NOKIA

FastMile 2.1.01

Nokia FastMile 4G Receiver Installation Guide

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1 Preface

This preface provides general information about the installation guide for the Nokia FastMile 4G Receiver.

1.1 Scope

This document provides information for installing the Nokia FastMile 4G Receiver along with information about safety.

1.2 Audience

This document is intended for planners, administrators, operators, and maintenance personnel involved in installing the Nokia FastMile 4G Receiver.

1.3 Required knowledge

The reader must be familiar with general telecommunications principles.

1.4 Acronyms and initialisms

The expansions and optional descriptions of most acronyms and initialisms used in this document appear in the glossary at the back of the document.

1.5 Assistance and ordering phone numbers

Nokia provides global technical support through the following URL: https://customer.nokia.com/support/s/.

For ordering information, contact your Nokia sales representative.

1.6 Nokia quality processes

Nokia’s FastMile 4G Receiver quality practices are in compliance with TL 9000 requirements.These requirements are documented in the Fixed Networks Quality Manual 3FQ-30146-6000-QRZZA. The quality practices adequately ensure that technical requirements and customer end-point requirements are met. The customer or its representatives may be allowed to perform on-site quality surveillance audits, as agreed upon during contract negotiations.

1.7 Safety information

For safety information, see the appropriate safety guideline chapters.

1.8 Documents

Documents are available at the Nokia Documentation Center.

Procedure 1 To access a document on the Nokia Documentation Center

Individual PDFs of customer documents are accessible through the Nokia Documentation Center.

1. Go to http://networks.nokia.com.
2. Sign in to the Customer and Business Partner Portals (Sign in link top right) with the username and password for your account. If you do not have an account, click Register or contact your Nokia representative. Choose Online Customer Support (OLCS).
3. Click on Documentation Center in the upper menu bar to access the Nokia Documentation Center.
4. Select FastMile Home Unit from the list of products.
5. Filter the search results as needed (by release, content type, issue date, etc.).
6. Click on the PDF icon to access a document.

1.9 Special information

The following are examples of how special information is presented in this document.

Danger — Danger indicates that the described activity or situation may result in serious personal injury or death; for example, high voltage or electric shock hazards.

Warning — Warning indicates that the described activity or situation may, or will, cause equipment damage or serious performance problems.

Caution — Caution indicates that the described activity or situation may, or will, cause service interruption.

Note — A note provides information that is, or may be, of special interest.

1.9.1 Steps with options or substeps

When there are options in a step, they are identified by letters. When there are required substeps in a step, they are identified by roman numerals.

Procedure 2 Example of options in a step

At step 1, you must choose option a or b.

1 This step offers two options. You must choose one of the following:

- **a** This is one option.
- **b** This is another option.

2 You must perform this step.

Procedure 3 Example of required substeps in a step

At step 1, you must perform a series of substeps within the step.

1 This step has a series of substeps that you must perform to complete the step. You must perform the following substeps:

i This is the first substep.

ii This is the second substep.

iii This is the third substep.

2 You must perform this step.

1.10 Multiple PDF document search

You can use Adobe Reader Release 6.0 and later to search multiple PDF files for a common term. Adobe Reader displays the results in a single display panel. The results are grouped by PDF file, and you can expand the entry for each file.

Note — The PDF files in which you search must be in the same folder.

Procedure 4 To search multiple PDF files for a common term

1 Open Adobe Acrobat Reader.

2 Choose Edit→Search from the Acrobat Reader main menu. The Search PDF panel appears.

3 Enter the search criteria.

4 Click on the All PDF Documents In radio button.

5 Select the folder in which to search using the drop-down menu.

6 Click on the Search button.

Acrobat Reader displays the search results. You can expand the entries for each document by clicking on the + symbol.

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2 ETSI environmental and CRoHS guidelines

This chapter provides information about the ETSI environmental China Restriction of Hazardous Substances (CRoHS) regulations that govern the installation and operation of Nokia FastMile 4G Receiver equipment. This chapter also includes environmental operation parameters of general interest.

2.1 Environmental labels

This section describes the environmental instructions that are provided with the customer documentation, equipment, and location where the equipment resides.

2.1.1 Overview

CRoHS is applicable to Electronic Information Products (EIP) manufactured or sold and imported in the territory of the mainland of the People's Republic of China. EIP refers to products and their accessories manufactured by using electronic information technology, including electronic communications products and such subcomponents as batteries and cables.

2.1.2 Environmental related labels

Environmental labels are located on appropriate equipment. The following are sample labels.

2.1.2.1 Products below Maximum Concentration Value (MCV) label

Figure 1 shows the label that indicates a product is below the maximum concentration value, as defined by standard SJ/T11363-2006 (Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products). Products with this label are recyclable. The label may be found in this documentation or on the product.

Figure 1 **Products below MCV value label**

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2.1.2.2 Products containing hazardous substances above Maximum Concentration Value (MCV) label

Figure 2 shows the label that indicates a product is above the maximum concentration value, as defined by standard SJ/T11363-2006 (Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products). The number contained inside the label indicates the Environment-Friendly User Period (EFUP) value. The label may be found in this documentation or on the product.

Figure 2 **Products above MCV value label**

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Together with major international telecommunications equipment companies, Nokia has determined it is appropriate to use an EFUP of 50 years for network infrastructure equipment and an EFUP of 20 years for handsets and accessories. These values are based on manufacturers' extensive practical experience of the design, manufacturing, maintenance, usage conditions, operating environments, and physical condition of infrastructure and handsets after years of service. The values reflect minimum values and refer to products operated according to the intended use conditions. See “Hazardous Substances Table (HST)” for more information.

2.2 Hazardous Substances Table (HST)

This section describes the compliance of the Nokia FastMile 4G Receiver equipment to the CRoHS standard when the product and subassemblies contain hazardous substances beyond the MCV value. This information is found in this user documentation where part numbers for the product and subassemblies are listed. It may be referenced in other documentation that describes the Nokia FastMile 4G Receiver equipment.

In accordance with the People’s Republic of China Electronic Industry Standard Marking for the Control of Pollution Caused by Electronic Information Products (SJ/T11364-2006), customers may access the Nokia Hazardous Substance Table, in Chinese by contacting their customer service representative.

2.3 Other environmental requirements

Observe the following environmental requirements when handling Nokia FastMile 4G Receiver equipment.

2.3.1 Environmental requirements

See the Nokia FastMile 4G Receiver Product Overview for information about temperature ranges for the Nokia FastMile 4G Receiver equipment and other Nokia FastMile 4G Receiver specifications.

2.3.2 Storage

According to ETS 300-019-1-1 - Class 1.1, storage of Nokia FastMile 4G Receiver equipment must be in Class 1.1, weather-protected, temperature-controlled locations.

2.3.3 Transportation

According to EN 300-019-1-2 - Class 2.3, transportation of Nokia FastMile 4G Receiver equipment must be in packed, public transportation.

2.3.4 Stationary use

According to EN 300-019-1-3 - Class 3.1/3.2/3.E, stationary use of Nokia FastMile 4G Receiver equipment must be in a temperature-controlled location with no condensation allowed.

2.3.5 Thermal limitations

The thermal limitations for the Nokia FastMile 4G Receiver equipment are:

- operating temperature (ambient): –30°C to 65°C (–22°F to 149°F)
- Humidity: 5% to 95% non condensing

2.3.6 Material content compliance

European Union (EU) Directive 2002/95/EC, “Restriction of the use of certain Hazardous Substances” (RoHS), restricts the use of lead, mercury, cadmium, hexavalent chromium, and certain flame retardants in electrical and electronic equipment. This Directive applies to electrical and electronic products placed on the EU market after 1 July 2006, with various exemptions, including an exemption for lead solder in network infrastructure equipment. Nokia products shipped to the EU after 1 July 2006 comply with the EU RoHS Directive.

Nokia has implemented a material/substance content management process. The process is described in: Nokia process for ensuring RoHS Compliance (1AA002660031ASZZA). This ensures compliance with the European Union Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS2). With the process equipment is assessed in accordance with the Harmonised Standard EN50581:2012 (CENELEC) on Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.

2.3.7 End-of-life collection and treatment

Electronic products bearing or referencing the symbol shown in Figure 3, when put on the market within the European Union (EU), shall be collected and treated at the end of their useful life, in compliance with applicable EU and local legislation. They shall not be disposed of as part of unsorted municipal waste. Due to materials that may be contained in the product, such as heavy metals or batteries, the environment and human health may be negatively impacted as a result of inappropriate disposal.

Figure 3 **Recycling/take back/disposal of product symbol**

At the end of its life, Nokia FastMile 4G Receiver equipment is subject to the applicable local legislations that implement the European Directive 2012/19EU on waste electrical and electronic equipment (WEEE).

There can be different requirements for collection and treatment in different member states of the European Union.

In compliance with legal requirements and contractual agreements, where applicable, Nokia will offer to provide for the collection and treatment of Nokia products bearing the logo shown in Figure 3 at the end of their useful life, or products displaced by Nokia equipment offers. For information regarding take-back of equipment by Nokia, or for more information regarding the requirements for recycling/disposal of product, contact your Nokia account manager or Nokia take back support at sustainability.global@nokia.com.

3 ETSI safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of Nokia FastMile 4G Receiver equipment in the ETSI market.

3.1 Safety instructions

This section describes the safety instructions that are provided in the customer documentation and on the Nokia FastMile 4G Receiver equipment.

