

SOFTWARE FOR DATA ACQUISITION

# VALLON EVA4mobile



## OPERATION MANUAL

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Version: 2.00

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# 1 Prior to starting

Thank you for purchasing one of our leading-edge products. Our company, which has been certified in accordance with ISO 9001 by an independent testing institute, stands for highest quality in the development and manufacturing of devices, assemblies and PC applications.

The technology and the equipment are state-of-the-art regarding their functionality and safety in accordance with national and international requirements. Further developments and improvements are continuously taken into account. Therefore, the figures, technical data, and general contents specified in this document may change due to adjustment to new findings<sup>1</sup>.



This operation manual is designed to help you to use our product with its versatile possibilities optimally and safely.

This is why we ask you to read this manual thoroughly prior to putting the product into operation. Always keep this manual near the product so that it is quickly available when needed.

Please do not hesitate to contact us if you have any further questions.

## 1.1 Applicable documents

| Pos. | Description                                                                                                                    |
|------|--------------------------------------------------------------------------------------------------------------------------------|
| 1    | EVA4mobile Licenses<br>Here you will find all information about the licenses of the open source components used by EVA4mobile. |
| 2    | EVA Beacon Operation Manual<br>This manual describes the setup and use of EVA4mobile on an individual Android device.          |

<sup>1</sup>All details as stated in this document comply with the technical standard that is applicable at the date of printing. It is subject to technical modifications and error.

## 2 Description

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### 2.1 General

In combination with a mobile Android device (e.g. z.B. Vallon VFC4 or VFC4plus) and a Vallon metal detector or magnetometer, the Android application EVA4mobile constitutes a system for recording search data and is used for detecting metal bodies or anomaly mass in the homogeneous magnet field of the earth (e.g. warfare material, such as mines, grenades, bombs, etc.). The recorded results are visually displayed and stored by the Android device.

The saved data can be transmitted via USB interface, Bluetooth® or WLAN/Internet (e.g. via email or Google Drive) to a PC or PC-supported evaluation.

EVA4mobile also offers the option of storing project fields with maps for better orientation. The accuracy of the map material depends on the map provider. Depending on the area, deviations of up to a few meters are possible.

The full functional range of EVA4mobile can only be used in combination with a license that can be obtained from Vallon. Without a license you cannot record any data and the track detail view is not available.

To simplify operation, especially when it rains, a keyboard can be connected via a USB cable or Bluetooth®.

### 2.2 Software licenses and third party rights

The software licenses can be viewed in the menu item *Settings* ⇒ *General* ⇒ *View software licenses*. For more Information refer to chapter [Included open source software](#) on page 79.

The name and the logos of Bluetooth® are registered trademarks and property of Bluetooth SIG, Inc. USA and licensed for use by Vallon GmbH.

## 3 Installation and update

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### Minimum requirements for the Android device

- ▷ Operating system: Android 4.4 Kitkat (API 19)
- ▷ Processor: 1,4 GHz Dual Core
- ▷ RAM: 2 GB RAM
- ▷ Flash memory: 16 GB
- ▷ Bluetooth 4.0 (LE)
- ▷ Screen size: 4.7 inches
- ▷ Screen resolution: 720 x 1280 pixels

1. Download the application *EVA4mobile* from the Vallon website to the Android device (<https://www.vallon.de/de/software-downloads>).
2. Install and start *EVA4mobile*:
  - (a) In the file manager, tap on the *EVA4mobile* file to install the application (allow the installation of applications of unknown origin).
  - (b) Start the application *EVA4mobile* and give all requested permissions.
  - (c) Select user.
  - (d) Allow bluetooth.
  - (e) Reboot the Android device.
  - (f) Connect the Beacon (if used, see Beacon instructions).
  - (g) Start the application *EVA4mobile* and check if it is active.

### Recommended settings for the use of *EVA4mobile*

- ▷ Display brightness at maximum.
- ▷ Switch on the automatic brightness control.
- ▷ Hibernation for 30 minutes.
- ▷ Font size to “Small”.
- ▷ Determine portrait format.

### Updates

If an update is available, a message appears when the application is started (if this option is activated in the settings).

#### **NOTICE**

**Changes to the operating system or deletion of files in the *vallon* folder can lead to the expiry of the license.**

- ▷ Avoid changes to the operating system.
- ▷ Do not delete any files in the *vallon* folder.



#### **Information**

Deleting the folder *Appdata* will also delete all data of the application (e.g., projects, fields and measurement data).

## 4 Operation

### 4.1 Starting EVA4mobile

Start EVA4mobile by tapping the icon . Choose a user in the *Choose user* window. If no other user has been created, only the default user *vallon* is available, see Fig. 4.1.1.

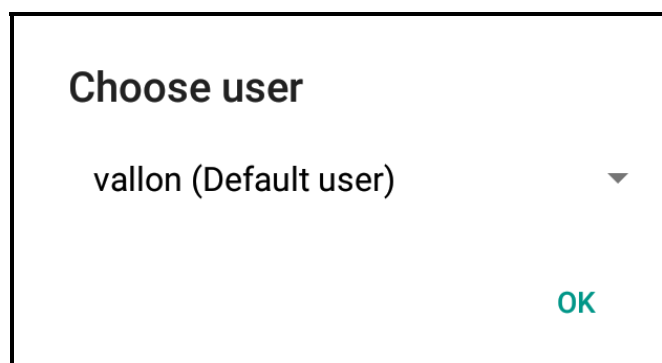


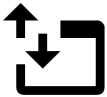
Fig. 4.1.1: Choose user

### 4.2 Main menu

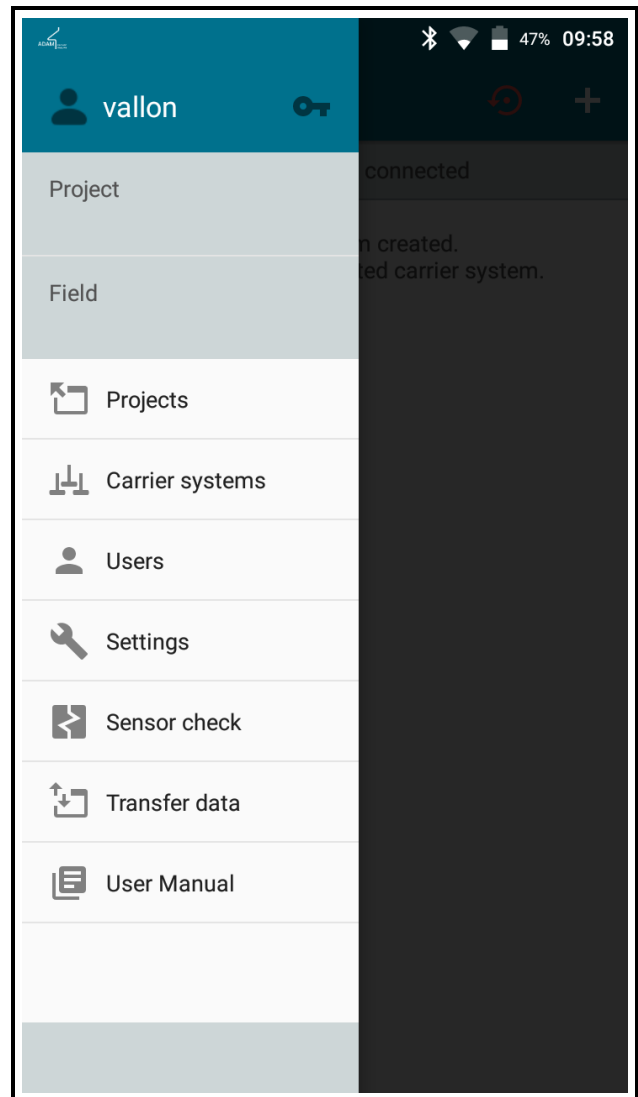
Use the main menu to access all functions and settings of EVA4mobile.

#### 4.2.1 Icons in the main menu

| Icon                                                                                | Name            | Use                  |
|-------------------------------------------------------------------------------------|-----------------|----------------------|
|  | PROJECTS        | Edit projects        |
|  | CARRIER SYSTEMS | Edit carrier systems |
|  | USERS           | Edit users           |
|  | SETTINGS        | Edit settings        |
|  | SENSOR CHECK    | Sensor check         |

| Icon                                                                              | Name          | Use                          |
|-----------------------------------------------------------------------------------|---------------|------------------------------|
|  | TRANSFER DATA | Transfer data                |
|  | MANUAL        | Calling the operation manual |

The two quick start controls *Project* and *Field* allow you to quickly call the last edited project or field (during operation, the names of the two quick start controls are automatically changed to reflect the names of the last edited project or field).



### 4.3 Create, edit and delete users

Use the page *Users* to create, edit and delete users, see Fig. 4.3.1.



**Fig. 4.3.1:** Page *Users*

To create a new user, tap **+** and enter the user name. To switch users, briefly tap the desired user. Tap the icons **EDIT**  and **DELETE**  longer in order to edit or delete the desired user.

## 4.4 Settings

Edit settings for EVA4mobile on the page *Settings*. A submenu opens, see Fig. 4.4.1.

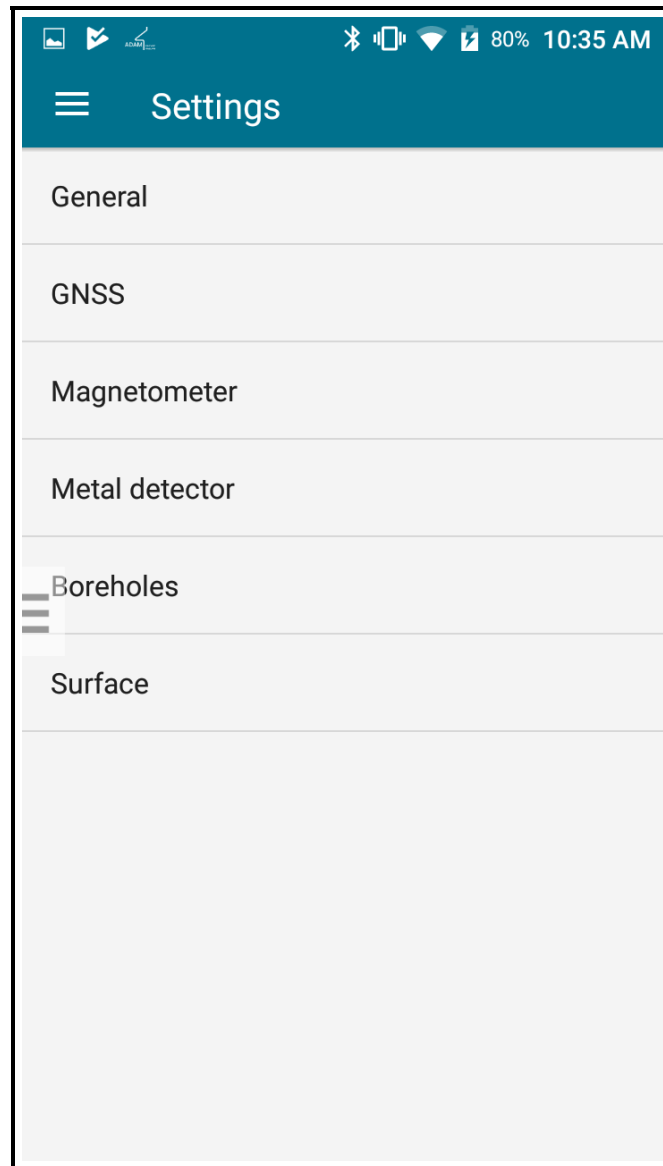


**Fig. 4.4.1:** Page *Settings*

#### 4.4.1 General

You can set/read the following in menu item *General*:

- ▷ Read version number of installed EVA4mobile application
- ▷ Read device ID
- ▷ View software licenses
- ▷ Choose language
- ▷ Map type
- ▷ Free up map space
- ▷ Set threshold value for low battery warning
- ▷ Select sound for low battery warning
- ▷ Select sound for other warnings
- ▷ Indicate SEPOS marks via acoustic signal (ON/OFF)
- ▷ Metronome sound (ON/OFF)
- ▷ Set metronome interval
- ▷ Show updates
- ▷ Set display of recording curve
- ▷ Disable wifi before starting new recordings (ON/OFF)
- ▷ CSV delimiter
- ▷ Beacon authorization time period (h)
- ▷ Start data recovery

#### 4.4.2 GNSS

You can set/read the following in menu item *GNSS*:

- ▷ Acoustically indicate GNSS data packages with surface fields (ON/OFF)
- ▷ Set threshold value for GNSS deviation warning
- ▷ Set threshold value for HDOP value warning
- ▷ Set threshold value for minimum number of received satellites
- ▷ Set threshold value for maximum number of GNSS data packages of poor quality
- ▷ Send configuration file to device
- ▷ Call GNSS console

#### 4.4.3 Magnetometer

You can set/read the following in menu item *Magnetometer*:

- ▷ Set, delete scale (recording range)
- ▷ Change presetting for scale (recording range)
- ▷ Set color for positive maximum value
- ▷ Set color for neutral value
- ▷ Set color for negative maximum value
- ▷ Reset colors

#### 4.4.4 Metal detector

You can set the following in menu item *Metal detector*:

- ▷ Set, delete scale (recording range)
- ▷ Change presetting for scale (recording range)
- ▷ Set color for positive maximum value
- ▷ Set color for neutral value
- ▷ Reset colors

#### 4.4.5 Boreholes

You can set the following in menu item *Boreholes*:

- ▷ Automatically show borehole field after completed recording (ON/OFF)
- ▷ Align boreholes with zero point (project/field/borehole grid)
- ▷ Set borehole numbering
- ▷ Automatic selection of next borehole (ON/OFF)
- ▷ Show sensor data before starting a borehole recording (ON/OFF)
- ▷ Set direction of recording
- ▷ Set default grid distance of x axis
- ▷ Set default grid distance of y axis

#### 4.4.6 Surfaces

You can set the following in menu item *Surfaces*:

- ▷ Set display during data recording.
- ▷ Set layout of long tracks.
- ▷ Set default track width 1-channel carrier system.
- ▷ Set default data gap size (Magnetometer).
- ▷ Set default data gap size (Metal Detector).
- ▷ Acoustic warning if deviation from ideal path line (ON/OFF)
- ▷ Inverting acoustic deviation signal (ON/OFF)

## 4.5 Create, edit and delete carrier systems

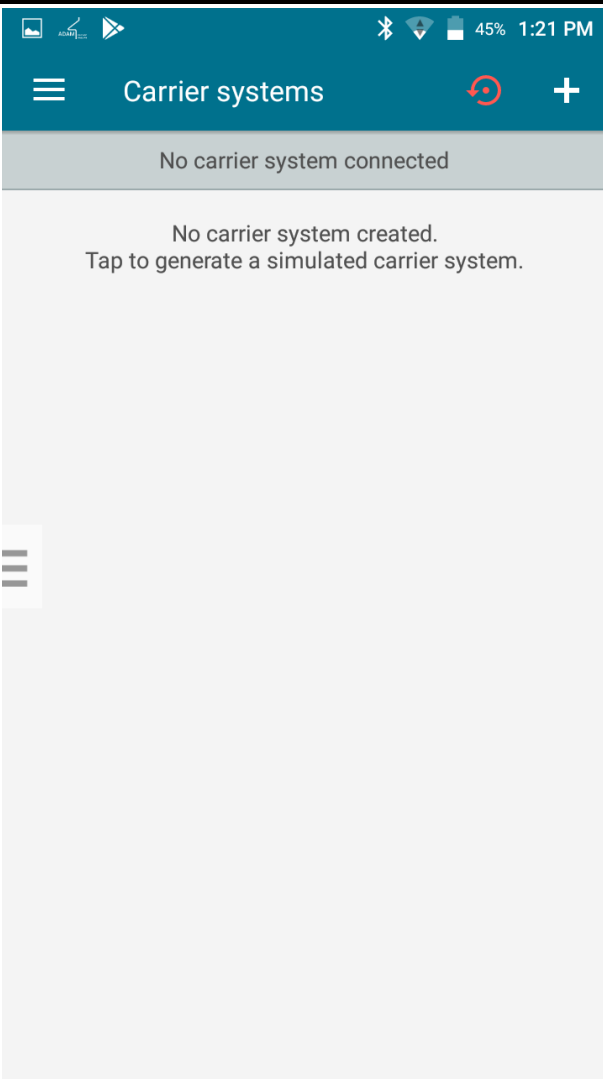
Use the page *Carrier Systems* to create, edit and delete carrier systems. Tap **+** to create a new carrier system. Briefly tap the desired carrier system to select it. Tap the desired carrier system longer in order to copy, edit or delete it; the icons COPY , EDIT  and DELETE  are shown in the control bar.

### 4.5.1 Create carrier system

Four steps are necessary to create a functioning carrier system:

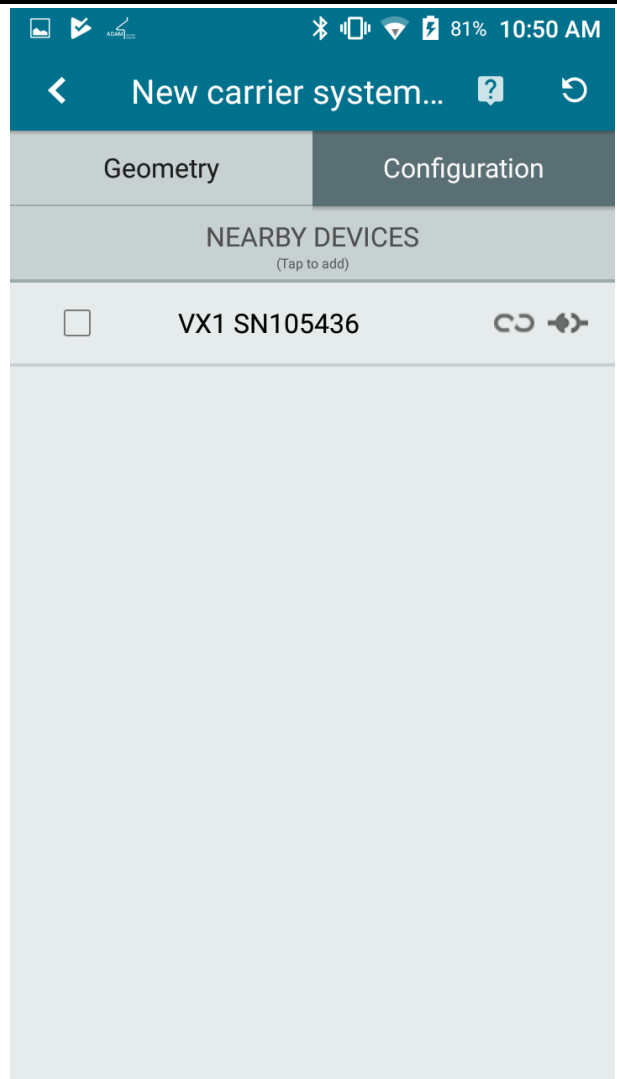
**Step 1**

Tap **+** and enter the desired name for the carrier system. Tap CREATE to create the carrier system.



## Step 2

1. Tap RELOAD  to show Bluetooth devices that are available near by.
2. Select the device that you want to connect to the carrier system and pair it.
  - ▷ Enter the key 1234 in order to connect to a EL130xD2, VX1 (old), VXT1 (old), VCU (old), Compass or GNSS Bluetooth adapter and confirm with *OK*.
  - ▷ You don't need to enter anything for connecting to a VX1 (new), VXT1 (new), VCU (new), VMH4, VMF4, VMC4, VMX10 or VMXB10; continue directly with PAIRING.



### Step 3

#### Ferrous locator

1. At *Sensor configuration* select the sensor type used for the device.
2. At *In conjunction with* select either *No SEPOS* or *External signal*. If a SEPOS has been connected, different SEPOS marking distances are displayed for selection instead of *External signal*.

#### Sensor configuration

Sensor: VSM ▼

#### In conjunction with

SEPOS: No SEPOS ▼

**CANCEL** **CHOOSE**

#### Metal detector

1. At *Sensor configuration* select VMD for surface detection or VMXB10 for borehole detection.
2. At *Coil diameter* indicate the coil diameter in meters (for VMXB10 0.1 m).
3. At *In conjunction with* either select *No SEPOS* or *External signal*.

#### Sensor configuration

Sensor: VMXB10 ▼  
VMD

Coil diameter [m]: 0,72

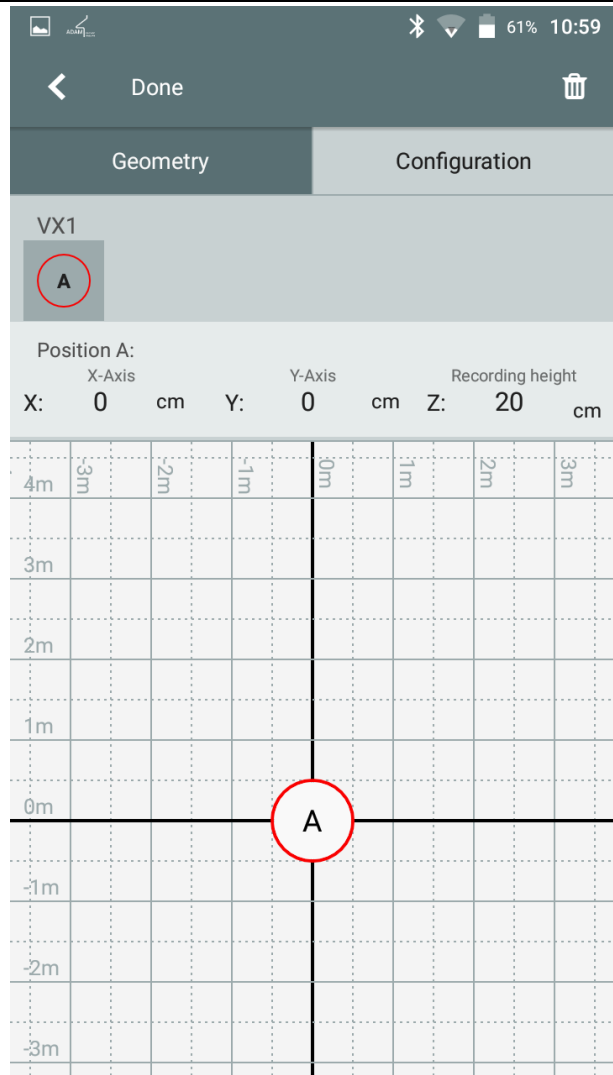
#### In conjunction with

SEPOS: No SEPOS ▼

**CANCEL** **CHOOSE**

## Step 4

1. Tap on the *Geometry* tab. If you are using a GNSS, it will appear at the origin (0/0) of the coordinate system.
2. Tap on the probe (coil) **A**. Probe **A** now appears at the origin (0/0) of the coordinate system, see figure on the right.
3. If you are not using a GNSS and only one probe, leave the probe at the origin and proceed to step 6.
4. If you are using a GNSS, enter the offset from the origin to the center of the probe **A** on the X axis for **X**. For **Y**, enter the offset from the origin to the center of the probe **A** on the Y axis. See also Fig. 4.5.1 and Fig. 4.5.2. For the recording height **Z**, enter the distance from the ground to the bottom edge of the probe.
5. If you are using a system with several probes, repeat steps 2 and 4 for all probes. Make sure that probe **A** (sensor 1) is always on the left in the walking direction. See also Fig. 4.5.3.  
The same recording height **Z** must be selected for probes of the same type whose data are later to be displayed in the same data layer.
6. Tap "Done".



