User Guide

MA8100A
TRX NEON® Signal Mapper

You must have an Android™ smart phone or tablet and an email address that you will use to sign in to the NEON application. Basic familiarity with Anritsu handheld spectrum analyzers is required.

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Part Number: 10580-00422
Revision: H
Published: October 2022

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The MA8100A TRX NEON Signal Mapper is purchased from TRX and incorporated as-is onto our Products, and that the original and updated warning labels that TRX issues accompanying the products still apply to them and to Anritsu as well.

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Chapter 5—Signal Map Viewing and Reporting

Chapter 1 — General Information

1-1 Introduction

The MA8100A TRX NEON Signal Mapper is a 3D in-building coverage mapping solution that is integrated for use with Anritsu handheld spectrum analyzer products to automatically collect geo-referenced test data with every step. The system allows you to perform coverage testing of RF communications systems both indoors and outdoors. It uses inertial data from a wearable tracking device to enable real-time 3D location and mapping inside buildings. The system incorporates GPS data when line of sight to GPS satellites is available.

1-2 Contacting Anritsu for Sales and Service

To contact Anritsu, visit the following URL and select the services in your region:
http://www.anritsu.com/contact-us.

1-3 System Overview

The MA8100A consists of the following software and hardware.

- TRX System NEON Signal Mapper Software for Android phone or tablet
- TRX System NEON Command Software for a Windows-based PC or laptop
- TRX System NEON Tracking Unit with micro USB cable for charging the battery
- TRX System NEON Cloud Service
- USB OTG Cable
- Android Device (user provided)
- TP-Link TL-WR802N travel router (user provided, optional)
- Anritsu Spectrum Analyzer or Anritsu Remote Spectrum Monitor (user provided)
- PC or Laptop (user provided)

NEON Signal Mapper

The NEON Signal Mapper provides the Android user interface to test signal coverage and to create heat maps. RF data is captured by an Anritsu Handheld Spectrum Analyzer and sent to the Android device, typically via a USB connection. Users can edit building data, initialize their location, start and stop the recording of signal data, and upload mapping data to the NEON Cloud.

NEON Command

The NEON Command is a PC-based map editing and tracking software that enables the creation and visualization of 3D building maps. The user can create building outlines, add floor plans, and generate heat maps of geo-referenced measurement results. The file export feature lets you generate reports of the signal map data. NEON Command also provides access to the NEON Cloud Service to store and retrieve maps and measurement data.

NEON Tracking Unit

The NEON Tracking Unit shown in Figure 1-1 It is a wearable accessory that can be clasped to a belt. The tracking unit is paired with an Android device and used to collect and process location data. The location data is sent over Bluetooth to the NEON Signal Mapper application running on an Android phone or tablet.

A micro USB cable is provided for recharging the NEON tracking unit battery.

1. Operating Mode LED
2. Power Button
3. Charge Status LED

Figure 1-1. NEON Tracking Unit

LED Indicators

The NEON Tracking Unit has two LEDs to indicate device status. The top LED indicates the accessory's operating mode. The bottom LED indicates the charging status.

Operation LED (Top)

- Off – Tracking Unit is powered off
- Solid green – Starting up or powering down
- Blinking green – Anchor mode: device is on but not connected to the Signal Mapper app
- Blinking blue – Tracker mode, connected to NEON
- Blinking orange – Tracker mode, not connected to NEON
- Blinking purple – Bootloader starting or download in progress
- Solid purple – Bootloader Ready
- Solid green – Bootloader Success

Charging LED (Bottom)

- Solid orange – Charging
- Solid green – Charged
- Off – USB is disconnected
- Blinking green/orange – Charging error

On/Off Procedure

Press the Tracking Unit power button to turn on the device. The top LED is solid green while the unit is powering on. It blinks green when power-on is complete and the Tracker is not yet connected to the Signal Mapper application (Anchor mode).

To turn off the Tracking Unit, press and hold the power button for at least a half-second. The top LED is solid green while the unit is powering down and turns off when power down is complete.

Calibration

The NEON Tracking Unit requires no user calibration. The magnetometer and gyroscope within the device automatically calibrates while the user moves and stops.

NEON Cloud Service

Signal map logs containing measurement results with location information for the signals that were detected and geo-referenced are uploaded to the NEON Cloud, where they are accessible to users registered under the same NEON subscription.

Building data is also uploaded to the cloud when saved, except for offline buildings. Refer to "Offline Buildings (Optional Feature)". You can download building updates made by other users by synchronizing NEON Command or Signal Mapper with the cloud.

Android Devices

See the suggested recommended systems requirements and Android devices at the TRX NEON website: https://docs.trxsystems.com/signal-mapper/

Spectrum Analyzers

The Anritsu's handheld spectrum analyzer products are used with NEON MA8100A to perform coverage mapping of RF signal data inside buildings, where GPS is not available. The NEON MA8100A Signal Mapper is compatible with the following Anritsu handheld models listed in Table 1-1. For information using the Anritsu handheld spectrum analyzers, antennas, and accessories, search our product pages at https://www.anritsu.com

Table 1-1. Compatible Spectrum Analyzers

Product family	Handheld Models
BTS Master	MT8220T
Cell Master	MT8213E
Field Master Pro	MS2090A
LMR Master	S412E
Remote Spectrum Monitor	MS27101A-IBCM
Site Master	S332E S362E
Spectrum Analyzers/ Spectrum Master	MS2711E MS2712E MS2713E MS2720T
VNA Master	MS2034B MS2035B MS2036C MS2037C MS2038C

Figure 1-2 shows a sample of the Anritsu handheld products used with TRX NEON MA8100A to perform coverage mapping.