3.1.1 Safety instruction boxes

The safety instruction boxes are provided in the Nokia FastMile 4G Receiver customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.

Danger — Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.

Warning 1 — Possibility of equipment damage.

Warning 2 — Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.

Caution 1 — Possibility of service interruption.

Caution 2 — Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.

Note — Information of special interest.

The Note box provides information that assists the personnel working with Nokia FastMile 4G Receiver equipment. It does not provide safety-related instructions.

3.1.2 Safety-related labels

The Nokia FastMile 4G Receiver equipment is labeled with the specific safety instructions and compliance information that is related to a product, or product variant or model, of the equipment. Observe the instructions on the safety labels.

Table 1 provides sample safety labels on Nokia FastMile 4G Receiver equipment.

Table 1 **Safety labels**

Description	Label text
ESD warning	Caution: This assembly contains an electrostatic sensitive device.

3.2 Safety standards compliance

This section describes Nokia FastMile 4G Receiver equipment compliance with the European safety standards.

3.2.1 EMC compliance

The Nokia FastMile 4G Receiver equipment complies with the following EMC requirements:

- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU EN 301489-1
- Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for Broadband Data Transmission Systems; Harmonized Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU EN 301489-17

3.2.2 Equipment safety standard compliance

The Nokia FastMile 4G Receiver equipment complies with the requirements of the following:

- EN 60950-1, Safety of Information Technology Equipment for use in a restricted location (per R-269)
- IEC 60950-22, EN 60950-22: Information Technology Equipment- Safety - Part 22 Equipment to be installed Outdoors
- IEC 62368 Audio/video, information and communication technology equipment- Part 1: Safety requirements
- IEC 60529 Degrees of protection provided by enclosures (IP Code)

3.2.3 Environmental standard compliance

The Nokia FastMile 4G Receiver equipment complies with the EN 300 019 European environmental standards.

3.2.4 Laser product standard compliance

The Nokia FastMile 4G Receiver equipment is not a laser product.

3.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the Nokia FastMile 4G Receiver equipment.

Note 1 — The Nokia FastMile 4G Receiver equipment complies with the U.S. National Electrical Code. However, local electrical authorities have jurisdiction when there are differences between the local and U.S. standards.

Note 2 — The Nokia FastMile 4G Receiver equipment complies with BS EN 61140.

3.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

3.3.2 Cabling

The following are the guidelines regarding cables used for the Nokia FastMile 4G Receiver equipment:

- All cables must be approved by the relevant national electrical code.
- Cables for outdoor connection to the Nokia FastMile 4G Receiver equipment must be suitable for outdoor use.
- The Nokia FastMile 4G Receiver equipment must be used with the cabling supplied with the equipment.

3.3.3 Protective earth

Earthing and bonding of the Nokia FastMile 4G Receiver equipment must comply with the requirements of local electrical codes.

3.4 ESD safety guidelines

The Nokia FastMile 4G Receiver equipment is sensitive to ESD if opened. Operations personnel must observe the following ESD instructions when they handle the Nokia FastMile 4G Receiver equipment.

Caution — This equipment is ESD sensitive if opened. Proper ESD protections should be used if you open the Nokia FastMile 4G Receiver.

Service personnel are not required to wear wrist straps when performing normal installation or maintenance activities.

3.5 Environmental requirements

See the Nokia FastMile 4G Receiver Product Overview for information about temperature ranges for the Nokia FastMile 4G Receiver equipment and other Nokia FastMile 4G Receiver specifications.

During operation in the supported temperature range, condensation inside the Nokia FastMile 4G Receiver equipment caused by humidity is not an issue because the Nokia FastMile 4G Receiver is a sealed unit.

4 ANSI safety guidelines

This chapter provides information about the mandatory regulations that govern the installation and operation of the Nokia FastMile 4G Receiver equipment in the North American or ANSI market.

4.1 Safety instructions

This section describes the safety instructions that are provided in the customer documentation and on the Nokia FastMile 4G Receiver equipment.

4.1.1 Safety instruction boxes in customer documentation

The safety instruction boxes are provided in the Nokia FastMile 4G Receiver customer documentation. Observe the instructions to meet safety requirements.

The following is an example of the Danger box.

Danger — Possibility of personal injury.

The Danger box indicates that the described activity or situation may pose a threat to personal safety. It calls attention to a situation or procedure which, if not correctly performed or adhered to, may result in death or serious physical harm.

Do not proceed beyond a Danger box until the indicated conditions are fully understood and met.

The following is an example of the Warning box.

Warning 1 — Possibility of equipment damage.

Warning 2 — Possibility of data loss.

The Warning box indicates that the described activity or situation may, or will, cause equipment damage, loss of data, or serious performance problems. It identifies a possible equipment-damaging situation or provides essential information to avoid the degradation of system operations or data.

Do not proceed beyond a warning until the indicated conditions are fully understood and met.

The following is an example of the Caution box.

Caution 1 — Possibility of service interruption.

Caution 2 — Service interruption.

The Caution box indicates that the described activity or situation may, or will, cause service interruption.

Do not proceed beyond a caution until the indicated conditions are fully understood and met.

The following is an example of the Note box.

Note — Information of special interest.

The Note box provides information that assists the personnel working with Nokia FastMile 4G Receiver equipment. It does not provide safety-related instructions.

4.1.2 Safety-related labels

The Nokia FastMile 4G Receiver equipment is labeled with specific safety compliance information and instructions that are related to a product, or product variant or model, of the equipment. Observe the instructions on the safety labels.

Table 2 provides examples of the text in the various Nokia FastMile 4G Receiver equipment safety labels.

Table 2 **Safety labels**

Description	Label text
UL compliance	ETL/cETL
UL50E compliance	Type 3
ESD warning	Caution: This assembly contains electrostatic sensitive device.
FCC standards compliance	Tested to comply with FCC standards for home or office use.
Operation conditions	This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
CE marking	There are various CE symbols for CE compliance.

Figure 4 shows a sample safety label for FCC and Figure 5 shows a sample safety label for ETL.

Figure 4 **Sample safety label for FCC**

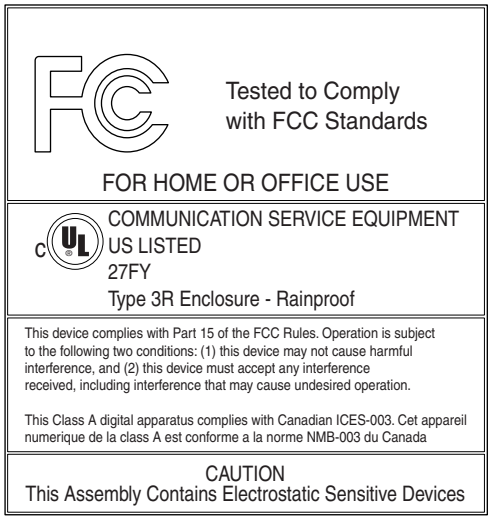

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Figure 5 **Sample safety label for ETL**

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4.2 Safety standards compliance

This section describes the Nokia FastMile 4G Receiver equipment compliance with North American safety standards.

Warning — Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

4.2.1 EMC, EMI, and ESD compliance

The Nokia FastMile 4G Receiver equipment complies with the following EMC, EMI, and ESD requirements:

- Federal Communications Commission PART 15-RADIO FREQUENCY DEVICES Subpart C-INTENTIONAL RADIATORS Title 47 CFR Part 15. Part 15.247, Part 15.255

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is needed.
- Consult the dealer or an experienced radio/TV technician for help.

4.2.2 Equipment safety standard compliance

The Nokia FastMile 4G Receiver equipment complies with the requirements of:

- UL 62368-1 Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements
- CSA C22.2#62368-1 Audio/Video, Information And Communication Technology Equipment - Part 1: Safety Requirements
- UL 60950-22 Information Technology Equipment - Safety - Part 22: Equipment to be Installed Outdoors

4.3 Electrical safety guidelines

This section provides the electrical safety guidelines for the Nokia FastMile 4G Receiver equipment.

Note — The Nokia FastMile 4G Receiver equipment complies with the U.S. National Electrical Code. However, local electrical authorities have jurisdiction when there are differences between the local and U.S. standards.

4.3.1 Power supplies

The use of any non-Nokia approved power supplies or power adapters is not supported or endorsed by Nokia. Such use will void any warranty or support contract with Nokia. Such use greatly increases the danger of damage to equipment or property.

4.3.2 Cabling

The following are the guidelines regarding cables used for the Nokia FastMile 4G Receiver equipment:

- All cables must be approved by the relevant national electrical code.
- Cables for outdoor connection to the Nokia FastMile 4G Receiver equipment must be suitable for outdoor use.
- The Nokia FastMile 4G Receiver equipment must be used with the cabling supplied with the equipment.

4.3.3 Protective earth

Earthing and bonding of the Nokia FastMile 4G Receiver equipment must comply with the requirements of NEC article 250 or local electrical codes.

4.4 ESD safety guidelines

The Nokia FastMile 4G Receiver equipment is sensitive to ESD if opened. Operations personnel must observe the following ESD instructions when they handle the Nokia FastMile 4G Receiver equipment.

Caution — This equipment is ESD sensitive if opened. Proper ESD protections should be used if you open the Nokia FastMile 4G Receiver.

Service personnel are not required to wear wrist straps when performing normal installation or maintenance activities.