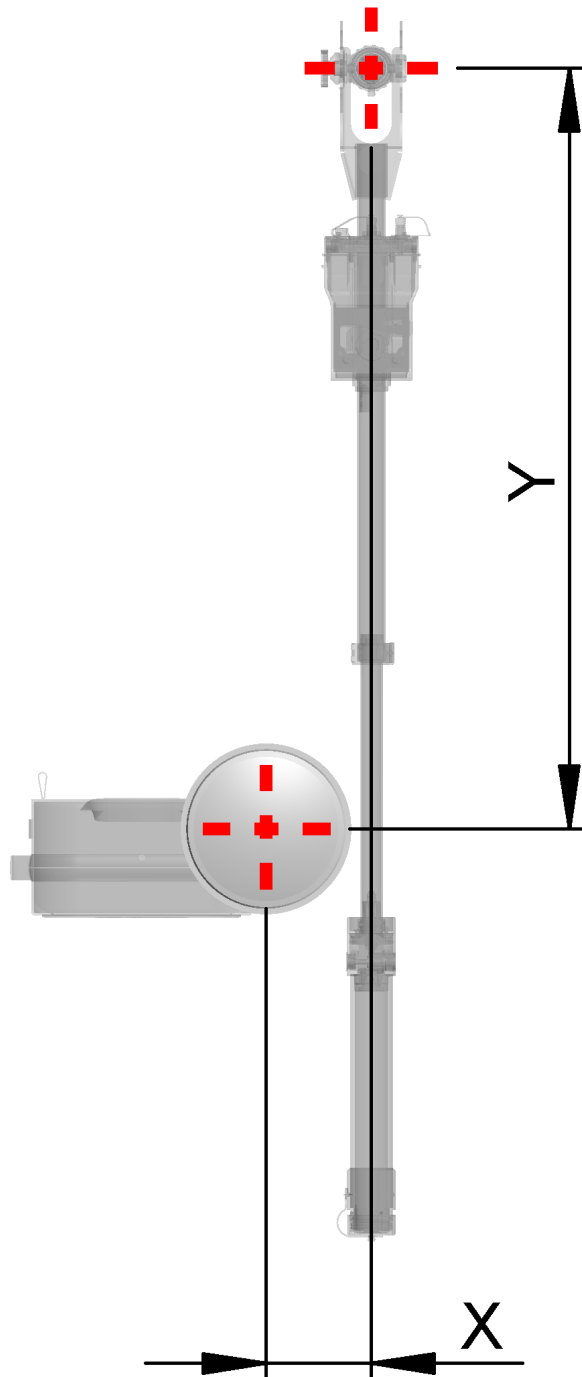


**Fig. 4.5.1: X and Y at VX1**

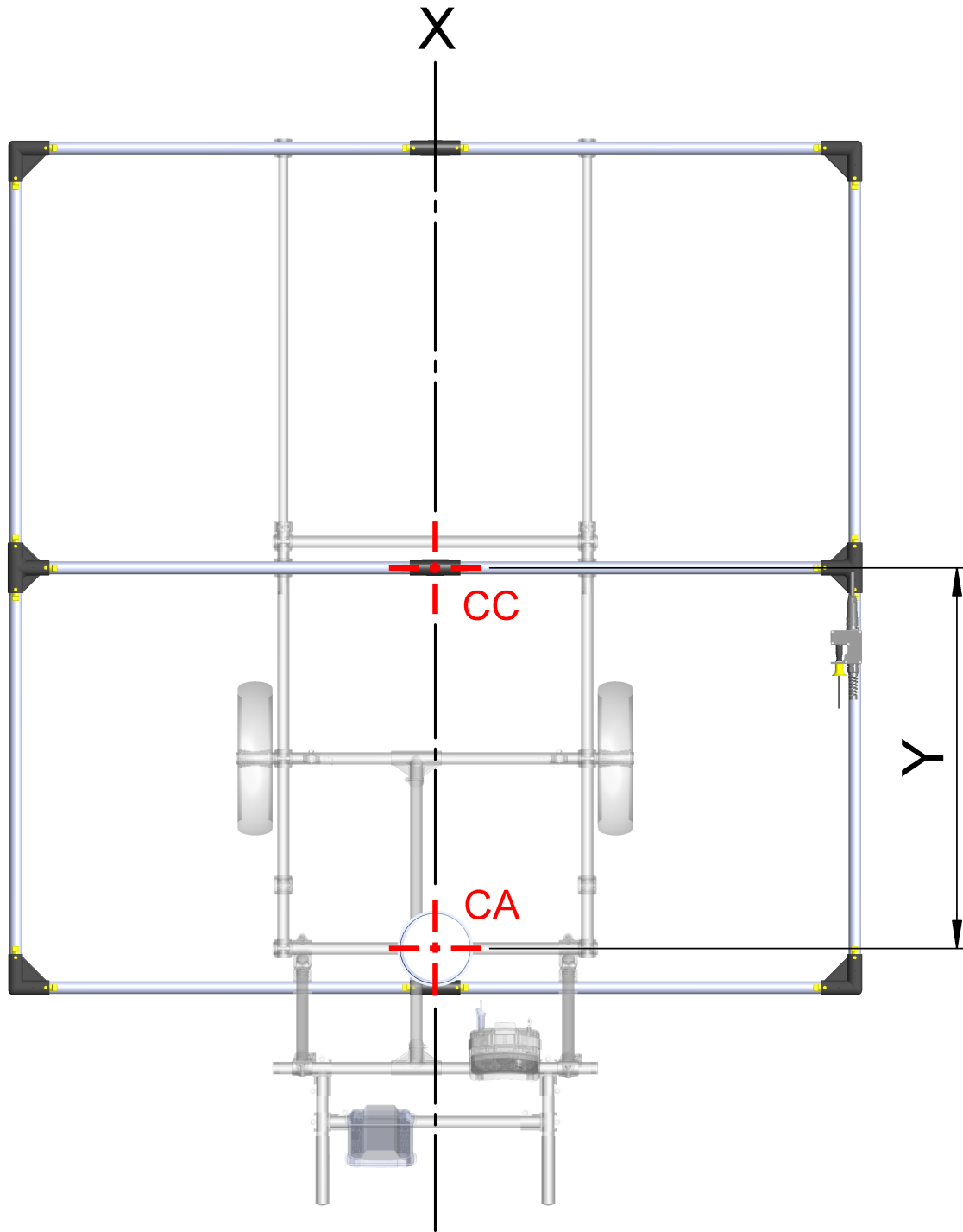


**Fig. 4.5.2:** X and Y at VMX10 2 x 2 m (X = 0)

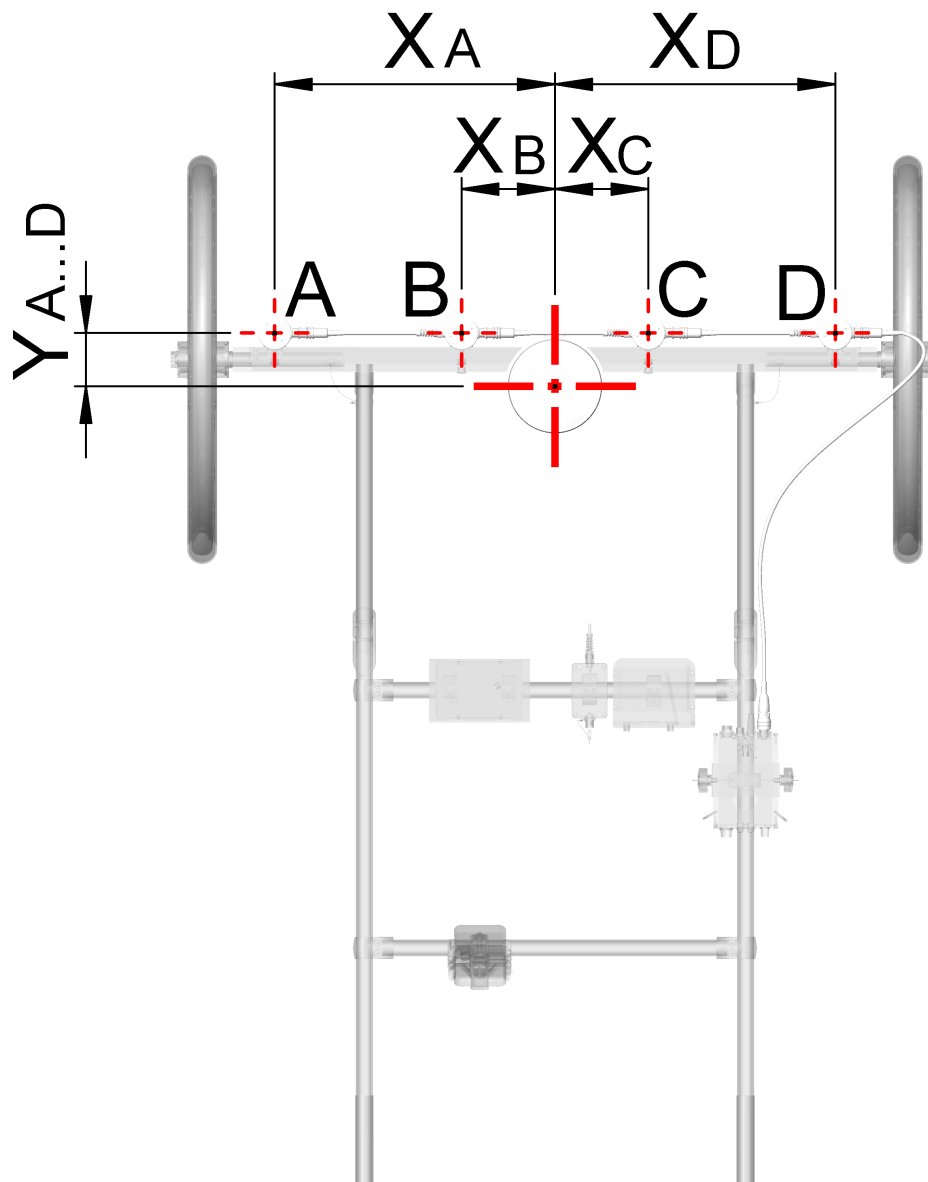


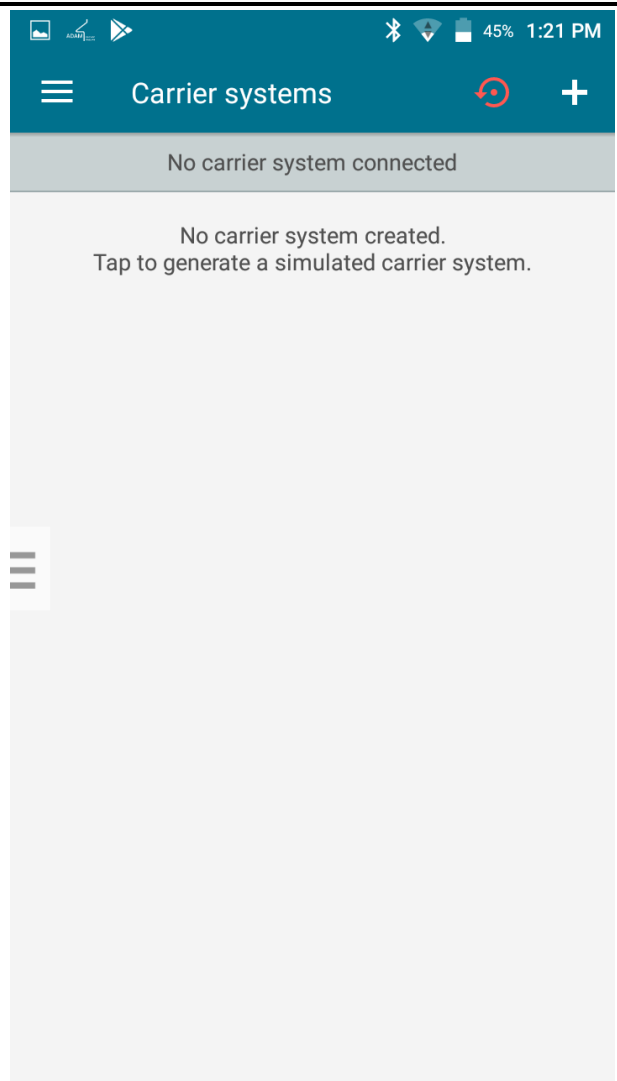
**Fig. 4.5.3: X and Y at VVX4**

#### 4.5.2 Create a simulated carrier system

Simulated carrier systems are used for demonstration purposes such as training courses or presentations. They cannot be used for detection.

##### Step 1

Tap **+** and enter the desired name for the carrier system. Tap **CREATE** to create the carrier system.



## Step 2

Tap on **+** in the top right. The dialog for creating a new simulation device appears.

1. Enter the desired name for the device under Device name.
2. Select the device type (Magnetometer, Metal detector, GNSS or Compass). You can create one GNSS, one compass, and any number of metal detectors and magnetometers.
3. For a magnetometer, choose the number and type of probes. For a metal detector, choose the coil diameter.

## Create new simulated device

Device name

magnetometer

Device type

Magnetometer



Number of probes

1

Sensor

VSM



Distance between signals [m]:

No SEPOS



OK

## Step 3

Go to the *Geometry* button and configure the geometry of the simulated carrier system as with a real carrier system, see section [4.5.1](#).

## 4.6 Projects

On the page *Projects* you can create, edit and delete projects and fields, see Fig. 4.6.1. Data acquisition is performed at the field level.

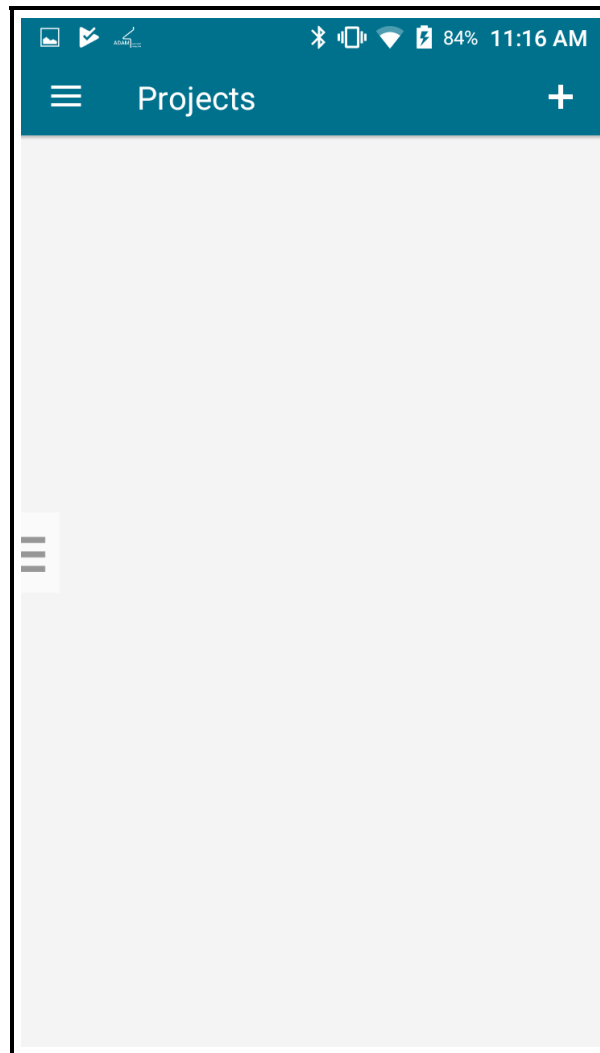


**Fig. 4.6.1:** Page *Projects*

### 4.6.1 Create, edit, comment, archive and delete projects

Tap **+** to create a new project. Change the project name, if desired. Tap *CREATE*. Briefly tap the desired project to select it. Tap the desired project longer in order to edit or delete it; the icons ARCHIVATE , EDIT  and DELETE  are shown in the control bar.

## Comment projects

To comment, select a project. Then tap the desired commenting function (note, audio, photo, video) at the bottom of the main menu.



## Archive projects

Projects can be archived to free up memory.

1. Long tap on the project name.
2. Tap on the archive icon  in the top bar.
3. Tap on *ARCHIVE NOW*. The project will now be archived (this may take a few minutes depending on the size).



### Information

- ▷ In the projects list, archived projects are marked with the archive icon.
- ▷ If a project is older than two weeks, a dialog automatically appears asking whether the project should be archived.
- ▷ If the option *ARCHIVE AT NIGHT* is selected, the Android device must not be switched off overnight.
- ▷ Archived projects can be exported like active projects.

## Reactivate or delete projects

In order to be able to display and edit archived projects again, they have to be imported.

1. Tap on the archived project
2. In the dialog tap on OK to reactivate the project or tap on DELETE PROJECT to delete the project.

### 4.6.2 Setting the project origin (zero point)

The project origin  (zero point) is the origin of the project-specific X/Y coordinate systems. It is independent of any georeferencing, but can also be provided with GNSS coordinated by using the below described function. Tap *project zero point* to set a project origin. Enter the coordinates for the zero point (origin) either manually or – if a GNSS is connected – by tapping SET POSITION. Save the zero point (origin) by tapping SET.

### 4.6.3 Target list

When a project is created, an empty targets file is also created. During detection work a target list can be created manually (e.g. with targets on the surface like UXO, metal posts, fences, etc.). This facilitates the later evaluation on the PC and the retrieval of the targets.

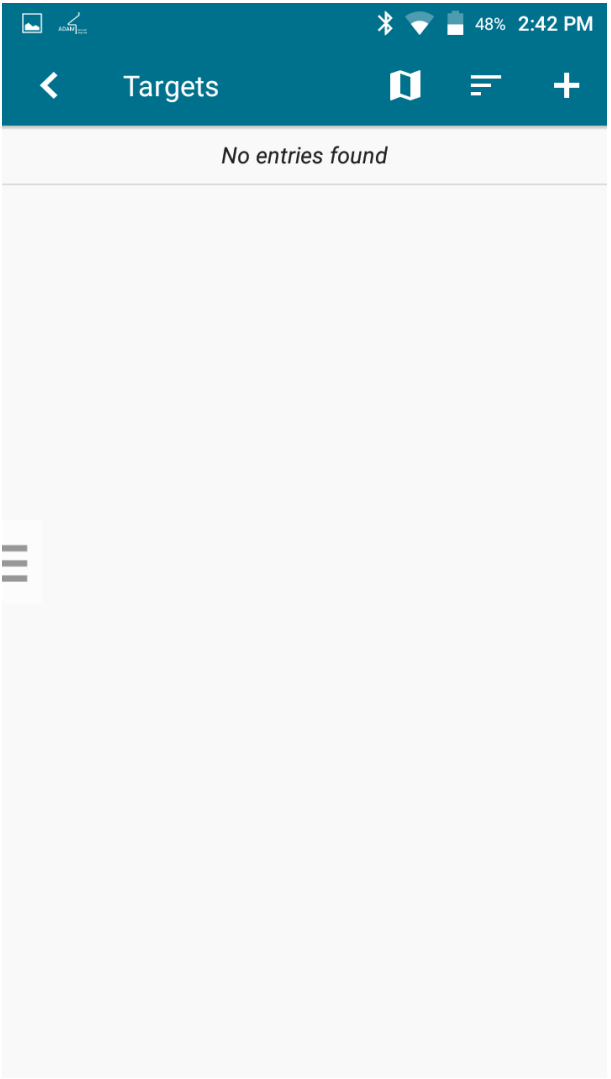
**Step 1**

Tap on *Targets*

 Targets

**Step 2**

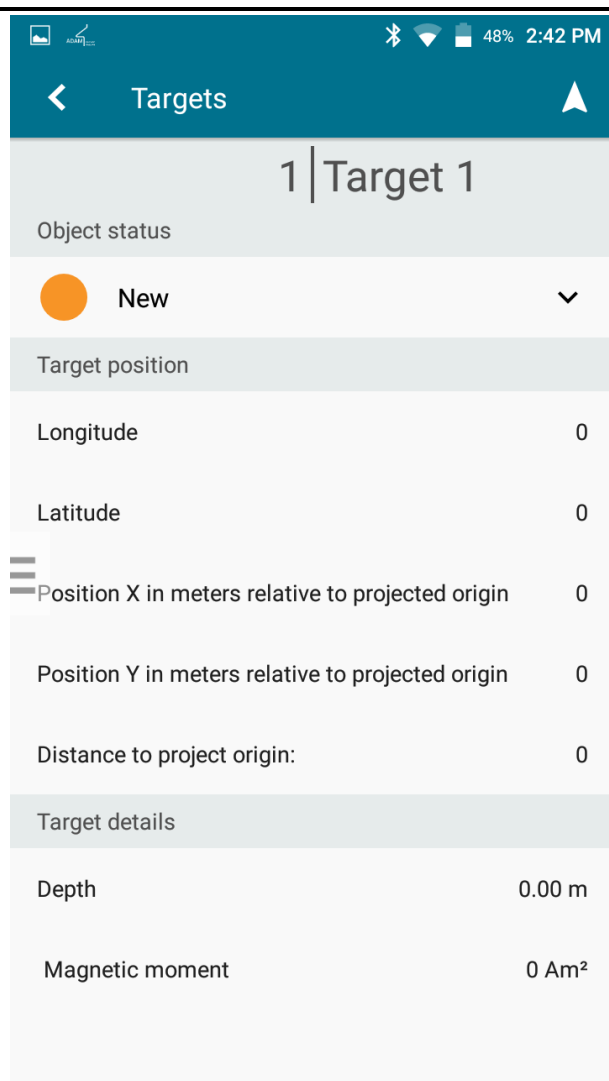
Tap on **+**



### Step 3

If desired, enter Depth and Magnetic moment.

Tap on Longitude / Latitude



### Step 4

Enter the coordinates or tap on *OBTAIN POSITION..*

#### Set target location

Degrees

Longitude:

0

Latitude:

0

OBTAIN POSITION

CANCEL

SET

#### 4.6.4 Navigating to targets

To use this function, a GNSS must be connected.

1. Tap on *Targets* to open the target list.
2. Tap on a target in the target list.
3. Tap on the arrow  to start the navigation function. If you are more than 5 m away from the target, a screen with arrow appears, see Fig. 4.6.2. Walk in the direction of the arrow to get to the target. As soon as you are less than 5 m away from the target, a screen with red dot appears, see Fig. 4.6.3.

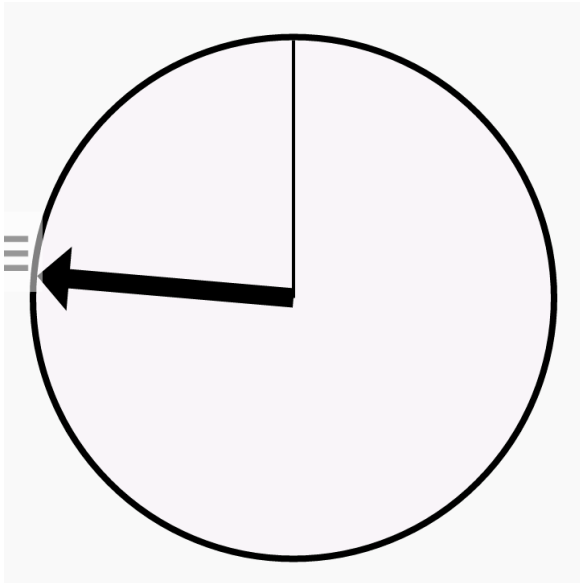


**Fig. 4.6.2:** Navigating to target: distance over 5 m

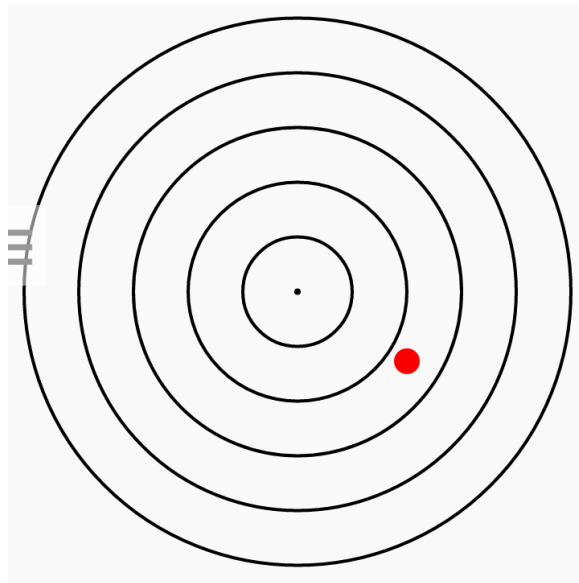


**Fig. 4.6.3:** Navigating to target: distance under 5 m

#### 4.6.5 Create, edit and delete fields

Open the project in which you want to create a new field. Tap Importing  to import target lists. Tap  to create a new field. Change the field name, if desired. Underneath, select the recording type: *Borehole*, *Surface without GNSS*, *Surface with GNSS* or *Surface with SEPOS / ext. signal*. Tap *CREATE*. Briefly tap the desired field to select it. Tap the desired field longer in order to edit or delete it; the icons EDIT  and DELETE  are shown in the control bar.

