

## FieldScout Bluetooth Device

### Item #6453BT



The FieldScout Bluetooth Device shown above (item 6453BT) connects to the data port of the TDR 300 meter. The TDR 300 meter must be using firmware version 6.5 or higher in order for the Bluetooth Device to work with a TDR 300 meter.

The FieldScout Bluetooth Device comes with a CR2032 battery and Velcro pieces.

Follow the listed instructions to activate your FieldScout Bluetooth Device:

1. Remove the screw from the back of the device and insert the battery (+ side up). You will notice the LED is red when the battery is inserted. Replace the back and tighten the screw.
2. Place a piece of Velcro on the flat plate at the front of the meter. And the second piece on the back of the FieldScout Bluetooth Device. Attach the Device to the Velcro on the meter.
3. Plug the cable into the data port in the bottom of the TDR's console. (See image below)
4. Once the cable is plugged in, press the green On/Reset button on the FieldScout Bluetooth Device to power it on. The LED will glow red for a couple seconds and then will start to blink red. The blinking red indicates it is ready to pair with a smart phone or tablet. The blinking red LED will continue for 2 minutes or until a connection has been made.
5. To make a connection the first time you, must open the app and click 'Login to FieldScout Basic'. Next you must create a course name by clicking on the course icon. Next, click create a new course. Once a new course is created, click on that course name, this will take you to new screen where it will ask you to 'start a new session'. Click on 'start a new session'. Next enter a name for the session (today's date is most popular for session name), hit save. Once the session is saved, click on that session. A new screen will pop up with a 3x3 grid, this is where a connection will be made. Click on one of the 3x3 cells. It will bring up a new screen that says 'Connect FieldScout Device via Bluetooth', **make sure the Bluetooth device is turned on and plugged into the TDR 300** (you will now it is on if the red LED is flashing, this means it is in pairing mode), now click on 'Connect FieldScout Device via Bluetooth' icon. An alert will pop up saying 'App wants to turn on Bluetooth', hit allow. Now click on 'Start Scan', it will now scan for the device. Once it finds the Bluetooth device it will appear saying 'FieldScout Bluetooth' under the heading 'Select a device to Connect'. Click on 'FieldScout Bluetooth'; you are now paired with the device and TDR. The LED will glow green for a couple seconds and then turn off to save battery life. A single green flash will occur each time data is transmitted from the TDR 300 to the smart phone or tablet. If the unit fails to connect to the smart phone or tablet, repeat step 4.

# **Spectrum<sup>®</sup>** **Technologies, Inc.**



Image shows FieldScout Bluetooth Device plugged into the data port on TDR 300.

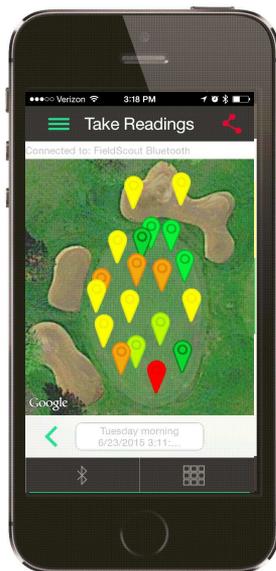
**WARRANTY:** This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Materials Authorization (RMA) from Spectrum. Spectrum is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.



# FieldScout Bluetooth Device & Mobile App

## PRODUCT MANUAL

Items 6453BTA, 6453BT, 6491S, 6490S



**Spectrum<sup>®</sup>**  
**Technologies, Inc.**

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This manual will familiarize you with the features and operation of your new Bluetooth-enabled Field Scout device and FieldScout Mobile. Please read this manual thoroughly before launching the units.

For customer support, or to place an order, call

Spectrum Technologies, Inc. at

(800) 248-8873 or (815) 436-4440

between 7:30 am and 5:30 p.m. CST

FAX (815) 436-4460

e-mail: [info@specmeters.com](mailto:info@specmeters.com)

[www.specmeters.com](http://www.specmeters.com)

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# OVERVIEW

Thank you for purchasing the **FieldScout Bluetooth Device** for TDR 300, or the **Bluetooth-enabled TruFirm**.

