Electrocardiogram Acceptance Tests Document

Version 1.2

# Document Revision History

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Change summary** | **Reviewed By** |
| 1.0 | 30/10/2019 | Megan Jones | Formal write up of acceptance tests for the requirements defined in version 1.6 | Andrew Belcher |
| 1.1 | 31/10/2019 | Jamie Bateman | Apply changes written by Andrew | Jamie Bateman |
| 1.2 | 31/10/2019 | Jamie Bateman | Apply changes written by Jamie | Jamie Bateman  Najma Abdirahman  Megan Jones |

# JAMN – ECG Acceptance Tests

## SECTION 1.0: ONBOARD RECORDING AND DATA DISPLAY

### ORD-TEST-1

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-1 |
| **Target requirements** | ORD-1, ORD-2, ORD-3, ORD-4, ORD-7 |
| **Outline** | Ensure that the device powers on normally and displays appropriate start up screens. |
| **Pre-requisites** | Device is turned off. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Turn system on | System powers up normally and displays expected start up screens |

### ORD-TEST-2

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-2 |
| **Target requirements** | ORD-5, ORD-6 |
| **Outline** | Ensure that the device detects if the probes are attached or not. |
| **Pre-requisites** | Device is turned on and probes are attached to subject. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Attach probes | Device acknowledges probes are attached |
| 2 | Disconnect probes | Device acknowledges probes are disconnected and displays warning screen |

### ORD-TEST-3

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-3 |
| **Target requirements** | ORD-8, ORD-9 |
| **Outline** | Ensure that the device enters the recording state correctly when prompted. |
| **Pre-requisites** | System is turned on and probes are attached to subject. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press Button0 | System enter the recording state and LED1 turns on |

### ORD-TEST-4

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-4 |
| **Target requirements** | ORD-10, ORD-11 |
| **Outline** | Ensure that the data recorded from the probes is stored properly in SRAM. |
| **Pre-requisites** | System is turned on and probes are attached to subject and is currently in recording state. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Attach debug serial cable. | The debug serial port is printing typical ADC values that debug code reads from the index into SRAM. |
|  | Open serial monitor during recording. |

### ORD-TEST-5

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-5 |
| **Target requirements** | ORD-12, ORD-13, ORD-14, ORD-15 |
| **Outline** | Ensure that the device displays expected data on the screen while recording data from subject. |
| **Pre-requisites** | System is turned on and probes are attached to subject and is currently in recording state. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Observe screen while data is being read in from the probes | System displays expected data correctly on the screen while recording data from the probes |

### ORD-TEST-6

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-6 |
| **Target requirements** | ORD-16, ORD-17 |
| **Outline** | Ensure that the device can correctly stop recording if in the recording state. |
| **Pre-requisites** | System is turned on and probes are attached to subject and is currently in recording state. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press Button0 | System correctly stops recording and LED1 flashes for a short period to signal recording has ended. |

### ORD-TEST-7

|  |  |
| --- | --- |
| **Test Name** | ORD-TEST-7 |
| **Target requirements** | ORD-18, ORD-19 |
| **Outline** | Ensure that the device can detect when a probe gets disconnected while in the recording state and displays the appropriate warnings. |
| **Pre-requisites** | System is turned on and probes are attached to subject and is currently in recording state. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Disconnect probe while device is in the recording state. | Device detects the probe has been disconnected, a warning is displayed on the screen and LED1 flashes in bursts. |

### ORD-TEST-8

|  |  |
| --- | --- |
| Test Name | ORD-TEST-8 |
| Target Requirements | ORD-19, ORD-20, ORD-26, ORD-27, ORD-30 |
| Outline | Verify serial command recognition and processing |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Run serial test program on PC with serial cable connected to app link Serial port on device. | Serial test program on PC will show the device responding with acknowledgement replies to correctly structured/supported commands. |
| 2 | Pass “all” argument to program. |

### ORD-TEST-9

|  |  |
| --- | --- |
| Test Name | ORD-TEST-9 |
| Target Requirements | ORD-29 |
| Outline | Verify LED errors during POST |
| Pre-requisites | Device powered off completely.  Fault introduced, such as display disconnected. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Plug power source into device and turn the power switch to the on position. | Led 0 and LED 1 will light up or flash individually to signal an error state that is predefined. If display is not connected, error display sequence on LEDs matches that of the predefined error signal for that error. |