Figure 1-2. Handheld Spectrum Analyzers Family (User Provided)

Chapter 2 — Installing TRX NEON

2-1 Introduction

In-building coverage mapping of RF data captured with an Anritsu Handheld Spectrum Analyzer requires the use of a TRX NEON software, PC, and an Android smart phone or tablet. The Anritsu spectrum analyzer, Android device and PC are not included and must be provided by the user. The TRX systems NEON Command, NEON Personnel Tracker, and NEON Signal Mapper are downloaded from the TRX Systems website.
https://docs.trxsystems.com/

2-2 Registration and Installation

A NEON account is required to log in to the website to log in and register. To obtain details on how to create a NEON account, go to: https://docs.trxsystems.com/subscription/

Once registered, see the NEON Signal Mapper Quick Start Guide and follow the instructions provided: https://docs.trxsystems.com/quick-start/

The Quick Start Guide also provides instructions for:

- Site Planning
- On-Site Signal Mapping (Android)
- Generate Heat Map (PC)
- View Location Data (PC)

2-3 NEON Command System Requirements

Follow the instructions provided to register for NEON and to install the software. Review the PC and Android requirements before installing. NEON Command is installed on a PC that will serve as a Command Station. While NEON Signal Mapper is an Android app. the maximum number of licensed Command Stations and Android devices depends on the MA8100A TRX NEON Signal Mapper subscription that your company purchased.

2-4 NEON Signal Mapper Software

After registration, you will receive an email with the subject line "Welcome to NEON!" inviting you to join your company's NEON subscription. Click the Register for NEON button in the email and create your login account as described in "NEON Signal Mapper Software" on page 2-2.

Proceed with the steps below after you have registered for a login account.

1. Open a Web browser on your Android device and go to https://neon.trxsystems.com.
2. Log in to your NEON account.
3. On the Downloads page, tap the NEON Signal Mapper button.
4. Install the Signal Mapper application by tapping the file from the drop-down notification bar. You can also install the app from the Downloads folder on your Android device.

Software Update

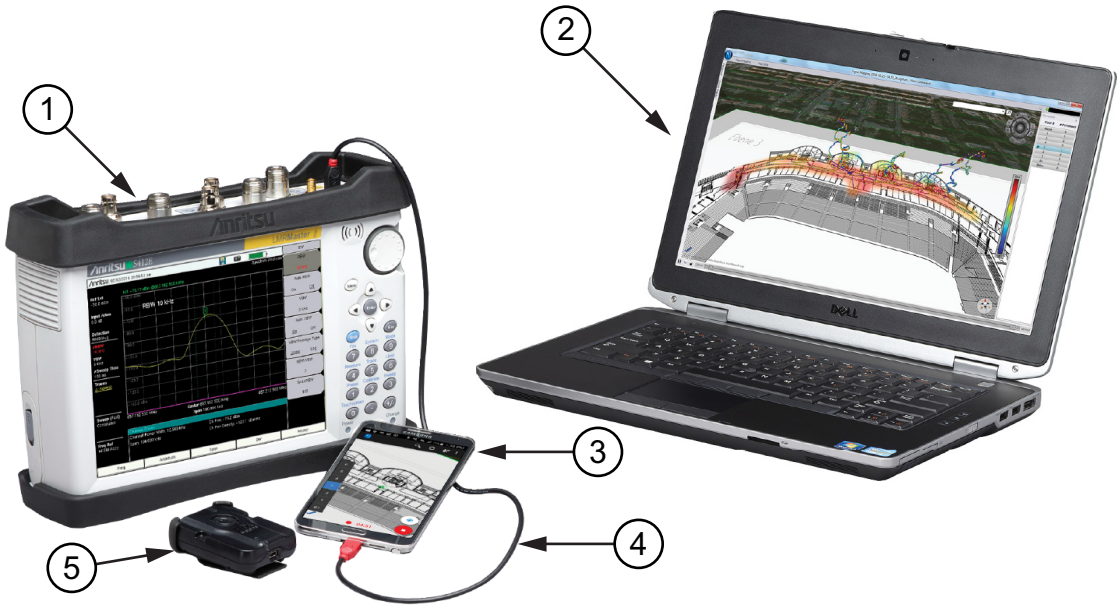
Registered users should receive an email from TRX Systems announcing a new software version when one becomes available. Click on the included link to open the login page and you will be directed to the NEON Downloads page.

Alternatively, you can simply open the application and a prompt will display, asking whether you wish to update. Follow the screen prompts to update to the latest version.

With no update notification, you can still look for the latest versions of NEON Command and NEON Signal Mapper by logging in to the Downloads page. If you already have NEON Command open on your PC, click the Help menu and select Check for Updates. On your Android device, tap the Signal Mapper menu button and select Check for Updates.

2-5 Hardware Connections

The MA8100A TRX NEON Signal Mapper with spectrum analyzer is composed of the hardware items shown in Figure 2-1 and Figure 2-2 on page 2-4. Here, an Anritsu LMR Master (S412E) is the handheld instrument shown connected to the Android device.



1. Anritsu Spectrum Analyzer (S412E)	4. USB OTG Cable
2. Laptop or PC	5. NEON Tracker
3. Android Device	

Figure 2-1. Spectrum Analyzer Setup

Use the USB OTG cable to connect the Anritsu spectrum analyzer to the Android device. The Laptop or PC is used for creating building models, importing floor plans, and remote monitoring. No hardware connection is required. The NEON Tracker is a wearable remote device that has a clip that can be used to clasp onto a user's belt.

