

Mobile Signal Analyser

User Guide

Contents

Getting set up	3	Report summary	16
Product description	3	Analytic Graphs	17
Specifications	4	External aerial connection	20
Charging	5		
Pairing	6	Site Surveys	21
		Perform a site survey	21
Surveying	7	Troubleshooting, support & disposal	22
Start a survey	7	Troubleshooting guide	22
Carry out a single network survey	8	Disposal	23
		Disclaimer	23
Features	10	Glossary of abbreviations	24
Menu options	10	Support	25
Multi network	11		
Analytic mode	12		
Generate a report	14		

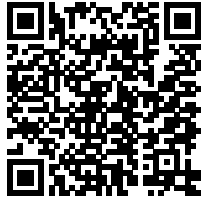
Product description

The Mobile Signal Analyser (MSA), helps you locate the best position to fit a your new Alarm terminal, by locating the strongest mobile network.

Download the AddSecure Mobile Analyser app on your iOS or Android device to get started.



iOS
App Store



Android
Google Play

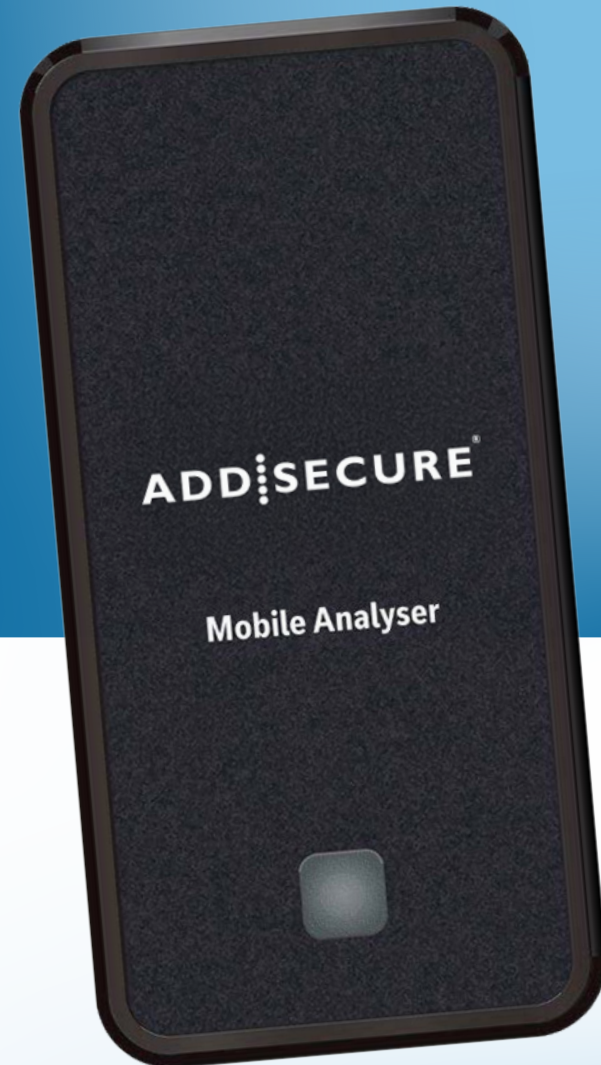


Figure 1 – Mobile Signal Analyser (not to scale)

Specifications

Operating frequencies

- LTE: 700, 800, 900, 1800, 2100 MHz (Bands 1,3,8,20,28)
- GSM/GPRS: 900 and 1800 MHz

USB-C powered 5V DC, 500mA

Battery rating 3.7V lithium polymer, 1100mA

Charge device only between 10C and 35C

Store device between 0C and 50C

Equipment model 207456 powered using a power supply/charger (output :5V dc,2A) approved in its country of use