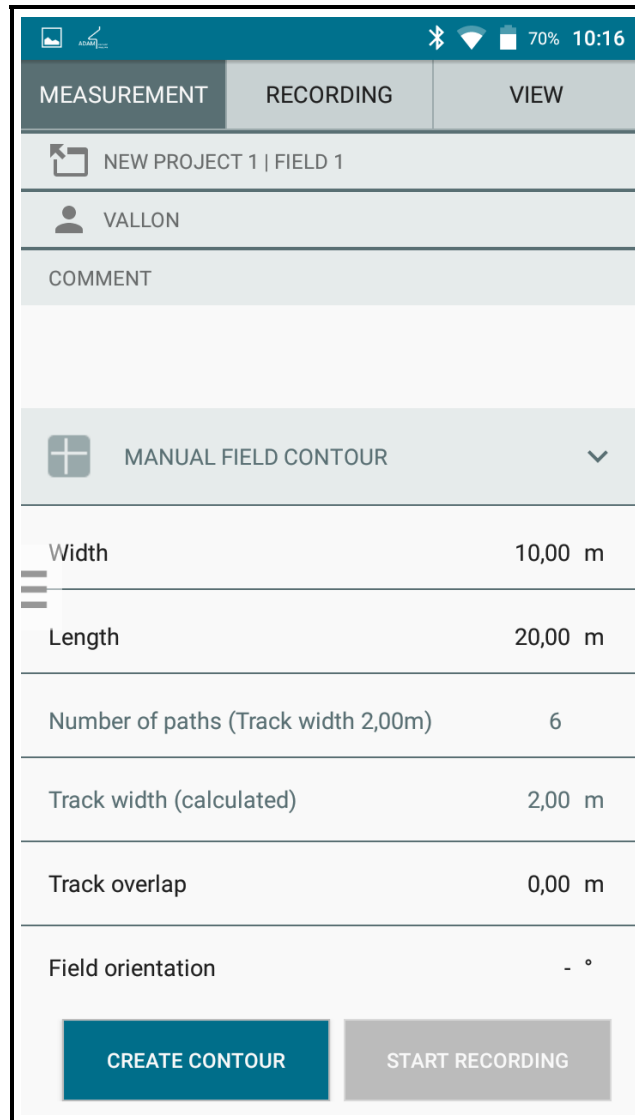
#### 4.6.6 Basic principles for fields with the recording type *Surface*

- ▷ **Probe track:** The track of the corresponding probe. The display usually shows black lines or stripes in the width that is to be covered by the probe.
- ▷ **Track:** Corresponds to the probe track in the case of an individual probe or the sum of probe tracks in the case of a carrier system with several probes.
- ▷ **Path:** Preset parallel auxiliary lines. These are optionally shown and enable – if GNSS is used – an economically optimum coverage of the field as a navigation aid. In the case of fields without GNSS, the navigation function is not applicable; the tracks should therefore lie as exactly as possible on the paths. The path marked in red shows the track that is to be recorded next. You can switch the path by tapping a different path.

#### 4.6.7 Fields with the recording type *Surface without GNSS*

##### Measurement

Briefly tap the desired field to select it. In the tab *MEASUREMENT*, you can define the field parameters, see Fig. 4.6.4. Swipe up for further setting options.



| MEASUREMENT                                          |         |
|------------------------------------------------------|---------|
| NEW PROJECT 1   FIELD 1                              |         |
| VALLON                                               |         |
| COMMENT                                              |         |
| MANUAL FIELD CONTOUR                                 |         |
| Width                                                | 10,00 m |
| Length                                               | 20,00 m |
| Number of paths (Track width 2,00m)                  | 6       |
| Track width (calculated)                             | 2,00 m  |
| Track overlap                                        | 0,00 m  |
| Field orientation                                    | - °     |
| <div>CREATE CONTOUR</div> <div>START RECORDING</div> |         |

**Fig. 4.6.4:** Tab *MEASUREMENT*

The following parameters can be set:

- ▷ Width and length
- ▷ Start point of first track
- ▷ Field orientation and field origin
- ▷ Reference point on field Y-axis for angle determination (requires GNSS coordinates for the field zero point)
- ▷ Track overlap and track width for a single probe magnetometer (the track width can only be set for a single-channel magnetometer. In all other cases, the track width calculated from the carrier system configuration is in place. For a metal detector, the track width corresponds to the coil diameter).
- ▷ Smallest height above ground (is set at the carrier system).
- ▷ Beveling of a corner of the field. Tap the corners at the bottom of the schematic diagram to obtain beveling by 4 x 4 m, see Fig. 4.6.5. You can edit the length of the corresponding edge of the beveling by briefly tapping the length detail of the beveling (4 m), see Fig. 4.6.6.

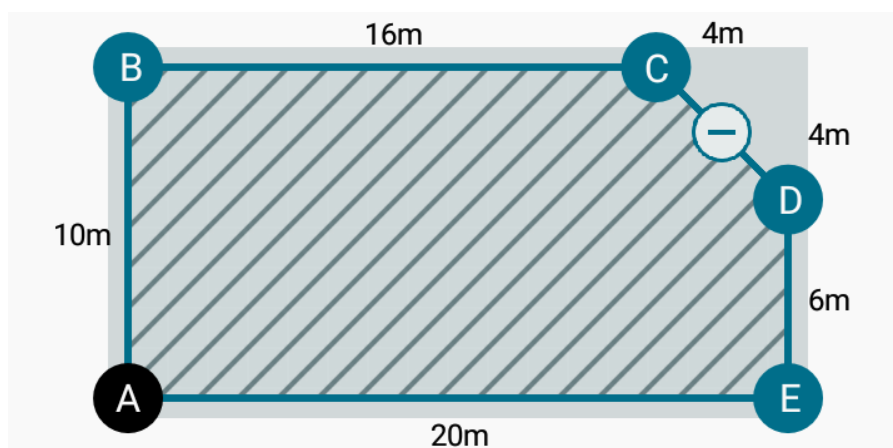


Fig. 4.6.5: Create beveling

### Edit bevelled corner

4 m

CANCEL OK

Fig. 4.6.6: Edit beveling

Finish creating a field contour by tapping *CREATE CONTOUR*. Now you can no longer change field contour and the parameter *Start point of first track*.

### Data recording field *Surface without GNSS*

Tap the *RECORDING* tab to record data at the start of a path, see Fig. 4.6.7. Tap *Scale* if you want to change the preset display scale (this setting does not affect the data recording, but only the screen display). The data is displayed only after the path has been completed. Tap Focus  to move the calculated current position to the center of the screen. This function is deactivated once you move or zoom into the picture.

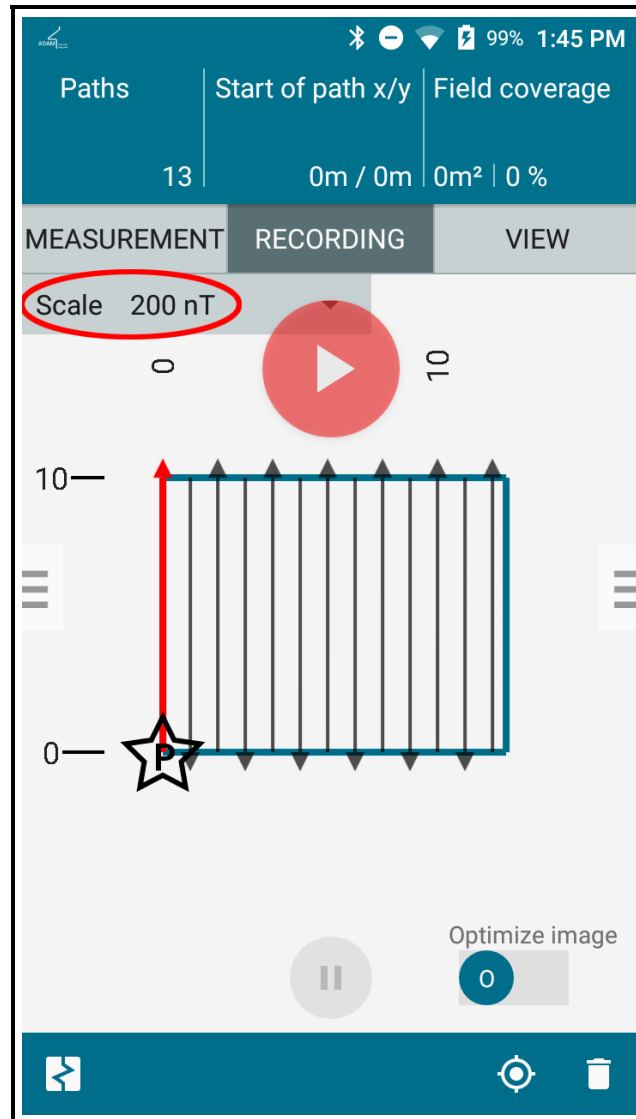


Fig. 4.6.7: Tab *RECORDING*

Tap *START/STOP*  or press button *START/STOP*<sup>1</sup> to start data recording at the start of a path (if not otherwise selected, recording is always started with number 0 and continued in ascending order). Tap *Stop*  or press the button *START/STOP* to stop data recording at the end of a path. Tap *Pause*  to interrupt data recording and *Continue*  to continue data recording.

<sup>1</sup>Refer to the manual of your VALLON field computer

If you stop the data recording the menu *Track recorded* opens, Fig. 4.6.8.

- ▷ If the whole length of the track has been recorded completely, select *TRACK OK* (or press the button *START/STOP*).
- ▷ If you want to continue the track, press *CONTINUE TRACK*.
- ▷ If you want to interrupt the track (e.g. due to obstacle), select *CONTINUE TRACK AFTER X METERS* and enter the already recorded distance<sup>2</sup>, plus the length of the interruption.
- ▷ If you want to abort the track prematurely (e.g. due to obstacle), select *SHORTEN TRACK BECAUSE OF OBSTACLE* and enter the distance at which the track has stopped.
- ▷ If you want to repeat the track, select *LOG THIS TRACK AGAIN* and re-record the track.

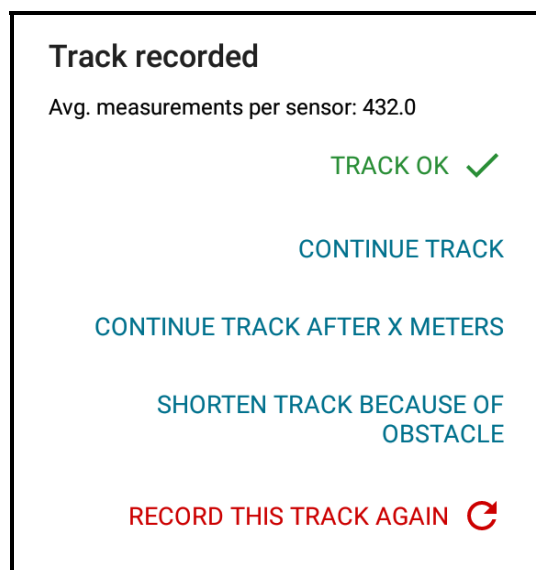


**Fig. 4.6.8:** Menu *Track recorded*

During the recording, the field (in the default setting) is displayed in different colors. Green colors mean low recording values (almost neutral), warm colors (yellow, orange or red) mean positive recording values and cooler colors (light-blue or blue) mean negative recording values, see Fig. 4.6.9. However, you can individually configure the color display, see Section [Settings](#) on page 10. You can balance the display of the zero point (origin) by activating the function *Optimize image*.

<sup>2</sup>The system enters a value calculated on the basis of the previous running speed for the distance already recorded. You can simply leave this value as it is.

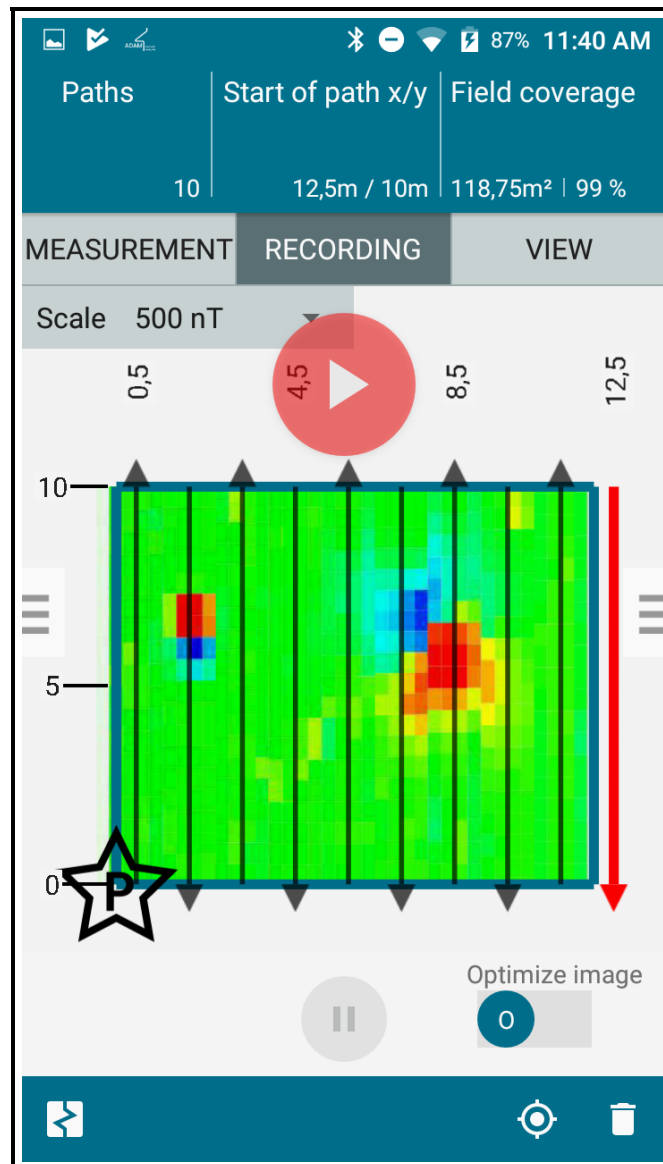


**Fig. 4.6.9:** Field view *Surface without GNSS* after recording

## Curve display field *Surface without GNSS*

Tap the desired track (this will mark the track in red) in order to view probe tracks in the curve display. Now tap on field *Track no.* and select up to six probe tracks. Then tap the icon  at the bottom left of the screen. The following view shows you the selected probe tracks in the curve display, see Fig. 4.6.10

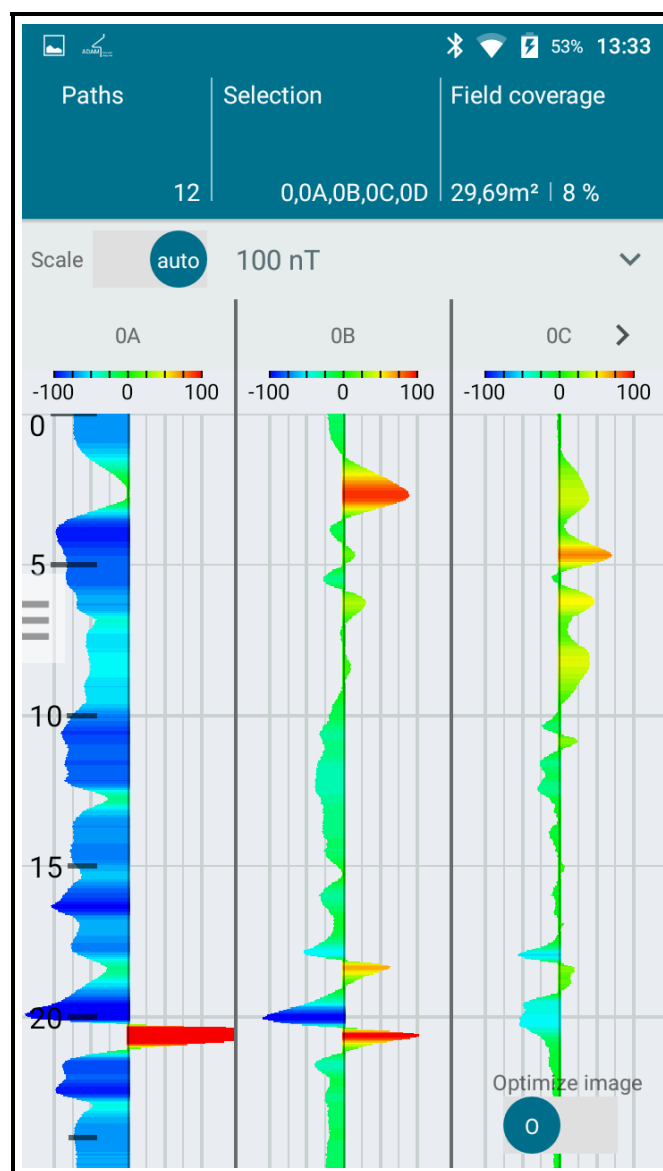
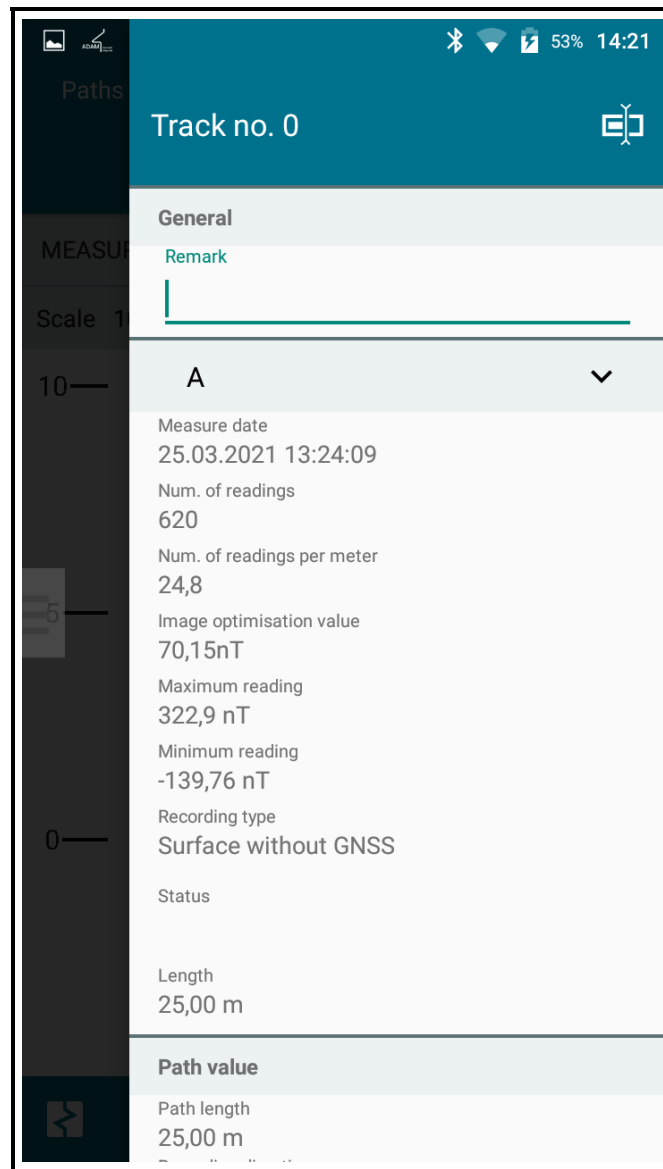


**Fig. 4.6.10:** Curve display of 4 probe tracks

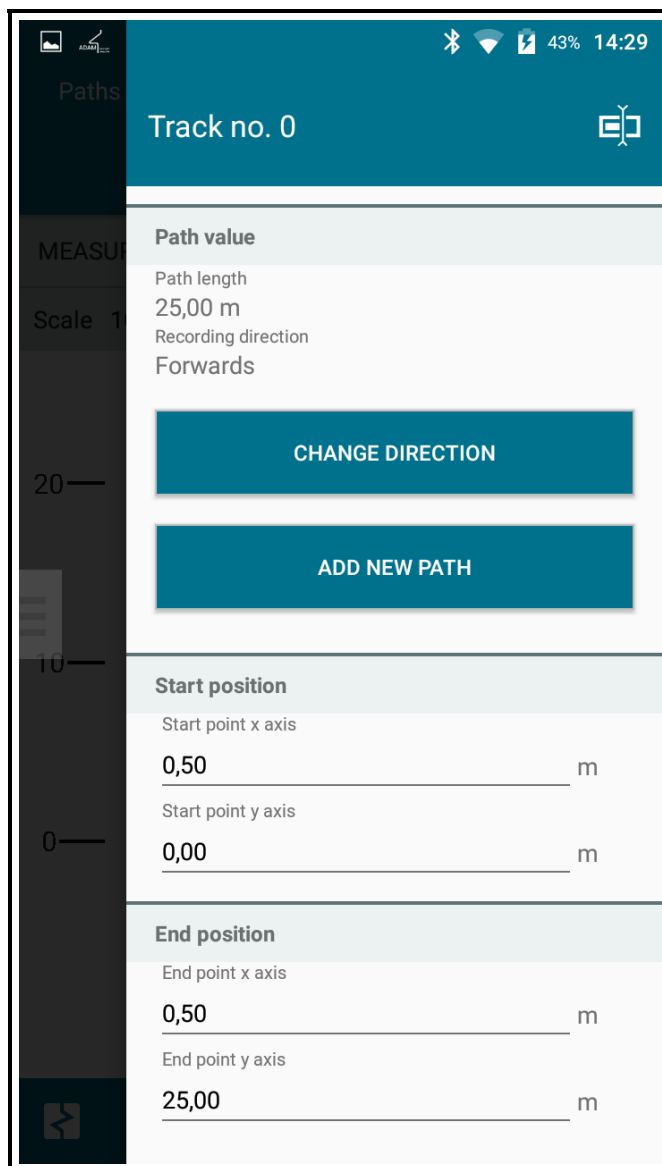
## Detailed information about a track

Obtain additional information about the track by tapping the menu icon  on the right-hand side, see Fig. 4.6.10, 4.6.11 and 4.6.12. If you have recorded the track in a different direction than intended, tap field *CHANGE DIRECTION*, see Fig. 4.6.13. If further paths that have not yet been recorded are to follow, you can additionally select if all the following paths without readings should also be recorded in a different direction. If you want to add further paths, tap field *ADD NEW PATH*.



| General                    |                      |
|----------------------------|----------------------|
| Remark                     |                      |
| A                          |                      |
| Measure date               | 25.03.2021 13:24:09  |
| Num. of readings           | 620                  |
| Num. of readings per meter | 24,8                 |
| Image optimisation value   | 70,15nT              |
| Maximum reading            | 322,9 nT             |
| Minimum reading            | -139,76 nT           |
| Recording type             | Surface without GNSS |
| Status                     |                      |
| Length                     | 25,00 m              |
| Path value                 |                      |
| Path length                | 25,00 m              |

**Fig. 4.6.11:** Additional information about the track, top section



Paths

Track no. 0

**Path value**

Path length  
25,00 m

Recording direction  
Forwards

**CHANGE DIRECTION**

**ADD NEW PATH**

**Start position**

Start point x axis  
0,50 m

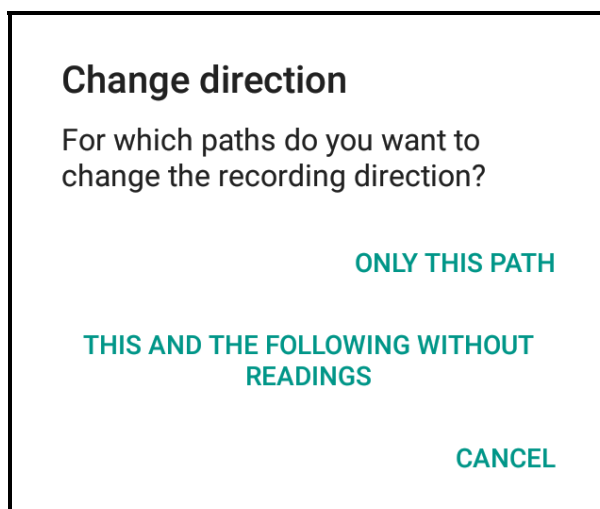
Start point y axis  
0,00 m

**End position**

End point x axis  
0,50 m

End point y axis  
25,00 m

**Fig. 4.6.12:** Additional information about the track, bottom section



**Change direction**

For which paths do you want to change the recording direction?