4.5 Environmental requirements

See the Nokia FastMile 4G Receiver Product Overview for information about temperature ranges for the Nokia FastMile 4G Receiver equipment and other Nokia FastMile 4G Receiver specifications.

During operation in the supported temperature range, condensation inside the Nokia FastMile 4G Receiver equipment caused by humidity is not an issue because the Nokia FastMile 4G Receiver is a sealed unit.

5 Installation overview

5.1 Overview

Be sure to read the Nokia FastMile 4G Receiver Product Overview before installing the Nokia FastMile 4G Receiver.

Some steps in installing the Nokia FastMile 4G Receiver differ, depending on the model type of the Nokia FastMile 4G Receiver. Table 3 indicates the model type and Ethernet cable information for each model of the Nokia FastMile 4G Receiver.

Table 3 **Models and model types of the Nokia FastMile 4G Receiver**

Model	Model type	Ethernet cable information
4G01-A	Compact mono-band	Pre-attached 3 m (9.8 ft) Cat5e shielded twisted pair Ethernet cable
4G01-B	ABA	Pre-attached 3 m (9.8 ft) Cat5e shielded twisted pair Ethernet cable
4G02-A	Compact mono-band	Pre-attached 3 m (9.8 ft) Cat5e shielded twisted pair Ethernet cable
4G03-A	Compact mono-band	Pre-attached 3 m (9.8 ft) or 20 m (65.6 ft) Cat5e shielded twisted pair Ethernet cable
4G04-A	Compact multi-band	Ethernet cable not provided
4G05-A	Compact multi-band	Ethernet cable not provided

Some steps in installing the Nokia FastMile 4G Receiver differ, depending on the remote management method used for the Nokia FastMile 4G Receiver. Remote management of the Nokia FastMile 4G Receiver can be done from the Nokia Altiplano FastMile Controller through NETCONF or from an ACS through TR-069. The remote management method is dependent on the SIM card installed in the Nokia FastMile 4G Receiver. See the Nokia FastMile 4G Receiver Product Overview for more information about remote management methods and protocols.

Note — Some stages of installing the Nokia FastMile 4G Receiver use an app on a mobile phone. The app information in this document applies to the Nokia Wireless app (previously known as the Nokia Field Assistant app) in effect for the FastMile release indicated on the cover of the Nokia FastMile 4G Receiver documentation. If you subsequently use a different version of the app, it may differ from how the app is described in the Nokia FastMile 4G Receiver documentation.

Table 4 lists the chapters or sections to use to install a Nokia FastMile 4G Receiver that will be remotely managed by the Nokia Altiplano FastMile Controller or an ACS. The table also indicates if and how the Nokia Wireless app is used.

If a FastMile 4G Receiver that is managed by the Nokia Altiplano FastMile Controller needs to be installed again, the Subscription ID of the FastMile 4G Receiver must be manually deleted from the Nokia Altiplano FastMile Controller database. Once the Subscription ID has been deleted from the Nokia Altiplano FastMile Controller database, the re-installation can be done using the Nokia Wireless app as if it is a fresh installation.

Note — The NETCONF version of the FastMile 4G Receiver for remote management from the Nokia Altiplano FastMile Controller is not supported from FM 2.0.03a.

Table 4 **Installation overview**

Installation task	Remote management method	
	Nokia Altiplano FastMile Controller (through NETCONF)	**ACS (through TR-069)**
Reviewing safety information	Chapter 6	Chapter 6
Identifying package contents	Chapter 7	Chapter 7
Reviewing roles and installation prerequisites	Chapter 8	Chapter 8
Inserting the SIM card in the Nokia FastMile 4G Receiver	Chapter 9	Chapter 9
Determining the mounting location for the Nokia FastMile 4G Receiver	Section 10.2 Uses the Nokia Wireless app in conjunction with the Nokia Altiplano FastMile Controller and the Nokia FastMile 4G Receiver	Section 10.3 Uses the Nokia Wireless app in conjunction with the Nokia FastMile 4G Receiver
Mounting and connecting the Nokia FastMile 4G Receiver on a wall or pole (includes powering up and checking LEDs)	Chapter 11	Chapter 11
Troubleshooting	Chapter 12	Chapter 12

6 Reviewing safety information

6.1 Safety information for the Nokia FastMile 4G Receiver

Be sure to observe the following before installing the Nokia FastMile 4G Receiver:

- Professional installation is recommended for the Nokia FastMile 4G Receiver. If the end-user is going to install the Nokia FastMile 4G Receiver, appropriate safety instructions and appropriate information must be provided.
- Only use a Nokia-approved residential gateway or a Nokia-approved PoE injector for powering the Nokia FastMile 4G Receiver.
- The following classes of PoE injectors are available from Nokia for use with the FastMile 4G Receiver:
  - Class I: can comply with EN 60950-1 if grounding is provided on the wall socket; should be put as close as possible to the place where the Ethernet cable enters the home; see section 6.2 for information about the Class I PoE injectors that are available from Nokia.
  - Class II: can comply with EN 60950-1 if no grounding is provided on the wall socket; can also be used if grounding is provided on the wall socket; see section 6.2 for information about the Class II PoE injectors that are available from Nokia
- Refer to section 8.2.1 for lightning protection and other important information.
- Do not provide power to the Nokia FastMile 4G Receiver before completing the hardware installation steps of the installation procedure except as directed.
- All outside wiring associated with the Nokia FastMile 4G Receiver should follow local safety regulations.
- Maintain at least 50 cm (20 in) distance from the front face of the Nokia FastMile 4G Receiver while the system is operating.

Danger 1 — Lightning danger: Since cables from external environment may connect to the system and they are exposed to lightning, do not work on equipment or cables during periods of lightning activity.

Danger 2 — Height danger: Falling from high elevations can cause serious injury or death. Caution should be observed whenever performing aerial installations.

Danger 3 — Power danger:

- Hazardous electrical voltages and currents can cause serious physical harm or death. Always use insulated tools and follow proper safety precautions when connecting or disconnecting power circuits.
- Make sure all sources of power are turned off and have no live voltages present on feed lines or terminals. Use a voltmeter to measure for voltage before proceeding.
- Always contact the local utility company before connecting the equipment to power.

6.2 Available PoE injectors

If the Nokia FastMile 4G Receiver is going to be powered through a PoE injector, the PoE injector must a Nokia-approved PoE injector.

The following classes of PoE injectors are available from Nokia for use with the FastMile 4G Receiver:

- Class I: can comply with EN 60950-1 if grounding is provided on the wall socket; should be put as close as possible to the place where the Ethernet cable enters the home
- Class II: can comply with EN 60950-1 if no grounding is provided on the wall socket; can also be used if grounding is provided on the wall socket

Table 5 lists the PoE injectors that are available from Nokia for use with the FastMile 4G Receiver.

Table 5 Available PoE injectors

Class	Model	Description	Color	Nokia part number	Vendor part number
Class I	FWAPoE1-CB-US-W	G0545 53V0.6A, MAINS CORD TYPE B-US	White	3TG-00041-AA	G0545-530-060-PSE1000, CH-331C+CH-706,White,US
	FWAPoE1-CEF-EU-W	G0545 53V0.6A, MAINS CORD TYPE E&F-EU	White	3TG-00041-AB	G0545-530-060-PSE1000, CH-231+CH-706,White,EU
	FWAPoE1-CG-UK-W	G0545 53V0.6A, MAINS CORD TYPE G-UK	White	3TG-00041-AC	G0545-530-060-PSE1000, CH-1601+CH-706,White,UK
	FWAPoE1-CI-CCC-W	G0545 53V0.6A, MAINS CORD TYPE I-CCC	White	3TG-00041-AD	G0545-530-060-PSE1000, CH-133+CH-706,White,CCC
	FWAPoE1-CI-AU-W	G0545 53V0.6A, MAINS CORD TYPE I-AU	White	3TG-00041-AE	G0545-530-060-PSE1000, CH-1231+CH-706,White,AU
	FWAPoE1-CB-PSE-W	G0545 53V0.6A, MAINS CORD TYPE B-PSE	White	3TG-00041-AF	G0545-530-060-PSE1000, CH-1131+CH-1106,White,PSE
	FWAPoE1-CD-BIS-W	G0545 53V0.6A, MAINS CORD TYPE D-BIS	White	3TG-00041-AG	G0545-530-060-PSE1000, CH-2002+CH-706,White,BIS
Class II	FWAPoE1-CC-EU-W	G0545 53V0.6A, MAINS CORD TYPE E&F-EU	White	3TG-00041-BB	G0545N-530-060-PSE1000, CH-221+CH-706,White,EU

7 Identifying package contents

7.1 Package contents for the Nokia FastMile 4G Receiver

The shipping package for the Nokia FastMile 4G Receiver contains the following:

- Nokia FastMile 4G Receiver
- QR code on a sheet of paper:
  - the QR code has system-use information for the Nokia FastMile 4G Receiver
  - you use a mobile phone that has the Nokia Wireless app to scan the QR code to log in to the Nokia FastMile 4G Receiver (log in is done through Bluetooth over a VPN connection)
- bracket kit consisting of:
  - mounting plate
  - receiver bracket (shipped attached to the mounting plate with three fasteners)
  - two fasteners for attaching the mounting plate to the Nokia FastMile 4G Receiver
- SIM card tool for safe insertion or extraction of SIM card; the tool is sometimes referred to as a “nipple”

If you will be installing a Compact multi-band model of the Nokia FastMile 4G Receiver, you will need to provide a cat5e shielded Ethernet cable that has standard pinouts and is a maximum of 80 m (262 ft) in length; the same cable is also used for power (PoE as per IEEE802.3 at type-2). The cable will need a male RJ 45 connector to attach the cable to the Nokia FastMile 4G Receiver.