Size: 150mm x 74mm x 18mm

Weight: 73g

Device Connection

- Bluetooth: 2.4GHz to 2.483Ghz

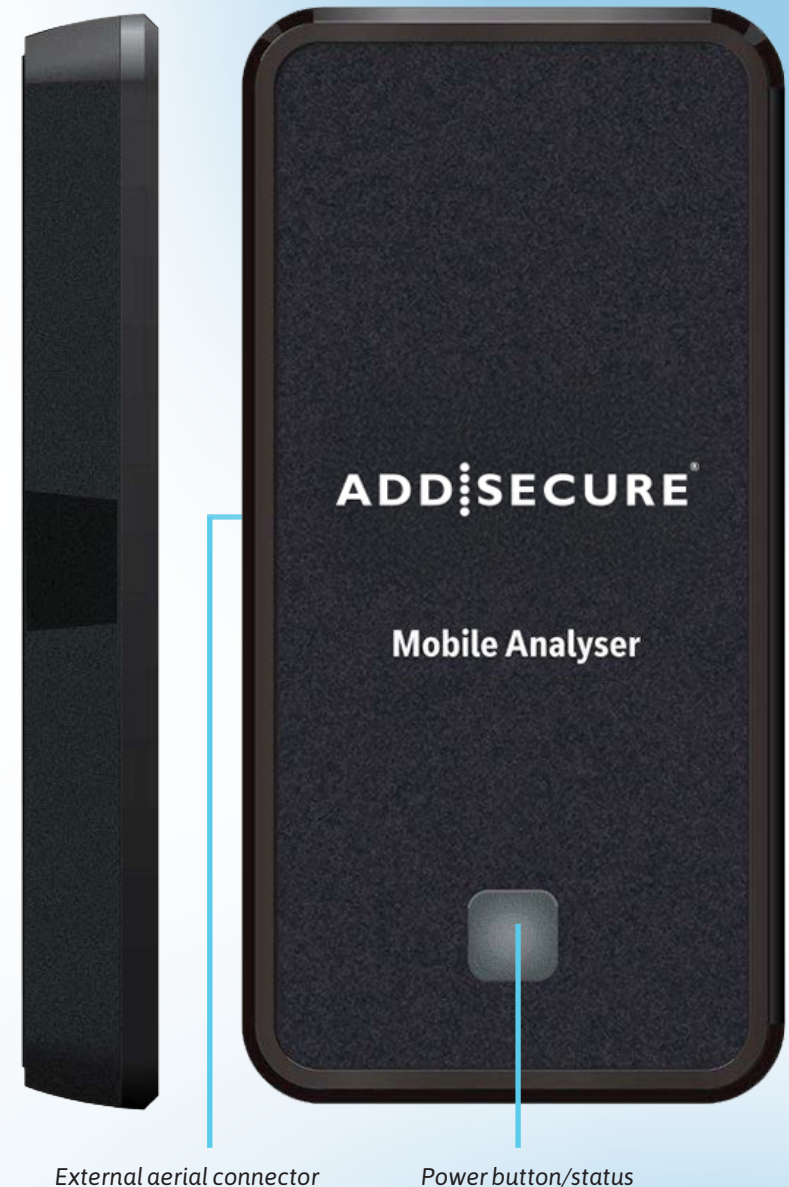
Safety

This product contains a lithium polymer rechargeable battery

- No user serviceable parts inside
- Only use with an approved battery
- Batteries may explode, burn, or cause a fire if misused or mishandled
- DO NOT use if battery or enclosure is damaged in any way
- DO NOT eat or swallow the battery
- DO NOT expose to liquids or high temperatures

Box contents

- Mobile Signal Analyser
- USB-A to USB-C charging cable
- Quick start guide



Charging

You'll need to charge the Mobile Signal Analyser (MSA) before first use.

Plug the charging cable into the USB-C connector on the Mobile Signal Analyser and plug the USB-A end into a suitable charging point. Minimum 5V 500mA.

When plugged in, the power button will flash red.

The power button will glow constantly red when fully charged. This will take approximately 4 hours.

Make sure the MSA has charged before attempting to carry out a survey.

You won't be able to survey with the USB charge cable plugged in. A 10-minute charge will give you approximately 10 minutes of survey time.

When the MSA is fully-charged and you've downloaded the app, press the MSA power button.

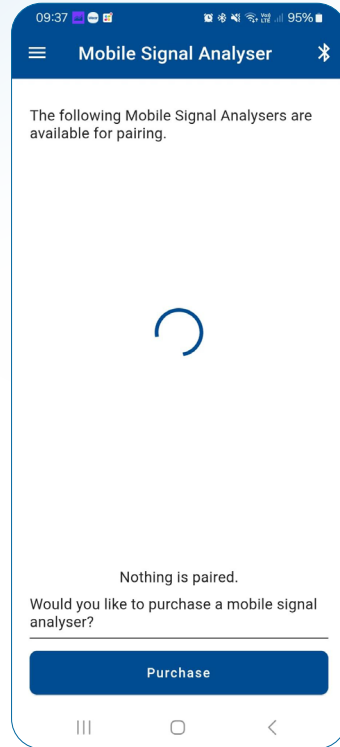
The button will turn green to show that it's on (but not yet paired).

To turn off the MSA, press the power button for 5 seconds. The power button LED switches off.

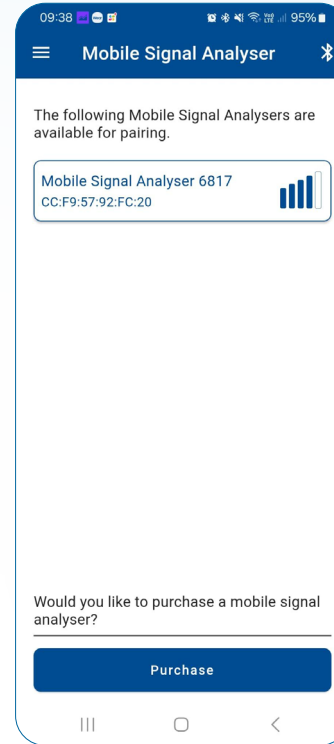


Pairing the MSA with your smart device

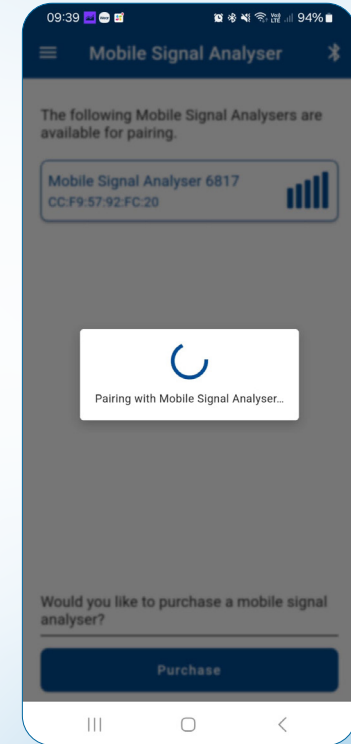
Make sure your device's Bluetooth is switched on, then open the Mobile Analyser app.



Your smart device and Mobile Analyser app will automatically start scanning for the MSA.



Tap on your MSA to pair with your device. You'll find the serial number on the back of the MSA.



When pairing is complete, the MSA power button will turn purple, and the following app screen will be displayed.

Start a survey

The 'Installer Details' screen features a blue header with a menu icon and a star icon. Below the header are five text input fields: 'Company', 'Address', 'Name', 'Email', and 'Phone'. An 'Attach company logo' button is located below the 'Phone' field. At the bottom of the screen is a large blue 'Save' button. The Android navigation bar is visible at the very bottom.