### ORD-TEST-10

|  |  |
| --- | --- |
| Test Name | ORD-TEST-10 |
| Target Requirements | ORD-31 |
| Outline | Verify dock command for app link |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port.  Device not in “docked mode”. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Run serial test program on PC with serial cable connected to app link Serial port on device. | Device screen will turn off when not in docked mode. Device screen will turn back on when command is sent again. If not in docked mode before command sent, program will print version info received from device. Device serial traffic will be in selected baud used in the “-b” argument. |
| 2 | Passing “dock” argument to program with “-b x” where x is the baud rate from 115200 to 1000000. |

### ORD-TEST-11

|  |  |
| --- | --- |
| Test Name | ORD-TEST-11 |
| Target Requirements | ORD-34, ORD-35 |
| Outline | Verify header command for app link |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port. Device in “docked mode”.  Device has not sent received any other command other than dock command. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Run serial test program on PC with serial cable connected to app link Serial port on device. | Serial test program on PC will print header information received from Device. |
| 2 | Passing “header” argument to program. |

### ORD-TEST-12

|  |  |
| --- | --- |
| Test Name | ORD-TEST-12 |
| Target Requirements | ORD-23, ORD-32, ORD-33, ORD-40, ORD-41, ORD-42 |
| Outline | Verify record command for app link |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port.  Device in “docked mode”.  Probes Connected. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Run serial test program on PC with serial cable connected to app link Serial port on device. | LED1 on Device will power on.  Serial test program on PC will start printing the Device’s ADC values + timings sent over serial. |
| 2 | Passing “record” argument to program. |

### ORD-TEST-13

|  |  |
| --- | --- |
| Test Name | ORD-TEST-13 |
| Target Requirements | ORD-43 |
| Outline | Power consumption is within desired ranges. |
| Pre-requisites | Device powered off completely.  Oscilloscope attached and capturing. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Attach oscilloscope probe to power supply/battery positive rail. | Scope capture of power consumption during device operation never experiences significant drops in voltage below the determined threshold that would be close to a brown out for the device. |
| 2 | Attach scope ground to ground of device. |
| 3 | Start long non-detailed capture on scope. (~2min) |
| 4 | Power on device and run through its normal operation. |

### ORD-TEST-14

|  |  |
| --- | --- |
| Test Name | ORD-TEST-14 |
| Target Requirements | ORD-44 |
| Outline | Verify device can be powered from PC instead of battery. |
| Pre-requisites | Device power supply is disconnected.  Serial connected and power supply from serial cable attached to VCC on device (with correct voltage/current rating for device). |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Turn device on while connected to serial with power source from pc. | Device should switch on and behave normally.  Device will switch into docked mode after splash screen. |

### ORD-TEST-15

|  |  |
| --- | --- |
| Test Name | ORD-TEST-15 |
| Target Requirements | \*need requirement to test if probes are connected in docked mode. |
| Outline | Verify that device can detect if probe is connected during docked mode. |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port. Device in “docked mode”.  Probes Not Connected. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Run serial test program on PC with serial cable connected to app link Serial port on device. | LED1 on Device will flash.  Serial test program on PC will print “Connect Probes”. |
| 2 | Passing “record” argument to program. |

### ORD-TEST-16

|  |  |
| --- | --- |
| Test Name | ORD-TEST-16 |
| Target Requirements | \*need requirement to test if probes are connected in docked mode. |
| Outline | Verify device can detect probe issues during docked mode. |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port.  Device not in “docked mode”. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Disconnect probes during recording while data is streaming. | LED1 on Device will flash.  Serial test program on PC will stop printing ADC values + timings and print “Connect Probes” |

ORD-TEST-17

|  |  |
| --- | --- |
| Test Name | ORD-TEST-17 |
| Target Requirements | ORD-28 |
| Outline | Verify that device can detect serial connection issues during docked mode. |
| Pre-requisites | Device powered on (after splash screen), and not in recording state. Serial cable connected to both PC and on device app link serial port.  Device not in “docked mode”. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Disconnect serial cable during recording while data is streaming. | Device will stop recording. LED1 will go off. Serial data will stop streaming. Device will not be in docked mode. The serial test PC program will print, “Serial connection issue” since it did not get the length of data expected or it is corrupted. |