If you will be mounting the Nokia FastMile 4G Receiver on a pole, you will need kit 3TG-00291-AA that contains the pole adapter for the Nokia FastMile 4G Receiver.

8 Reviewing roles and installation prerequisites

8.1 Roles

Before starting installation, it is useful to consider the following roles along with their responsibilities and interrelationships:

- mobile network operator: responsible for running the mobile network that has the LTE and EPC networks and typically provides the SIM card for the Nokia FastMile 4G Receiver
- fixed network operator: responsible for owning the residential gateway and the ACS
- installer: responsible for installing the Nokia FastMile 4G Receiver

It is possible that more than one of the above roles could be performed by the same organization.

8.2 Installation prerequisites for the Nokia FastMile 4G Receiver

You need to be aware of the following before installing the Nokia FastMile 4G Receiver. Contact your Nokia representative for additional information.

- information about route and bridge mode operation of the Nokia FastMile 4G Receiver
- information about Nokia FastMile 4G Receiver operation with assigned Cell List or Free Run Mode
- determine if port forwarding is required on the Nokia FastMile 4G Receiver for residential gateway connectivity with an ACS

- the operator's EPC network should align with the following of the Nokia FastMile 4G Receiver:
  - the Nokia FastMile 4G Receiver’s mobile subscriber profile in the HSS should be assigned by the mobile network operator as follows:

    - a specific APN should be used for the Nokia FastMile 4G Receiver to attach the LTE network; if no specific APN is indicated, the Nokia FastMile 4G Receiver will attach to the LTE network with the default APN that the mobile operator sets in the MME

    - for this subscriber's profile in the PCRF, the related QCI setting should be defined the same as the DSCP for the residential gateway
  - the SIM card of the Nokia FastMile 4G Receiver should be related to a specific data service of the mobile network in the HSS; this SIM card should have the same PIN or an empty PIN, as the Nokia FastMile 4G Receiver will not do a PIN unlock if the wrong PIN code is set on the device; if this happens, the Nokia FastMile 4G Receiver installer needs to go onsite and replace the SIM card
- refer to the Nokia FastMile 4G Receiver Customer Release Notes for other information that could be relevant
- for other configuration information for the Nokia FastMile 4G Receiver, refer to the FastMile playbook for detailed operation

Before beginning installation of the Nokia FastMile 4G Receiver, it is important that all necessary preparation in the NAC be done according to the details and steps in the Nokia Altiplano FastMile Controller documentation.

Be sure to observe the following prerequisites before installing the Nokia FastMile 4G Receiver:

- An appropriate configuration file must be available for transferring from the Nokia Altiplano FastMile Controller to the Nokia FastMile 4G Receiver
- Installation personnel must have knowledge about installing the unit
- A valid Nano/4FF SIM card is needed for the Nokia FastMile 4G Receiver to connect to the LTE network; note that the SIM card determines the remote management method that can be used for the Nokia FastMile 4G Receiver (see section 5.1 for information about remote management methods for the Nokia FastMile 4G Receiver)
- A pole adapter is needed for pole-mounting the Nokia FastMile 4G Receiver (included in pole mount kit orderable from Nokia)
- If you will be installing a Compact multi-band model of the Nokia FastMile 4G Receiver, you will need to provide a cat5e shielded Ethernet cable with standard pinouts that is a maximum of 80 m (262 ft) in length; the cable needs a male RJ 45 connector to attach the cable to the Ethernet port of the Nokia FastMile 4G Receiver
- If you will be installing a Compact mono-band model or ABA model of the Nokia FastMile 4G Receiver, you might need cat5e shielded Ethernet cabling that can be connected to the Ethernet cable of the Nokia FastMile 4G Receiver to make it longer, up to a maximum of 80 m (262 ft) in combined length; a waterproof IP67 female RJ 45 plug will be needed to connect the Ethernet cabling to the existing Ethernet cable of the Nokia FastMile 4G Receiver; see section 5.1 for more information about the pre-attached Ethernet cable

- If the outside Ethernet cabling will be longer than 20 meters (64 feet), you will need a PoE+ capable surge protector for lightning protection, subject to local regulations, as indicated in section 8.2.1
- Appropriate fastening means are needed for securing the Nokia FastMile 4G Receiver to an outside wall or to a pole, such as strapping
- Silicone or other waterproof sealing or caulking compound
- Mechanical tools are required (but are not included) for mounting the Nokia FastMile 4G Receiver, including:
  - TORX T8 screwdriver to open the SIM slot
- The Nokia Wireless app must be installed on an Android mobile phone through Google Play and the mobile phone must have a Bluetooth adapter, camera, hardware compass, rotation vector (either a gyroscope or an enhanced geomagnetic sensor that supports rotation vector), and Android OS 6.0 (Marshmallow) or above; see the Nokia FastMile 4G Receiver Customer Release Notes for information about accessing the Nokia Wireless app and installing it
- The LTE base station that will be used by the Nokia FastMile 4G Receiver must be available and functioning
- The residential gateway that will be connecting to the Nokia FastMile 4G Receiver must be available and reachable; if the residential gateway cannot supply PoE power to the Nokia FastMile 4G Receiver, then a Nokia-approved PoE injector must be used in conjunction with the residential gateway.
- The following classes of PoE injectors are available from Nokia for use with the FastMile 4G Receiver:
  - Class I: can comply with EN 60950-1 if grounding is provided on the wall socket; should be put as close as possible to the place where the Ethernet cable enters the home; see section 6.2 for information about the Class I PoE injectors that are available from Nokia.
  - Class II: can comply with EN 60950-1 if no grounding is provided on the wall socket; can also be used if grounding is provided on the wall socket; see section 6.2 for information about the Class II PoE injectors that are available from Nokia

8.2.1 Lightning protection and other important information

Be sure to observe the following lightning protection information:

Danger — If you are installing the Nokia FastMile 4G Receiver above roof level, lightning rods are required above the planned installation location.

PoE+ capable surge protectors should be used between the Nokia FastMile 4G Receiver and the residential gateway or PoE injector if the outside Ethernet cabling is longer than 20 meters (64 feet), subject to local regulations.

If the Nokia FastMile 4G Receiver is going to be powered through a PoE injector, the PoE injector must a Nokia-approved PoE injector. Class I and Class II PoE injectors are available from Nokia for use with the FastMile 4G Receiver; see section 6.2 for more information.

Nokia advises that a Class I PoE injector should be put as close as possible to the place where the Ethernet cable enters the home.

Nokia advises that the FastMile 4G Receiver should be installed below the roof level. In case the Nokia FastMile 4G Receiver has to be installed above the roof level, lightning rods are required above it.

In all cases, local regulation for electricity installation needs to be followed, and such regulation prevails if there is any conflict with, or deviation from, the above description.

9 Inserting the SIM card in the Nokia FastMile 4G Receiver

9.1 Overview

Although this chapter provides procedures for inserting or extracting a SIM card in the Nokia FastMile 4G Receiver, you should contact your Nokia representative for more detailed information.

The SIM card needs to be inserted in the Nokia FastMile 4G Receiver in order for the Nokia Wireless app to work in conjunction with the Nokia FastMile 4G Receiver to determine the mounting location.

Warning 1 — For Compact mono-band models, do not use sharp or hard tools, as these could damage the SIM card slot. Instead you should use the SIM card tool supplied with the Nokia FastMile 4G Receiver; the tool is sometimes referred to as a “nipple”.

Warning 2 — For the Compact multi-band models, do not insert the tray if the SIM card is not in the right place in the tray. If the SIM card moves during insertion, stop pushing on the SIM tray.

Figure 6 shows a view of the SIM card slot on the Compact mono-band and ABA models of the Nokia FastMile 4G Receiver to help you orient the SIM card when inserting or extracting it as described in the procedures in this chapter.