Refer to the In-Building Coverage Mapper Hardware Installation Guide (10580-00470) for complete MS27101A-IBCM power-on and assembly instructions.

The NEON Tracker, Software and Android device are supplied by the user.

Note	Requires an Android device, SPA, and Windows PC, which are not included as part of the mapping solution.

2-6 Wireless Hardware Connection

A wireless connection from the MA8100A Signal Mapper to an Anritsu instrument facilitates coverage mapping in cases where the measured frequency band is outside of the 2.4 GHz Wi-Fi band. This wireless capability allows a wider range of movement for the user without being limited to the length of the USB OTG cable. Figure 2-2 shows an Anritsu handheld instrument (LMR Master S412E) connected to an Android device through a portable wireless router (not included).

1. Anritsu Spectrum Analyzer (S412E)	4. Wireless Router
2. Ethernet Cable (router to S412E connection)	5. Laptop or PC
3. USB cable (powering router from S412E or an external source)	6. Android Device
	7. NEON Tracker

Figure 2-2. Spectrum Analyzer Setup for Wireless Connection

Note	Requires an Android device, a TP-Link TL-WR802N router, SPA, and Windows PC, which are not included as part of the mapping solution. The Anritsu instrument must have an Ethernet port or Wi-Fi capabilities.

2-7 Connecting the TL-WR802N Wireless Router

This section provides instructions to wirelessly control Anritsu's handheld instruments using a phone or tablet and the Wireless Router, TP Link Model TL-WR802NTL-WR802N (2000-1752-R). This instruction applies to most Anritsu handheld instruments with Ethernet connection.

The following items are needed:

- Anritsu handheld instrument with Ethernet port
- 1 TP-Link TL-WR802N router
- USB-A to micro-USB cable (included with router)
- 1 Ethernet cable (included with router)
- Android Smartphone or tablet

Note	It is recommended that the user upgrade to the latest firmware available on the Anritsu website.

Configuring the Wireless Router

Your router comes factory configured to work with Anritsu instruments. The router will come with a USB, a USB-A to micro-USB cable, and an Ethernet cable. Record the following information for future reference:

- SSID and wireless password. The default SSID is located on the bottom label of the router and is displayed on the Android device as shown in Figure 2-3.
- Admin password. This will be created during the initial setup.

Figure 2-3. Default SSID of Router

Connecting to the Wireless Router

Your TL-WR802N Wireless Router comes factory configured to work with Anritsu instruments.

1. Power off the Anritsu handheld instrument.
2. Connect the USB and Ethernet cable from the instrument to the router. This will provide power to the router and network connectivity between the router and instrument.
3. Set the Anritsu handheld instrument Ethernet settings as follows:
   - **IP Address** = 192.168.0.50
   - **Default Gateway Address** = 0.0.0.0
   - **Subnet Mask** = 255.255.255.0
4. Connect the laptop to the router via Wi-Fi (using the icons in the lower right system tray) using the SSID and pincode that are printed on the router label. These codes are unique for each router. For example:
   - SSID = TP-LINK_39DE
   - Password = 02850450
5. Open a browser on the computer and enter the URL address 192.168.0.50 to access the handheld instrument web interface.

Once the Anritsu handheld instrument is turned on, wait two to three minutes or until the router finishes booting up and is broadcasting its SSID. Enter the password when prompted as shown in Figure 2-4. The default Wi-Fi password can also be found on the label on the bottom of the router.

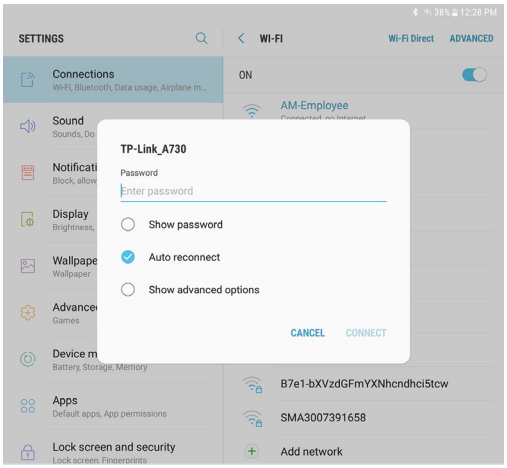


Figure 2-4. Enter Password

Recover the Factory Configuration

1. Connect the laptop to the router via Wi-Fi as described in Step 4 of "Connecting to the Wireless Router" on page 2-6.
2. Open a web browser and enter the URL address tplinkwifi.net (or 192.168.0.1 is the router default IP address, which will be changed later in the procedure).
3. Log in to the router using the defaults:
   - username: **admin**
   - password: **admin**
4. Click Quick Setup.
5. Set the router as an Access Point and click Next until the Quick Setup is done.
6. Review the settings and then reboot the router using the on-screen Reboot button, then connect as described in the previous procedure.
7. Power on the instrument. The router's light will blink green shortly thereafter. Once there is a connection to the instrument, the light will turn solid green.
8. Verify the Anritsu handheld instrument's IP setting is set to DHCP as described in your Anritsu instruments user guide. This will allow the router to assign an IP address automatically.

Connecting to the Android

Once the Android device is wirelessly connected to the router:

1. Open a browser window.
2. Type tplinkwifi.net into the address bar.
3. Enter the default user name and password when prompted. The username and password info can be found at the bottom of the router.
4. Select Operation Mode as shown in Figure 2-5 and ensure Access Point is selected.
5. Touch OK when prompted and allow the router to reboot.