The 'New Survey' screen features a blue header with a menu icon and a star icon. Below the header are six text input fields: 'Site Name', 'Address', 'Name', 'Phone number', 'Email', and 'Signalling Device'. The 'Signalling Device' field has a right-pointing chevron. At the bottom of the screen is a large blue 'Save' button. The Android navigation bar is visible at the very bottom.

The first time you use the MSA you can enter your company details and attach a company logo (if stored on your device), by selecting the 'attach company' logo.

Tap 'save' and the app will remember these details.

Next, enter the details of the site you're surveying. Enter the name, address, contact details, panel type and the details of the alarm terminal you intend to install. Use the notes field to add extra detail.

Select 'save' to start a survey.

You can select 'save' without entering any of the site details.

You'll be able to add a site name to your report at a later stage.

Your MSA will start scanning.

Carry out a single network survey

Survey individual mobile 4G and 2G networks

The screenshot shows the 'Single Network' app interface. At the top, there's a blue header with a menu icon, the text 'Single Network', and a Bluetooth icon. Below the header, the selected network 'EE' and technology '4G' are displayed. A large circular signal strength indicator is in the center, showing a yellow arc and the value '-99 VERY GOOD SIGNAL'. Below the indicator, there's a 'dBm >' toggle. At the bottom, there are checkboxes for 'Enable 4G radio access technology' and 'Enable 2G radio access technology', a 'Mobile Network' dropdown menu, and a 'Generate Report' button. A callout menu is open over the 'Mobile Network' dropdown, showing options '02', 'Three', and 'EE' (selected with a checkmark).

Menu —————

Network selected – shows mobile network being surveyed —————

Signal strength in dBm or % —————

Switch between dBm or % —————

Select mobile network —————

Mobile technology selected 4G or 2G —————

Signal strength indicator
Green – excellent
Yellow – very good
Orange – good
Red – poor

Toggle between 4G and 2G —————

You can generate a report at any point as long as at least 4 minutes of data has been captured. See the section in this manual entitled 'Generate reports' for more details —————

For 4G Networks

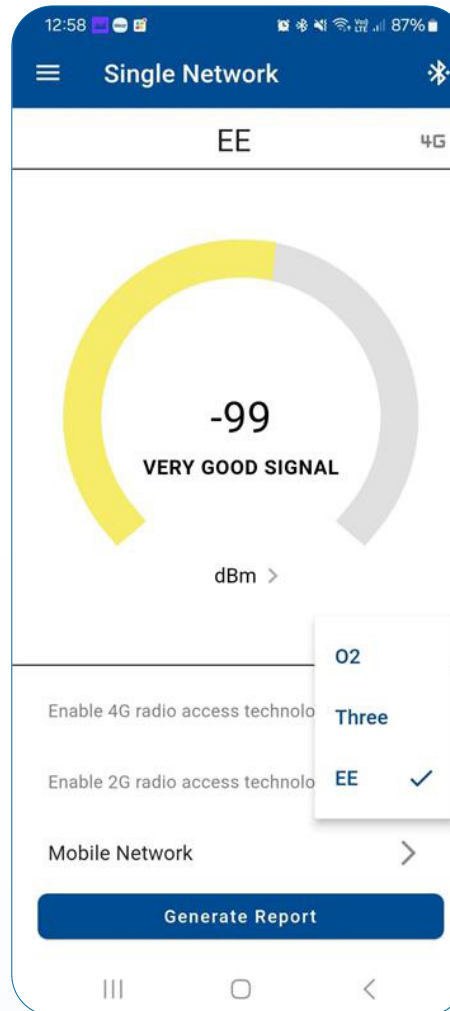
- Excellent > -90dBm: Green
- Very good between -99dBm -90 dBm: Yellow
- Good between -109dBm -100 dBm: Orange
- Poor < -110 dBm: Red

For 2G Networks

- Excellent > -75dBm: Green
- Very good between -79dBm -75dBm: Yellow
- Good between -84dBm -80 dBm: Orange
- Poor < -85 dBm: Red

Percentage scale

- Excellent >67%
- Very Good >50% to 67%
- Good >33% to 50%
- Poor <=33%



Select 'mobile network'. The network you're connected to will appear with a tick. Select the network you want to check and a scan will start immediately.

Menu options

Click the menu at the top left of your screen to see all options.

Home: returns you to the main screen

Single network: carries out tests on 4G and 2G networks

Multi network: carries out checks of networks for recommended criteria

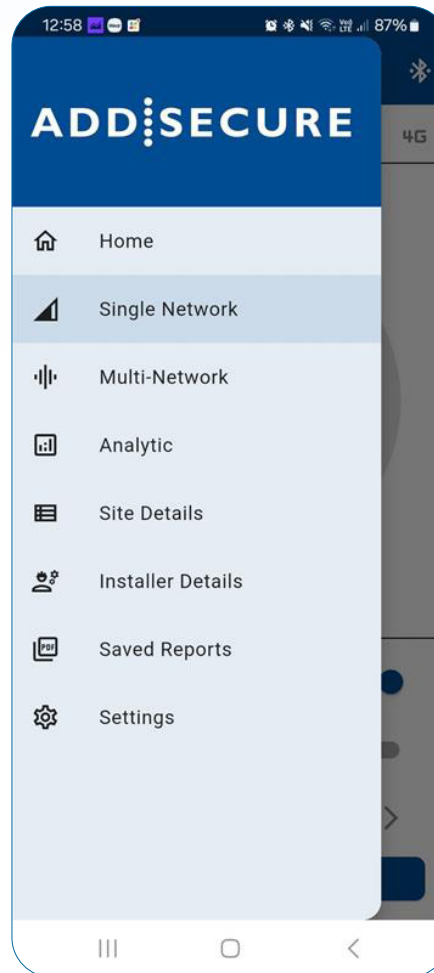
Analytic: checks mobile networks over time to ascertain reference signal received quality (RSRQ) band and local area code