Figure 6 **View of SIM card slot on the Compact mono-band and ABA models**

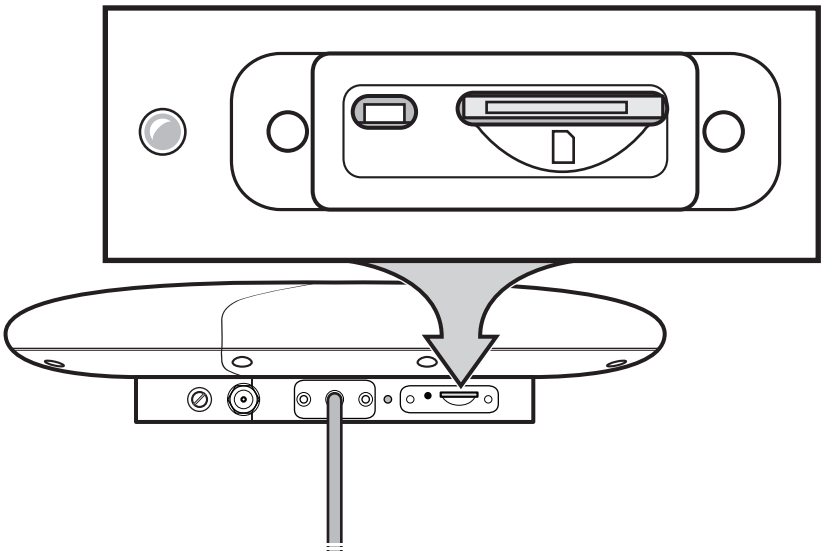
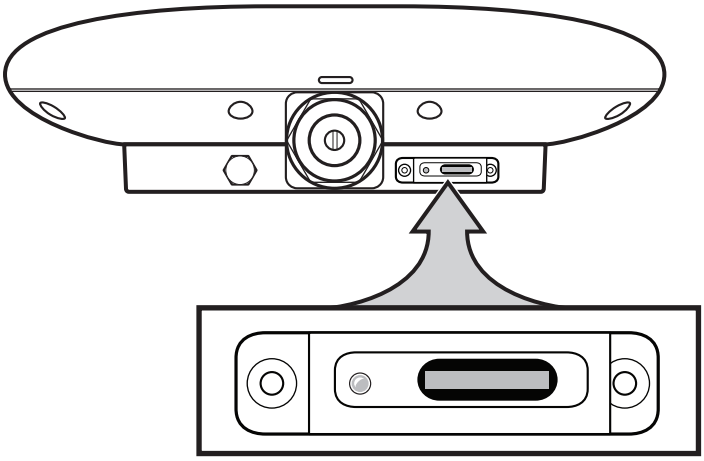


Figure 7 shows a view of the SIM card slot on the Compact multi-band models of the Nokia FastMile 4G Receiver to help you orient the SIM card when inserting or extracting it as described in the procedures in this chapter.

Figure 7 **View of SIM card slot on the Compact multi-band models**



9.2 Inserting the SIM card

Although the following procedure provides instructions for inserting a SIM card in the Nokia FastMile 4G Receiver, you should contact your Nokia representative for more detailed information.

Warning — To avoid the possibility of a short circuit, make sure that the Nokia FastMile 4G Receiver is in a powered off state before inserting the SIM card.

Warning — If the SIM card needs to be replaced later on, the Nokia FastMile 4G Receiver needs to be put in a powered off state before you extract the SIM card and insert the new one.

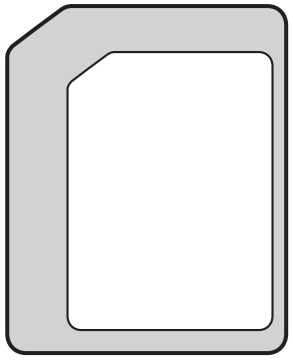
Procedure 5 To insert the SIM card in the Nokia FastMile 4G Receiver

1 Use a TORX T8 screwdriver to remove the cover from the SIM card slot of the Nokia FastMile 4G Receiver.

2 Insert a valid Nano/4FF SIM card in the SIM card slot, with the bottom of the SIM card facing you as shown in Figure 8.

Figure 8 shows the orientation for inserting the SIM card in the SIM card slot of the Nokia FastMile 4G Receiver.

Figure 8 **Orientation of the SIM card**



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For the Compact mono-band and ABA models, insert the SIM card in the correct orientation using your fingers, and then for Compact mono-band models, use the SIM card tool (“nipple”) supplied with the Nokia FastMile 4G Receiver to carefully push the SIM card all the way in. Keep the SIM card tool in case it is needed later to extract the SIM card.

For the Compact multi-band models:

- turn the Nokia FastMile 4G Receiver bottom up
- put the SIM card into the tray in the correct orientation
- use your fingers to hold and push the tray and card all the way into the slot, with the hole on the right

You need to insert the SIM card deep in the slot until the slot locks the SIM card in place.

3 Re-attach the cover on the SIM card slot after you have inserted the SIM card.

9.3 Extracting the SIM card

Although the following procedure provides instructions for extracting a SIM card from the Nokia FastMile 4G Receiver, you should contact your Nokia representative for more detailed information.

Warning — To avoid the possibility of a short circuit, make sure that the Nokia FastMile 4G Receiver is in a powered off state before extracting the SIM card.

Procedure 6 To extract the SIM card from the Nokia FastMile 4G Receiver

1 Use a TORX T8 screwdriver to remove the cover from the SIM card slot of the Nokia FastMile 4G Receiver.

2 Extract the SIM card:

For the Compact mono-band models, use the SIM card tool (“nipple”) supplied with the Nokia FastMile 4G Receiver to carefully push the SIM card, and then to carefully pick the SIM card out from the slot.

For the Compact multi-band models, push a needle-like tool into the hole to eject the tray, and then use your fingers to pick the tray out and get the SIM card.

3 Re-attach the cover on the SIM card slot if you are not installing a new SIM card.

10 Determining the mounting location

10.1 Overview

Some steps in the procedures for determining the mounting location for the Nokia FastMile 4G Receiver depend on whether it will be managed remotely by the Nokia Altiplano FastMile Controller (through NETCONF) or by an ACS (through TR-069). See section 5.1 for more info about using the Nokia Altiplano FastMile Controller or an ACS for remote management of the Nokia FastMile 4G Receiver.

All the procedures for determining the mounting location for the Nokia FastMile 4G Receiver use the Nokia Wireless app. The user of the Nokia Wireless app has to agree with the “Terms of Service” and the “Nokia Privacy Policy” that define the app. This is a mandatory step during the first start up of the app. Terms of Service can be found inside the Nokia Wireless app whereas a link is provided to the Nokia Privacy Policy, which is described in the Nokia public webpage. The user can find this information later on by visiting the “About” screen of the app.

Figure 9 shows the “Before we begin” screen that provides access to the Terms of Service and the Nokia Privacy Policy.

Figure 9 **Before we begin screen**

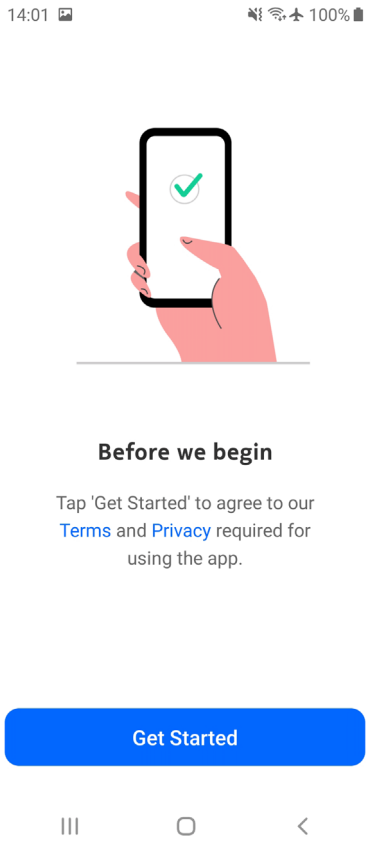
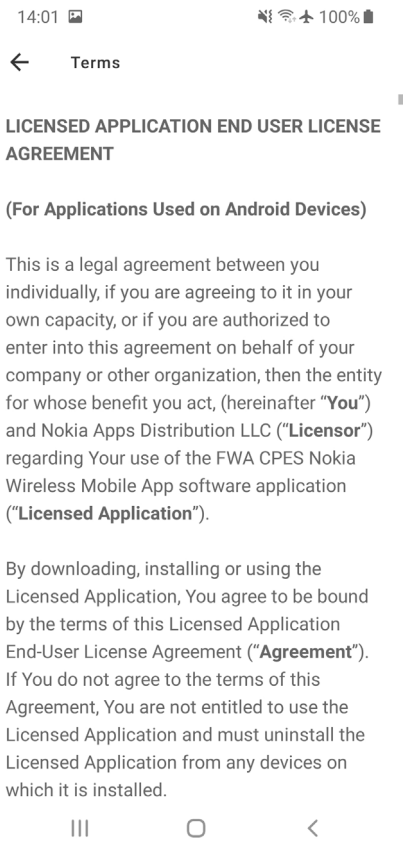


Figure 10 shows the “Terms of Service” screen that is accessed through the “Before we begin” screen.

Figure 10 **Terms of Service screen**



If the Nokia Altiplano FastMile Controller will be used for remote management of the Nokia FastMile 4G Receiver through NETCONF, you use the Nokia Wireless app, which works with the Nokia Altiplano FastMile Controller and the Nokia FastMile 4G Receiver to determine the optimal mounting location for the Nokia FastMile 4G Receiver, as described in section 10.2.

If an ACS will be used for remote management of the Nokia FastMile 4G Receiver through TR-069, you use the Nokia Wireless app, which works with the Nokia FastMile 4G Receiver to determine the optimal mounting location for the Nokia FastMile 4G Receive as described in section 10.3.

10.2 Determining the mounting location for unit that will be managed by the Nokia Altiplano FastMile Controller

If the Nokia Altiplano FastMile Controller will be used through NETCONF to remotely manage the Nokia FastMile 4G Receiver, use the following procedure to use the Nokia Wireless app, which works in conjunction with the Nokia Altiplano FastMile Controller and the Nokia FastMile 4G Receiver, to help you determine the mounting location for the Nokia FastMile 4G Receiver.

The Nokia Wireless app works in conjunction with the Nokia Altiplano FastMile Controller to find an LTE base station and to set up the Nokia FastMile 4G Receiver. The Nokia Wireless app works in conjunction with the signal strength measurement capability of the Nokia FastMile 4G Receiver to find a place to mount the Nokia FastMile 4G Receiver.