Bluetooth Smart technology allows FieldScout data to stream to a smartphone when paired with the free iPhone or Android **FieldScout Mobile** app (item 6453BTA). FieldScout Mobile is designed to collect, store, and analyze measurement data from FieldScout meters equipped with a Bluetooth Smart radio.

To log in as a **FieldScout Mobile—Pro** user requires a **SpecConnect FieldScout Pro** subscription (item 3035) and uses the same login credentials as the SpecConnect web portal & app (purchased separately, contact Spectrum to place an order). The FieldScout Mobile—Pro app automatically uploads measurement data to the SpecConnect web portal and launches enhanced features in the app not available in FieldScout Mobile—Basic. Enhanced features include Guided mode & Freeform mode, overlaying measurements on satellite imagery, writing notes/ comments associated with zones or sessions, and sharing information with other FieldScout Mobile—Pro users.

The FieldScout Bluetooth Device (item 6453BT) mounts to the frame of the TDR 300 and a cable plugs into the TDR's computer port. TruFirm meters (item 6490S) are available with a Bluetooth Smart radio installed internally. Bluetooth capability can be added to a TruFirm meter with the TruFirm Bluetooth radio board (item 6491S).

## HOME SCREEN

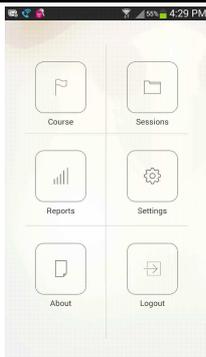


Fig. 1: Home screen

The **Home** screen (fig. 1) is displayed when the app is opened. From the **Home** screen, you can navigate immediately to a Course/Farm, an existing Session, the Settings screen, Reports, and the About Spectrum page. The Home screen is also where you download data as well. From any other screen, the **Home** screen can be accessed by tapping the icon with 3 parallel, green lines (fig. 2) and selecting “Home” from the menu.



Fig 2. App menu button

# GETTING STARTED

Get your Bluetooth-enabled FieldScout TDR 300 or TruFirm working with FieldScout Mobile in the following eight steps.

## 1 Get the app: FieldScout Mobile

Search 'FieldScout' in the Apple App Store or Android Google Play Store and download it.



## 2 Attach Bluetooth Device (TDR 300 only). Turn on FieldScout Meter and Bluetooth

TruFirm: Press the ON button to power-up both the meter & the Bluetooth.

TDR 300: Press the ON button on both the meter & the Bluetooth Device to power-up.

(LED will indicate the Bluetooth status, flashes red when ready to pair)



## 3 Open Field-Scout Mobile

Select Basic login or use SpecConnect credentials for FieldScout Pro login.



## 4 Add New Course or Farm

Select Course or add New Course (and Farm)



Each course is a location and can be sub-divided into holes and surfaces.

## 5 Start New Session

A session represents a sampling date/time.



Select meter type.

Reports use sessions to organize data.

## 6 Identify Sampling Location

On the main screen, select the desired hole & surface.

Tap a zone to initiate pairing procedure.

Connect FieldScout Device via Bluetooth

## 7 Connect App to Bluetooth

Scan for devices and select:

TDR 300: FieldScout Bluetooth  
TruFirm: TruFirm Bluetooth

Select a device to Connect

Start Scan

## 8 Take Measurements

Readings will stream to the app, Bluetooth LED will flash green

Use the grid icon to return to the main screen and go to the next zone.



# TDR BLUETOOTH DEVICE

The FieldScout Bluetooth Device (item 6453BT) connects to the data port of the TDR 300 meter. The TDR 300 meter must be running firmware version 6.5 or higher to be compatible with the Bluetooth Device. The FieldScout Bluetooth Device is powered by a CR2032 battery (included) and attached to the meter with Velcro.