ORD-TEST-18

|  |  |
| --- | --- |
| Test Name | ORD-TEST-18 |
| Target Requirements | ORD-30 |
| Outline | Verify debug serial port/code is working. |
| Pre-requisites | Device powered on. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Connect serial cable to serial port 0 header pins | Device will print debug messages from code in the correct order of execution, and correct format. |
| 2 | Start serial monitor with correct baud of 115200 |

### ORD-TEST-19

|  |  |
| --- | --- |
| Test Name | ORD-TEST-19 |
| Target Requirements | ORD-38 |
| Outline | Verify resync command for app link. |
| Pre-requisites | Device powered on.  App Link serial cable connected.  Device in docked mode.  Device not in recording mode.  Header information already received. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Verify device time in options after serial command to resync. Using Serial test program on PC with the argument “resync”. | Device will acknowledge resync command. The options screen on device after leaving docked mode will display the correct time set. Alternatively, if Debug serial is connected, the set time will then be printed for confirmation. |

### ORD-TEST-20

|  |  |
| --- | --- |
| Test Name | ORD-TEST-20 |
| Target Requirements | ORD-36, ORD-37 |
| Outline | Verify FRAM I/O |
| Pre-requisites | Device powered on.  Debug Serial cable connected.  Program loaded in Device SRAM that performs the FRAM write/read operation. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Write data to FRAM and print it out after on Debug Serial. | Device will print on debug serial the data it’s going to write to FRAM, and then will read from FRAM in order to print out the data. It will do a memory compare and see if the data is accurate. |

### ORD-TEST-21

|  |  |
| --- | --- |
| Test Name | ORD-TEST-21 |
| Target Requirements | ORD-39 |
| Outline | Verify Options menu entry. |
| Pre-requisites | Device powered on.  Debug Serial cable connected.  Program loaded in Device SRAM that performs the options settings store operation in FRAM.  In options screen.  Changed a setting in the options menu.  Exited the options menu. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Make a change in the options screen and exit the options menu. | On exiting the options menu, the Device will print on its debug port the correctly updated settings as it writes to FRAM and reads back the data from FRAM into a buffer, and then prints that buffer. |

## SECTION 2.0: ONBOARD CONFIGURATION

### OPT-TEST-1

|  |  |
| --- | --- |
| Test Name | OPT-TEST-1 |
| Target Requirements | OPT-1, OPT-5, OPT-6, OPT-7, OPT-8, OPT-9, OPT-10, OPT-11 |
| Outline | Verify Options menu settings. |
| Pre-requisites | Device powered on.  Splash screen done loading.  On pulse view screen. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press **Button 1** after splash screen to open options menu. | Options menu will be shown on the display.  Screen will have selection for Sleep mode, date/time, brightness, bpm box for pulse view, sample rate, Exit. |

### OPT-TEST-2

|  |  |
| --- | --- |
| Test Name | OPT-TEST-2 |
| Target Requirements | OPT-9 |
| Outline | Verify Options menu exiting. |
| Pre-requisites | Device powered on.  Splash screen done loading.  In Options menu. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press Button 1 on options menu with exit option highlighted | Display will change back to pulse view screen. |

### OPT-TEST-3

|  |  |
| --- | --- |
| Test Name | OPT-TEST-3 |
| Target Requirements | OPT-2 |
| Outline | Verify Options menu settings selection. |
| Pre-requisites | Device powered on.  Display powered on.  Display showing options screen.  Display showing all correct options in correct format. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Move finger along Slider 1 within options menu. | The display will update the highlighted option in the direction that Slider 1 was moved. |

### OPT-TEST-4

|  |  |
| --- | --- |
| Test Name | OPT-TEST-4 |
| Target Requirements | OPT-3 |
| Outline | Verify Options menu settings adjustment. |
| Pre-requisites | Device powered on.  Display powered on.  Display showing options screen.  Button 1 pressed to open options setting for adjustment.  Display showing a selected option setting for adjustment. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Move finger along Slider 2 within options menu settings selection. | The display will update the highlighted setting value in the direction translated from Slider 2 movement. |