You will need the Nokia FastMile 4G Receiver and a portable battery-powered PoE injector for this procedure. You might need to provide an Ethernet cable to connect to the Compact multi-band model of the Nokia FastMile 4G Receiver (the Compact mono-band and ABA models have a pre-attached Ethernet cable). An appropriate SIM card must be installed in the Nokia FastMile 4G Receiver as described in chapter 9.

The Nokia Wireless app must be installed on a mobile phone as indicated in section 8.2 before you can use the app to help you determine the mounting location for the Nokia FastMile 4G Receiver. As well, you will need the sheet of paper provided with the Nokia FastMile 4G Receiver that has the QR code for the Nokia FastMile 4G Receiver.You will need to know the username, password and the FastMile Controller URL in order to login to the Controller from the Nokia Wireless app. Also you will have to know the Subscription ID in order to register the receiver to the Nokia Altiplano FastMile Controller. As well, you will need to allow access to the mobile phone’s location as part of the procedure. You will also need to know the username and password to log in to the Nokia FastMile 4G Receiver.

The following need to be considered before you can start to determine the mounting location of a Nokia FastMile 4G Receiver that will be managed by the Nokia Altiplano FastMile Controller:

- Follow the steps with exact order described in the procedure
- The installation procedure below will be considered to be successful by the Nokia Altiplano FastMile Controller when a successful call home is established between the Nokia FastMile 4G Receiver and the Nokia Altiplano FastMile Controller. In that case, any second attempt of the installation will not be allowed by the Nokia Altiplano FastMile Controller. In case there is a need for a second installation, action on the Nokia Altiplano FastMile Controller is needed to unregister the subscription ID and perform the installation again.
- You need to finish the Nokia FastMile 4G Receiver installation within 30 minutes from the time the Nokia Wireless app is connected to the Nokia Altiplano FastMile Controller, otherwise requests to the Controller will not be authenticated. If more

time is needed, you can increase the access token lifespan as described in the Installation and Deployment Guide for Nokia Altiplano Access Controller document.

Procedure 7 To determine the mounting location for unit that will be managed by the Nokia Altiplano FastMile Controller

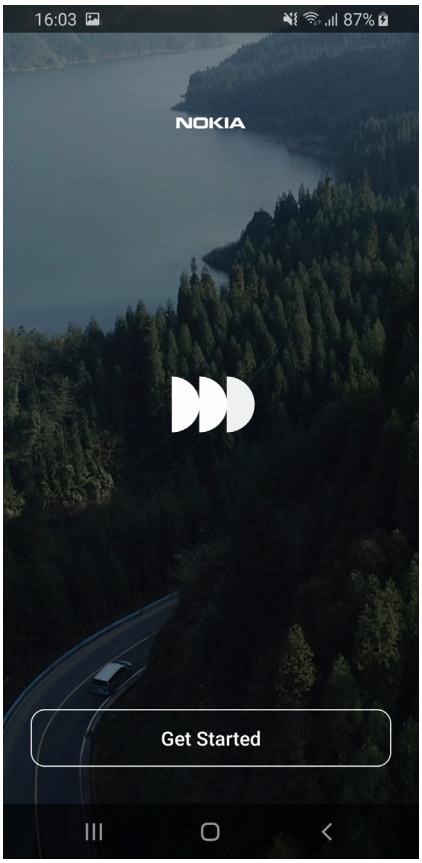
Use the following procedure to determine the mounting location for a Nokia FastMile 4G Receiver that is to be managed by the Nokia Altiplano FastMile Controller through NETCONF.

1 At a prospective mounting location for the Nokia FastMile 4G Receiver, connect the mobile phone to the Internet and open the Nokia Wireless app on the phone.

An introductory screen with a video appears.

Figure 11 shows the introductory screen.

Figure 11 **Introductory screen for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**



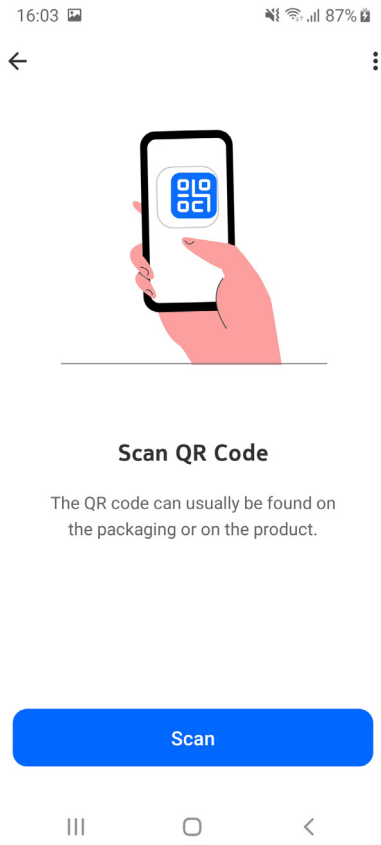
Continue by tapping on “Get started”.

2 After the introductory screen has cleared, the Nokia Wireless app shows an animation of how to scan the QR code of the Nokia FastMile 4G Receiver so that the app can obtain the MAC address, unique device identifier, enterprise id, and device type of the Nokia FastMile 4G Receiver.

The QR code is provided on a sheet of paper in the shipping package of the Nokia FastMile 4G Receiver. The sheet of paper should be saved for anyone who later needs to scan the QR code when accessing the Nokia FastMile 4G Receiver through a mobile phone after installation is complete.

Figure 12 shows the screen for the prompt to scan the QR code.

Figure 12 **Screen with prompt to scan the QR code for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**



Tap on “Scan” to start the scan of the QR code.

Use the viewfinder of the phone to align with the QR code.

Figure 13 shows the QR code screen.

Figure 13 **QR code screen for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**

3 The Nokia Wireless app displays the screen to install the Nolia FastMile 4G Receiver.

Tap on the “Install” option.

Figure 14 shows the Install option.

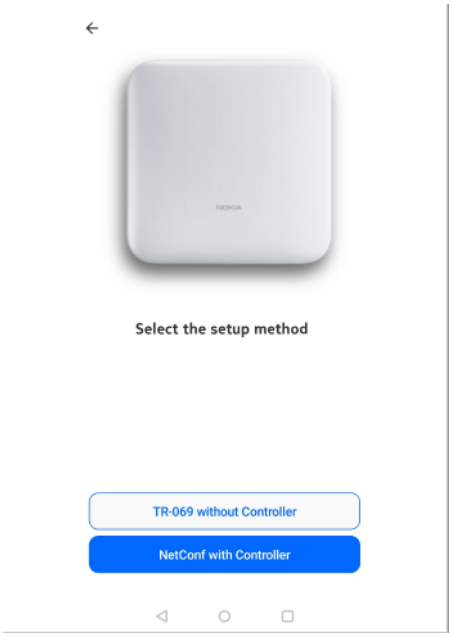
Figure 14 **Screen showing the Install option for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**

4 The Nokia Wireless app displays the screen to select the setup method.

Tap on the “NetConf with Controller” option.

Figure 15 shows the NetConf with Controller option.

Figure 15 **Screen showing the NetConf with Controller option for unit that will be managed by the Nokia Altiplano FastMile Controller**

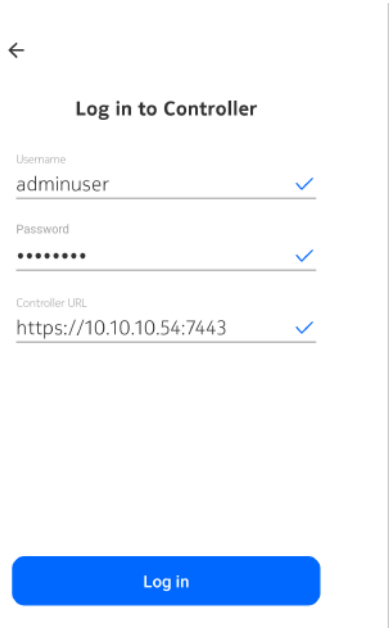


5 The Nokia Wireless app prompts you to log in to the Nokia Altiplano FastMile Controller.

You will need to input the user name, password, and FastMile Controller URL.

Figure 16 shows the prompt to log in to the Nokia Altiplano FastMile Controller.

Figure 16 **Screen for logging in to a Nokia Altiplano FastMile Controller that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**

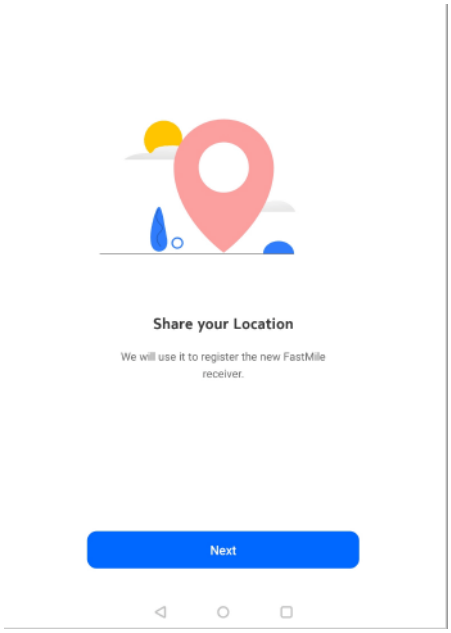


When the button is enabled (that is, it turns to blue), tap on “Log in” to log in to the Nokia Altiplano FastMile Controller.