Site details: allows you to add site details

Installer details: amend or add your company details

Saved reports: view previous saved reports

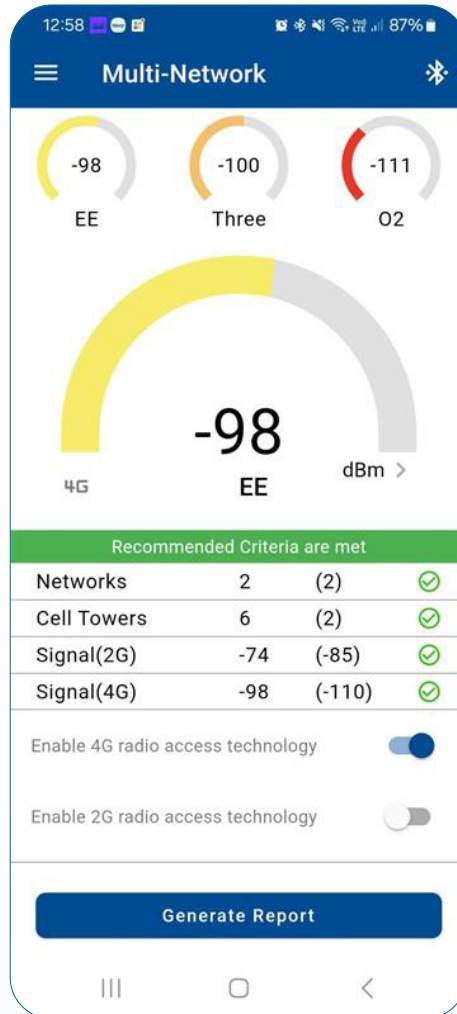
Settings: allows you to switch to an external aerial, include VoLTE bands in survey and update the MSA firmware if an upgrade is available.



Multi network

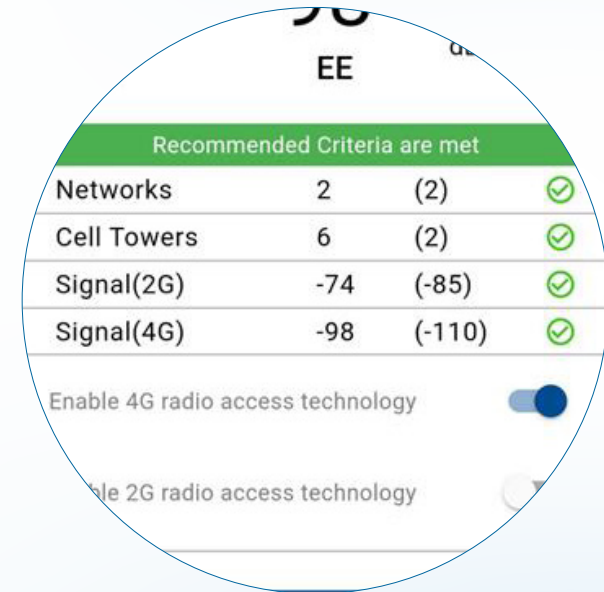
View all available networks on one screen to see whether your chosen site meets recommended criteria.

- Available mobile networks, signal strength indicators and signal strength in dBm
- Best network available showing network 4G or 2G, signal strength indicator, signal dBm reading
- Indicates whether the minimum recommended criteria has been met
- Toggle between 4G and 2G



Recommended criteria

Tells you which parameters have been met and whether the chosen location has a strong enough signal for an alarm terminal.

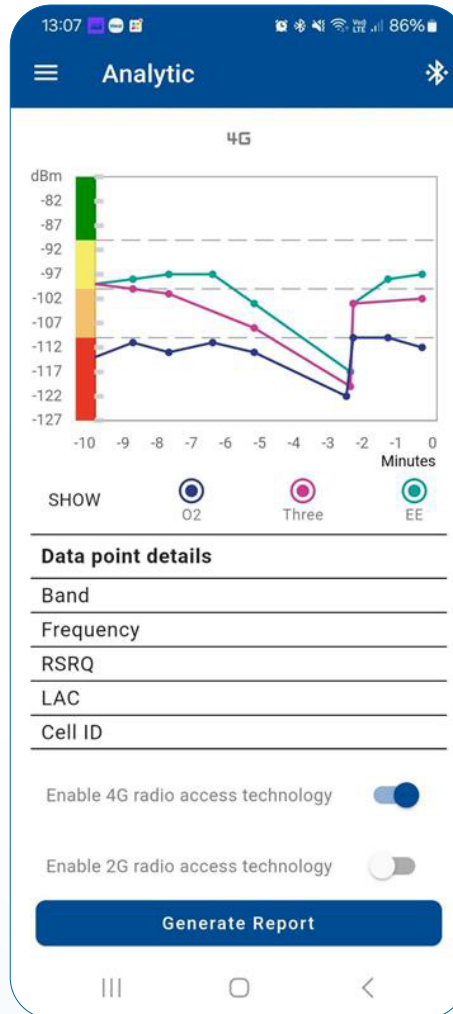


Analytic mode

Check available mobile networks signals over time for more detail.

Coloured dBm scale for signal strength with dBm readings
 Green - excellent
 Yellow - very good
 Orange - good
 Red - poor

Select a mobile network button to remove from or add to the data chart.