### OPT-TEST-5

|  |  |
| --- | --- |
| Test Name | OPT-TEST-5 |
| Target Requirements | OPT-4 |
| Outline | Verify Options menu formatting. |
| Pre-requisites | Device powered on.  Display powered on.  Display showing options screen. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press Button 1 on options screen on an option | The display will update to show the selected options adjustable setting. |
| 2 | Repeat step 1 with all options on the options screen |  |

## SECTION 3.0: COMPANION APPLICATION

### APP-TEST-1

|  |  |
| --- | --- |
| Test Name | APP-TEST-1 |
| Target requirements | APP1, App4 |
| Outline | Verify that user can access “**patient view”** and see a list of patients. |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “**patient view**” button | User is sent to the **patient view** |
| 2 | Select view patient list | User will be able to see a list of patients. |

### APP-TEST-2

|  |  |
| --- | --- |
| Test Name | APP-TEST-2 |
| Target requirements | APP2 |
| Outline | Verify that user can add a new patient record. |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “**patient view**” button | User is sent to the **patient view** |
| 2 | Select add a new record. | A form will be present. |
| 3 | Fill all the relevant fields and save. | A new record will be added to the database. |

### APP-TEST-3

|  |  |
| --- | --- |
| Test Name | APP-TEST-3 |
| Target requirements | APP3 |
| Outline | Verify that user can update an existing patient record e.g. age weight and height. |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “**patient view**” button | User is sent to the **patient view** |
| 2 | Select view patient list | User will be able to see a list of patients. |
| 3 | Select a patient and then click update details | Patient details will be presented |
| 4 | Make the required changes and save. | Updated record will be added to the database. |

### APP-TEST-4

|  |  |
| --- | --- |
| Test Name | APP-TEST-4 |
| Target requirements | APP5 |
| Outline | Verify that user can send serial commands to the ECG device. |
| Pre-requisites | Device powered on and not in recording state. ECG device must be connected by serial to the desktop. Desktop application must be open. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Run serial test program on PC, Passing “all” argument to program. | Serial test program on PC will show the device responding with acknowledgement replies to correctly structured/supported commands. |

### APP-TEST-5

|  |  |
| --- | --- |
| Test Name | APP-TEST-5 |
| Target requirements | APP6, App7, App8, App9 |
| Outline | Verify that application displays a “**connect button**” in “**patient view”** and can send docking mode commands to the ECG device when the button is pressed. |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “**patient view**” button | User is sent to the **patient view** |
| 2 | Press “**connect button**” to send docking mode command to the ECG device. | User will be redirected to  **recording view.**  If the docking failederror message will be displayed in **patient view.** |

### APP-TEST-6

|  |  |
| --- | --- |
| Test Name | APP-TEST-6 |
| Target requirements | APP10, App11, APP12, App13, App14 |
| Outline | Verify that user can set the target patient and recording type from a dropdown list on **recording view,** canbegin and stop recording. |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “connect to ECG device” button | User is sent to the recording view |
| 2 | Set the target patient to the test patient and set the recording type to resting. If this is not selected begin recording button will be inactive. |  |
| 4 | Press “begin recording” button | Recording begins |
| 5 | Press “stop recording” button | Recording stops |

## APP-TEST-7

|  |  |
| --- | --- |
| Test Name | APP-TEST-7 |
| Target requirements | APP-15, APP-16, APP-17, APP-18 |
| Outline | Verify that configuration of baud rate and date/time are correctly transmitted to the device when starting a recording |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “connect to ECG device” button | User is sent to the recording view |
| 2 | Select a baud rate from the drop-down list under device configuration |  |
| 3 | Set the target patient to the test patient, and set the recording type to resting |  |
| 4 | Press “begin recording” button |  |
| 5 | Press “stop recording” button |  |
| 6 | Use testing desktop application to send the debug command to the device | The desktop app receives a response containing the prior selected baud rate and the correct date/time |
| 7 | Repeat 2-6 with each different baud rate configuration |  |