**ONLY THIS PATH**

**THIS AND THE FOLLOWING WITHOUT READINGS**

**CANCEL**

**Fig. 4.6.13:** Change direction

## Modify view – field *Surface without GNSS*

Under the *VIEW* tab you can set several parameters for the views, see Fig. 4.6.14

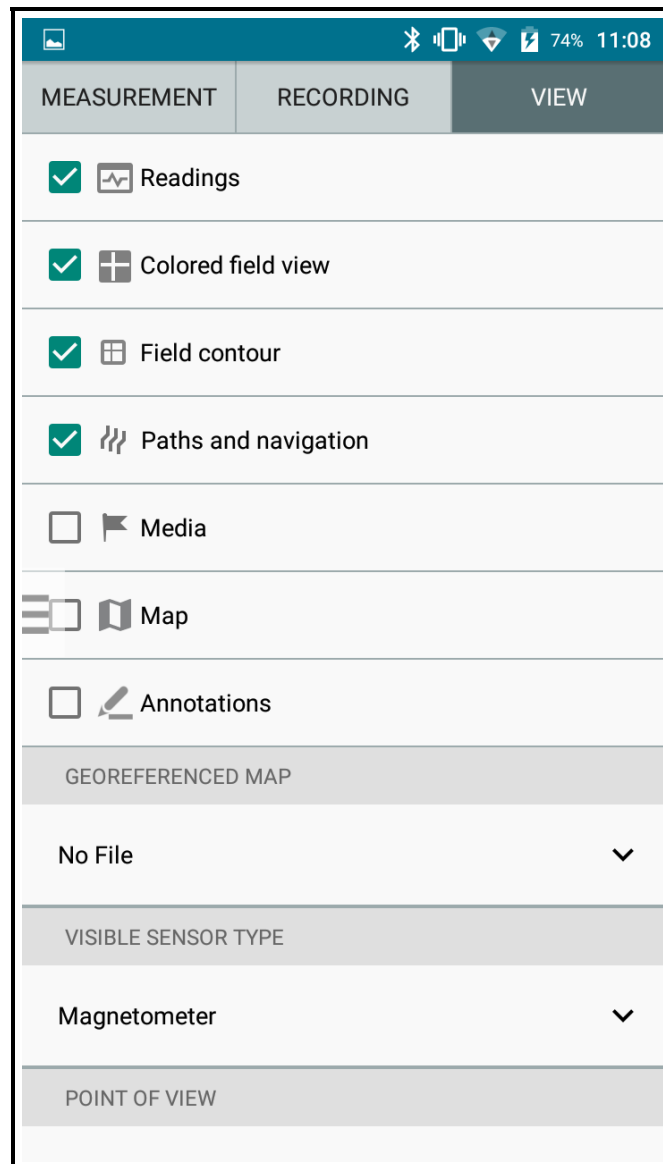


**Fig. 4.6.14:** Tab *VIEW*

The following parameters can be set:

- ▷ Show readings ON/OFF
- ▷ Colored field view ON/OFF
- ▷ Show field contour ON/OFF
- ▷ Show paths and navigation ON/OFF
- ▷ Show media ON/OFF
- ▷ Show map ON/OFF<sup>3</sup>
- ▷ Show annotations ON/OFF

<sup>3</sup>Requires a georeferenced field origin. To load maps the first time, an Internet connection must exist.

- ▷ GEOREFERENCED MAP (No File – Add File)
- ▷ VISIBLE SENSOR TYPE (magnetometer – metal detector<sup>4</sup>)
- ▷ POINT OF VIEW (No rotation – 180° rotation based on direction)

#### 4.6.8 Fields with the recording type *Surface with GNSS*

##### Measurement

Briefly tap the desired field to select it. In the tab *MEASUREMENT*, you can define the field parameters. Swipe up for further setting options. First, select if and how you would like to create the field contour, see Fig. 4.6.15.

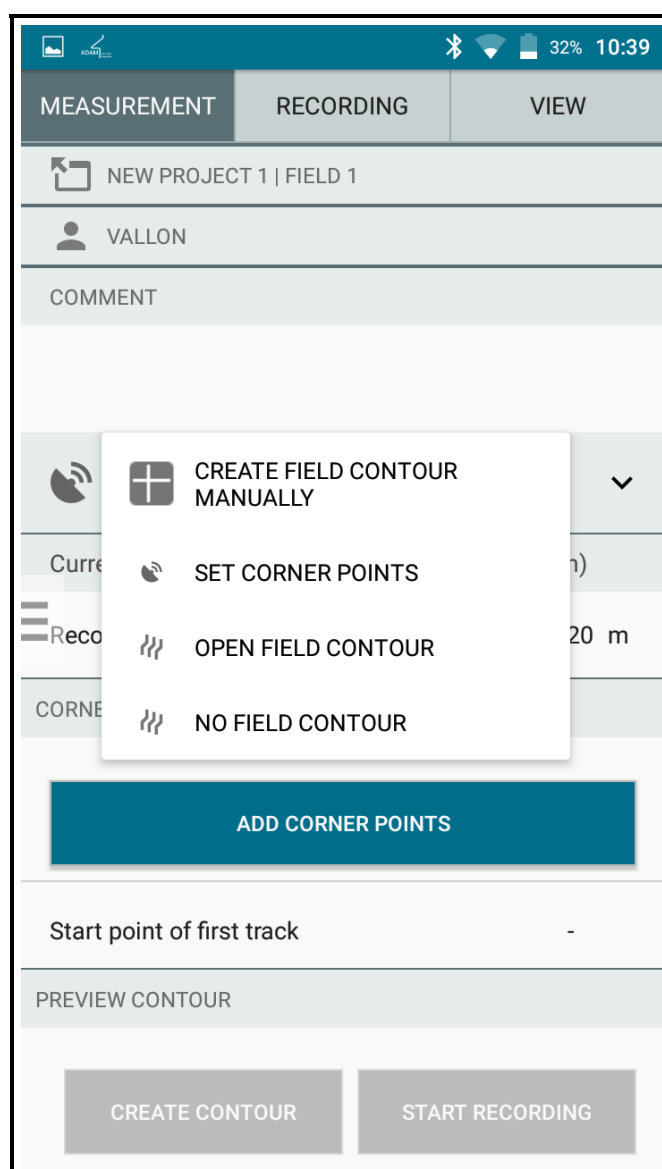


**Fig. 4.6.15:** Tab *MEASUREMENT*, top section

<sup>4</sup>Possible formats: .dxf and .shp

## MANUALLY CREATE FIELD CONTOUR

With this selection, you create a classical field with an exactly defined track length and field width. Carry out the field measurement, data recording and setting the field view exactly as described in Section *Fields with the recording type Surface without GNSS* on page 28.

### SET CORNER POINTS

When selecting *SET CORNER POINTS* you set the corner points of the field (at least three) by using the GNSS. A field can have different and irregular shapes (triangle, square, octagon, ...), see Fig. 4.6.16. Place the GPS antenna above the first corner point (A). Tap *ADD CORNER POINTS*, then in the dialog, tap *SET POSITION* and finally, tap *SET*. Repeat this procedure for the remaining corner points (B, C, ...). Proceed clockwise. Finish creating a field contour by tapping *CREATE CONTOUR*, see 4.6.16.

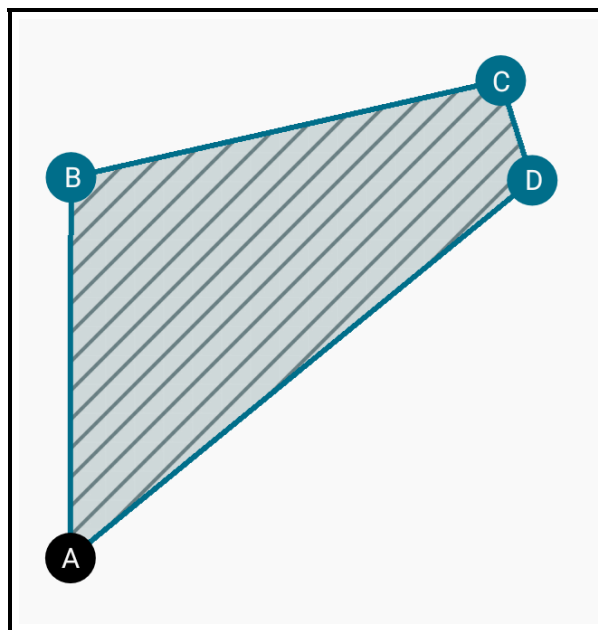


**Fig. 4.6.16:** Example for a field with specific corner points

Set the start point for the first track after you have created the field (presetting is A). This starting point is the starting point of the first track and thus defines the direction.

The following parameters can be set (see also Fig. 4.6.17):

- ▷ Track width for single probe carrier system
- ▷ Track overlap
- ▷ Smallest height above ground

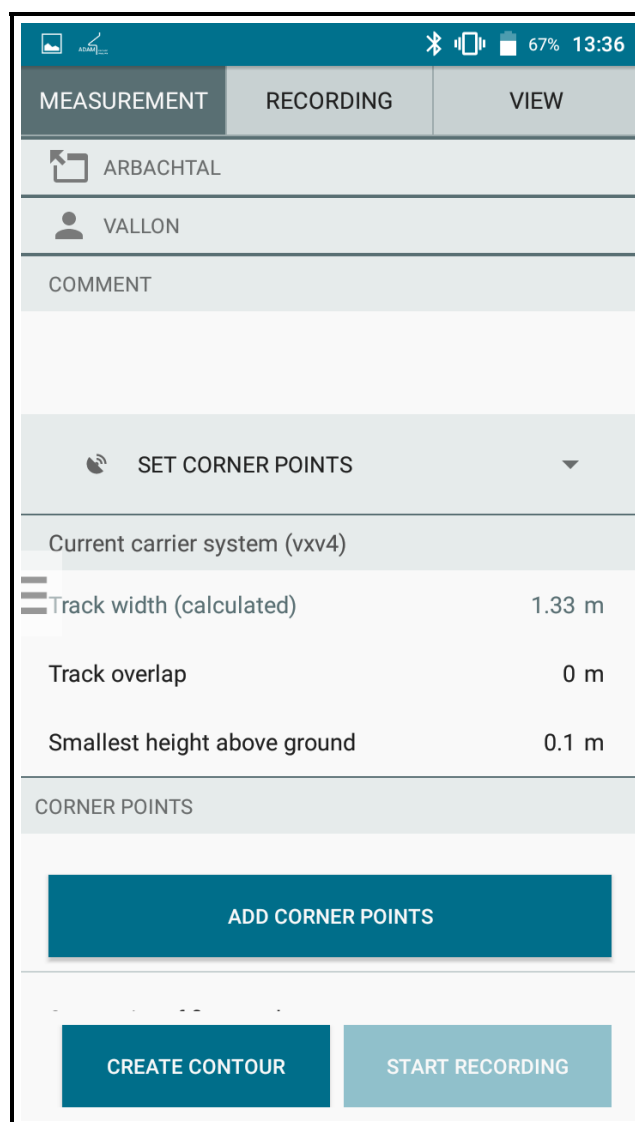


**Fig. 4.6.17:** Tab *MEASUREMENT*, bottom section

## CREATE OPEN FIELD CONTOUR

A square field is automatically created if you select this option. Place the probe, that is furthest to the left in the direction of travel (probe number 1), in the bottom left corner of the field, start recording (see Section [Data recording field Surface with GNSS](#) on page 42) and move probe number 1 along the left field border to the top left corner. Define the first track by stopping the recording, see Fig. 4.6.18.

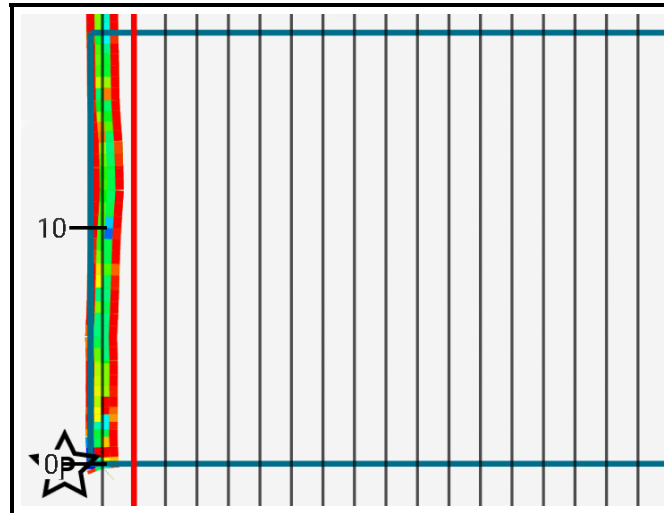


**Fig. 4.6.18:** Example for a field with open field contour

The field computer now shows a field with the left edge (first track) and a bottom and top line that limit the tracks. There is no boundary line for the field on the right side since the width has not been defined (thus the name 'open field contour'). EVA4mobile In this case, offers 'unlimited' options for navigation paths on the right side which you can easily use to the extent you require.

The following parameters can be set:

- ▷ Track width
- ▷ Track overlap
- ▷ Smallest height above ground

## DO NOT CREATE FIELD CONTOUR

No paths are created if you select this option. Just start recording (see section [Data recording field Surface with GNSS](#) on page 42). The distances covered will be shown on the display, see Fig. 4.6.19. The track width on the screen corresponds to the track width of the carrier system.

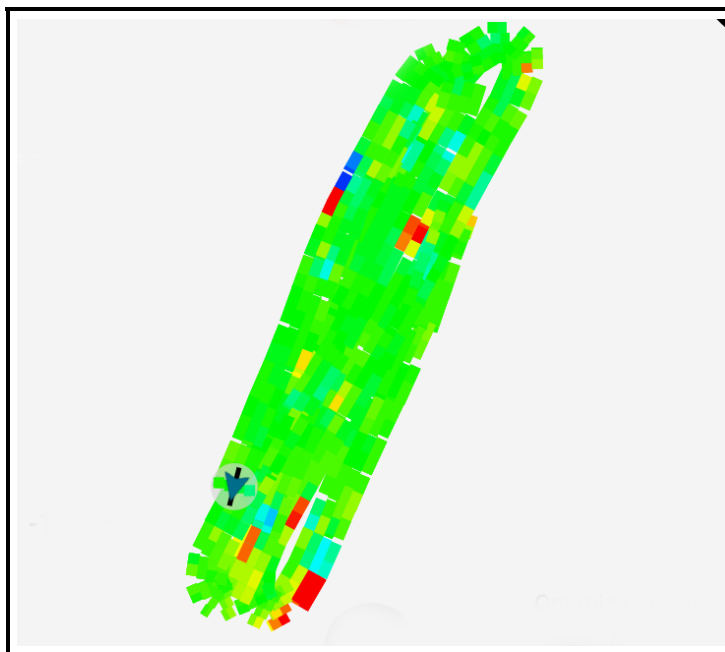


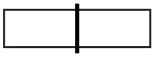
**Fig. 4.6.19:** Example of field without field contour (under VIEW, *Colored field view* selected)

In this mode, the automatically rotating view that keeps the alignment of the screen in the direction of the track is very helpful. During recording, you will see a small crosshair in the bottom right corner of the screen – as soon as you press it, your own position is always shown in the center of the screen. This is very helpful since otherwise, you constantly have to scroll.

The following parameters can be set:

- ▷ Track width
- ▷ Smallest height above ground

## Data recording field Surface with GNSS

Tap the *RECORDING* tab to record data at the start of a field, see Fig. 4.6.7. Tap *Scale* if you want to change the preset display scale of 200 nT (this setting does not affect the data recording, but only the screen display). The function Focus  will be activated automatically to move the current position as determined by the GNSS to the center of the screen (deactivated by moving or zooming into the image). A navigation help  assists in keeping to the path, in addition to the acoustic warning signal.

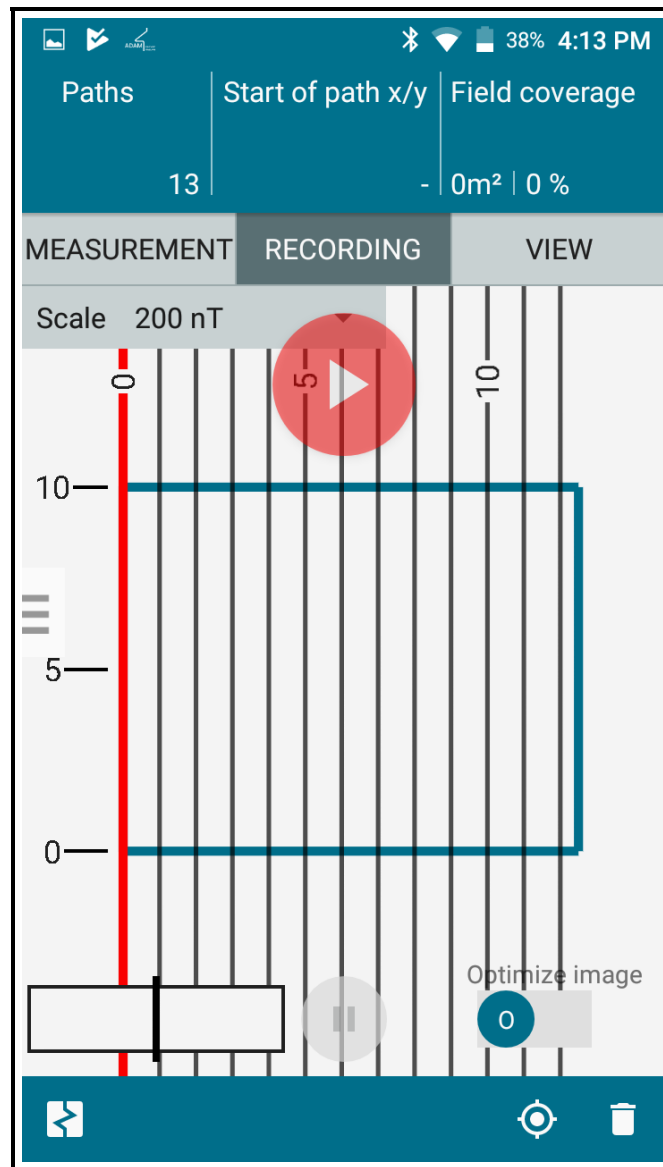


**Fig. 4.6.20:** Tab *RECORDING* with manually created field contour

Tap **START/STOP**  or press button **START/STOP**<sup>5</sup> to start data recording (if not otherwise selected, recording is always initially started with track 1 and continued in ascending order). Tap **Stop**  or press button **START/STOP** to stop data recording. Tap **Pause**  to interrupt data recording and **Continue**  to continue data recording.

During the recording, the area that has already been recorded (in the default setting) is displayed in different colors. Green colors mean lower recording values, warm colors (yellow, orange or red) mean positive recording values and cooler colors (light-blue or blue) mean negative recording values, see Fig. 4.6.21. However, you can individually configure the color display, see Section [Settings](#) on page 10. You can balance the display of the zero point (origin) by activating the function *Image adjustment*.

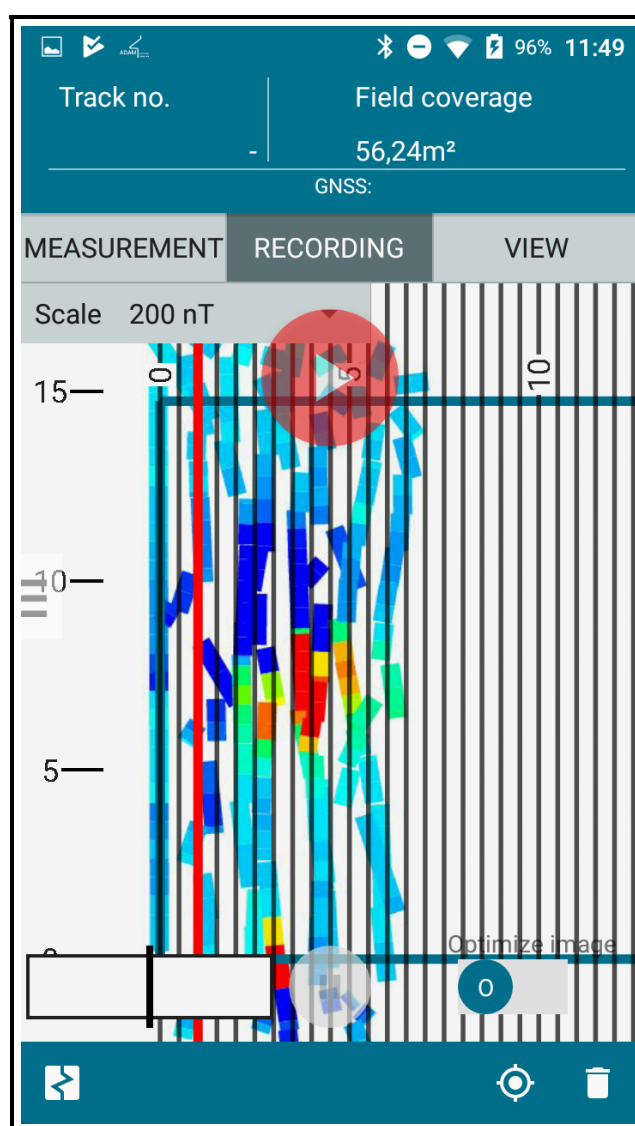


**Fig. 4.6.21:** View of field Surface with GNSS after recording

<sup>5</sup>Refer to the manual of your VALLON field computer

## Curve display field *Surface with GNSS*

Select the selection mode *Data tracks* under the VIEW tab in order to view probe tracks in the curve display. Tap the requested track (this will mark the probe tracks in black). Now tap on field *Track no.* and select up to six probe tracks. Then tap the icon  at the bottom left of the screen. The following view shows you the probe track in the curve display, see Fig. 4.6.22.