## Installing and Activating the FieldScout Bluetooth Device

1. Remove the screw from the back of the device and insert the battery (+ side up). The LED will briefly glow red after the battery is inserted. Replace the back and tighten the screw.
2. Place one piece of Velcro on the flat plate at the front of the meter and the second piece on the back of the FieldScout Bluetooth Device. Attach the device to the meter (figure 1).
3. Plug the cable into the data port on the bottom of the TDR's console (figure 2).
4. Power on the FieldScout Bluetooth Device by pressing the green On/Reset button. The LED will glow red for 2 seconds and then will start to blink red. The red blinking indicates it is ready to pair with a smart phone or tablet running FieldScout Mobile (see p. 6). If the device is not paired within 2 minutes, the LED will cease blinking and the On/Reset button must be pressed again to restart the process. After the device successfully pairs with the app, the LED will glow green for a couple seconds. A single green flash will then occur each time data is transmitted from the TDR 300 to the smart phone or tablet.

**Note:** When the TDR's internal data logger is full, the meter's display will not function properly. Unless you are using the internal logger as a backup, the TDR logging function should be disabled in FieldScout software.



Fig. 1: Device attached to flat plate



Fig. 2: Cable plugged into data port

# PAIRING FIELDSCOUT DEVICE WITH FIELDSCOUT MOBILE

The Bluetooth radio must be paired with the smartphone running FieldScout Mobile. For the TDR meter, activate the Bluetooth Accessory (p. 5). For the TruFirm meter, the radio is activated when the meter is powered up.

1. Activate the Bluetooth feature on the smartphone.
2. Open the app.
3. Create or select a Course/Farm (p. 7).
4. Create or select a Session (p. 7). This will bring up the **Main** screen (Fig. 1). If you are using both TruFirm and TDR meters, confirm that the meter you are using appears at the top of the screen.
5. Tap any of the zones to bring up the **Take Reading** screen (Fig. 2).
6. Tap the **Connect FieldScout Device via Bluetooth** button. If the Bluetooth feature has not been activated, you will be prompted to do so.
7. Tap the **Start Scan** button to search for a Bluetooth device (Fig. 3). The options will be *FieldScout Bluetooth* for a TDR 300, or *TruFirm Bluetooth* for the TruFirm.

After selecting the device, the App will be ready to take readings (p. 9).

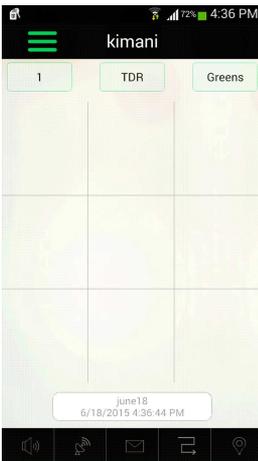


Figure 1. Main screen

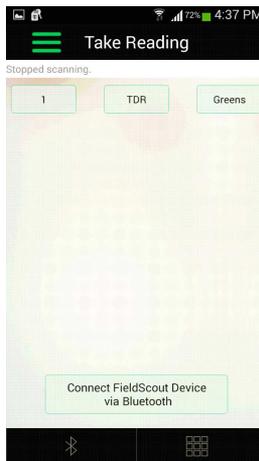


Figure 2. Bluetooth Connect button

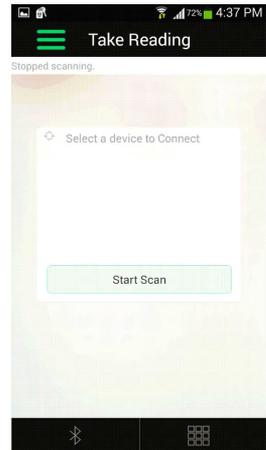


Figure 3. Scan for Devices button

# MANAGING COURSES/FARMS AND SESSIONS

Before a new data collection session can be created, the location on which that data will be taken must be selected. For the Golf setting, this will be a *Course*. For the Agriculture setting, this will be a *Farm*.

## Selecting an Existing Course/Farm

From the Home screen, tap the Course/Farm button. This will bring up the **Select Course/Farm** screen (Fig 1). Select the desired Course/Farm name from the list.



Figure 1. Select Course screen

## Creating a New Course/Farm

From the **Select Course/Farm** screen, tap the **Add New Course/Farm** button. Enter the new name and tap the **Start** button. This will take you back to the **Select Course/Farm** screen with the new course included in the list.