6 The Nokia Wireless app prompts you to share your location so that you can register the Nokia FastMile 4G Receiver with the Nokia Altiplano FastMile Controller.

Figure 17 shows the prompt to share your location.

Figure 17 **Screen for sharing location for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**

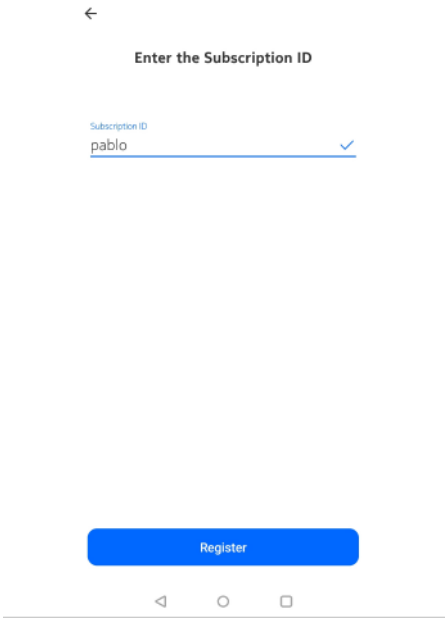


Share your location by tapping on “Next”.

7 The Nokia Wireless app prompts you to enter the Subscription ID so that you can register the Nokia FastMile 4G Receiver with the Nokia Altiplano FastMile Controller.

Figure 18 shows the prompt to enter the Subscription ID.

Figure 18 **Screen for entering the Subscription ID for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**



Register the Nokia FastMile 4G Receiver by tapping on “Register”.

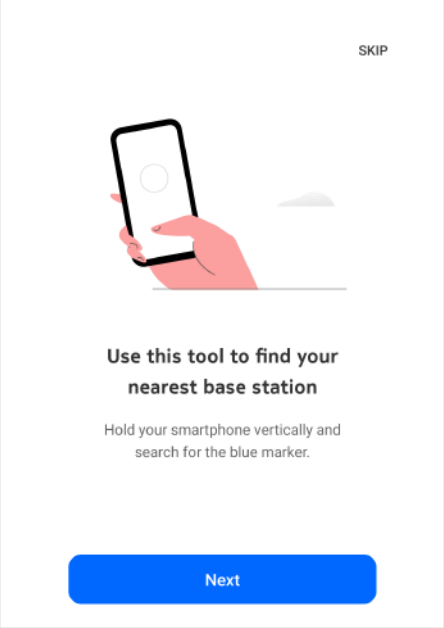
8 The Nokia Wireless app shows that registration of the Nokia FastMile 4G Receiver with the Nokia Altiplano FastMile Controller was successful.

Continue by tapping on “Next”.

9 You can now use the Nokia Wireless app to work in conjunction with the Nokia Altiplano FastMile Controller to find an LTE base station through the provided augmented reality tool. This step will give you a rough estimate of where the base station is located. If more than one cells are configured in the Controller, you can also check where they are located as well.

Figure 19 shows the screen that indicates that you can use the augmented reality tool of the Nokia Wireless app to find an LTE base station. The screen indicates to hold the mobile phone vertically and to search for the blue marker.

Figure 19 **Screen indicating that you can use the Nokia Wireless app to find an LTE base station for unit that will be managed by the Nokia Altiplano FastMile Controller through NETCONF**



Proceed by tapping on “Next”.

The Nokia Wireless app:

- indicates the direction for you to go to locate a nearby LTE base station
- indicates when it has located an LTE base station
- allows you to use a different LTE base station (if one is available) or to skip using the augmented reality tool through three dots in the upper right corner of the screen that provide the “Use a Different Base Station” and “Skip” options
- shows a magnet icon if there is a magnetic field interfering with the compass of the mobile phone; clicking on the magnet icon informs you that you can recalibrate the compass by making a figure of 8
- provides a “Done” button for you to tap when the Nokia Wireless app has located a satisfactory LTE base station

When you have a satisfactory LTE base station, proceed by tapping on “Done”.

10 Unpack the Nokia FastMile 4G Receiver and connect a portable battery-powered PoE injector to the Ethernet cable (Compact mono-band and ABA models) or Ethernet port (Compact multi-band models) of the Nokia FastMile 4G so that the Nokia FastMile 4G Receiver powers up.

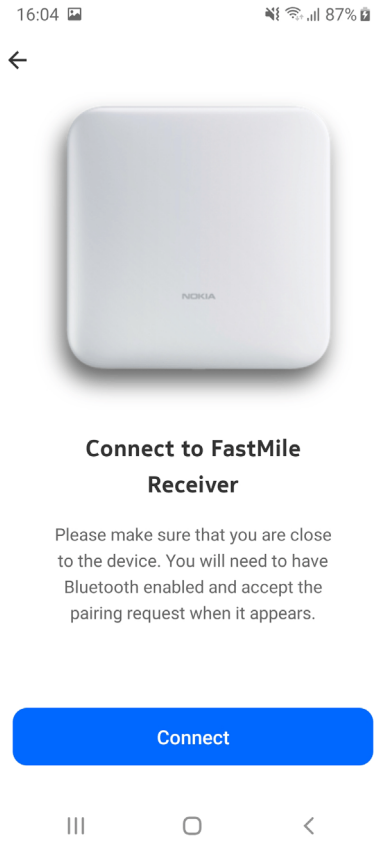
This will allow you to connect the Nokia Wireless app to the Nokia FastMile 4G Receiver so the Nokia Wireless app can set it up and work in conjunction with it to find the strongest signal as described in the next steps.

11 The Nokia Wireless app prompts you to connect to the Nokia FastMile 4G Receiver. The connection will be done through Bluetooth in conjunction with a VPN. You will need to be close to the Nokia FastMile 4G Receiver and you will need to have Bluetooth enabled on the mobile phone and accept the pairing request when it appears.

Figure 20 shows the screen to connect to the Nokia FastMile 4G Receiver.

Note — The Bluetooth connection from the Nokia Wireless app towards the Nokia FastMile 4G Receiver is closed after one hour of inactivity in order to preserve Nokia Wireless phone resources. There is a mechanism in place that enables the user to re-establish the Bluetooth connection when he or she re-enters the app.

Figure 20 **Screen for connecting to the Nokia FastMile 4G Receiver**

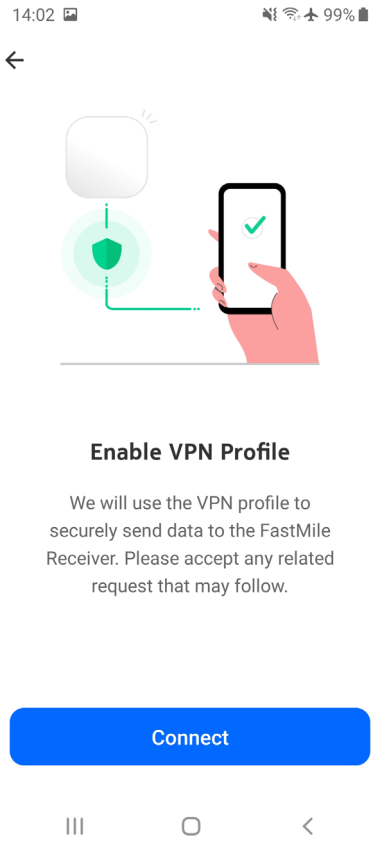


Connect to the Nokia FastMile 4G Receiver by tapping on “Connect”.

12 The Nokia Wireless app prompts you to enable the VPN profile for a secure method to communicate with the Nokia FastMile 4G Receiver.

Figure 21 shows the screen to enable the VPN profile.

Figure 21 **Screen for enabling the VPN profile**

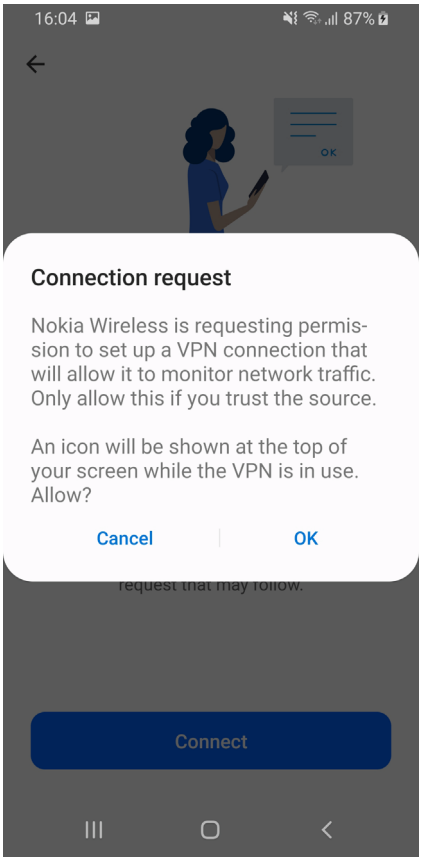


Enable the VPN profile by tapping on “Connect”.

13 The android system of the mobile phone prompts you to accept the connection request.

Figure 22 shows the prompt to accept the connection request.

