

User Guide: Operation of ActiveAhead Tester App

The Helvar ActiveAhead Tester App is a tool for luminaire manufacturers to verify the correct installation and operation of the luminaire mounted ActiveAhead Generation 2 Nodes* and sensors in their end-of-line testing.

To use this application, you must have a supported mobile device running Android (version 10.0 onwards) equipped with Bluetooth Low Energy (BLE). For devices with Android 10 or Android 11, you also need to give the permission to access the device Location which is needed and used only for transferring data between the application and ActiveAhead Nodes. The application also requires that the mobile device Bluetooth and Location services are enabled. Internet connection is needed for downloading the latest updates automatically and exporting the testing results by email.

The application has been mainly tested with Samsung Galaxy A53 smartphone but should run with any Android 10+ device. Running the application with a smartphone is preferred since BLE scanning with tablets is generally worse.

The application works with the following ActiveAhead products:

- 5634 ActiveAhead Node Sense
- 5652 ActiveAhead Node + optional *sensor**
- 5936 ActiveAhead Node Driver + optional *sensor**
- 5609 ActiveAhead Node Advanced + optional *sensor**
- 5643/5644/5645 ActiveAhead Node D4i
- 5640/5641 ActiveAhead Node Multisensor

**sensor* = 5630 ActiveAhead Sense / 5632 ActiveAhead Sense Outdoor / 5635 ActiveAhead Multisense R44 / 5636 ActiveAhead Multisense R60 High Bay

The application includes the following features:




- BLE radio signal strength test
- PIR motion sensor test
- Light sensor test
- Light control test
- The *acceptance limits* settings to modify the acceptance criteria to your testing environment
- Test results export




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
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Main page

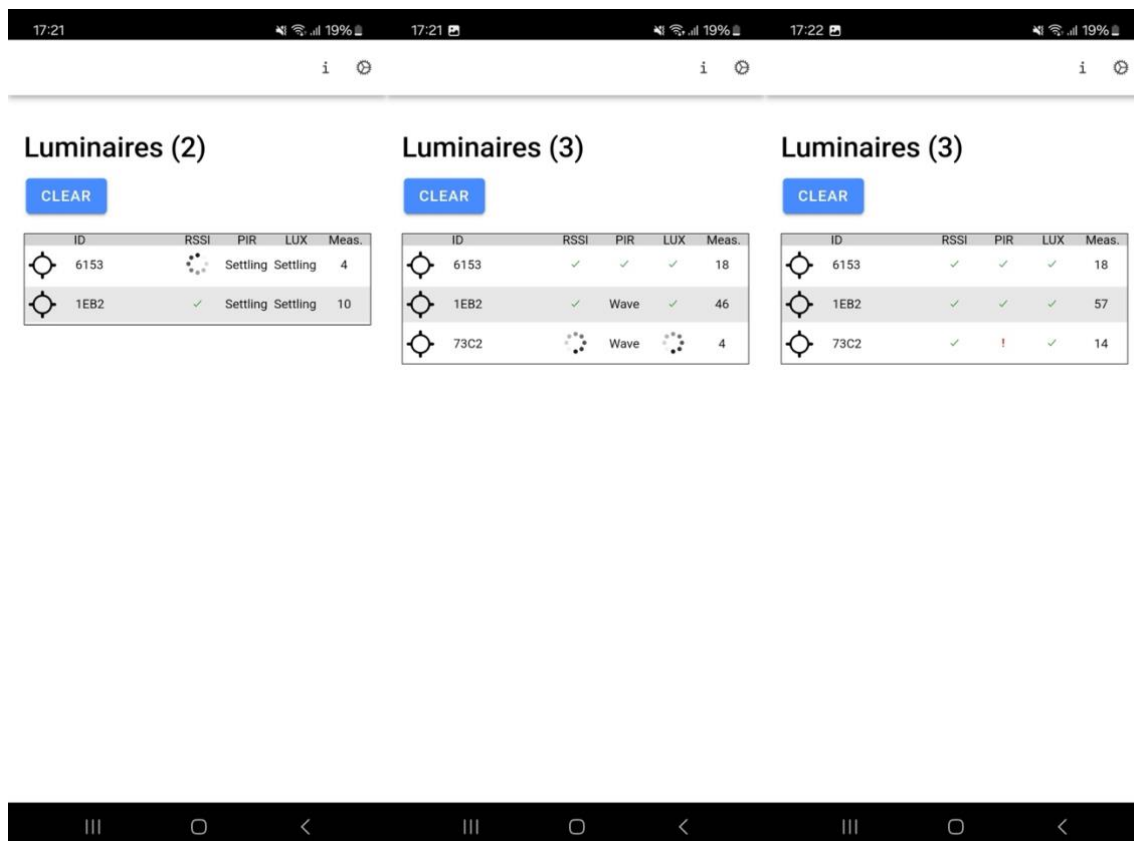
When opened, the app starts to scan the luminaires which are powered on in the last 60 seconds (*testing period*) and shows these luminaires in the Luminaires List. During the *testing period*, nodes send measurements for BLE radio signal strength (RSSI), motion sensor (PIR) and light sensor (LUX) and the app evaluates if whether each works properly. PIR and LUX have status *settling* when they first appear on the Luminaires List. After the sensor readings have settled (approx. 30 seconds), node starts sending valid PIR and LUX measurements and the status changes to *pending* . RSSI does not have settling time and immediately transfers to *pending*. Finally, RSSI, PIR and LUX will resolve to either *pass*  or *fail* . RSSI and LUX will pass automatically after the app has received enough valid measurements, but PIR requires seeing movement before passing. Every resolved result is recorded and can be later exported from the Settings Page.