## Sessions

A data session identifies the date and time when data was collected. After selecting the location, the app will take you to the **Select Sessions** screen (Fig. 2). If you are beginning a new session, tap the **Start a New Session** button. This will bring up the **Name Sessions** screen in which you name the session and identify the type of meter you are using (Fig. 3). If you would like to continue an existing session, select it from the list. After selecting a session, you will be taken to the **Main** screen (p. 8). Once in the **Main** screen, it is also possible to navigate between sessions for the same surface and hole by tapping the green arrows on either side of the session identifier window.

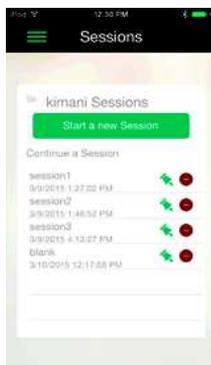


Figure 2. Select Sessions screen

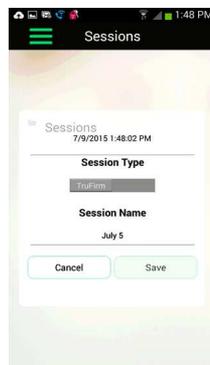


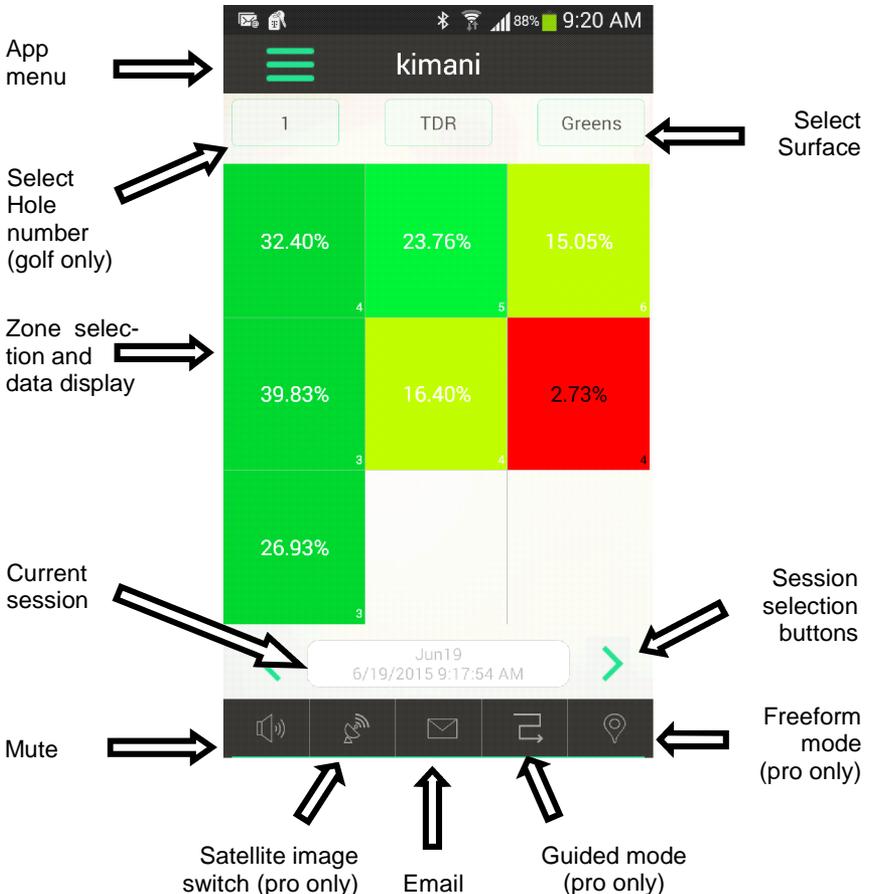
Figure 3. Name Sessions screen

# MAIN SCREEN

After selecting a session (p. 7) you will be taken to the **Main** screen. Here you can review the averaged data by hole and surface or access the measurement screen.

In Golf mode, select the hole number and surface type. Tap a zone to access the **Take Readings** screen (p. 9) and begin recording data to the app from the meter. Tap and hold on a zone to begin the process of creating a user-definable configuration of zones (p. 10).