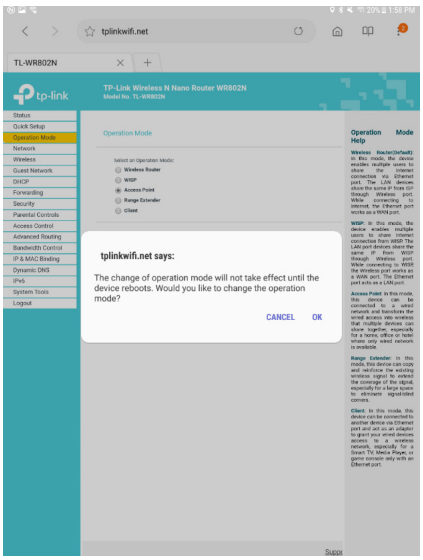


Figure 2-5. Operation Mode/Access Point

Connecting to the Spectrum Analyzer with a Smartphone

1. Ensure mobile data is turned off and the phone is connected to the correct router. The mobile data setting button for the Samsung Galaxy S8 is shown in Figure 2-6.

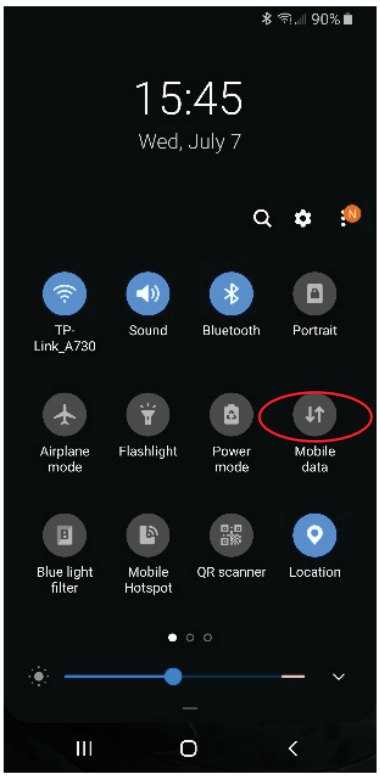


Figure 2-6. Mobile Data Settings

Note	In cases where an instrument with Wi-Fi such as the MS2090A connects directly to a phone with hotspot enabled (without using a router), then mobile data can be turned on.

2. Open a browser and enter the IP address of the instrument.

The browser will load the Anritsu login page as shown in Figure 2-7 on page 2-10. In this example, the IP is 192.168.0.100.

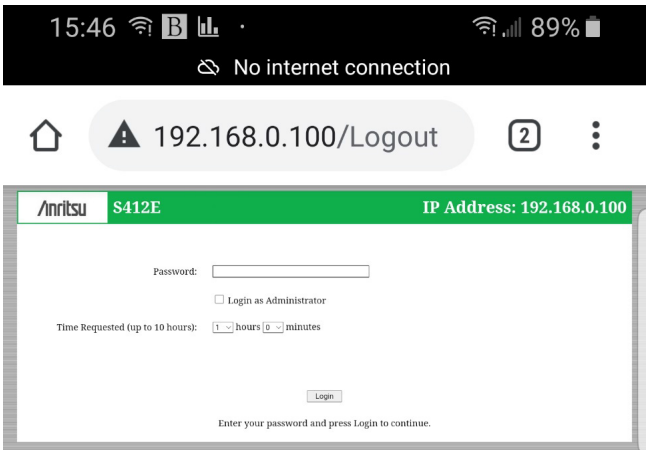


Figure 2-7. Anritsu Handheld Instrument Login

3. Click “Login” at the bottom of the page. By default, there is no password required.

After the login page, the user can navigate using the available tabs such as Home, Remote Control, Capture Screen, Capture Trace, File List, Device Management, and Logout. Figure 2-8 shows the Remote Control tab and the spectrum analyzer display with channel power measurements.

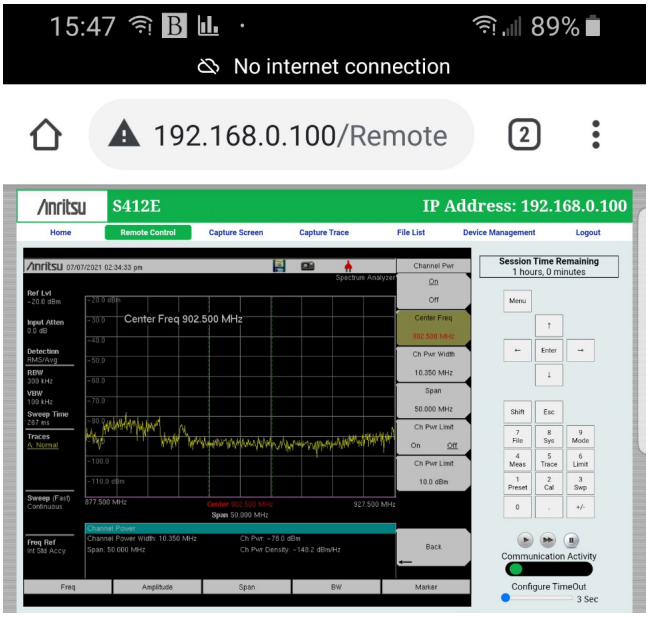


Figure 2-8. Remote Control Tab

2-8 Connecting to TRX NEON

This section describes how to connect the tracker to the TRX NEON App.

1. Touch the NEON App on the smartphone as shown in Figure 2-9.

Figure 2-9. NEON App

2. Touch the three bar icon as shown in Figure 2-10.

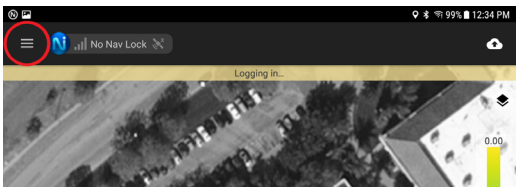


Figure 2-10. Three Bar Icon

3. Power on the tracker and confirm the tracker's green light is on.
4. Touch Anritsu Settings to access the smartphone's Anritsu Settings as shown in Figure 2-11.