Pressing “Clear” clears the current Luminaires list.

The luminaires can be identified by pressing the identify icon .

App version can be found by pressing the info icon .

Pressing settings icon  on the top right corner of the view opens Settings Page.

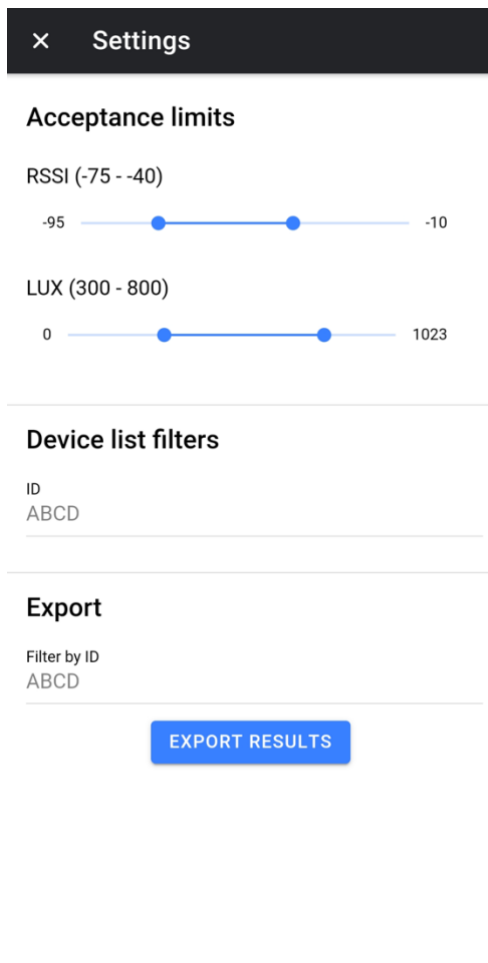


Settings page

Choose whether you want to adjust the RSSI and LUX *acceptance limits*, filter the Luminaires List or Export the results.

Use the sliders to set the *acceptance limits* for RSSI and LUX. The *acceptance limits* are stored and thus remain the same when closing and reopening the application.

The “ID” filter applies to the Luminaires List in the Main Page. The Export Results option enables sharing the RSSI, PIR, and LUX testing results and the *acceptance limits* via email. The results can be filtered by the Luminaire ID.



Configure the RSSI and LUX acceptance limits

Before starting the testing, the RSSI and LUX *acceptance limits* need to be configured. The application considers luminaire RSSI and LUX *passed* if the previous 5 measurement average falls in between the *acceptance limits*.

RSSI

The RSSI depends on the distance to the Node under testing, the luminaire casing and on the local signal propagation environment. After settings your desired lower and upper limits for the accepted RSSI, the distance from the mobile device to the luminaires should be kept constant during testing. Also, the other aspects in the environment should be kept as similar as possible: for example, there should be no obstacles between the mobile phone running the application and the luminaire.

LUX

The LUX measurements depend on the lighting conditions in the testing environment. Nodes without an attached sensor unit can produce around 220 lux measurements. Therefore, a minimum of 300 lux is recommended for the lower *acceptance limit*.

Note: Suitable RSSI and LUX acceptance limits together with the test procedure should be defined for the luminaire model under test before starting the end-of-line tests. These limits should consider at least the distance to the mobile device running the app and the expected light sensor behaviour (the distance and colour / material of the reflective surface opposite to the light sensor).