Agriculture/Other mode (see **Settings Screen**, p. 11) is similar but has no *Select Hole* option and the golf-specific surface names are removed. See pp. 12 - 13 for more detail on the Pro Only features.

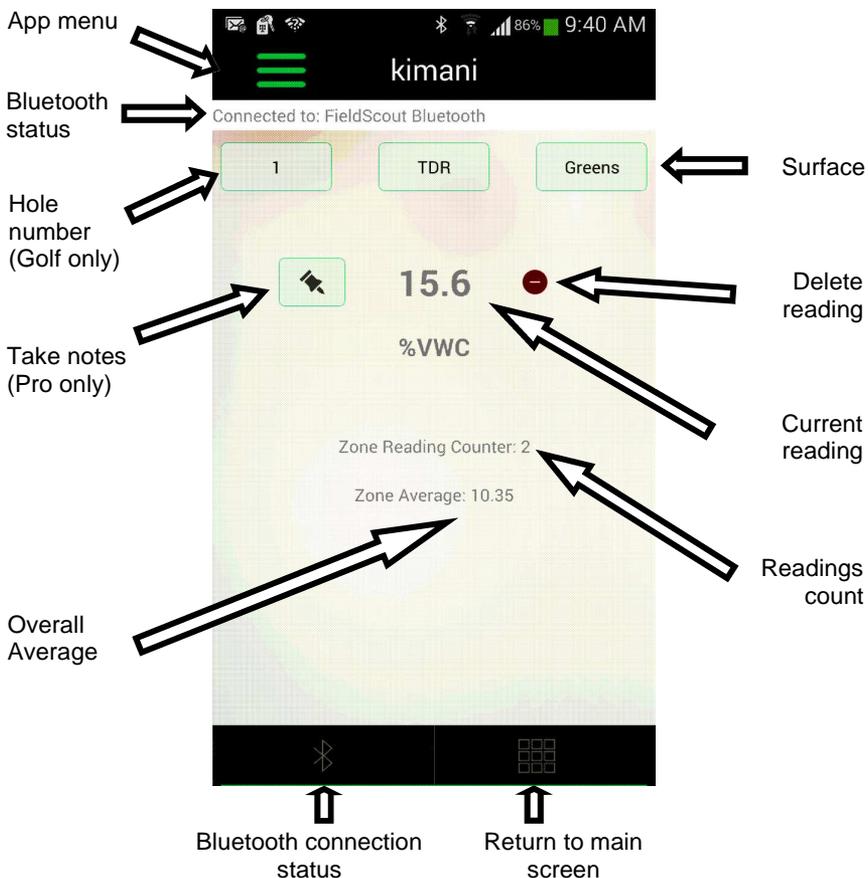


# TAKE READING SCREEN

The **Take Reading** screen is displayed while making measurements.

The value measured by the FieldScout meter will be instantly transmitted to the app and displayed in the center of the screen. Readings are automatically accepted and the zone's reading counter and average value are modified. Tap the **Delete** button to delete the most recent reading or all readings for this zone. When a reading is deleted, you are taken back to the **Main** screen (p. 8). Tapping the grid icon will also return you to the **Main** screen. Continue taking measurements by selecting another zone or moving to a different surface.

Note: The hole number, meter type, and surface cannot be modified from this screen.



# CUSTOMIZING THE SHAPE OF THE SAMPLING SITE

The **Zone Editing** menu (Fig. 1) is accessed by pressing and holding on any zone in the **Main** screen (p. 8). From here you can customize the configuration of zones at a given sampling location. This is useful for non-rectangular shaped sites such as a golf course green.

When a column is added, it is added on the far right side. When a row is added, it is added at the bottom. When a row or column is deleted, the row or column removed is the one in which that cell is located. The grid has a maximum of 5 rows and 5 columns. If the **Delete this Cell** option is selected, that individual cell will be de-activated and grayed out. The **Add Cell** option can only be used to re-activate cells that have already been removed.