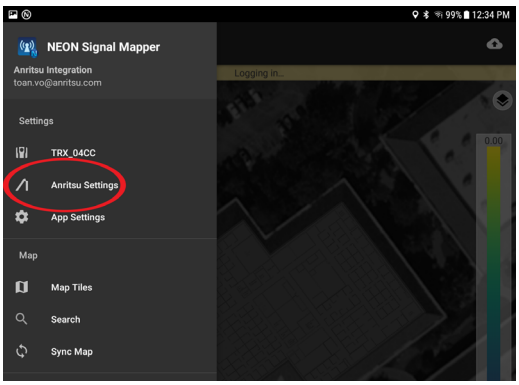


Figure 2-11. Smartphone Anritsu Settings

In the Anritsu settings menu:

5. Touch and change Connection Type to Wi-Fi.
6. Touch Device IP Address and type the correct IP address.
7. Touch Test Device Connection.
8. Verify “Status: Connected” is displayed as shown in Figure 2-12.

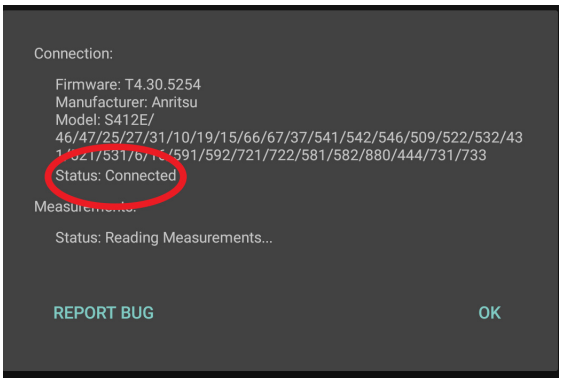


Figure 2-12. Status Connected

To pair the device, initialize your location and perform signal mapping. Refer to “On-Site Mapping” on page 4-1.

Chapter 3 — Site Planning

3-1 Introduction

The primary function of NEON Command is to create building models and view tracking logs. Adding building models allows for 3D tracking and also improves 2D tracking. This chapter provides the basic Site Planning process. Refer to the NEON Command website and follow the NEON Command procedures and menu interfaces to perform Site Planning.

3-2 Log In to NEON Command

Log in to the NEON Command page as described in "NEON Signal Mapper Software" on page 2-2. The login page opens when you launch NEON Command on your PC, unless you are already signed in. Use your registered email address and password to log in to the application. If you are using a Gmail address, you can alternatively click on Sign in with Google.

Note	Exiting NEON Command does not log you out. Next time you open the application, you will still be logged in and the login page will be bypassed. To log out of NEON Command, click your email address in the upper right corner of the screen and select Logout.

Building Editor

The NEON Command Building Editor features let you name a building, add floors and floor plans, and edit the building outline and floor plans. Optionally, you can download any building updates made by another user.

Building Editor functions are accessed and performed the same way, whether you are entering information for a new building or modifying an existing building. If you just finished creating a building, NEON Command automatically opens the Building Editor and displays the Edit Building Details.

To save or discard your unsaved changes to the building data and exit the Building Editor, click Save or Cancel, then select the appropriate response in the confirmation dialog.

The Building Editor is also available in the NEON Signal Mapper app on your Android device.

Add Floors to a Building

After creating a building outline, you can give the building a name and set the number of floors in the building. Perform the following steps while in Building Editor mode.

Add a Floor Plan

You can attach a pre-existing floor plan to each floor in the building. If you don't have the floor plan images that you need, do an online search of floor plans for your building. .

Note	If no digital image of a floor plan exists, skip this section and use the Building Editor on your Android device to select the Replace Floor Plan From Camera function. This feature allows you to take pictures of a physical floor plan, such as an emergency evacuation plan if available.

Note	When saved, the building data is normally uploaded to the NEON Cloud Service and becomes accessible to all users registered under the same subscription. However, if your subscription includes the option to create offline buildings, clicking Save for the first time on a newly created building will open a prompt asking if you want to save the building as Private (uploaded to your subscription) or Offline (not synced with the NEON Cloud). Once a building has been flagged as offline, subsequent saves will automatically overwrite the locally stored building data.

Edit a Building in Signal Mapper

Building details and floor plans can be modified in NEON Command on a PC and in Signal Mapper on your Android device. Signal Mapper gives you the additional ability to take and load pictures of physical floor plans if no floor plan image files currently available.

Edit building details or change floor plans with Signal Mapper. Use fingertip motions to resize and rotate the floor plan to make it fit over the building outline as shown in Figure 3-1.

Figure 3-1. Building Editor Main Screen (Android Phone)

Saved building data is automatically uploaded to the cloud and becomes available to all users registered to the same NEON subscription. For information on how to keep building data in local memory only and prevent it from syncing with the cloud, refer to "Offline Buildings (Optional Feature)".

3-3 Offline Buildings (Optional Feature)

The optional offline building feature lets you export a building outline and associated floor plans from NEON Command to a mapping package (.maps file) stored locally on your PC. This building data is not uploaded to the NEON Cloud. Instead, you can upload the mapping package later to an Android device without using the Cloud Service.

The offline building data may also be shared with users registered under the same or a different NEON subscription by making the mapping package available to them for import into their NEON Command application.