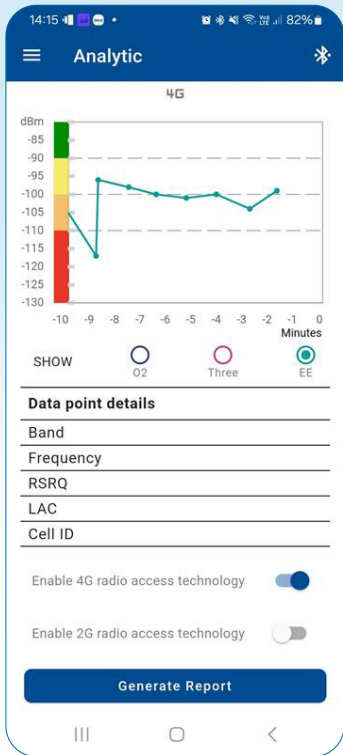
Tap on data point to see additional information below

Mobile network signals plotted over a rolling 10-minute time frame

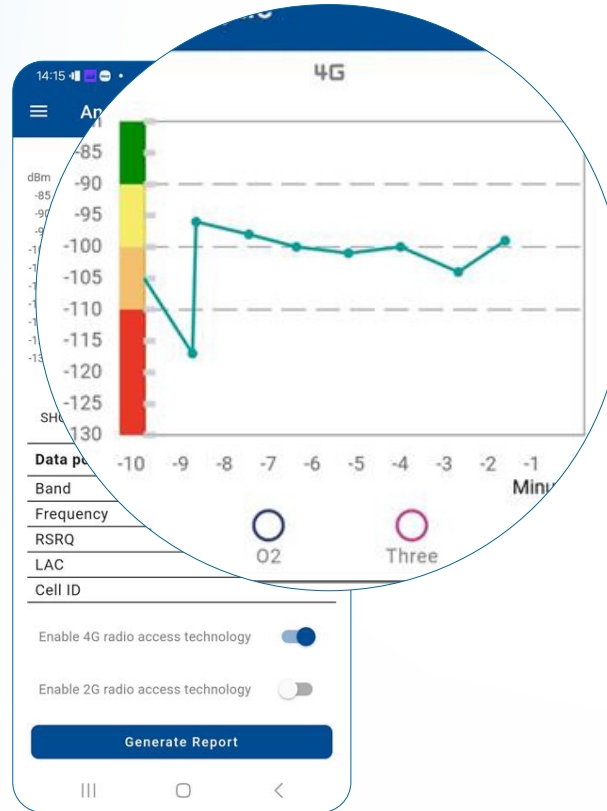
Details of a data point

Switch between 4G and 2G

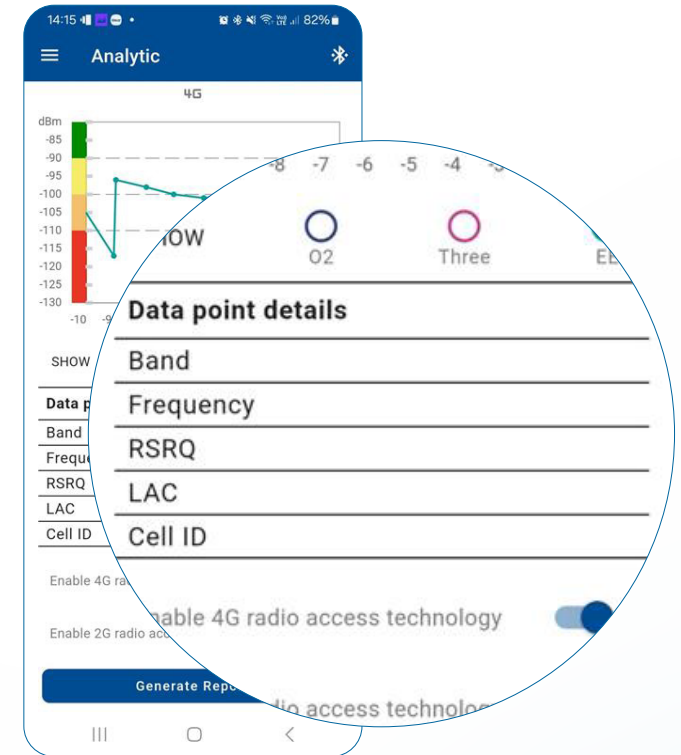
FEATURES



Access the individual network chart by tapping the mobile network buttons.



Tap a mobile network data point to see more information.



Band – shows the network band (4G) or frequency (2G) that the selected mobile network is using.

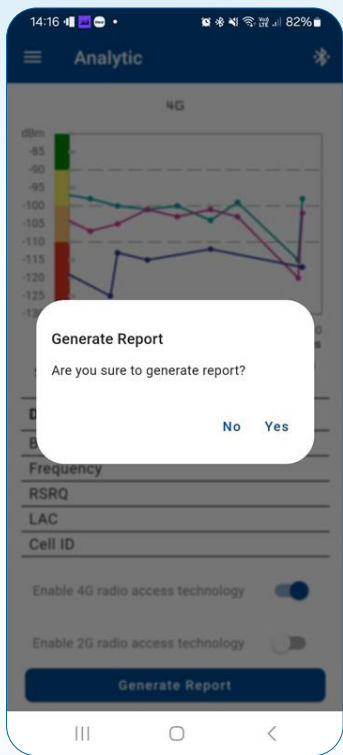
Frequency – shows the frequency 4G or 2G that the selected mobile network is using.

RSRQ – indicates the quality of received signal strength.

