] (b) (4)
raise	[RSK-02-006] (b) (4)

[FR-02-036]	(b) (4)
raise	[RSK-02-009] (b) (4)

[SFT-02-020]	(b) (4)
raise	[RSK-02-009] (b) (4)

[SFT-02-021]	(b) (4)
raise	[RSK-02-009] (b) (4)

[SFT-02-022]	(b) (4)
raise	[RSK-02-009] (b) (4)

[SFT-02-051]	(b) (4)
raise	[RSK-02-029] (b) (4)

5.3 (b) (4)

(b) (4)

[FR-02-037] (b) (4)		(b) (4)
raise	[RSK-02-010] (b) (4)	
raise	[RSK-02-011] (b) (4)	
[FR-02-038] (b) (4)		
raise	[RSK-02-010] (b) (4)	
raise	[RSK-02-011] (b) (4)	
[SFT-02-010] (b) (4)		
raise	[RSK-02-011] (b) (4)	
raise	[RSK-02-010] (b) (4)	
[SFT-02-011] (b) (4)		
raise	[RSK-02-011] (b) (4)	
raise	[RSK-02-010] (b) (4)	
[SFT-02-012] (b) (4)		
raise	[RSK-02-010] (b) (4)	
raise	[RSK-02-011] (b) (4)	
[SFT-02-013] (b) (4)		
raise	[RSK-02-011] (b) (4)	
raise	[RSK-02-010] (b) (4)	
[SFT-02-014] (b) (4)		
raise	[RSK-02-011] (b) (4)	
[SFT-02-015] (b) (4)		
raise	[RSK-02-011] (b) (4)	
[SFT-02-016] (b) (4)		
raise	[RSK-02-010] (b) (4)	
raise	[RSK-02-011] (b) (4)	
[SFT-02-017] (b) (4)		

raise	[RSK-02-010] (b) (4)	(b) (4)
raise	[RSK-02-011] (b) (4)	

[SFT-02-018] (b) (4)	
raise	[RSK-02-010] (b) (4)
raise	[RSK-02-011] (b) (4)

5.4 (b) (4)

(b) (4)

[FR-02-003] (b) (4))	
raise	[RSK-02-012] (b) (4)

[FR-02-053] (b) (4))	
raise	[RSK-02-012] (b) (4)

[SFT-02-045] (b) (4)	
raise	[RSK-02-012] (b) (4)

5.5 (b) (4)

(b) (4)

[SFT-02-007] (b) (4)	
raise	[RSK-02-027] (b) (4)
raise	[RSK-02-002] (b) (4)
raise	[RSK-02-001] (b) (4)
raise	[RSK-02-013] (b) (4)
raise	[RSK-02-028] (b) (4)

5.6 (b) (4)

(b) (4)

[FR-02-024] (b) (4)	
raise	[RSK-02-015] (b) (4)
raise	[RSK-02- (b) (4)

[SFT-02-030] (b) (4)	
raise	[RSK-02-015] (b) (4)
raise	[RSK-02-014] (b) (4)

[SFT-02-032]	(b) (4)
raise	[RSK-02-014] (b) (4)
raise	[RSK-02-015] (b) (4)

[SFT-02-035]	(b) (4)
raise	[RSK-02-015] (b) (4)
raise	[RSK-02- (b) (4)

[SFT-02-036]	(b) (4)
raise	[RSK-02-015] (b) (4)
raise	[RSK-02-014] (b) (4)

[SFT-02-037]	(b) (4)
mitigate	[RSK-02-016] (b) (4)
mitigate	[RSK-02-001] (b) (4)

[SFT-02-042]	(b) (4)
raise	[RSK-02-015] (b) (4)
raise	[RSK-02-014] (b) (4)

[SFT-02-049]	(b) (4)
raise	[RSK-02-014] (b) (4)
raise	[RSK-02-015] (b) (4)

5.7 (b) (4)

(b) (4)

[FR-02-048]	(b) (4)
raise	[RSK-02-018] (b) (4)
raise	[RSK-02-005] (b) (4)
raise	[RSK-02-017] (b) (4)

[SFT-02-026]	(b) (4)
raise	[RSK-02-008] (b) (4)
raise	[RSK-02-006] (b) (4)

(b) (4)

5.8 (b) (4)

(b) (4)

[FR-02-009] (b) (4)	(b) (4)
raise	[RSK-02-007] (b) (4)
[FR-02-012] (b) (4)	
raise	[RSK-02-007] (b) (4)
[FR-02-013] (b) (4)	
raise	[RSK-02-007] (b) (4)
[FR-02-019] (b) (4)	
raise	[RSK-02-020] (b) (4)
[FR-02-020] (b) (4)	
raise	[RSK-02-019] (b) (4)
raise	[RSK-02-020] (b) (4)
[FR-02-022] (b) (4)	
raise	[RSK-02-020] (b) (4)
[FR-02-026] (b) (4)	
raise	[RSK-02-019] (b) (4)
raise	[RSK-02-020] (b) (4)
[FR-02-033] (b) (4)	
raise	[RSK-02-013] (b) (4)
[FR-02-059] (b) (4)	
raise	[RSK-02-007] (b) (4)
[FR-02-060] (b) (4)	
raise	[RSK-02-006] (b) (4)
[FR-03-002] (b) (4)	
raise	[RSK-02-019] (b) (4)
[FR-03-004] (b) (4)	
raise	[RSK-02-019] (b) (4)

[SFT-02-008]	(b) (4)
raise	[RSK-02-019] (b) (4)

[SFT-02-024]	(b) (4)
raise	[RSK-02-020] (b) (4)

[SFT-02-028]	(b) (4)
raise	[RSK-02-019] (b) (4)

[SFT-02-034]	(b) (4)
raise	[RSK-02-019] (b) (4)
raise	[RSK-02-026] (b) (4)

[SFT-02-044]	(b) (4)
raise	[RSK-02-020] (b) (4)

5.9 (b) (4)

(b) (4)

[FR-02-027]	(b) (4)
raise	[RSK-02-021] (b) (4)

[SFT-02-046]	(b) (4)
raise	[RSK-02-021] (b) (4)

[SFT-02-047	(b) (4)
raise	[RSK-02-021] (b) (4)

5.10 (b) (4)

(b) (4)

[FR-02-021]	(b) (4)
raise	[RSK-02-022] (b) (4)
raise	[RSK-02-025] (b) (4)

[FR-02-062]	(b) (4)
raise	[RSK-02-024] (b) (4)

[SFT-02-002]	(b) (4)

(b) (4)

(b) (4)

raise [RSK-02-011] (b) (4)

[SFT-02-023] (b) (4)
raise [RSK-02-(b) (4)

5.11 (b) (4)
(b) (4)
[SFT-02-003] (b) (4)
raise [RSK-02-025 (b) (4)

[SFT-02-006] (b) (4)
raise [RSK-02-025] (b) (4)

5.12 (b) (4)
(b) (4)
[SFT-02-039] (b) (4)
raise [RSK-02-023] (b) (4)

6 References

[1] A3.1-2 Functional Design Specifications - Device

7 Approvals

	Name	Role	Signature	Date
Author	Robin Farine	Senior Engineer, Software Development		2016-07-13
Owner	Eric Mariacher	Manager Sofware Development		2016-7.13
QA Review	Florence Kapp	QA Officer		28.Jul.2016