Export a Mapping Package

This function is available only if your NEON subscription has the optional offline building feature enabled through TRX Systems.

Offline buildings are deleted from NEON Command when you log out of your account. To restore the building, import the mapping package.

Import a Mapping Package into NEON Command

If an outline and floor plans already exist for your building in the form of a .maps file to which you have access, you can load this mapping package into NEON Command instead of creating the building from scratch.

Unlike exporting, importing mapping packages does not require the offline building option to be enabled. This makes it easier to share building data with users under another NEON subscription where the feature is not available.

Upload a Mapping Package to Android Device

1. Connect the Android device to your PC over USB.
2. Open the external device in Windows Explorer and create a folder named “TRXMaps” in the top level directory.
3. Paste a copy of the mapping package (file extension .maps) into the TRXMaps folder.

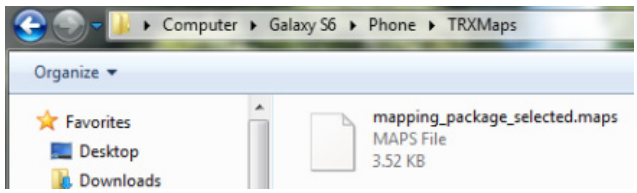


Figure 3-2. TRXMaps Folder on Android Device

4. Open the Signal Mapper app on the Android device and the offline building will load. An “Importing Maps” message may display briefly.

Chapter 4 — On-Site Mapping

4-1 Introduction

NEON Signal Mapper integrates with the handheld spectrum analyzers to pull in signal data and place it on a map. The NEON Signal Mapper app includes a visualizer that displays the signal strength of a custom set signal on a floor plan image for real time visualization and debugging. This chapter provides the basic On-Site Mapping process. Refer to the NEON Signal Mapper website and follow the NEON Signal Mapper procedures and menu interfaces to perform On-Site Mapping.

4-2 Select the Building and Floor

1. Go to the building and floor where you want to start the coverage mapping session.
2. Open Signal Mapper on the Android device and log in to your NEON account. If you have not installed NEON Signal Mapper, refer "Registration and Installation" on page 2-1.
3. Enter the address of the building you want to map in the input field.
4. Select the floor number from the floor selector.

4-3 Pair the Tracking Unit and Android Device

The NEON Tracking Unit is a small, wearable device that collects inertial and pressure data used by Signal Mapper to calculate user location. It connects over Bluetooth to your Android phone or tablet.

Before pairing the tracking unit and the Android device, turn on the tracker by pressing the power button. The top LED blinks green (Anchor mode) when power-on is complete.

Note	The tracking unit is detectable within the first two minutes of power-on. If you do not complete the pairing in time, turn the tracker off and on, then try again.

NFC Touch Pairing

Touch the TRX logo on the tracking unit to the back of the phone to pair with NFC Touch Pairing. After pairing is successful, the top LED on the tracker will blink blue, indicating it is on and connected to NEON (Tracker mode). If Signal Mapper is not currently open, this will also launch the app.

For the most accurate position data, wear the unit facing front while tracking. Proceed to "Initialize Your Location with Signal Mapper" on page 4-2.

If your Android device does not have NFC, continue with the instructions below to pair and connect manually.

Tracking Unit Selection in Signal Mapper

1. Start scanning for nearby Bluetooth devices.
2. Select your tracker TRX_xxxx, where xxxx is the serial number of your tracking unit, then wait for the pairing to complete.

   NEON will place the best location estimate on the screen. For accurate calculations of heading and distance, you will need to initialize your location.

4-4 Initialize Your Location with Signal Mapper

Your location indicator in Signal Mapper consists of an error bound circle and avatar. Before initialization, your avatar is a red dot and is likely to move in a random direction. The location indicator is green when the tracker is initialized and locked onto your heading. The avatar then takes the shape of an arrowhead.

1. Stand at a location that you can readily identify on the floor plan.
2. Refer to the Signal Mapper menu and click the Check-in icon.
3. Drag and reposition the map to place the green pin marker at your actual location.
4. Apply the location correction and complete the check-in. Wait for the location indicator to reset your current position (red dot).
5. Walk straight at least 10 meters to another recognizable location.

Note	The location indicator does not immediately follow your movement after the first check-in. The indicator will follow your position after getting a heading lock from the second check-in.

6. Tap the Check-in icon to calibrate the heading and distance. The location indicator turns green and the error bound circle becomes small when a good heading lock is obtained.

Signal Mapper is now ready for tracking. To select the type of signals you want to map, go to "Select Signal Filter Type".

Additionally, make sure your Anritsu test instrument is connected to Signal Mapper and is displaying measurement results before starting signal mapping.

4-5 Select Signal Filter Type

1. Refer to the Signal Mapper menu.
2. Choose Anritsu as the filter type.
3. Optionally apply a filter to the signal measurements displayed while mapping. Anritsu LTE is currently the only filter option available for Anritsu instruments.
4. Select other optional Signal Mapper settings such as the color map applied to measurements, the display base map, and your name and color when viewing remotely.

4-6 Channel Power Measurement

NEON Signal Mapper can collect channel power measurement data from all Anritsu handheld test instruments that support Spectrum Analyzer mode. Basic familiarity with your Anritsu test equipment is required.

Before performing in-building mapping, the spectrum analyzer must first be configured to measure signals. Knowing the anticipated signal strength and variation, potential presence of interfering signals, and noise sources should be used in determining analyzer settings. Refer to the instrument user manual for detailed instructions.