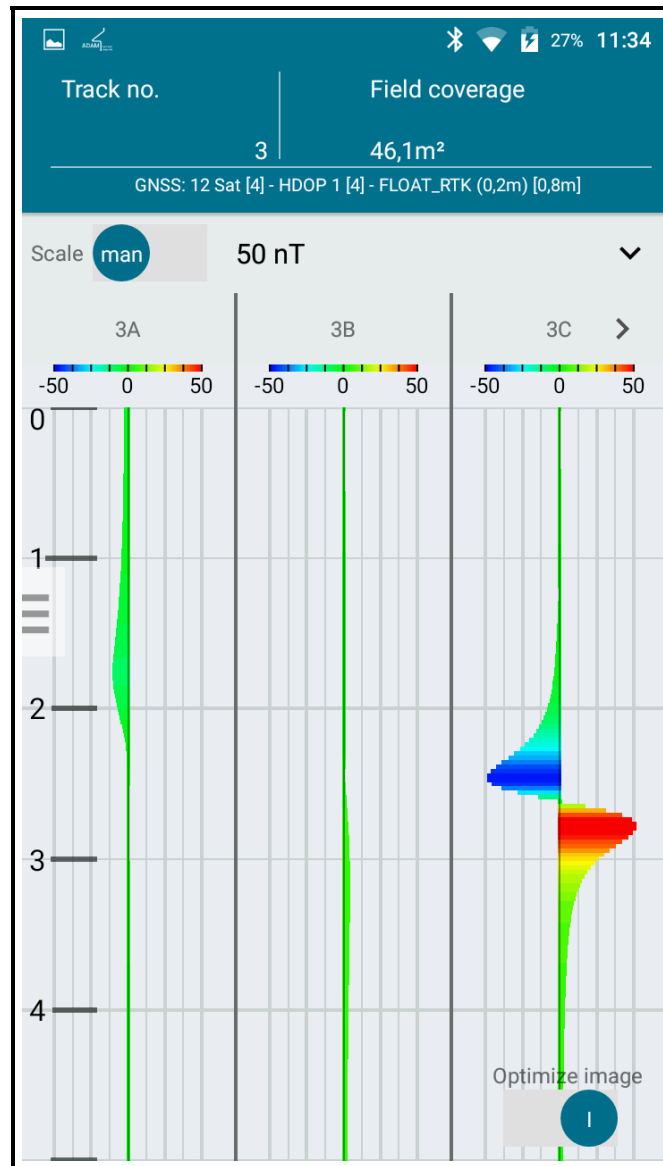


**Fig. 4.6.22:** Curve display of 3 probe tracks

## Detailed information about a track *Surface with GNSS*

Obtain additional information about the track by tapping the menu icon  on the right-hand side, see Fig. 4.6.23 and 4.6.24.

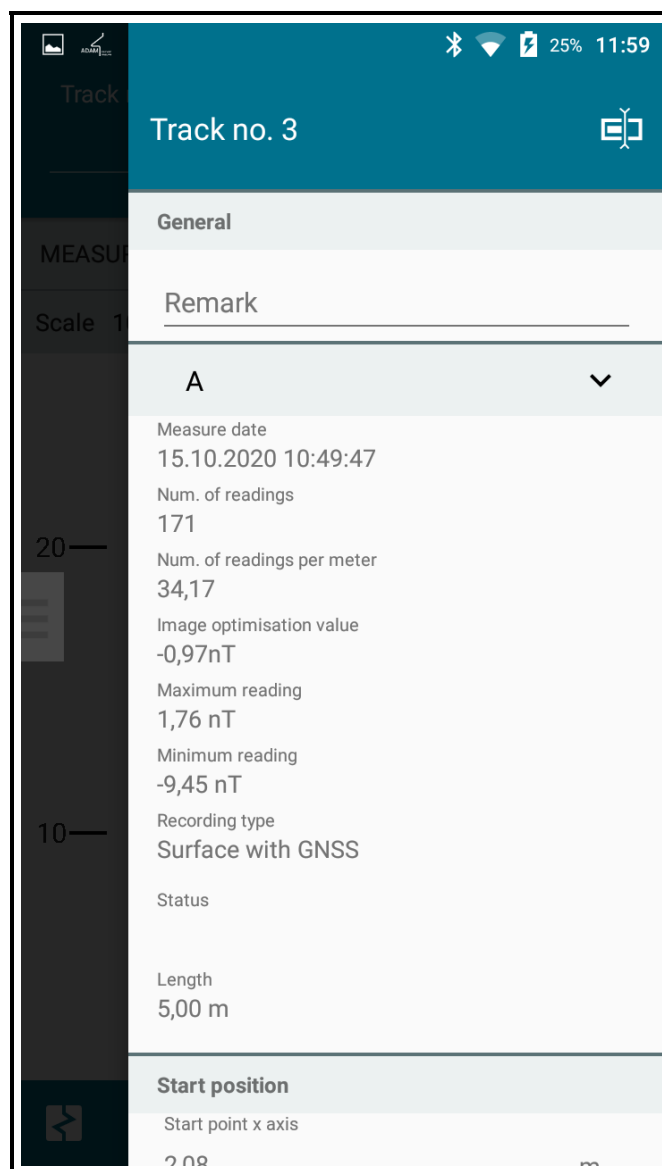
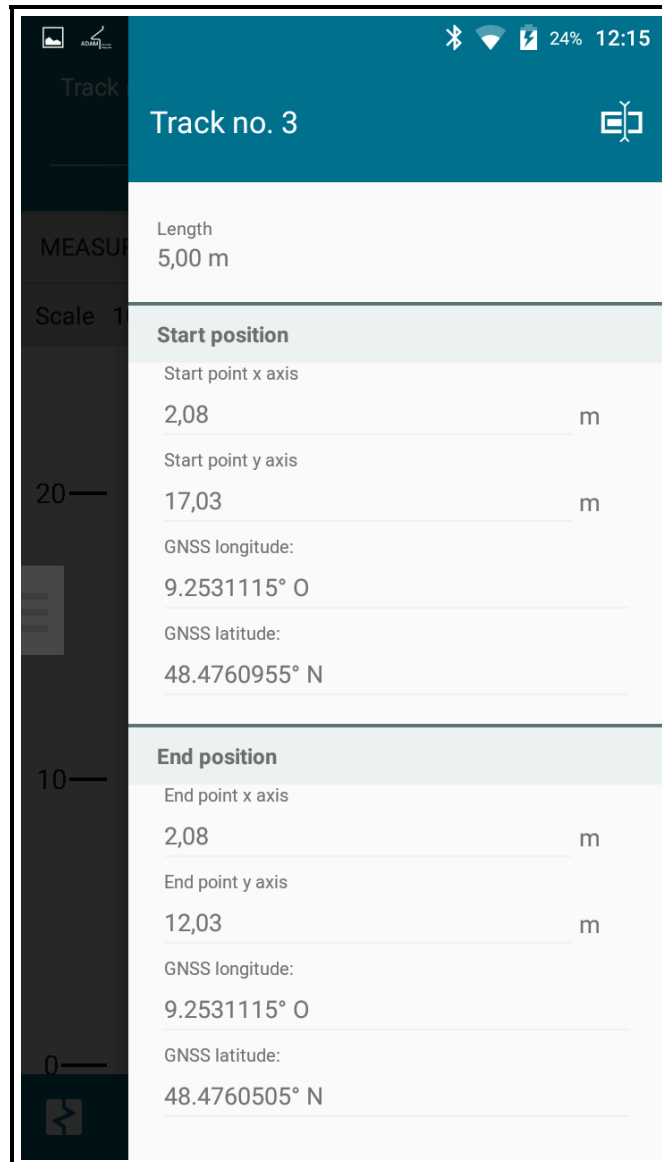


**Fig. 4.6.23:** Additional information about the track, top section



Track no. 3

Length  
5,00 m

**Start position**

Start point x axis  
2,08 m

Start point y axis  
17,03 m

GNSS longitude:  
9.2531115° O

GNSS latitude:  
48.4760955° N

**End position**

End point x axis  
2,08 m

End point y axis  
12,03 m

GNSS longitude:  
9.2531115° O

GNSS latitude:  
48.4760505° N

**Fig. 4.6.24:** Additional information about the track, bottom section

## Modify view – field *Surface with GNSS*

Under the *VIEW* tab you can set several parameters for the views, see Fig. 4.6.25

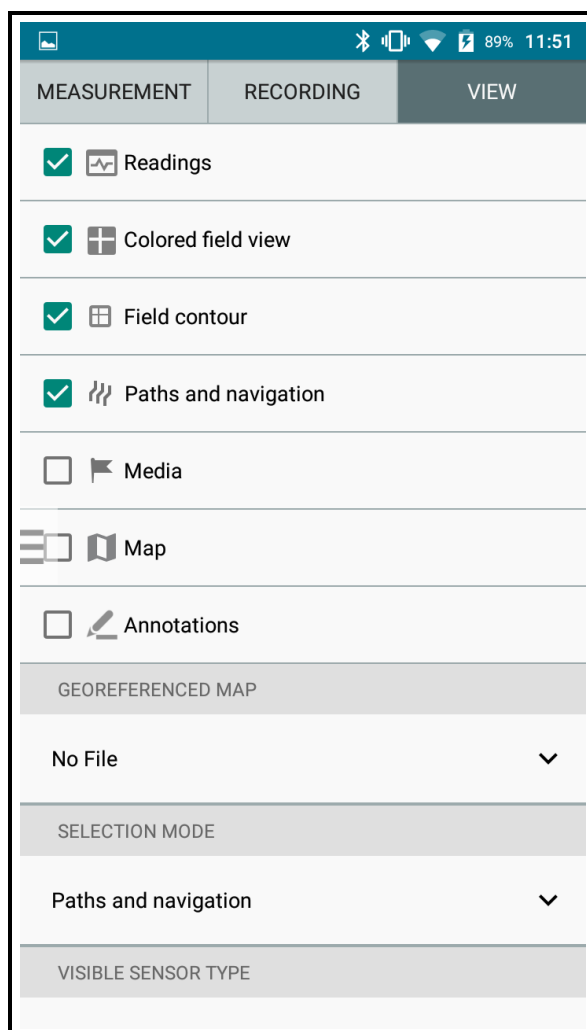


**Fig. 4.6.25:** Tab *VIEW*

The following parameters can be set:

- ▷ Show readings ON/OFF
- ▷ Colored field view ON/OFF
- ▷ Show field contour ON/OFF
- ▷ Show paths and navigation ON/OFF
- ▷ Show maps ON/OFF
- ▷ Show map ON/OFF<sup>6</sup>
- ▷ Show annotations ON/OFF
- ▷ GEOREFERENCED MAP (No File – Add File<sup>7</sup>)
- ▷ SELECTION MODE (Paths and navigation – Surface tracks)

<sup>6</sup>Requires a georeferenced field origin. To load maps the first time, an Internet connection must exist.

<sup>7</sup>Possible formats: .dxf and .shp

- ▷ VISIBLE SENSOR TYPE (magnetometer – metal detector)
- ▷ POINT OF VIEW (No rotation – 180° rotation based on direction – Rotation depending on user direction)

#### 4.6.9 High-resolution field view

Open the project overview and tap the icon  at the corresponding field in order to generate a high-resolution view of the field, see Fig. 4.6.26 and 4.6.27. Then tap *START* in the confirmation window.

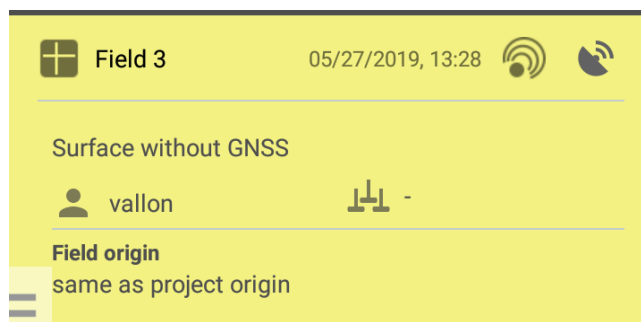


**Fig. 4.6.26:** Generate high-resolution view

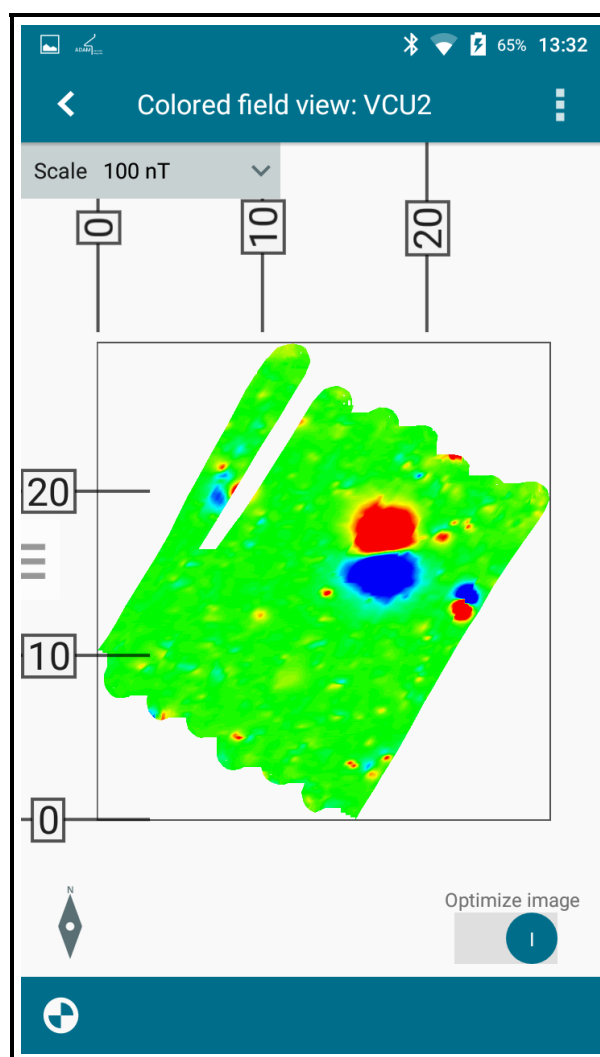


**Fig. 4.6.27:** High-resolution field view

The high-resolution field view can be modified. Tapping on the menu icon  at the top right opens a selection menu, see figure 4.6.28.

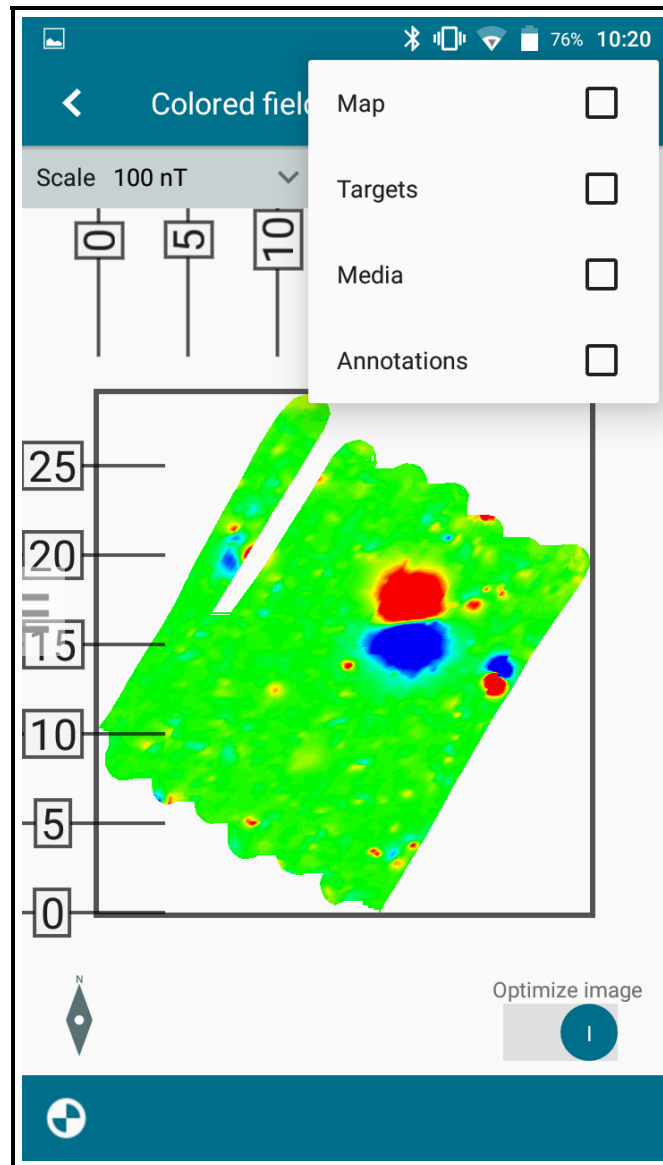


**Fig. 4.6.28:** Settings for the high-resolution field view

#### 4.6.10 Object calculation

To perform an automatic object calculation tap icon  in the high-resolution field view. Then tap START FOR WHOLE FIELD or SELECT AREA in the dialog box.

If you want to use the SELECT AREA function, make sure beforehand that the desired area is completely visible on the display, because the map cannot be moved when the SELECT AREA function is activated. After tapping SELECT AREA, you can select an area. To do this, mark an area on the map by swiping diagonally with your finger. The selected area appears bright. Confirm the selected area with the tick at the bottom right.

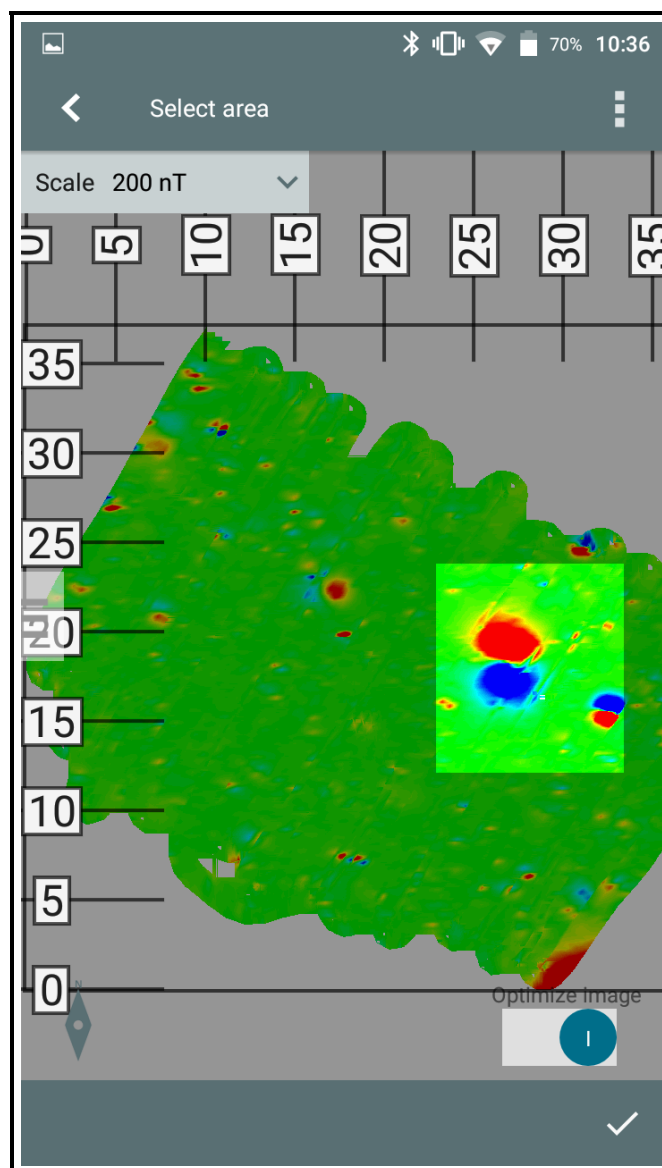


**Fig. 4.6.29:** Function SELECT AREA

Note: The SELECT AREA function can also be accessed by a long tap on the map.

Now enter the desired threshold value in the dialog box. Depending on the size and threshold, the object calculation may take a few minutes. During the calculation, the estimated time remaining is displayed in the footer.

After the object calculation is complete, the objects are displayed on the map as circles with a number, see Fig. 4.6.30. By tapping on the circle you get to the “Target details” view. Holding down on a circle starts the multiple selection. This allows multiple objects to be selected in order to delete them. This is done by tapping on the DELETE icon .

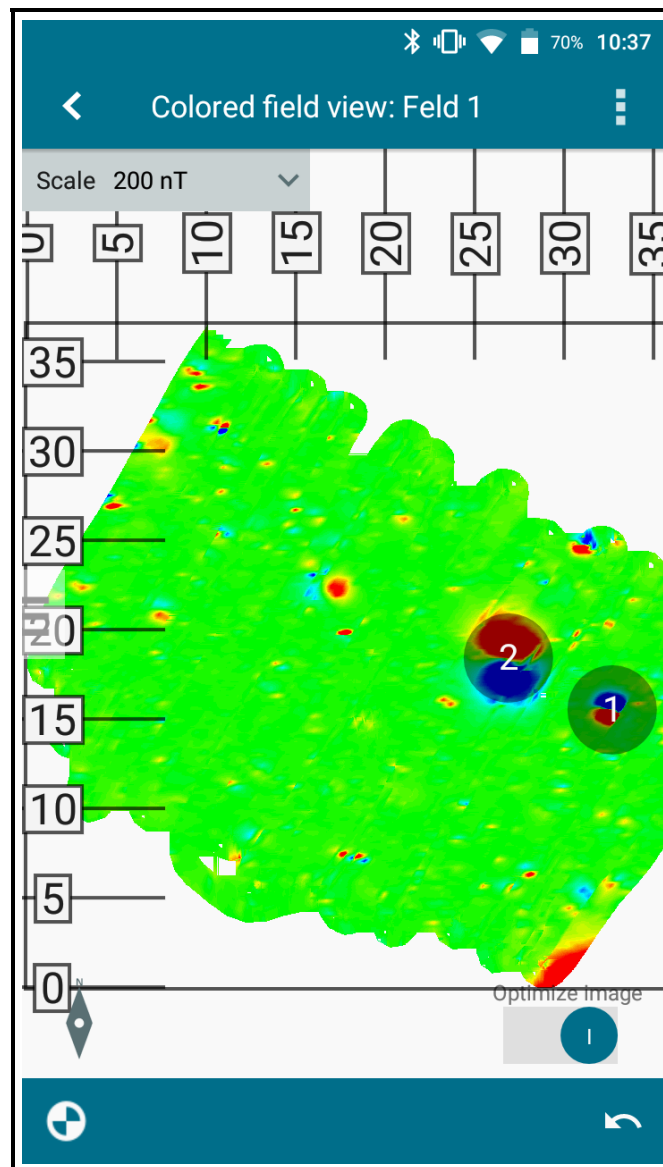
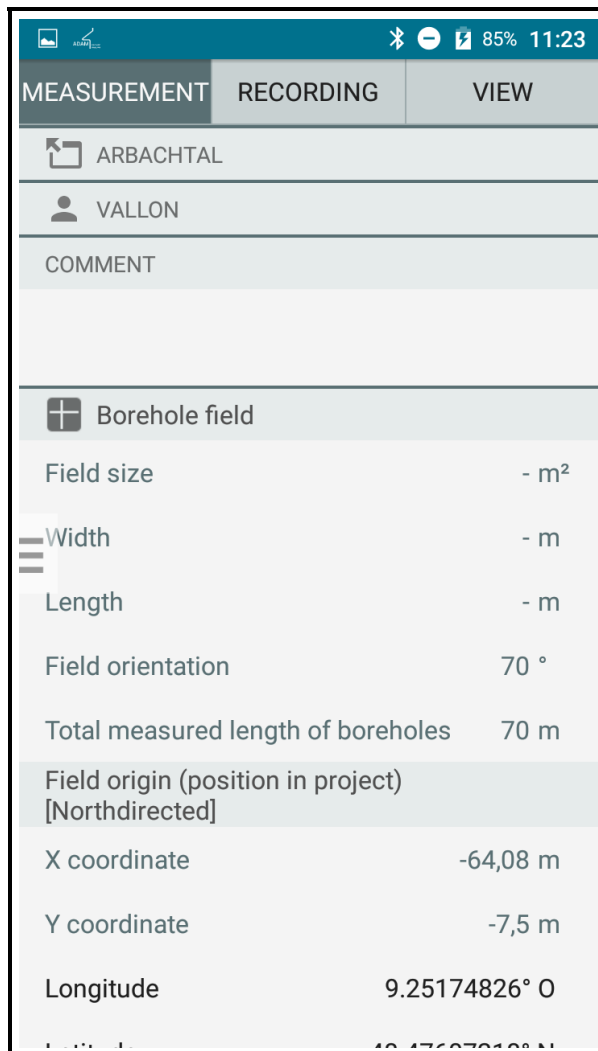


**Fig. 4.6.30:** High resolution field view with calculated objects

#### 4.6.11 Fields with recording type *Borehole*

##### Measurement of Borehole field

Briefly tap the desired field to select it. In the *MEASUREMENT* tab, you can define the field parameters, see Fig. 4.6.31. Swipe up for further setting options.



| MEASUREMENT                                           | RECORDING | VIEW             |
|-------------------------------------------------------|-----------|------------------|
| ARBACHTAL                                             |           |                  |
| VALLON                                                |           |                  |
| COMMENT                                               |           |                  |
| Borehole field                                        |           |                  |
| Field size                                            |           | - m <sup>2</sup> |
| Width                                                 |           | - m              |
| Length                                                |           | - m              |
| Field orientation                                     |           | 70 °             |
| Total measured length of boreholes                    |           | 70 m             |
| Field origin (position in project)<br>[Northdirected] |           |                  |
| X coordinate                                          |           | -64,08 m         |
| Y coordinate                                          |           | -7,5 m           |
| Longitude                                             |           | 9.25174826° O    |

**Fig. 4.6.31:** Tab *MEASUREMENT*

The following parameters can be set:

- ▷ Field size (width and length) <sup>8</sup>
- ▷ Field origin (X coordinate/Y coordinate or longitude/latitude)
- ▷ Field grid (rows and columns)
- ▷ Default values (Grid distance X and Y axis, Surface angle, Inclination angle, Borehole length, Hide surface effect above)

<sup>8</sup>The size of a borehole field depends on the grid. Length and width of the field are multiples of the grid spacing. Changing the number of rows and columns or the grid spacing will also change the length and width of the field.