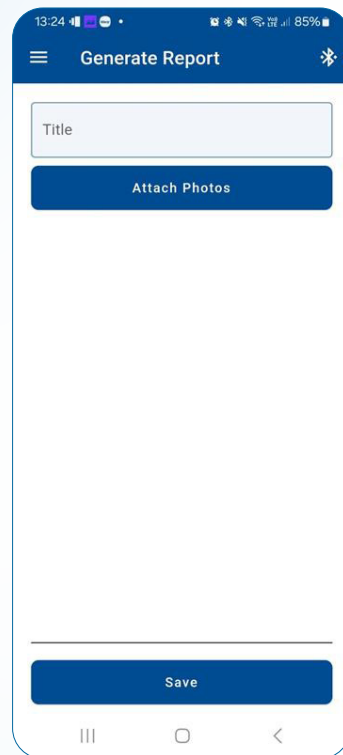
LAC – location area code. The area code location of the cell tower for the network.

Generate a report

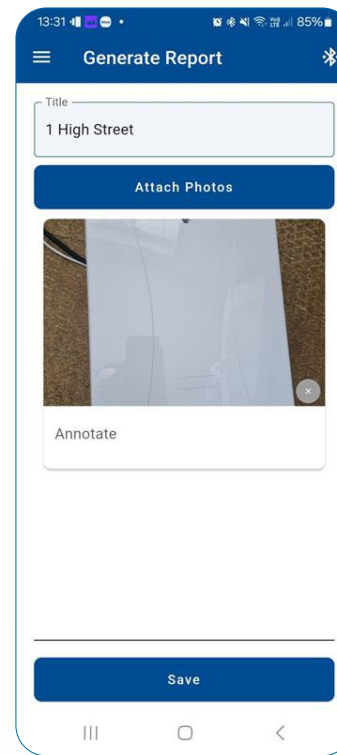
Generate a site survey report by selecting the 'generate report' button at the bottom of any of the survey screens, in single network, multi network or analytic mode. There must be at least four minutes of survey data to be able to generate a report.



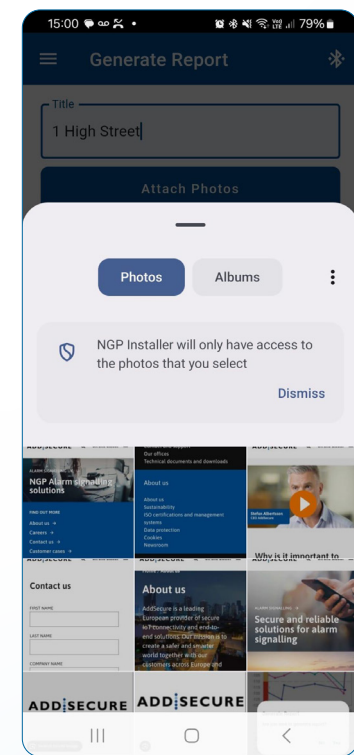
Select 'generate report' then 'yes' to confirm. The app will generate a report.



You'll be taken to the report screen. If you haven't already entered a site name, you can do that here.



Attach and annotate photos.

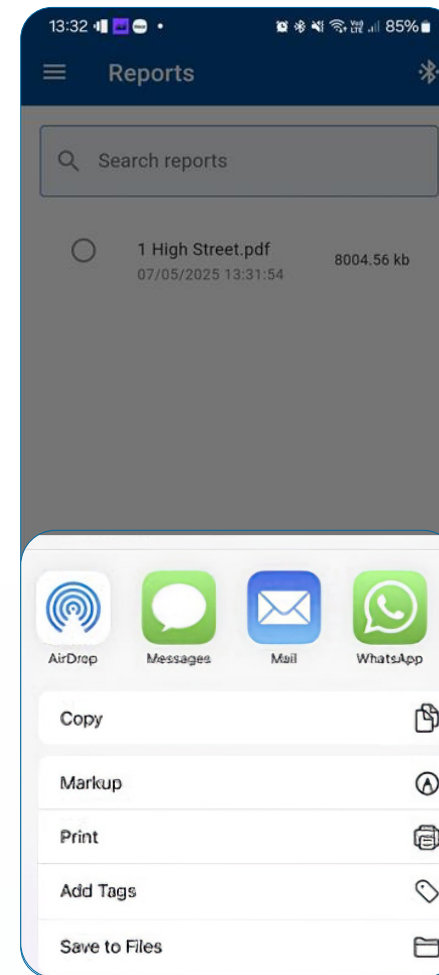
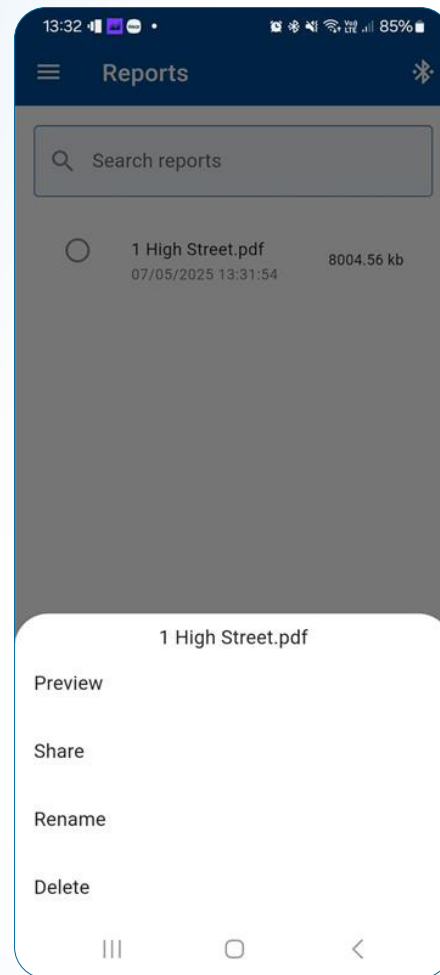


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Select 'save' to generate and save the report in PDF format.

The next screen shows a list of reports that have been saved (or a single report, if this is your first). Select 'report' and then 'share'.

Then choose a sharing option (such as 'send via email.')



Report summary

The reports will show your details, as well as the site details you entered on each survey and the survey results.