Connect the Spectrum Analyzer to Signal Mapper

Attach the Android device to the spectrum analyzer using the USB OTG cable to transfer the measurements into the NEON software as shown in Figure 2-1 on page 2-3. Alternatively, if the device has an Ethernet connection, you can enter its IP address on the Mapper Settings page. Refer to the Anritsu's handheld user guide to connect to a network or directly to a PC using Ethernet connectivity.

Connect MS27101A-IBCM to Signal Mapper

Refer to the In-Building Coverage Mapper Hardware Quick Start Guide (10580-00470) for complete MS27101A-IBCM power-on and assembly instructions.

4-7 On-Site Mapping

1. Tap the blue button to start Mapper mode. NEON will automatically detect and geo-reference sensors and signals as you move.
2. Walk through areas where you want to collect RF signal data. Signal strength is represented by a colored dot. A gray dot means no signal is detected at that location.

   A timer is displayed on the screen while you are mapping. The latest signal reading is shown, updating every second. Also displayed are the signal type being tracked, the building floor, and bars indicating the strength of the heading lock.

Note	If your location indicator becomes inaccurate, the phone will vibrate and Signal Mapper will stop collecting signal map data. If this happens, check-in at multiple locations until your avatar turns green. The app will then resume signal mapping.

3. Display all signals of the selected type that have been scanned in the last 15 seconds.
4. Optionally, change the signal type to change the type of signals displayed.
5. Stop recording signal data.
6. In the Mapping Finished dialog, enter a name for the log file, then upload map.

   The uploaded signal map can later be opened in the NEON Command application on your PC.

Other choices in the Mapping Finished dialog let you discard the map or continue mapping. Storing the map locally will create the signal map in the Android device's local folder.

4-8 Signal Mapping in an Offline Building

This topic applies only to buildings flagged as offline when they were created and saved in NEON Command. Offline building data is not uploaded to the cloud and is available in the form of a mapping package only to users who have access to this file. Refer to "Offline Buildings (Optional Feature)" for more information.

All the tasks related to conducting an on-site signal mapping session in a private building, as described in the previous sections, apply to an offline building. The only difference is in saving the mapping data locally on the Android device instead of uploading it to the cloud.

When you are done collecting signal map data, tap the red button to stop recording. In the Mapping Finished dialog, enter a name for the log file. The signal map is saved to the phone's memory in the folder NeonSignalMaps.

4-9 Signal Maps Stored on Android Device

Signal maps that are saved locally on an Android device are stored in a folder named NeonSignalMaps. From here, the signal maps can be uploaded to the cloud at any time. Additionally, you can manually transfer map data collected in an offline building from the Android device to your PC without using the NEON Cloud Service.

Upload Stored Signal Maps to the Cloud

1. Upload Signal Maps from the Signal Mapper menu.
2. Find the desired signal map log and select it, then Upload Selected.
3. Open the signal map in NEON Command.

Transfer Stored Signal Maps to a PC

1. Connect the Android device to your PC over USB.
2. Open the external device in Windows Explorer and open the folder named "NeonSignalMaps."
3. Copy the signal map file (extension .sigmap) to the appropriate location on your PC.
4. Open the signal map in NEON Command.

Chapter 5 — Signal Map Viewing and Reporting

5-1 Introduction

Measurement results with location data that have been saved in signal map logs can be displayed and analyzed on your PC using the NEON Command application. This chapter provides the basic Signal Map Viewing and Reporting process. Refer to the NEON Command website and follow the NEON Command procedures and menu interfaces to perform Signal Map Viewing and Reporting.

5-2 Open a Signal Map Log

Open a signal map log from the File menu. The file may be stored locally or in the NEON Cloud.

To open a single signal map previously uploaded to the cloud, select the log file from one of the folders created by date and click OK.

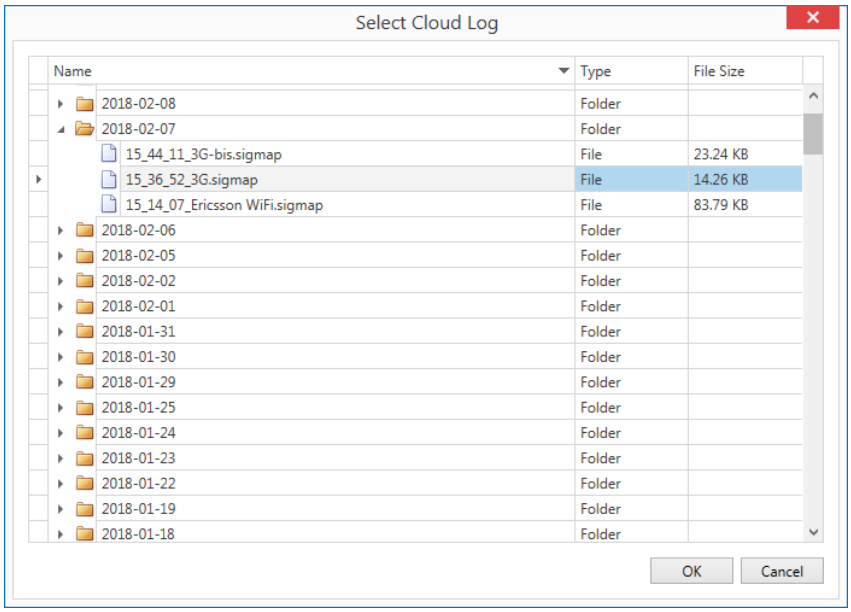


Figure 5-1. Select Cloud Log

Open a locally saved signal map, then navigate to the signal map log in the Open File Explorer window. NEON Command displays a map of the test area with a list of signals mapped in the log.

To visualize the signals on the map, go to "Generate a Heat Map".