After setting the parameters, set the actual grid assignment by tapping one of the controls *BOREHOLE GRID DEFAULTS* (1–4), see Fig. 4.6.32. Alternatively, an individual borehole grid can be imported by tapping *IMPORT BOREHOLE GRID* (5).

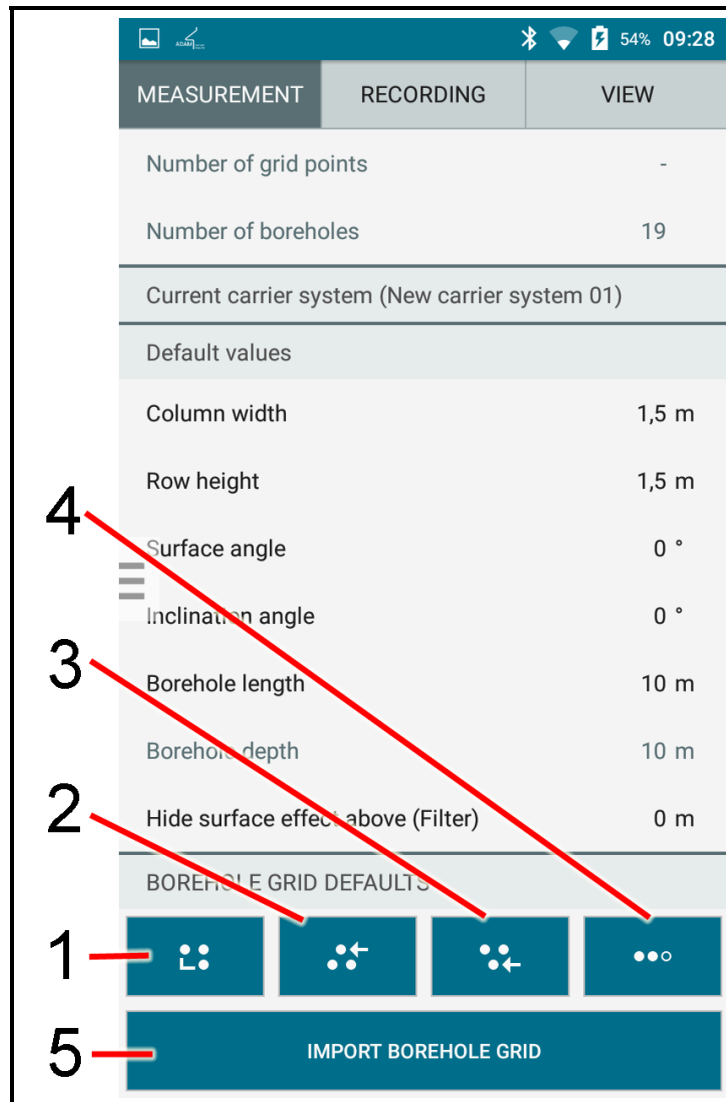


Fig. 4.6.32: *BOREHOLE GRID DEFAULTS* (1 – 4)

1. By selecting no. 1, boreholes are set in every intersection point of the grid.
2. By selecting no. 2, boreholes are set at every other intersection, starting at the field's zero point.
3. By selecting no. 3, boreholes are set at every other intersection, skipping the field's zero point.
4. By selecting no. 4, an unlimited row of boreholes is drilled open, by subsequently adjusting their position.
5. By selecting no. 5, a borehole grid in file format BMA can be imported, see step 1 of section [Importing data from the PC](#) on page 73. Borehole plans can be created on the PC with Vallon evaluation software (EVA2000, EVA4ALL). Alternatively, borehole plans can be created with MS EXCEL, see appendix [Create borehole grids with MS Excel](#) on page 75.

## Extending borehole field

New boreholes can be created by tapping on a free grid point. If the boreholes grid is already completely filled with boreholes, it must be extended beforehand by tapping on one of the very outer grid lines.

## Borehole field data recording with probe

Tap the *RECORDING* tab to record data, see Fig. 4.6.33.

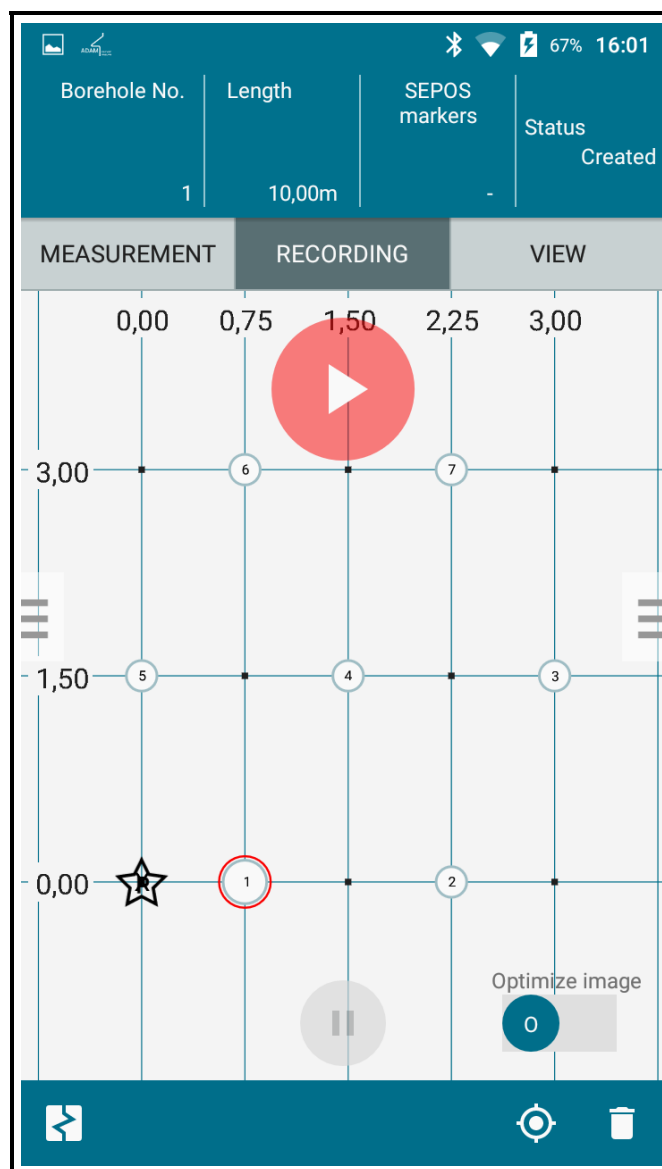


**Fig. 4.6.33:** Tab *RECORDING* Borehole with probe (example for selecting default grid no. 1)

Lower the probe into the borehole. If you are measuring the first well, wait a few minutes for the probe to reach the temperature in the well. Tap the borehole to be recorded and then tap *START/STOP*  or press button *START/ STOP*<sup>9</sup> to start recording. Pull the probe upwards at a steady speed. Once the probe has left the borehole, press *Stop*  or press button *START/STOP* to stop recording. Tap *Pause*  to interrupt data recording and *Continue*  to continue data recording.

### Borehole field data recording with probe and SEPOS

Lower the probe into the borehole. If you are measuring the first well, wait a few minutes for the probe to reach the temperature in the well.

Tap the borehole to be recorded and then tap *START/STOP*  or press button *START/ STOP*<sup>9</sup>. The yellow title indicates the ready mode. Pull the probe upwards at a steady speed. As soon as the SEPOS detector detects the first marker, the data recording will start automatically. The green title indicates the running recording. Every time the SEPOS detector detects a SEPOS marker you will hear a beep sound (if activated in settings). In addition, the detection of a SEPOS marker will be shown on the display by a line. When the probe reaches the entrance of the borehole at the end of the recording, the recording automatically is completed.

By tapping *Stop*  or pressing button *START/STOP* during recording the recording will be aborted and the data will be discarded; you will return to the borehole field page.

---

<sup>9</sup>Refer to the manual of your VALLON field computer

After recording, the boreholes are displayed in different colors, see Fig. 4.6.34. In the default setting, green colors mean lower recording values, warm colors (yellow, orange or red) mean positive recording values and cooler colors (light-blue or blue) mean negative recording values. However, you can individually configure the color display, see Section [Settings](#) on page 10.

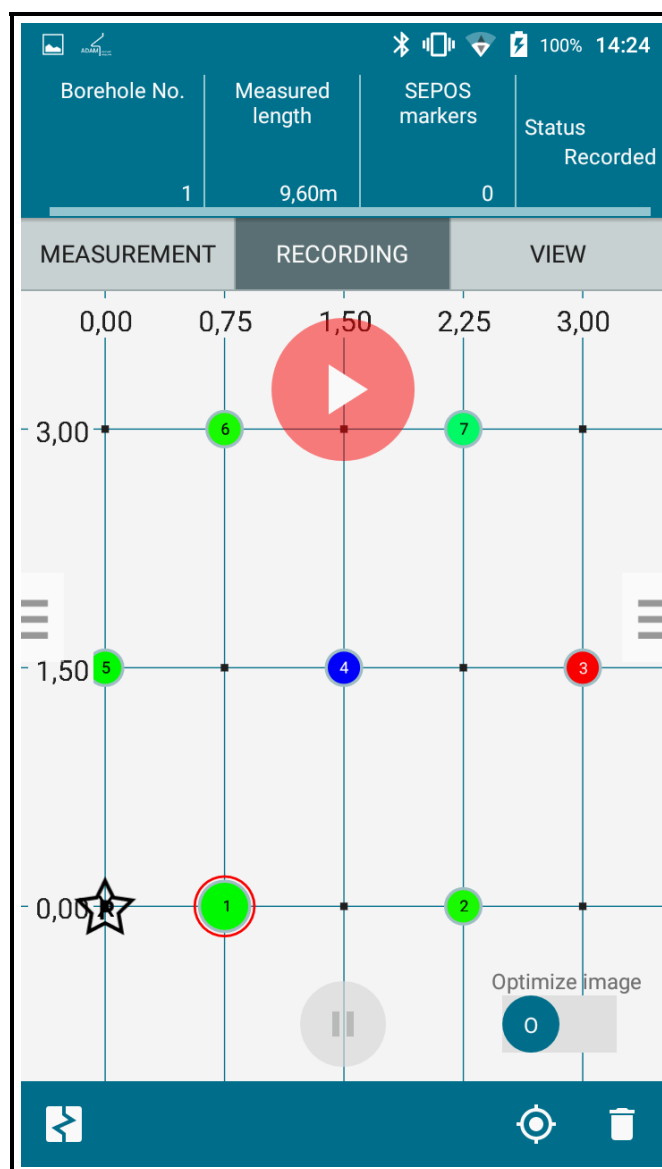


**Fig. 4.6.34:** View of field type *Borehole* after recording

## Curve display of borehole with probe

Tap the requested borehole in order to view it in the curve display. Then tap the icon  at the bottom left of the screen. Tap the *Scale* field and select *auto*. The following view shows you the borehole in the curve display, see Fig. 4.6.35.

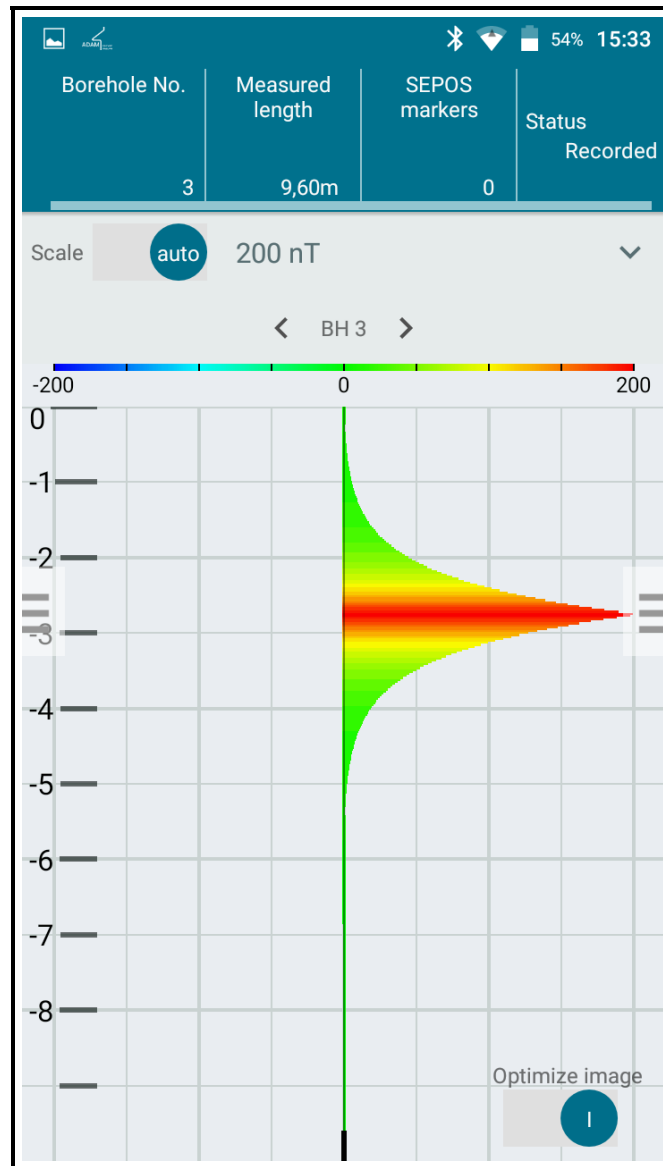


**Fig. 4.6.35:** Curve display of a borehole

To view several boreholes (six max.) in the curve display, press the first desired borehole until it is marked in blue and then tap briefly on all the others. Then tap the icon  at the bottom left of the screen. The following view shows you an example of three boreholes in the curve display, see Fig. 4.6.36

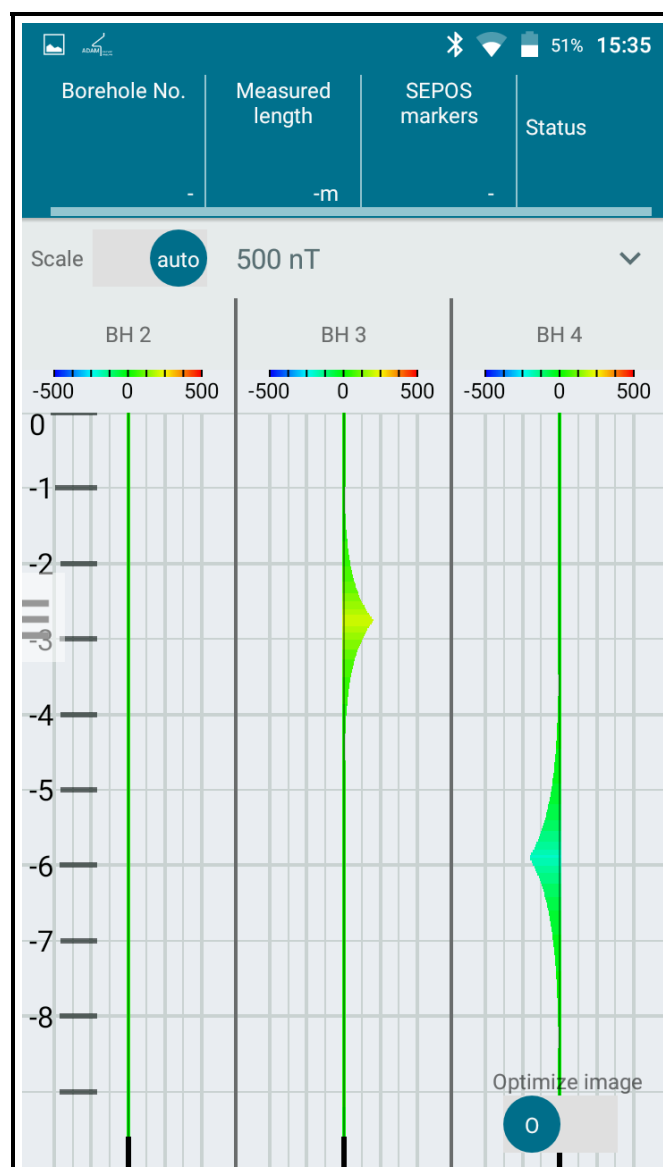


**Fig. 4.6.36:** Curve display with several boreholes

### Borehole field data recording with metal detector

Boreholes are recorded with a metal detector at different angles. Tap the borehole to be recorded and then tap **START/STOP**  or press button **START/ STOP**<sup>10</sup> to start recording. At the bottom left of the screen is the *Recording angle display* and the selected recording angle is displayed, see Fig. 4.6.37. The recording angle is defined in relation to the vertical lines of the borehole grid, see Fig. 4.6.38.

<sup>10</sup>Refer to the manual of your VALLON field computer

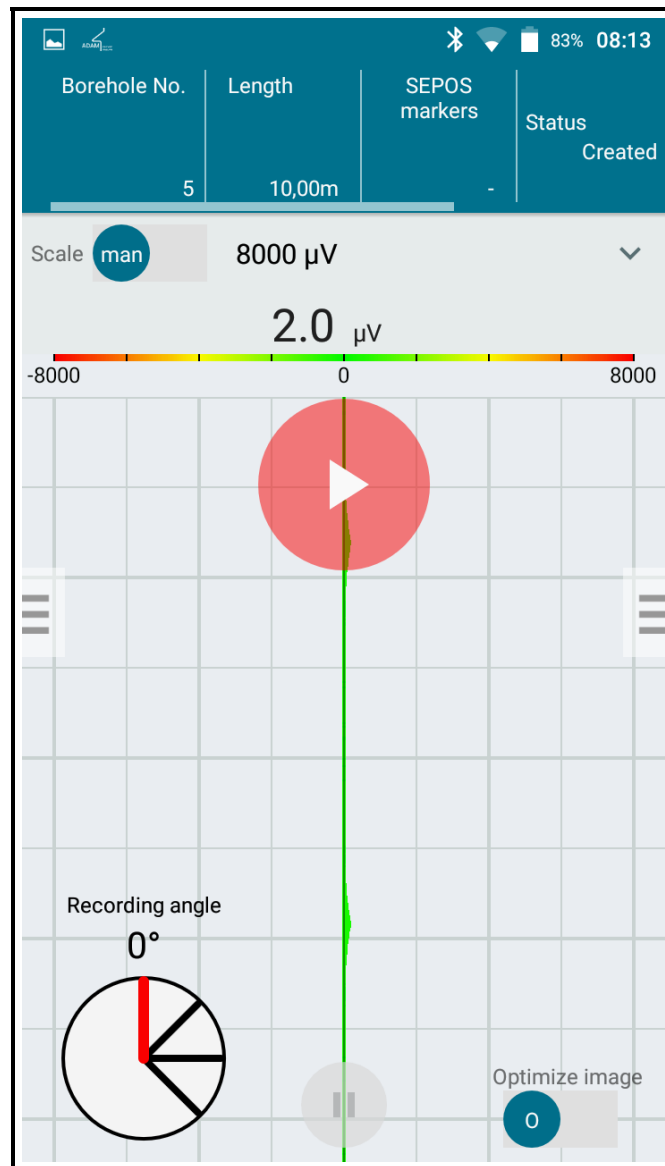


**Fig. 4.6.37:** Data reording with metal detector

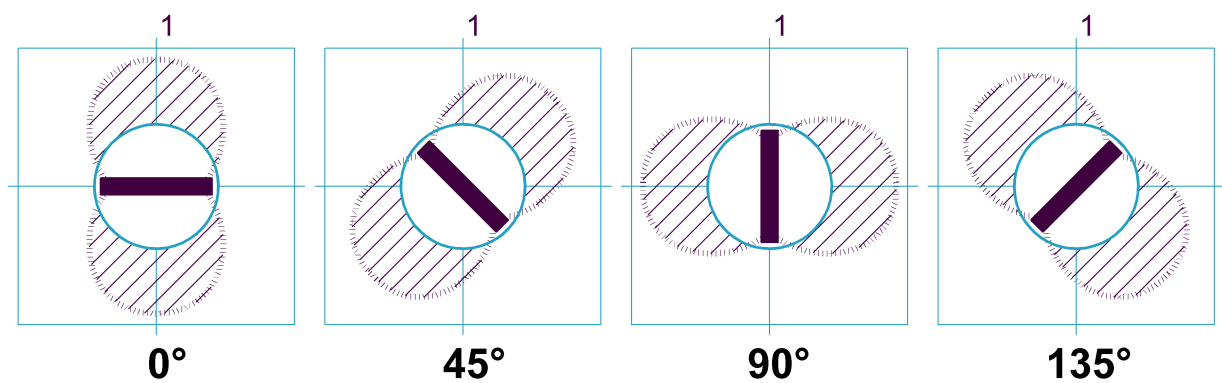


**Fig. 4.6.38:** Recording angle: (1) vertical lines

If you want to start the recording with another recording angle than 0°, tap on the recording angle display. Select the desired recording angle in the selection window, see Fig. 4.6.39.

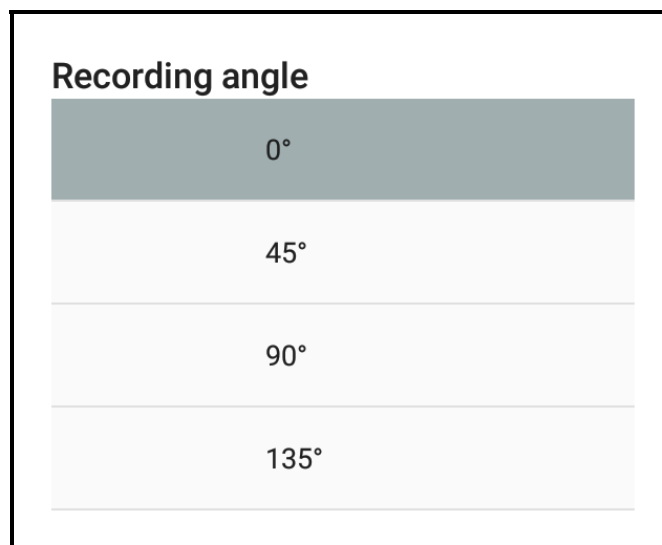


**Fig. 4.6.39:** Selection window recording angle

Now lower the coil into the hole to be recorded at the appropriate angle.