### APP-TEST-8

|  |  |
| --- | --- |
| Test Name | APP-TEST-8 |
| Target requirements | APP-16, APP-17, APP-18 |
| Outline | Verify that configuration of baud rate and date/time are correctly transmitted to the device when starting a recording |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. ECG device must be connected to a patient. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “connect to ECG device” button | User is sent to the recording view |
| 2 | Select a baud rate from the drop-down list under device configuration |  |
| 3 | Set the target patient to the test patient, and set the recording type to resting |  |
| 4 | Press “begin recording” button |  |
| 5 | Press “stop recording” button |  |
| 6 | Use testing desktop application to send the debug command to the device | The desktop app receives a response containing the prior selected baud rate and the correct date/time |
| 7 | Repeat 2-6 with each different baud rate configuration |  |

### APP-TEST-9

|  |  |
| --- | --- |
| Test Name | APP-TEST-9 |
| Target requirements | APP-19, APP-20, APP-21, APP-22, APP-26 |
| Outline | Verify that data from the device is fed correctly into the desktop app and represented in a real time graph. Verify that once this has been completed, a file is saved representing the data in the patient’s directory. |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. Must have a test patient set up in the patient database. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “connect to ECG device” button | User is sent to the recording view |
| 2 | Set the target patient to the test patient, and set the recording type to resting |  |
| 3 | Press “begin recording” button |  |
| 4 | Observe the graph for 10 seconds | New data appears on the graph over time. New data is added onto the end of the graph as time passes. |
| 5 | Press “stop recording” button | Save recording button can now be pressed |
| 6 | Press “save recording” button | User is redirected to the patient view. |
| 6 | On file explorer, navigate to %appdata%\jamn-ecg\ |  |
| 7 | Enter the directory for the test patient | File is present for timestamp when the recording was made. File is not empty. |

### APP-TEST-10

|  |  |
| --- | --- |
| Test Name | APP-TEST-10 |
| Target requirements | APP-27 |
| Outline | Verify the user can leave the recording view by pressing the back button |
| Pre-requisites | ECG device must be connected by serial to the desktop. Desktop application must be open. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Press “connect to ECG device” button | User is sent to the recording view |
| 2 | Press “back” button | User is sent to patient view |

### APP-TEST-11

|  |  |
| --- | --- |
| Test Name | APP-TEST-11 |
| Target requirements | APP-23, APP-24, APP-25, APP-28, APP-29, APP-30, APP-31, APP-32 |
| Outline | Verify the user can obtain information on a past ECG recording file the patient view |
| Pre-requisites | One ECG recording file must have been made for test patient of resting type. Desktop app must be open. |

Method:

|  |  |  |
| --- | --- | --- |
| Step | Action | Expected Observation |
| 1 | Select the test patient from the list of patients | Patient window is opened |
| 2 | Check the information on the patient window | One ECG recording file is visible with a date and time next to it. |
| 3 | Click on the ECG recording file | “Generate ECG summary report” button activates |
| 4 | Click “Generate ECG summary report” button | After some time, a pdf file opens inside of the installed PDF viewer on the system |
| 5 | Check the data available in the ECG report | Patient name, height, age, and weight along with the date and time of recording are visible at the top of the report.  Recording type (RESTING or STRESS) should be displayed after the patient information.  A graph of ECG data should be visible beneath the recording type.  The average heartrate should be visible beneath the graph. |

### APP-TEST-12

|  |  |
| --- | --- |
| Test Name | APP-TEST-12 |
| Target requirements | APP-33, APP-34, APP-35 |
| Outline | Verify the user can obtain information on a past ECG recording file the patient view |
| Pre-requisites | At least 5 of both RESTING and STRESS type ECG tests must have been saved to a test patient’s profile. These must all be done on different days. |

Method:

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| Step | Action | Expected Observation |
| 1 | Select the test patient from the list of patients | Patient window is opened |
| 2 | Check the information on the patient window |  |
| 3 | Click the “Generate patient summary report” button | After some time, a pdf file opens inside of the installed PDF viewer on the system |
| 4 | Check the data available on the patient summary report | Patient name, height, age and weight along with the date/time of when the report was generated are visible at the top of the report.  An average resting heartrate graph shows the average heartrate from each of the resting recordings over time.  An average stress heartrate graph shows the average heartrate from each of the stress recordings over time. |