5-3 Create a Combined Signal Map

You can combine signal map data from different sources and display them together on the NEON Command screen.

1. From the File menu, open a Combined Signal Map.
2. Add Local or Add Cloud depending on where the signal map you want to add is located.
3. Navigate to the local signal map log in the Select Signal Map Explorer window, or to the cloud log in the Select Cloud Log window and select the file.
4. Add as many signal maps as you wish, then click Open.

5-4 Generate a Heat Map

When you open a signal map log in NEON Command, a list of all the signals that were detected and geo-referenced is displayed next to the map.

1. Select the signal type, then click on the individual signals you want to display. You can also click select all of them.
2. Generate Map to display the data collected with Signal Mapper. The 2D image will appear similar to the one in Figure 5-2.

Figure 5-2. Heat Map Display in 2D

3. View signal data collected on another building floor,
4. You may optionally choose a different map type, such as a street view,
5. The Layers menu lets you turn on and off the display of Building, Personnel, and Signal Mapper elements.

6. To select color map options and other Signal Mapper or user interface settings.
7. Capture a screen shot of the current map display.
8. Display a 3D view of the signal map.

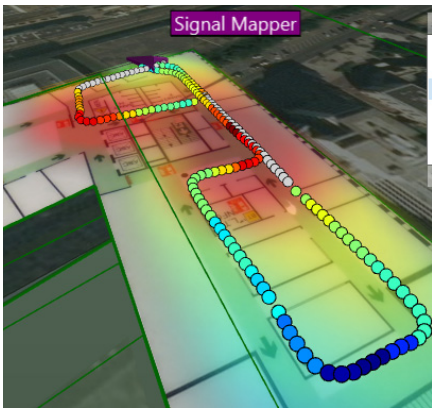


Figure 5-3. Heat Map Display in 3D

Use the NEON Command Software to view the signal strength inside three levels.

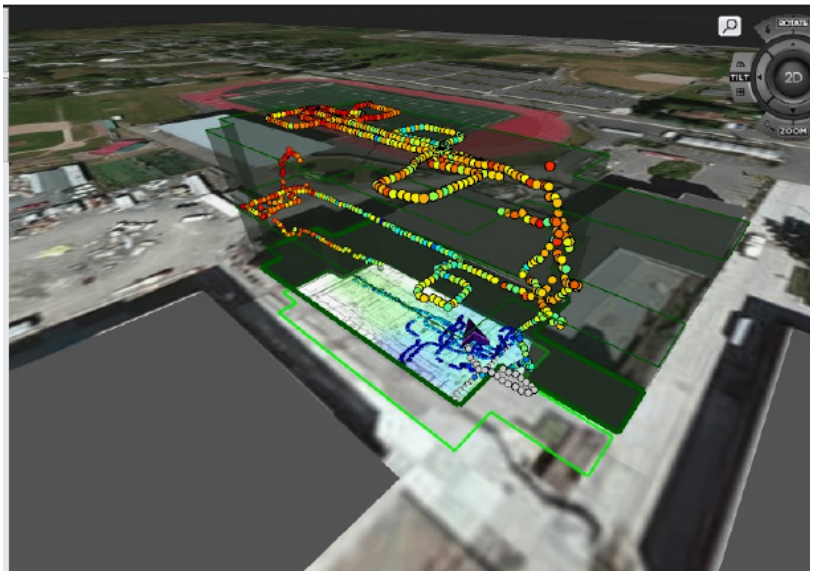


Figure 5-4. Three Levels in 3D

5-5 Create Reports

After opening a signal map in NEON Command, use the File > Export menu function to create reports of measurement results, time, and location data contained in the log.

CSV Report

Exporting to CSV format creates a zip folder of CSV files containing measurement data with time stamp and location for all the signals collected in the signal map. You can export CSV reports for the currently open signal map without first generating a heat map.

Image Report

Image reports consist of CSV-formatted files and a PNG image capture of the heat map. The CSV files contain all the measurement results and location data from the signal map.

iBwave Report

This feature creates reports in a format that can be imported into your iBwave application. The exported zip folder includes signal data and location files in CSV format, floor plan images, and .tab files that geo-reference the floor plans.

5-6 NEON Command Display Settings

You can control what data is displayed on the NEON Command screen as well as your viewing preferences. The following sections describe some of the more commonly used display options available in NEON Command.

Maps Menu

The Maps menu lets you select the base map tile type displayed in the map area of the NEON Command window.

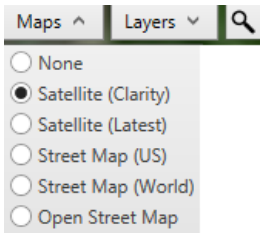


Figure 5-5. Map Tile Options

Layers Menu

From the Layers, select or deselect display elements you want to show or hide. Expand each layer to see the list of individual display elements.

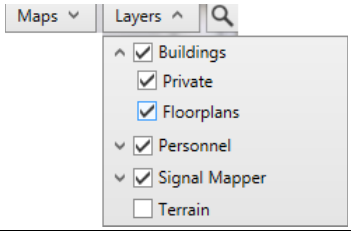


Figure 5-6. Layers Menu

Color Maps

Use color maps to set the display colors of dots representing the signal strength of measurements taken. Each of the user-specified ranges is associated with a different color. To edit an existing color map or create your own:

1. Select the color map to edit.
2. Enter a name and select the measurement type.
3. Add a Transition Point to set the transition value between each range.
4. Add all the transition points needed to define the desired ranges.
5. Select a range or the minimum or maximum value.
6. Select a color from the color palette.
7. Repeat until all ranges in the color map have been assigned a color.

Anritsu

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