Intended testing flow

After the acceptance limits have been configured, it is possible to start testing. The intended flow is as follows:

1. Open the application.
2. Power on Nodes which are currently under testing.
3. For each Node
 - a. Check that the correct number of Nodes appears on to the Luminaires List.
 - b. Wave a hand over the PIR sensor once Settling is over and the app asks to Wave.
 - c. Identify the luminaire.
 - d. Wait until RSSI, PIR and LUX have resolved.
4. Verify the results.
5. Clear the Luminaires List before testing the next batch.

Note: Due to the limits in the BLE scanning, and therefore the limited amount of data points, it is possible that the application does not always register all PIR movements. It is recommended to try to test each luminaire three times before determining it to be faulty.

Fault finding

Contact Helvar Support in case you cannot resolve the issue with the help of the instructions below.

No Nodes appear on the Luminaires List

Do the following checks to find the root cause. Rerun the test after each step.

- 1) Press the Clear button on the app and reset the power on the luminaires under test.
- 2) Check that you have a supported mobile device running Android (version 10.0 onwards) equipped with Bluetooth Low Energy. Android version is visible in the device Settings.
- 3) Check that the app has the permission to access the device Location. App permissions are visible in the device Settings. Ensure that Location is enabled on the device running the app. Location can be turned on in the device Settings.
- 4) Check that Bluetooth is enabled on the device running the app. Bluetooth can be turned on in the device Settings.
- 5) Test if another mobile device can find the Nodes.
- 6) Ask support from Helvar Support.

A Node does not appear on the Luminaires List

Do the following checks to find the root cause. Rerun the test after each step.

1. Press the Clear button on the app and reset the power on the luminaire under test.
2. Check the cabling between the Node and the Freedom LED driver or the ActiveAhead Adapter DA.
3. Replace the connecting cable between the Node and the Freedom LED driver or the ActiveAhead Adapter DA. (For Node Sense go to step 4.)
4. Replace the Node.
5. Replace the Freedom LED driver or the ActiveAhead Adapter DA.

A luminaire does not identify when identify button is pressed

Do the following checks to find the root cause. Rerun the test after each step.

1. Check that Location is enabled on the device running the app. Location can be turned on in the device Settings.
2. Check that Bluetooth is enabled on the device running the app. Bluetooth can be turned on in the device Settings.
3. Press the Clear button on the app and reset the power on the luminaire under test.
4. Check the LED cabling between the LED driver and the LED modules.
5. Check possible LED driver settings that they match to the LED modules.
6. In case ActiveAhead Adapter DA is used: Check the DALI cabling between the ActiveAhead Adapter DA and the LED driver(s).
7. Check the cabling between the Node and the Freedom LED driver or the ActiveAhead Adapter DA.
8. Replace the connecting cable between the Node and the Freedom LED driver or the ActiveAhead Adapter DA. (For Node Sense go to step 7.)
9. Replace the LED driver(s).
10. In case ActiveAhead Adapter DA is used: Replace the ActiveAhead Adapter DA.
11. Replace the Node.

RSSI indicates a fault

Do the following checks to find the root cause. Rerun the test after each step.

1. Press the Clear button on the app and reset the power on the luminaire under test.
2. Bring the mobile device closer to the luminaire under test.
3. Check the RSSI acceptance limits in the Settings Page. Try with values -80 as the lower limit and -10 as the upper limit.

4. Try with the weakest RSSI acceptance limit value (-95) as the lower limit. If the test succeeds and this issue is consistent with other luminaires, check the luminaire design because the Node is likely positioned wrongly inside the luminaire and thus unable to communicate properly. If this is the issue only with this luminaire, continue with next steps.
5. Replace the Node.

PIR indicates a fault

Do the following checks to find the root cause. Rerun the test after each step.

1. Press the Clear button on the app and reset the power on the luminaire under test.
2. Wave your hand once over the PIR at roughly one meter distance from the sensor. Stay still for five seconds after the hand wave. Repeat the wave for three times.
3. Check the cabling between the Node and the sensor. (For Node Sense go to step 5.)
4. Replace the sensor.
5. Replace the Node.

LUX indicates a fault

Do the following checks to find the root cause. Rerun the test after each step.

1. Check that the light sensor is not blocked by anything so that it can measure the light reflecting from the opposite surface.
2. Press the Clear button on the app and reset the power on the luminaire under test.
3. Check the LUX acceptance limits in the Settings Page. Try with values 300 as the lower limit and 800 as the upper limit.
4. Try with the maximum LUX acceptance limit value as the upper limit. If the test succeeds and this issue is consistent with other luminaires, check the luminaire design because the sensor is likely exposed to too much of light from inside the luminaire and thus unable to measure correctly the light reflecting from the opposite surface. If this is the issue only with this luminaire, continue with next steps.
5. Check the cabling between the Node and the sensor. (For Node Sense go to step 7.)
6. Replace the sensor.
7. Replace the Node.