Logo

Mobile Signal Analyser Report

Site xyz

Date, Month and Year

Details of site visit

Installer Co	Installer ABC
Contact	John Smith
Phone	01230456789
Email	admin@installerabc.co.uk
Communicator	IRIS-4
Panel	Not provided
Antenna	Internal

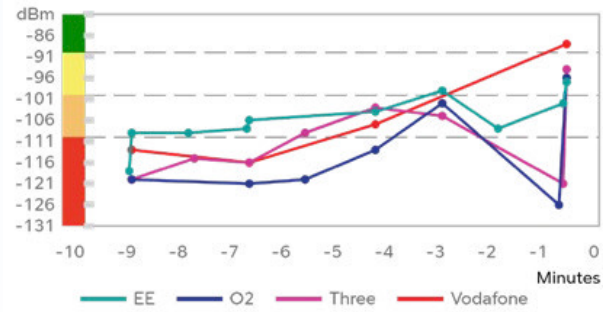
Site name	Site xyz
Side address	Unit 3 Lime Street, London XY1 3ZZ
Contact	John Smith
Phone	01234567890
Email	admin@installerabc.com

FEATURES

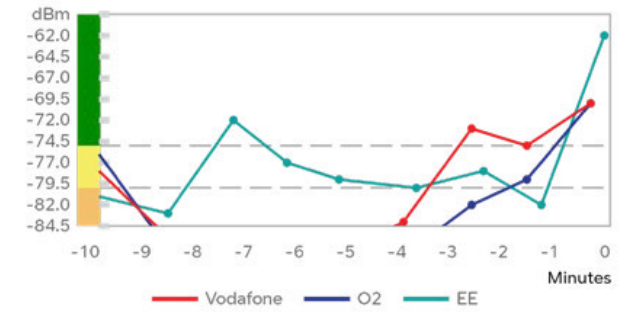
Analytic Graphs

The report shows the graphs of signal over time.

4G signal: Peak hold 2min, 6.03pm, May 07, 2022



2G signal: Peak hold 2min, 6.03pm, May 07, 2022



Averaged Statistics Summary*

Next is an averaged network statistics summary for 4G and 2G based on at least 10 minutes of data (if available).

This provides networks available, signal strength in dBm and percentage followed by a conclusion about whether the site meets recommended requirements.

4G Signal	dBm	%
O2	-112	30
Vodafone	-102	47
Three	-100	50
EE	-107	38

2G Signal	dBm	%
Vodafone	-87	27
EE	-85	33
O2	-84	37

Conclusion

The site has excellent/very good signal for 4G using two networks (EE, Three) and separate cell towers. Therefore this location meets the recommended requirements for device installation.

FEATURES

Average, standard deviation and median results summary

Average signal strength in dBm over 10 minutes of data (if available).

Standard deviation of that signal compared to the mean (dBm).

Median signal strength in dBm (the middle signal strength number of the data collected).

4G: Average, Standard Deviation, Median			
Network	Avg.	SD	M
O2	112	4.9	112
Vodafone	-102	2.3	-102
Three	-100	8.8	-104
EE	-107	11.6	-112

2G: Average, Standard Deviation, Median			
Network	Avg.	SD	M
Vodafone	87	2	87
EE	-85	3.6	-86
O2	-84	3.9	-84

Cell tower: signal strength average, standard deviation, median summary*

A table is displayed, showing where the summary came from, as well as individual cell towers and 4G and 2G statistics.

Cell tower ref.	Network	Avg.	SD	M
1081	4G	-112	4.9	-112
	2G	0	0	0
1478	4G	-99	8.6	-103
	2G	0	0	0
1832	4G	-102	2.3	-102
	2G	0	0	0

Site notes

Site notes and photos, if these have been added, will be shown in the report.

FEATURES

Detailed network statistics

Next in the report is a detailed table for 4G, containing:

- Date and time of survey
- Mobile network name
- Location area code (LAC) of the cell tower
- Band frequency
- RSSI - received signal strength indicator (dBm)
- RSRQ - reference signal received quality (4G only) OdB (highest quality) to 20 dB (lowest quality). This information is associated with RSRQ.

Next in the report you'll see a detailed table for 2G containing:

- Date and time of survey
- Mobile network name
- Location area code (LAC) of the cell tower
- Band frequency
- RSSI -received signal strength indicator (dBm).

4G Detailed network statistics*

Date/Time	Network	LAC	Freq.	RSSI	RSRQ
7/5/22 19:07:09	Three	0864	2100	-115	-10
7/5/22 19:07:09	EE	6221	2100	-123	-11
7/5/22 19:07:22	EE	2ABE	1800	-124	-7
7/5/22 19:07:22	EE	2ABE	1800	-125	-13