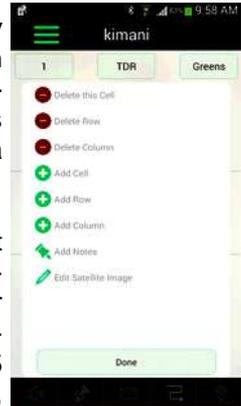


Figure 1. Zone Editing Menu

When a cell is added, the reading from that cell will re-appear. Figure 2 shows some examples of manipulating the default 3 x 3 grid to create a customized shape.

The **Add Notes** and **Edit Satellite Image** options are only available for the Pro version.

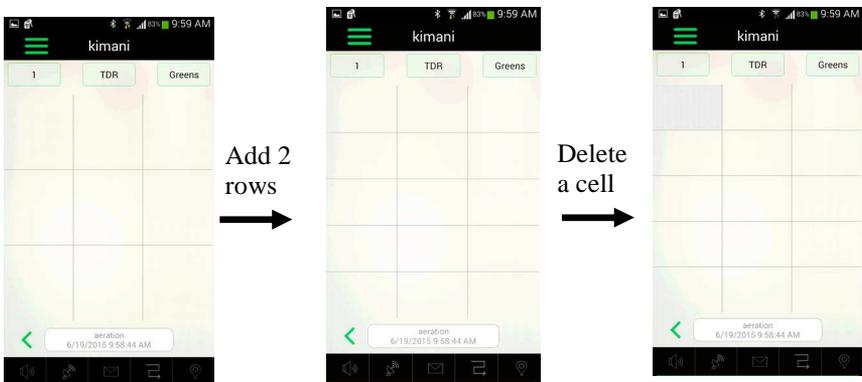


Figure 2. Modifying the zone configuration to better approximate the shape of the area being sampled.

# SETTINGS SCREEN

The **Settings** screen (Fig. 1) can be accessed from the **Settings** button on the **Home** screen. This screen is used to select the **Golf** or **Agriculture/Other** mode. Within either mode, it is possible to choose which color scheme is used in the **Main** screen (p. 8) and how that color scheme is subdivided. After selecting the mode, the app will give you the choice of 3 color schemes (Fig. 2). Select the desired scheme and tap the **OK** button to proceed to the legend scale screen (Fig. 3). The top toggle button allows you to indicate whether the data is from a TDR or TruFirm meter. The default scale is from 0 to 1 for the TruFirm and from 0 to 25 for the TDR. To adjust these default values, enter values in the top (minimum value) field and bottom (maximum value) field. Only the high value for the lowest range and the low value for the highest range are entered in with the keypad. The rest of the legend is auto-filled. Tap the **OK** button or **App Menu** button in the upper left corner to save the changes and return to the **Home** screen. Tap the Cancel button to ignore the changes and return to **Color Scheme** screen.



Figure 1. Settings Screen



Figure 2. Color scheme screen



Figure 3. Legend scale screen

# GUIDED & FREEFORM MODE

The Pro version of the app (available for users with a **SpecConnect** account) offers two alternatives to how the site is sampled. These are the Guided and Freeform modes. These modes are selected from the bottom of the **Main** screen (p. 8).



## Guided mode

allows taking a complete set of readings at a surface (or field) uninterrupted. First, choose how many readings per zone to take (Fig. 1). This number can be modified by tapping the small pencil icon at the bottom of the zone sampling pattern screen (Fig. 2). Second, choose a horizontal or vertical path by tapping the appropriate button at the bottom of the zone sampling pattern screen. Click the first

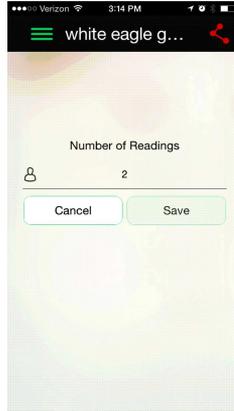


Fig. 1. Selecting number of readings

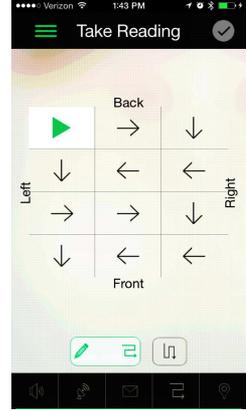


Fig. 2. Guided zone sampling pattern.

zone to start and begin taking measurements with the FieldScout meter. The app automatically progresses to the next zone after the required number of readings has been taken.