Tap **START/STOP**  or press button **START/ STOP**<sup>11</sup> to start recording. Pull the coil upwards at a steady speed. Once the coil has left the borehole, press **Stop**  or press button **START/STOP** to stop recording. Tap **Pause**  to interrupt data recording and **Continue**  to continue data recording.

After the borehole has been recorded, the recording angle changes to the next selection. Turn the coil to the appropriate angle and lower the coil back into the drill hole. Repeat the process until all angles have been recorded.

<sup>11</sup>Refer to the manual of your VALLON field computer

In the field view, the recorded angles are displayed as colored sections of a circle, see Fig. 4.6.40.

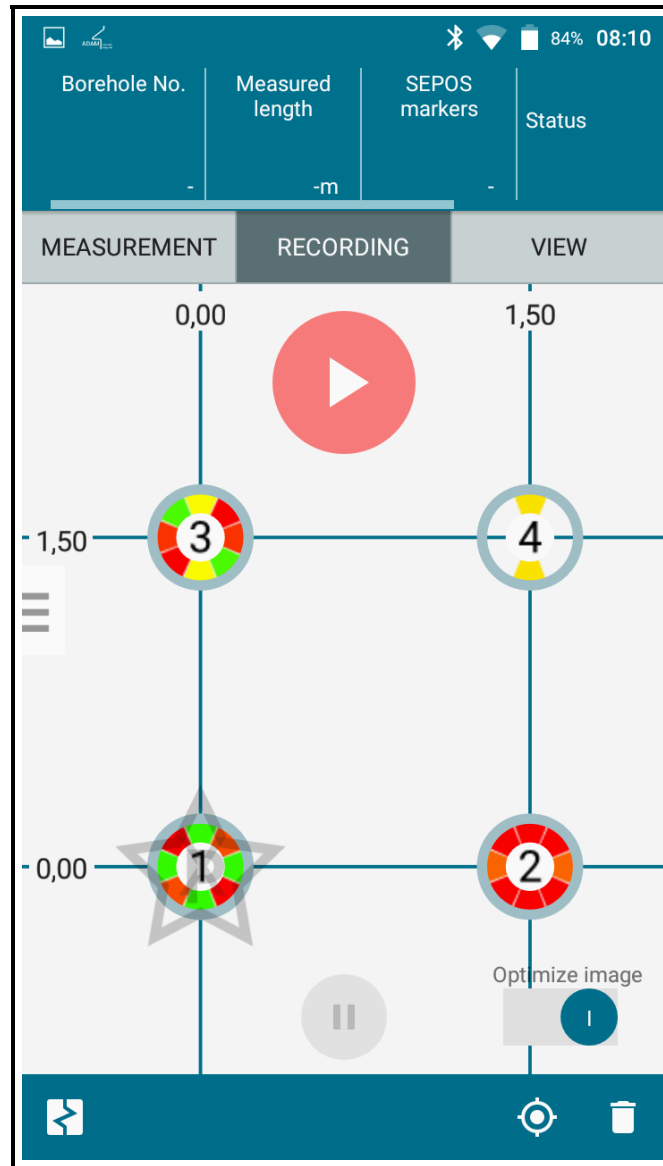


**Fig. 4.6.40:** Field view borehole with metal detector recording

## Curve display of borehole with metal detector

To see a borehole in the curve display, tap on the desired borehole. Then tap the icon  at the bottom of the screen. Now tap on *Scale* and select *auto*. In the following view, a borehole with metal detector recording is shown in the curve display, see Fig. 4.6.41.

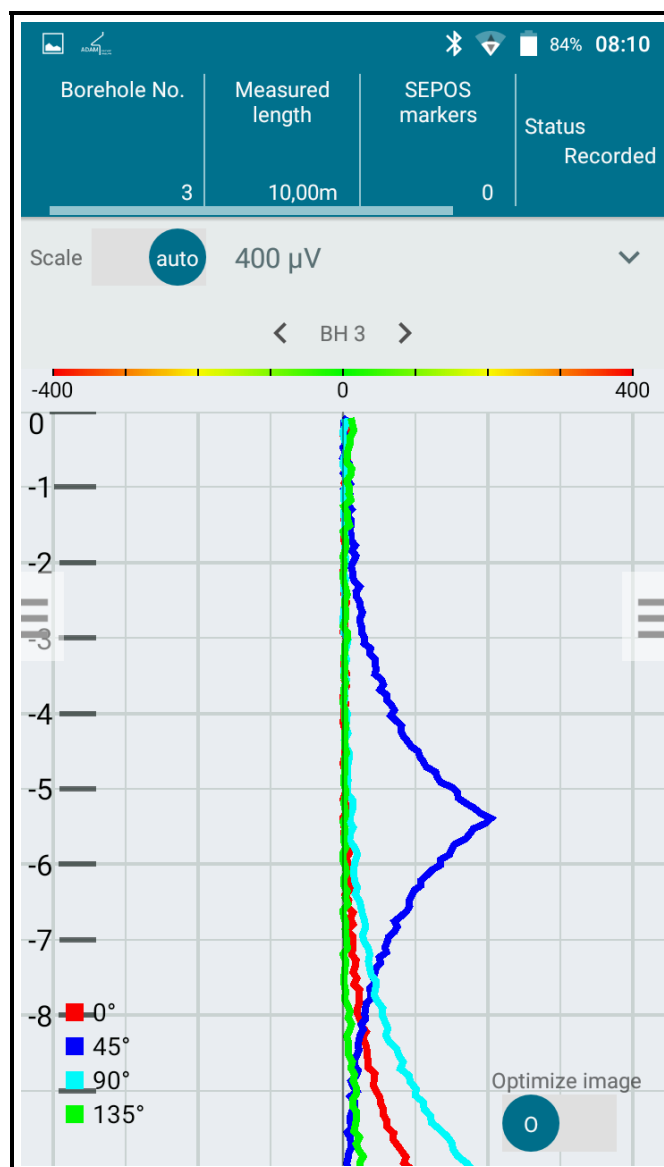
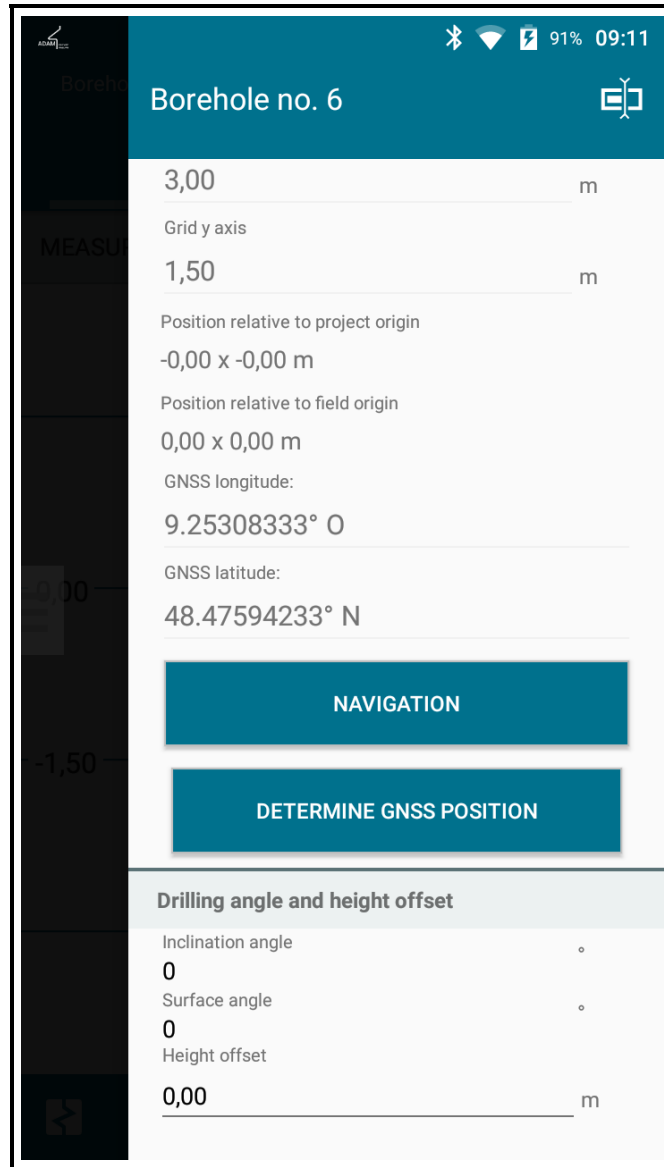


**Fig. 4.6.41:** Curve display of a borehole with metal detector recording

## Detailed information about a borehole

Obtain additional information about a borehole by tapping in the curve display of a single borehole the menu icon  on the right-hand side, see Fig. 4.6.35 and 4.6.42.



**Borehole no. 6**

3,00 m

Grid y axis

1,50 m

Position relative to project origin

-0,00 x -0,00 m

Position relative to field origin

0,00 x 0,00 m

GNSS longitude:

9.25308333° O

GNSS latitude:

48.47594233° N

**NAVIGATION**

**DETERMINE GNSS POSITION**

**Drilling angle and height offset**

Inclination angle

0 °

Surface angle

0 °

Height offset

0,00 m

**Fig. 4.6.42:** Additional information about the track

## Borehole view

Under the VIEW tab you can set several parameters for the views, see Fig. 4.6.43. The SCALE parameter does not affect the data recording, but only the screen display.

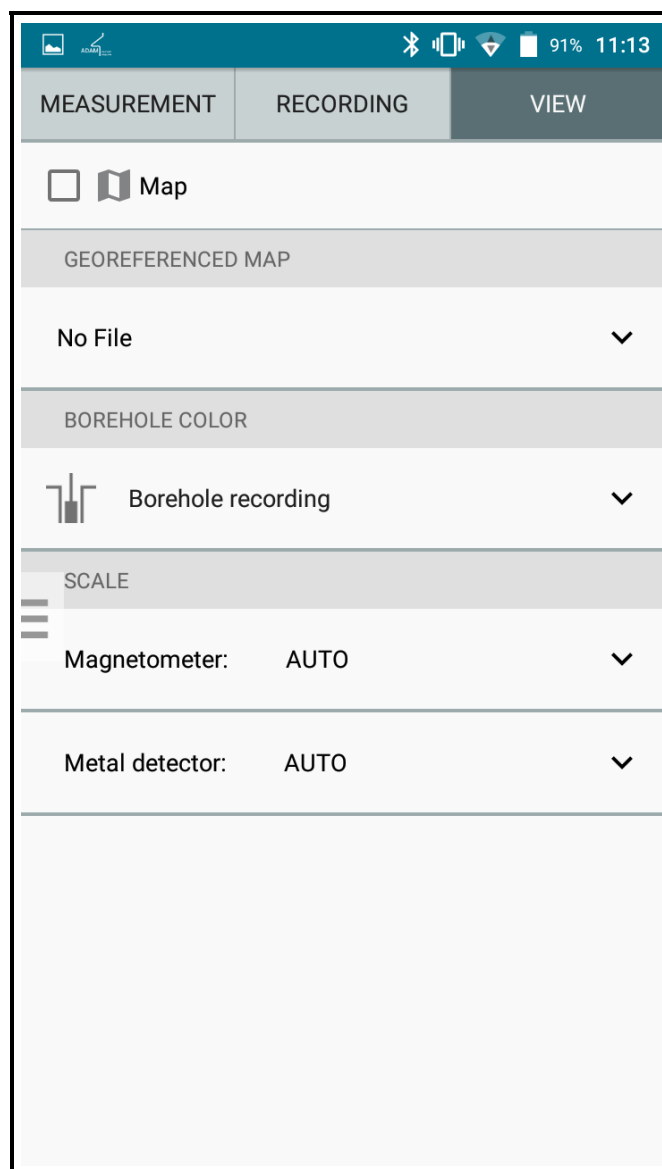


**Fig. 4.6.43:** Tab *VIEW* Borehole

The following parameters can be set:

- ▷ Show map ON/OFF<sup>12</sup>
- ▷ GEOREFERENCED MAP (No File – Add File<sup>13</sup>)
- ▷ BOREHOLE COLOR (borehole recording / borehole status)
- ▷ SCALE Magnetometer (AUTO – 10 nT – 20nT – ...)
- ▷ SCALE Metal detector (AUTO – 8  $\mu$ V – 80  $\mu$ V – ...)

<sup>12</sup>Requires a georeferenced field origin. To load maps the first time, an Internet connection must exist.

<sup>13</sup>Possible formats: .dxf and .shp

## Navigating to boreholes

To use this function, a GNSS must be connected.

1. Go to the view *Detailed information about a borehole* (see section [Detailed information about a borehole](#) on page 64).
2. Tap on DETERMINE GNSS POSITION in the lower part of the view to provide a borehole with GNSS coordinates (see Fig. 4.6.35 on page 58).
3. Tap on NAVIGATION, to start the navigation function. If you are more than 5 m away from the object, a screen with arrow appears, see Fig. 4.6.2. Walk in the direction of the arrow to get to the borehole. As soon as you are less than 5 m away from the borehole, a screen with red dot appears, see Fig. 4.6.45.

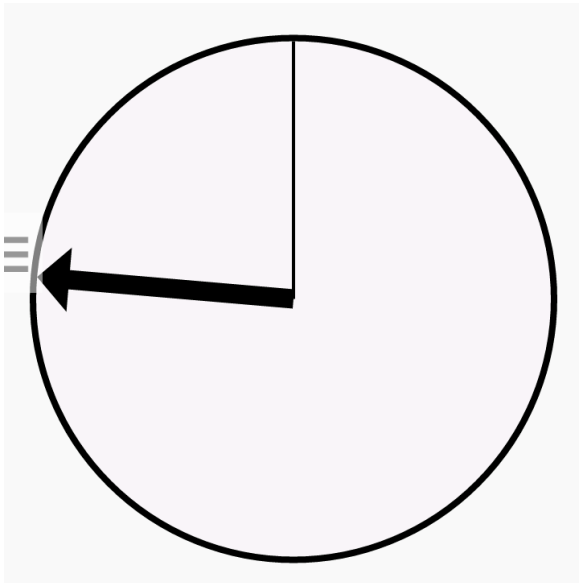


**Fig. 4.6.44:** Navigating to borehole:  
distance over 5 m

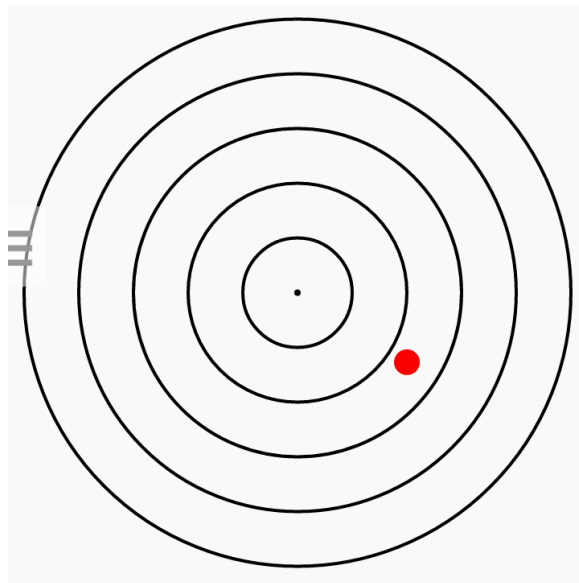


**Fig. 4.6.45:** Navigating to borehole:  
distance under 5 m

## 4.7 Sensor check

On the page *Sensor check* you can check the sensors of a carrier system, see Fig. 4.7.1. A sensor that is shown in color is active.

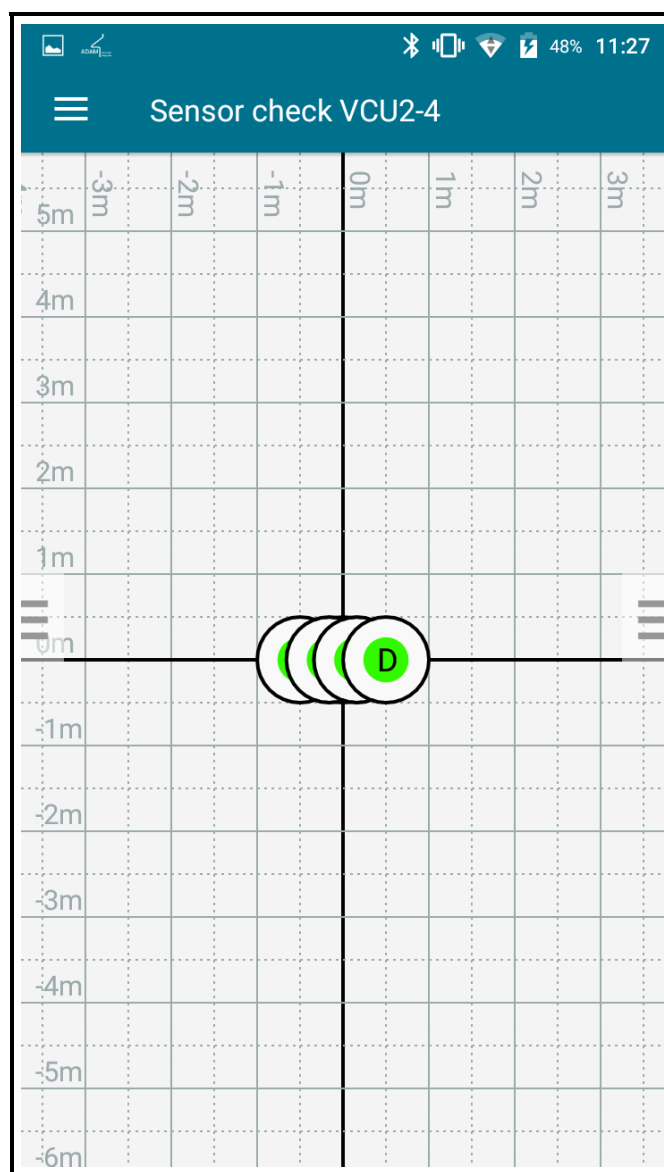


**Fig. 4.7.1:** Page *Sensor check*

## Sensor check curve display

Briefly tap a sensor on the page *Sensor check* (see Fig. 4.7.1 on page 67) in order to view the recorded values in the curve display, see Fig. 4.7.2 (if the sensors are very close to each other, a selection window appears). Tap *Scale* to change the scale of the display (tap the field right next to *Scale* to change the scale to *auto*. EVA4mobile will then automatically set a reasonable scale).

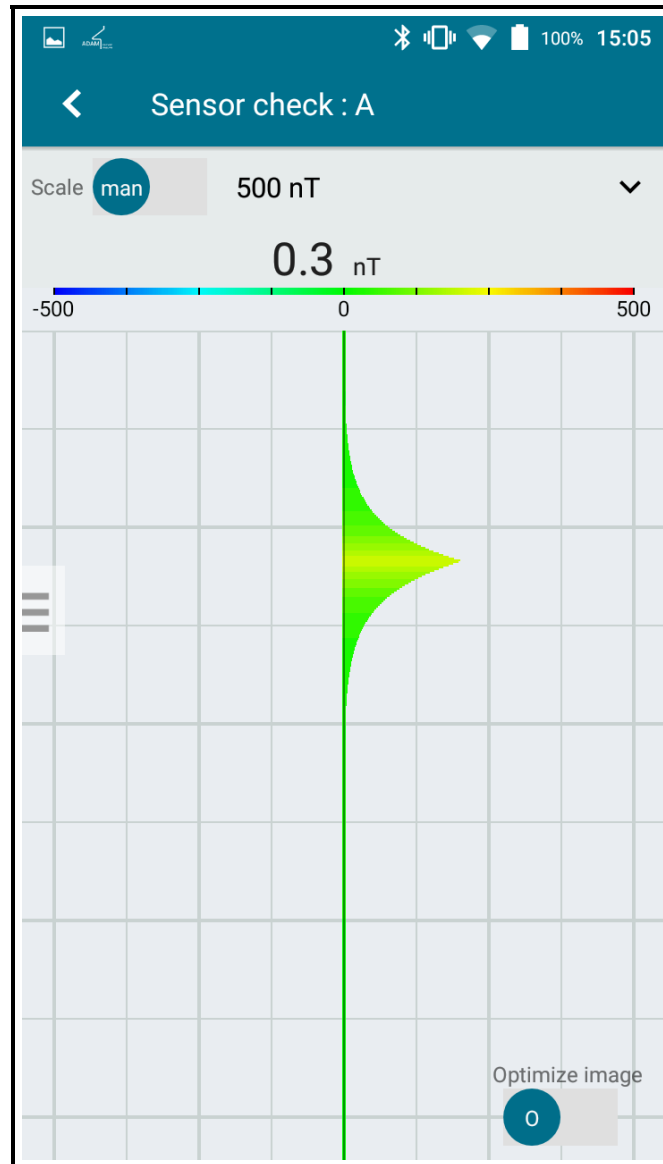


**Fig. 4.7.2:** Graphic display of sensor values

If you tap on the GNSS symbol  the GNSS console will be shown. If the GNSS icon is hidden under sensor icons, a selection window will appear after tapping. Select GNSS here.

## Sensor check overview

Tap on the page *Sensor check* (see Fig. 4.7.1 on page 67) the menu icon  on the right next to the screen to go to the page *Sensor check overview*, see Fig. 4.7.3. Here you can change the preset scale values.

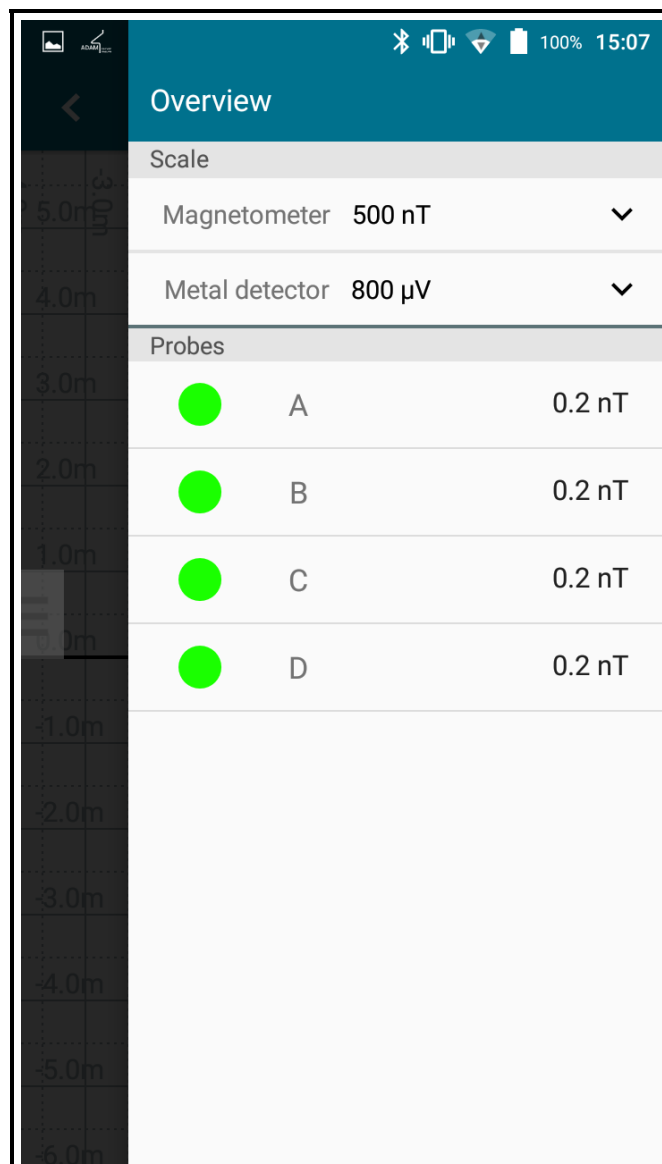


Fig. 4.7.3: Page *Sensor check overview*

## 4.8 Data transfer

On the *Transfer data* page you can transfer data to a USB data carrier or a PC, see Fig. 4.8.1.