2G Detailed network statistics*

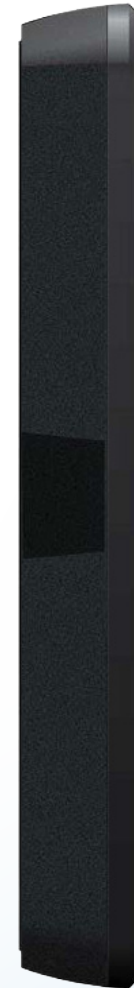
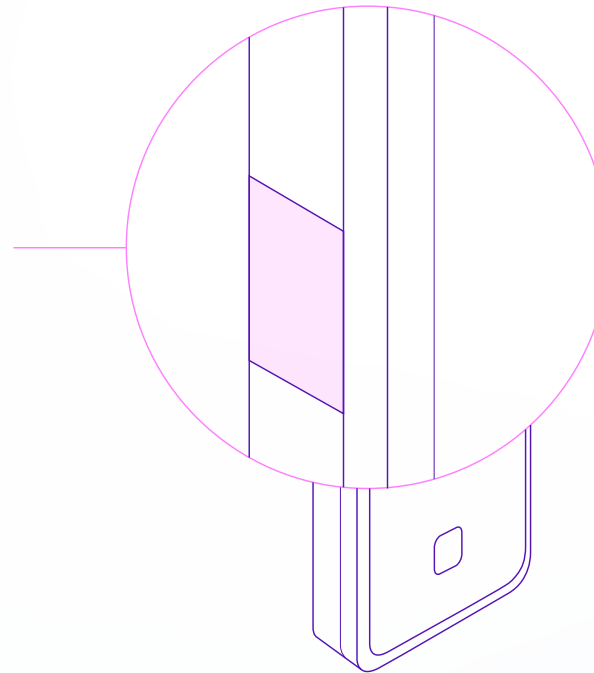
Date/Time	Network	LAC	Freq.	RSSI
7/5/22 19:06:29	O2	5446	900	-78
7/5/22 19:06:29	O2	5446	900	-82
7/5/22 19:06:29	Vodafone	0364	900	-73
7/5/22 19:06:29	Vodafone	0364	900	-78
7/5/22 19:06:29	Vodafone	0364	900	-82
7/5/22 19:06:29	Vodafone	0364	900	-87
7/5/22 19:06:44	EE	09D0	1800	-73
7/5/22 19:06:44	EE	09D0	1800	-78

External aerial connection

Plug an extension or high gain antenna into the MSA to see if the signal can be improved.

Lift the cover on the left-hand side and plug the external aerial into the MMCX jack.

**External
aerial
adapter**



On the app, go to 'settings' and select 'external aerial'

This will remain selected even after you turn the mobile signal analyser off, so remember to switch it back to internal aerial for your next survey.

Perform a site survey

- Make sure your mobile signal analyser is charged.
- Pair up the analyser with your smart device via Bluetooth.
- Enter the site details on the app.
- Place the MSA where you'd like to install a new alarm terminal.
- From the app, use the menu to check a single network or multi networks for signal availability.
- Check multi network to see if the recommended criteria have been met for the location.
- If criteria aren't met, move the MSA to an alternative location.
- Use analytic mode to check the stability and signal of networks over a rolling 10-minute time frame.
- Generate a report after at least 4 minutes of survey. This will capture detailed network information as well as the recommended criteria status. Adding location photos and notes to the report will help installation.
- Share the PDF report via email.

If the recommended criteria has not been met, look for an alternate location or plug in a extension/high gain aerial.

Switch the MSA to use the external aerial and re-do the survey.

Remember to switch back to the internal aerial (in settings) once you've disconnected your external aerial.

To carry out a firmware update

To update the MSA firmware:

- Connect your smart device to the MSA via the app.
- When a firmware update for the MSA becomes available, select 'menu' and then 'settings'.
- The firmware update button will become active.
- Select 'firmware update'.
- This will then start to update the MSA firmware.
- A completed message will inform you that the firmware update has been successful.

Troubleshooting guide

1. What do all the LED colours and flashing states mean?

LED colour	LED state	Meaning
Red	Flashing	Unit needs to be recharged
Red	Constant	Battery is fully charged but still connected to USB
Green	Constant	Unit is unplugged, fully charged and ready to pair
Purple	Constant	Unit is paired via Bluetooth

2. I pressed the button, but no LED came on

Fully charge the unit for four hours using the USB cable, then unplug and try again.

3. No LED came on even when the unit was plugged into USB

Either the cable is not fully pressed into the socket, or the unit is faulty and needs to be returned for replacement.

4. The LED is red, but the product doesn't pair after pressing the button

You won't be able to pair the MSA if the USB cable is plugged in. Check it's unplugged before attempting to pair.

5. The purple LED doesn't come on

Install the app and, press the MSA's Bluetooth ID button within the app to pair it.

6. I can't get past the initial form section of the app to see the dials and results

Make sure you've entered text into all key fields. Check that email address fields contain an '@'.

7. After the unit has been paired, the dial shows no signal

The app takes a few minutes to gather data from the surrounding networks. If there is no data after a longer period, try switching networks using the mobile network dropdown menu (bottom right).

8. I want to see results as a percentage, but the app shows decibels

Use the dropdown selector on the right of dB to select %.

9. I can't get out of the single network mode. I want to use multi-network or analytic mode

Press the menu icon in top left of your screen to select the mode you want from the drop-down menu.

10. I want to use 2G, but it is stuck on 4G

Use the toggle button below the dial to switch between 4G and 2G.

Disposal

This product is classed as an electrical item, so at the end of its working life must not be disposed of with other household or commercial waste.



Product disposal instructions:

Please dispose of this product in line with your local authority's recycling processes.

To find out more, contact your local authority.

AddSecure AB
Att: Disposal
Argongatan 9
43153 Mölndal
Sweden

Disclaimer

The manufacturer and agents accept no responsibility for any damage, financial loss or injury caused to equipment, property or persons resulting from any use of this equipment. The manufacturer is not liable for any economic loss arising from any use of this equipment. All responsibility and liability in the use of AddSecure products is assumed by the user.

AddSecure may make changes to features and specifications at any time without prior notification.

Glossary of abbreviations

MMCX

Micro miniature coaxial connector

RX

Receive

RSRQ

Reference signal received quality

RSSI

Received signal strength indicator

TX

Transmit



Support

Support

For assistance with your AddSecure installation, please contact the AddSecure Helpdesk on: +44 204614 3170 or via email: support.smartalarms.eu@addsecure.com

If there is a problem with the service and/or communicator the End Customer should contact the alarm installer.

Technical Data: see www.addsecure.com



ADD:SECURE

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