The app will track progress by highlighting the current zone and showing a readings counter in the bottom right corner of the zone.



## Freeform mode

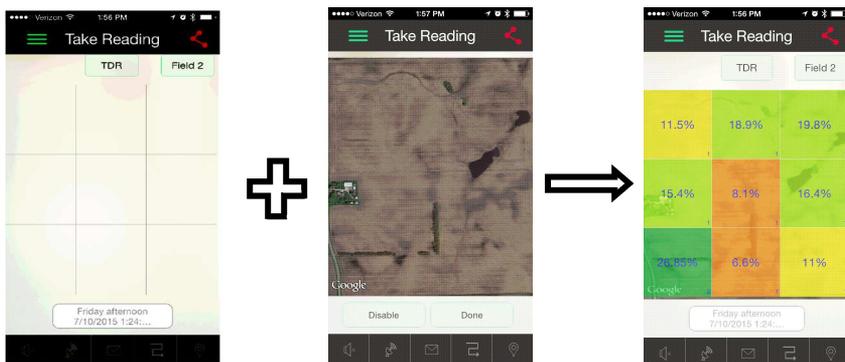
allows taking measurements without the constraint of zones. Instead of averaging all measurements taken in a zone, each measurement taken in freeform mode will be shown independently as a color-coded point (Fig. 3).



Fig. 3. Freeform sampling

# SATELLITE IMAGES

FieldScout Pro users can overlay measurement data on top of a satellite image of their site. The far-right image below illustrates how the combined data screen will look. Click the satellite button at the bottom of the **Main** screen to add the map. Initially, the map will be centered at the phone location. But, the image can be re-sized, moved, and rotated by pinching and swiping with your fingers. The GPS coordinates associated with the data laid over the image are for the center of the zone location. This enhanced image can be replicated in SpecConnect if it is assigned a GPS location in the app (see p. 14).



# EMAILING IMAGES

Both FieldScout Basic and Pro users can email images of their measurement grids. Click the email button at the bottom of the **Main** screen. Tap “Select Session” and select the session of interest from the list. Only sessions for the current Course/Farm will be listed. Tap the “Send Email” button to open the email app on your phone. Type in the destination of the email. The default email Subject is the date and time of the sampling session. This can be modified to something more descriptive. Text can also be entered into the body of the email. Images of all active grids for that session will be sent as attached files.

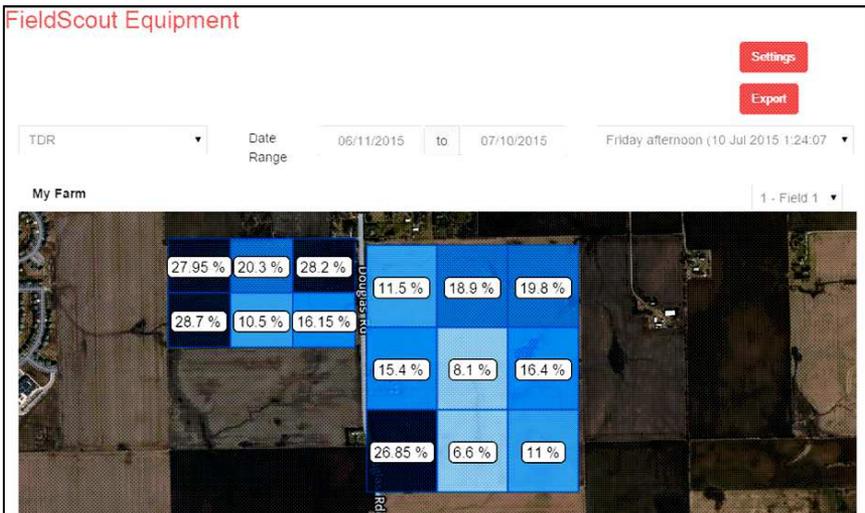


# SENDING DATA TO SPECCONNECT

FieldScout Pro users will automatically transmit their measurement data from the app to their SpecConnect web portal account when their phone is connected to a WiFi network or allows the use of cellular data. The Spec-Connect icon in the top right indicates if the data is synced (red) or not (gray).