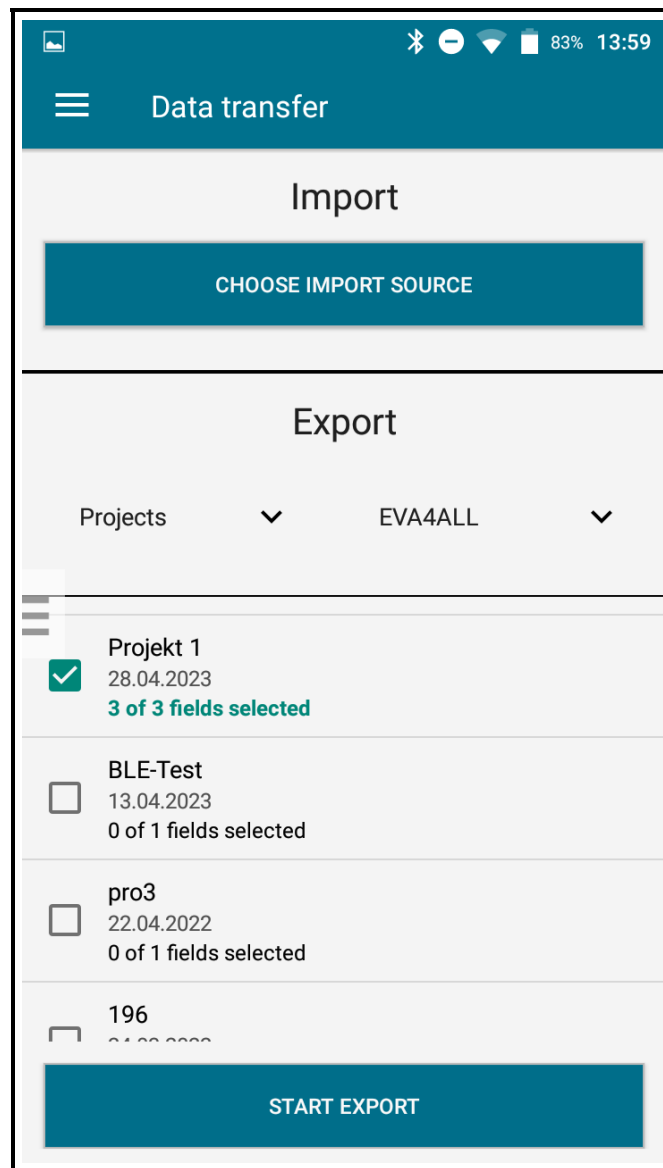


**Fig. 4.8.1:** Page *Transfer data*

You can transfer individual fields or whole projects. The following formats are available for exporting:

### Projects

EVA4ALL (Raw), Vallon EVA2000 2.x.

### Fields

Vallon EVA2000 2.x, Standard UXO format, Vallon EVA2000 ASCII table format, KML (Google Earth)<sup>14</sup>, CSV (comma-separated values).

<sup>14</sup>Only fields with recording type surface.

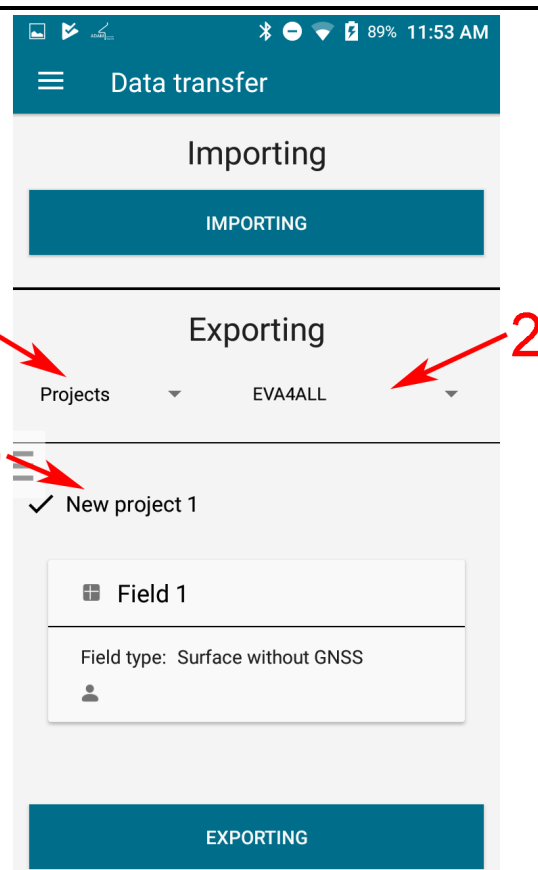
## 4.8.1 Export data

### Step 1

Tap **Projects** in the menu (1) if you want to transfer whole projects or **Fields** if you want to transfer individual fields. Select the desired data format in the menu (2). At (3) select the desired project or field.

Connect a USB data carrier to the Android device that is being used if you want to transfer the data to a USB data carrier after the export.

Tap **EXPORTING** to start the export to the selected data format.

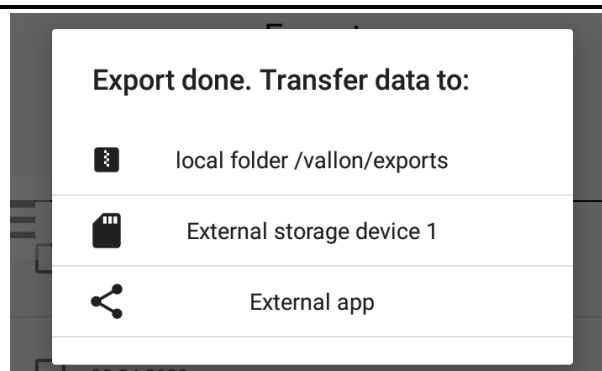


### Step 2

Tap **local folder /vallon/exports** to transfer the data to the folder **/vallon/exports** of the internal device storage of the Android device you are using.

Tap **External storage device** to transfer the data to a connected USB data carrier. Select the desired destination folder and confirm with **Select**.

Tap **External app** to transfer the data via Bluetooth, Email or Google Drive.



### Step 3

Once you have saved the data in the */vallon/exports* folder, you can transfer it to a PC via USB cable. After connecting the PC to the Android device, please first swipe the display down. Now tap on the USB notification field (*USB for charging*) and then select *File transfers* in the menu.

Now you can access the internal device storage of your Android device via the Windows File Manager.

#### Use USB for

- ☐ Charging  
Just charge this device
- ☒ File transfers  
Transfer files to Windows or Mac (MTP)
- ☐ Photo transfer (PTP)  
Transfer photos or files if MTP is not supported (PTP)
- ☐ MIDI  
Use device for MIDI input

CANCEL

## NOTICE

### Removing a USB flash drive while writing causes data loss.

- ▷ Do not remove the USB flash drive until the data has been completely transferred (for the VFC4 USB flash drive, the blue status LED shows the data transfer).
- ▷ Use the eject function of the Android system for USB flash drives (swipe down and tap EJECT for the USB flash drive; a message indicates when the USB flash drive has been ejected safely and can be removed).

## 4.8.2 Importing data from the PC

### Step 1

Connect the PC and Android device via a USB cable. After connecting the PC to the Android device, please first swipe the display down. Now tap on the USB notification field (*USB for charging*) and then select *File transfers* in the menu.

Now you can access the internal device storage of your Android device via the Windows File Manager. Now save the data you want to import in the folder */vallon/imports* in the internal device storage of the Android device you are using.

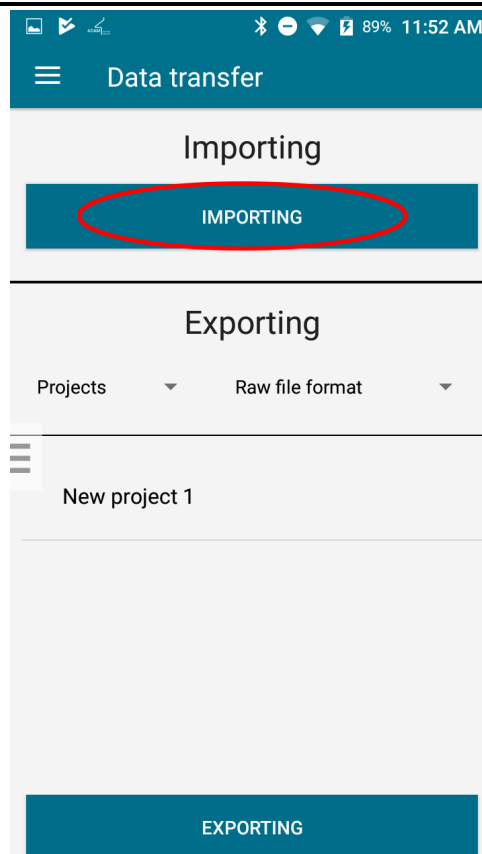
### Use USB for

- ☐ Charging  
Just charge this device
- ☒ File transfers  
Transfer files to Windows or Mac (MTP)
- ☐ Photo transfer (PTP)  
Transfer photos or files if MTP is not supported (PTP)
- ☐ MIDI  
Use device for MIDI input

CANCEL

### Step 2

Tap *IMPORTING*.



### Step 3

The menu *Choose import source* opens.  
Tap *Local import directory /vallon/imports* to import data (that has previously been saved there) from the folder /vallon/imports in the internal device storage of your Android device.

Tap *Show any import source* to import the data from any internal or external data carrier.



## A Create borehole grids with MS Excel

Use MS Excel to create a three-column table with the coordinates of the boreholes, see figure. [A.0.1](#). In the first column enter the x-coordinates starting from the project zero point and in the second column the y-coordinates. In the third column enter the consecutive numbers of the boreholes.

|    | A    | B   | C  |
|----|------|-----|----|
| 1  | 4,5  | 3   | 1  |
| 2  | 6    | 3   | 2  |
| 3  | 7,5  | 3   | 3  |
| 4  | 3,75 | 4,5 | 4  |
| 5  | 5,25 | 4,5 | 5  |
| 6  | 6,75 | 4,5 | 6  |
| 7  | 8,25 | 4,5 | 7  |
| 8  | 3    | 6   | 8  |
| 9  | 4,5  | 6   | 9  |
| 10 | 6    | 6   | 10 |
| 11 | 7,5  | 6   | 11 |
| 12 | 9    | 6   | 12 |
| 13 | 3,75 | 7,5 | 13 |
| 14 | 5,25 | 7,5 | 14 |
| 15 | 6,75 | 7,5 | 15 |
| 16 | 8,25 | 7,5 | 16 |
| 17 | 4,5  | 9   | 17 |
| 18 | 6    | 9   | 18 |
| 19 | 7,5  | 9   | 19 |
| 20 |      |     |    |

**Fig. A.0.1:** Borehole grid in MS Excel

Save the file in the format *Text (tabstop-separated)* (\*.txt). Change the file name extension from .txt to .BMA.

Figure A.0.2 shows the above example after the import into EVA4mobile.

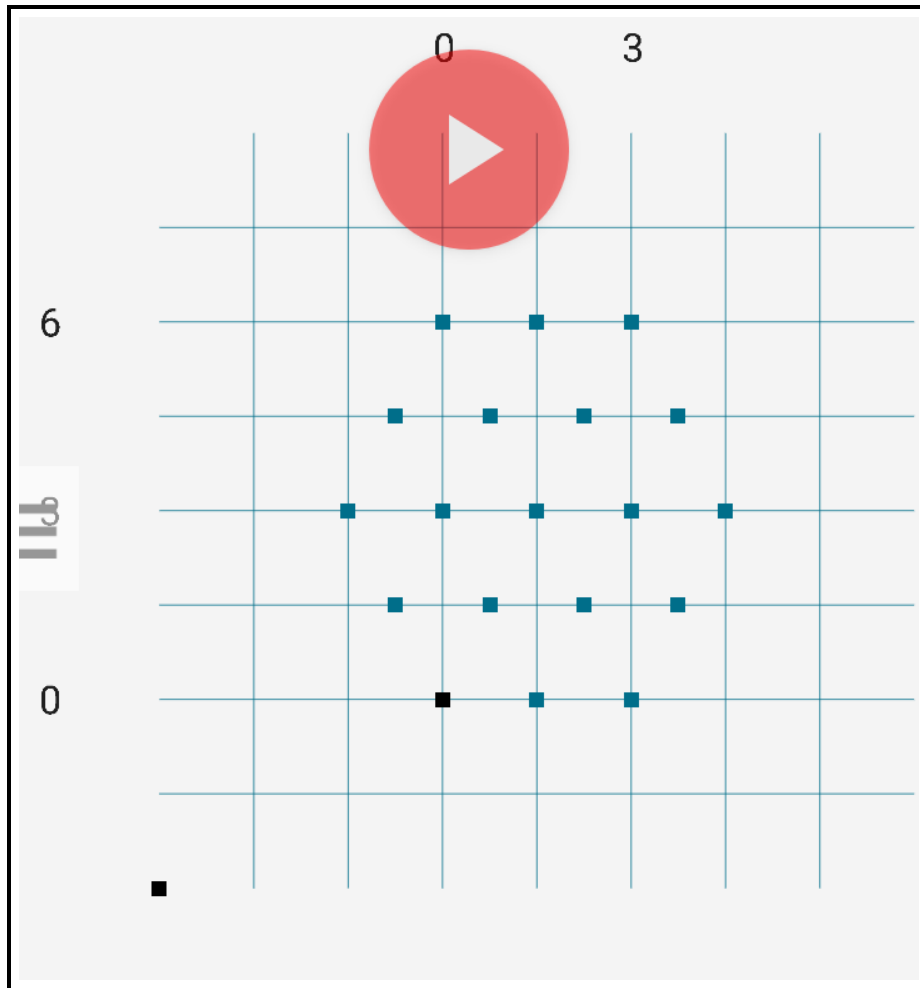


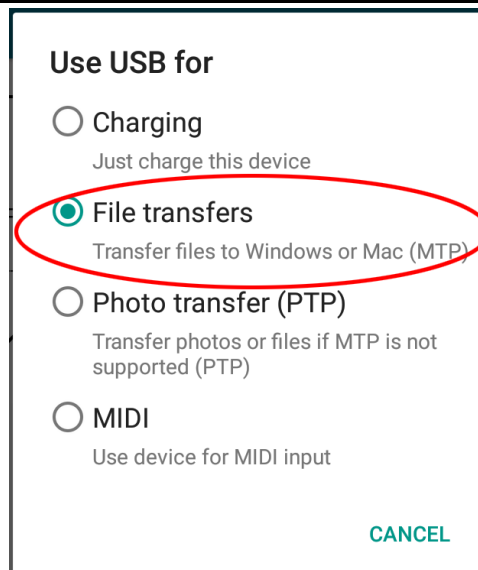
**Fig. A.0.2:** Borehole grid in EVA4mobile

## B Adding georeferenced maps

### Step 1

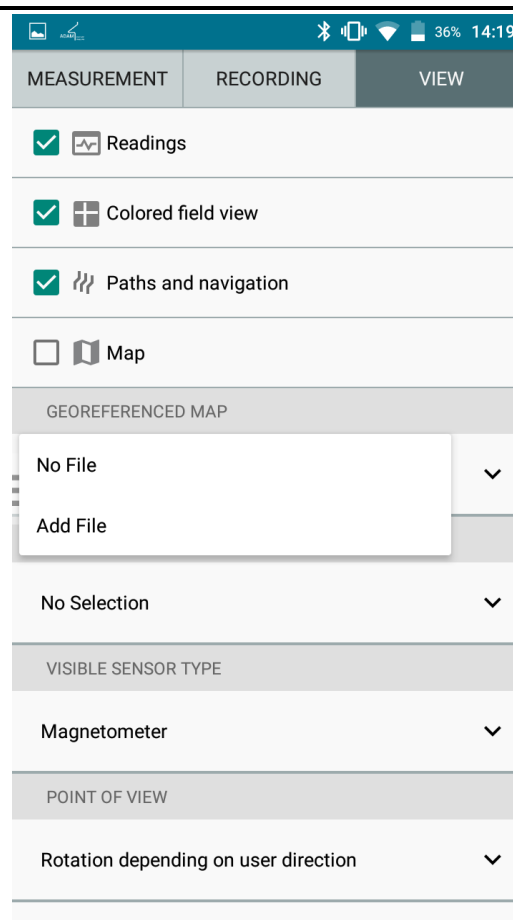
Connect the PC and Android device via a USB cable. After connecting the PC to the Android device, please first swipe the display down. Now tap on the USB notification field (*USB for charging*) and then select *File transfers* in the menu.

Now you can access the internal device storage of your Android device via the Windows File Manager. Now save the data you want to import in the desired folder in the internal device storage of the Android device you are using.



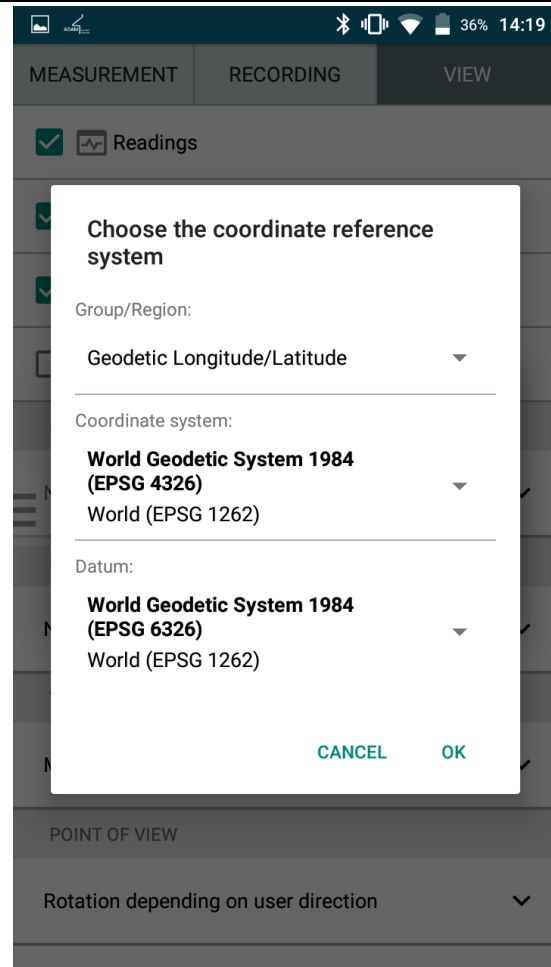
### Step 2

1. Go to the relevant field.
2. In the *VIEW* tab, tap on *Add file* at "georeferenced map".
3. Select the map file.



### Step 3

Select the coordinate system that was used for creating the map.



### Step 4

Tap on the *RECORDING* tab. The vector graphic should now appear here when you are in the stored map section.



#### Information

From version 1.8.2, information dialogs are displayed if the file does not contain any suitable data or the graphic deviates too much from the field coordinates.

## C Included open source software

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2. Group: com.davemorrissey.labs Name: subsampling-scale-image-view-androidx Version: 3.10.0

URL: <https://github.com/davemorrissey/subsampling-scale-image-view>

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3. Group: com.github.QuadFlask Name: colorpicker Version: 0.0.15

URL: <https://github.com/QuadFlask/colorpicker>

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4. Group: com.github.appfarms-knispel Name: afSignatureLib Version: 1.4

URL: <https://gitlab.appfarms.com/timonknispel/afsigdialog-android>

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5. Group: com.github.barteksc Name: pdfium-android Version: 1.9.0  
URL: <https://github.com/barteksc/PdfiumAndroid>  
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6. Group: com.github.mhiew Name: android-pdf-viewer Version: 3.2.0-beta.1  
URL: <https://github.com/mhiew/AndroidPdfViewer>  
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7. Group: com.github.nbsp-team Name: MaterialFilePicker Version: 2a671641af  
URL: <https://github.com/nbsp-team/MaterialFilePicker>  
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8. Group: com.google.android.material Name: material Version: 1.4.0  
URL: <https://github.com/material-components/material-components-android>  
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10. Group: com.google.code.gson Name: gson Version: 2.8.8  
Manifest Project URL: <https://github.com/google/gson/gson>  
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11. Group: com.google.errorprone Name: error\_prone\_annotations Version: 2.4.0  
License: Apache License, Version 2.0 – see Dokument *EVA4mobile Licenses*

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12. Group: com.google.guava Name: failureaccess Version: 1.0.1  
Manifest Project URL: <https://github.com/google/guava/>  
License: Apache License, Version 2.0 – see Dokument *EVA4mobile Licenses*

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13. Group: com.google.guava Name: guava Version: 30.1-android  
Manifest Project URL: <https://github.com/google/guava/>  
License: Apache License, Version 2.0 – see Dokument *EVA4mobile Licenses*

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14. Group: com.google.j2objc Name: j2objc-annotations Version: 1.3  
URL: <https://github.com/google/j2objc/>  
License: Apache License, Version 2.0 – see Dokument *EVA4mobile Licenses*

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15. Group: com.google.protobuf Name: protobuf-javalite Version: 3.17.2  
Manifest Project URL: <https://developers.google.com/protocol-buffers/>  
License: The 3-Clause BSD License – see Dokument *EVA4mobile Licenses*

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16. Group: com.jakewharton.threetenabp Name: threetenabp Version: 1.3.1  
URL: <https://github.com/JakeWharton/ThreeTenABP/>  
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17. Group: com.jakewharton.timber Name: timber Version: 5.0.0  
URL: <https://github.com/JakeWharton/timber>  
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18. Group: com.microsoft.appcenter Name: appcenter Version: 4.2.0

URL: <https://github.com/microsoft/appcenter-sdk-android>

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19. Group: com.microsoft.appcenter Name: appcenter-crashes Version: 4.2.0

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20. Group: com.microsoft.appcenter Name: appcenter-distribute Version: 4.2.0

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21. Group: com.opencsv Name: opencsv Version: 4.6

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23. Group: com.squareup.okhttp3 Name: okhttp Version: 4.9.2

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25. Group: commons-beanutils Name: commons-beanutils Version: 1.9.3

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28. Group: io.grpc Name: grpc-api Version: 1.39.0  
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29. Group: io.grpc Name: grpc-context Version: 1.39.0  
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30. Group: io.grpc Name: grpc-core Version: 1.39.0  
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32. Group: io.grpc Name: grpc-protobuf-lite Version: 1.39.0  
URL: <https://github.com/grpc/grpc-java>  
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33. Group: io.grpc Name: grpc-stub Version: 1.39.0  
URL: <https://github.com/grpc/grpc-java>  
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34. Group: io.noties.markwon Name: core Version: 4.6.2  
URL: <https://github.com/noties/Markwon>  
License: Apache License, Version 2.0 – see Dokument *EVA4mobile Licenses*

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35. Group: io.noties.markwon Name: recycler Version: 4.6.2  
URL: <https://github.com/noties/Markwon>  
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36. Group: javax.annotation Name: javax.annotation-api Version: 1.3.2  
Manifest Project URL: <https://javaee.github.io/glassfish>  
URL: <http://jcp.org/en/jsr/detail?id=250>  
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37. Group: net.sourceforge.streamsupport Name: streamsupport Version: 1.7.1  
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The initial code for shuffling an array (originally in class “org.apache.commons.math3.random.RandomDataGenerator”, now replaced by a method in class “org.apache.commons.math3.util.MathArrays”) was inspired from the algorithm description provided in “Algorithms”, by Ian Craw and John Pulham (University of Aberdeen 1999). The textbook (containing a proof that the shuffle is uniformly random) is available here:

<http://citeseerx.ist.psu.edu/viewdoc/download;?doi=10.1.1.173.1898&rep=rep1&type=pdf>

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