In SpecConnect, select the device from the Equipment page. View grid and freeform mode data for a selected meter type (TDR or TruFirm). All sessions for a selected date range will appear in the drop down menu on the right. For data taken in Golf mode, use the surface dropdown list to scan to the selected hole and surface. Use the Settings menu to select a color scheme and adjust the range scale in the same way as it is done in the app (p. 11). Use the Export button to download a comma delimited (.csv format) file of the selected session to your computer. Only the average data for a grid zone will be transferred to the exported data file.



# SPECIFICATIONS

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## Compatibility

- Apple Bluetooth Smart devices
  - ⇒ iPhone (6 Plus, 6, 5S, 5C, 5, 4S)
  - ⇒ iPad (Air, Mini, 3rd & 4th gen)
  - ⇒ iPod Touch (5th and 6th gen)
- Android Bluetooth Smart devices (v4.3 or later)
  - ⇒ Samsung Galaxy series
  - ⇒ HTC One, One Max
  - ⇒ Motorola Droid RAZR, Maxx, Mini, Moto G, X
  - ⇒ Nexus 4, 5, 7, 10
- TDR 300 (firmware version 6.5 or later)
- TruFirm with Bluetooth Smart radio

## Physical Properties

- Cable: 9" length with 3.5mm stereo plug and sealing grommet for FieldScout communications port
- Dimensions: 2.25 x 1.5 x 0.75 in (5.7 x 4.1 x 1.9 cm)
- Weight: < 2.5 oz (70 g)
- Operating Temperature: -40 °F to 185 °F (-40 °C to 85 °C)
- Battery: 2032 Lithium coin cell
  - ⇒ 6 months expected life
- IP40 enclosure
- Materials: enclosure—ABS plastic; cable—PVC45P

## Radio Specifications

- Bluetooth 4.0 (Bluetooth Smart): QDID—B021015
- Frequency: 2.402 GHz to 2.480 GHz
- Modulations: GFSK
- Range: 50 ft (15 m)

## Regulatory Information

- USA: FCC ID – QQBLE113
- Canada: IC – 5123A-BGTBLE113
- CE approval: EN300328, EN301489

# WARRANTY

This product is warranted to be free from defects in material or workmanship for one year from the date of purchase. During the warranty period Spectrum will, at its option, either repair or replace products that prove to be defective. This warranty does not cover damage due to improper installation or use, lightning, negligence, accident, or unauthorized modifications, or to incidental or consequential damages beyond the Spectrum product. Before returning a failed unit, you must obtain a Returned Materials Authorization (RMA) from Spectrum. Spectrum is not responsible for any package that is returned without a valid RMA number or for the loss of the package by any shipping company.



## DECLARATION OF CONFORMITY

Spectrum Technologies, Inc.  
3600 Thayer Court  
Aurora, IL 60504 USA

Model Numbers: 6453BT, 6491S, 6490S  
Description: Field Scout Bluetooth Device  
Type: Electrical equipment for measurement, control, and laboratory use  
Directive: 2014/30/EU  
Standards: EN 61000-6-1:2007  
EN 61000-6-3: 2007  
IEC 61000-4-2:2008  
IEC61000-4-3:2006, including A1:2007 and A2:2010  
EN 55022: 2010  
FCC Part 15 CFR Title 47: 2014  
ICES-003: 2012 Digital Apparatus (Industry Canada)

David Anderson—VP Product Development

August 21, 2015

**Spectrum Technologies, Inc**  
**3600 Thayer Court**  
**Aurora, IL 60504**  
**(800) 248-8873 or (815) 436-4440**  
**Fax (815) 436-4460**  
**E-Mail: [Info@specmeters.com](mailto:Info@specmeters.com)**  
**[www.specmeters.com](http://www.specmeters.com)**