Figure 22 **Prompt for accepting the connection request**

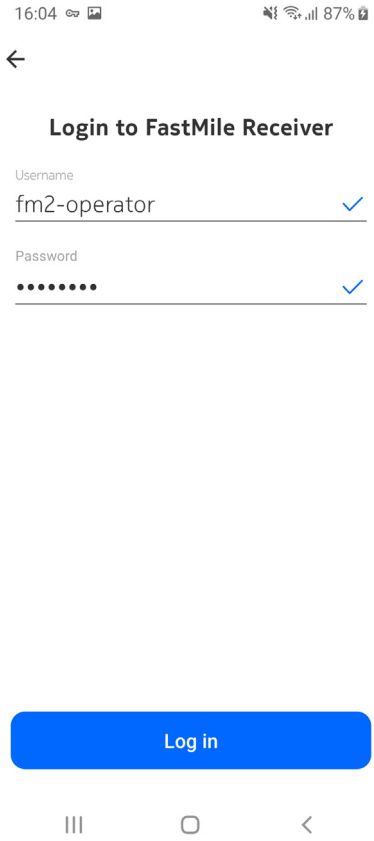


Accept the connection request by tapping on “OK”.

14 The Nokia Wireless app prompts you to log in to the Nokia FastMile 4G Receiver. You will need to input the username and password for the Nokia FastMile 4G Receiver.

Figure 23 shows the screen to log in to the Nokia FastMile 4G Receiver.

Figure 23 **Screen to log in to a Nokia FastMile 4G Receiver that will be managed by the Nokia Altiplano FastMile Controller**



Log in to the Nokia FastMile 4G Receiver by tapping on “Log in”.

15 The Nokia Wireless app now sets up the Nokia FastMile 4G Receiver and shows when the set up is compete.

For a Nokia FastMile 4G Receiver that will be managed remotely by the Nokia Altiplano FastMile Controller (through NETCONF), as part of this step, the Nokia Wireless app transfers the configuration file for the Nokia FastMile 4G Receiver from the Nokia Altiplano FastMile Controller to the Nokia FastMile 4G Receiver to configure the unit. For more information about the configuration file, see the FastMile 4G Receiver Customer Release Notes.

After successful credential validation from the Nokia FastMile 4G Receiver is done, the Nokia Wireless app retrieves the public key and sends it to the Nokia Altiplano FastMile Controller along with the Subscription ID. The Nokia Altiplano FastMile Controller uses the public key in order to encrypt the config package. The Nokia Wireless app retrieves the config package including the encrypted configuration file, the public key (signed by Operator CA) and the Operator CA Certificate from the Nokia Altiplano FastMile Controller.

The screen that shows that the Nokia FastMile 4G Receiver is being set up, and indicates the progress of the set up, and indicates that you should keep the Nokia Wireless app open.

After receiving acknowledgment from the Nokia FastMile 4G Receiver of successful receipt of the configuration file, the Nokia Wireless app informs you that the setup is complete.

Proceed by tapping on “Done”.

16 The Nokia Wireless app uses the signal strength measurement capability of the Nokia FastMile 4G Receiver to help you find a place to mount the Nokia FastMile 4G Receiver.

The Nokia Wireless app provides the following screens to help you find a place to mount the Nokia FastMile 4G Receiver based on signal strength measurements:

- swipable information screen that tells you to:
  - find a location where the Nokia FastMile 4G Receiver won’t be obstructed (shown in Figure 24)
  - hold the Nokia FastMile 4G Receiver in place and keep it steady (shown in Figure 25)
  - try a few locations to find the best signal (shown in Figure 26)
- screen that starts a signal strength measurement by the Nokia FastMile 4G Receiver; you start a measurement by tapping “Measure Signal”; measurements can take up to five minutes (shown in Figure 27); for a Compact multi-band model, the signal strength LEDs will light
- screen that shows a signal strength measurement in progress; you must wait for the measurement to finish
- screen that shows a signal with average strength, with a recommendation that you take another measurement
- screen that shows a signal with strong strength, with an indication that this is a good place to install
- screen that shows a signal with very strong strength, with an indication that this is a good place to install (shown in Figure 28)
- screen that shows no signal, with a recommendation that you take another measurement

When you have a signal strength measurement that is satisfactory, proceed by tapping on “Done”.

Figure 24 **Information screen telling you to find a location where the Nokia FastMile 4G Receiver won't be obstructed**

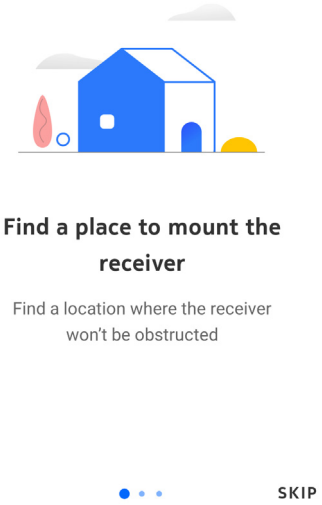


Figure 25 **Information screen telling you to hold the Nokia FastMile 4G Receiver in place**

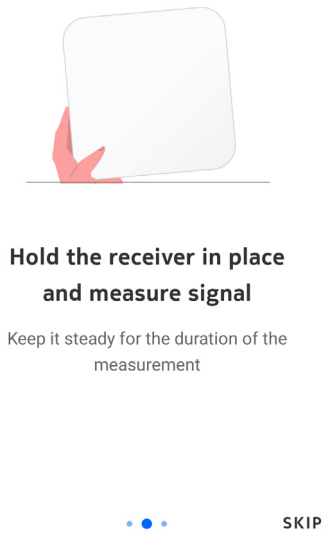


Figure 26 **Information screen telling you to try a few locations to find the best signal**

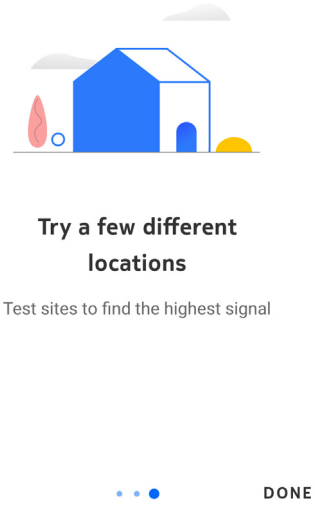
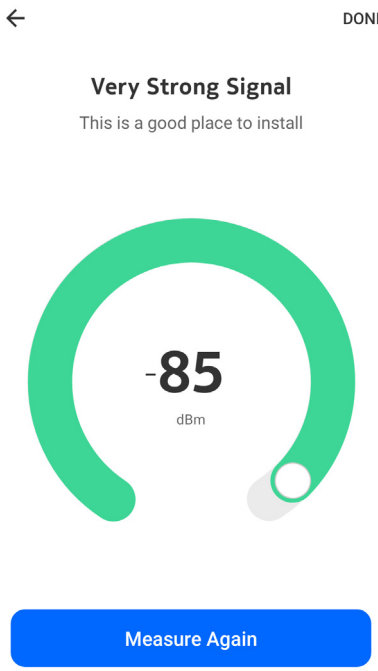


Figure 27 **Screen to start a signal strength measurement**

Figure 28 **Screen showing very strong signal**

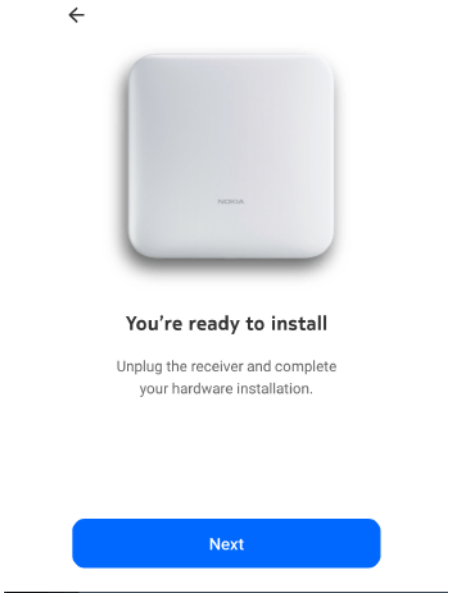


When you have a signal strength measurement that is satisfactory, proceed by tapping on “Done”.

17 The Nokia Wireless app indicates that the Nokia FastMile 4G Receiver can now be installed.

Figure 29 shows the screen showing that you are ready to install.

Figure 29 **Screen showing that you are ready to install**



Disconnect the portable battery-powered PoE injector from the Nokia FastMile 4G Receiver so that the Nokia FastMile 4G Receiver is powered off.

Proceed by tapping on “Next”.

18 Use the camera of the mobile phone to take a photograph of the QR code that is on the sheet of paper included in the shipping package of the Nokia FastMile 4G Receiver. By doing this, in the event that the sheet of paper that has the QR code is not saved after installation, the photograph can be made available for anyone who needs the QR code when accessing the Nokia FastMile 4G Receiver through a mobile phone after installation is complete.

19 You can put the Nokia Wireless app in background as the app is not needed any more for the installation process.

20 Use a pencil or similar device to mark the location on the wall or pole where the Nokia FastMile 4G Receiver is to be mounted and be sure to note the general direction that the Nokia FastMile 4G Receiver will need to face with respect to the LTE base station.

21 Follow the steps in chapter 11 to complete the installation by mounting the Nokia FastMile 4G Receiver and making connections to it.

10.3 Determining the mounting location for unit that will be managed by an ACS

If an ACS will be used through TR-069 to remotely manage the Nokia FastMile 4G Receiver, use the following procedure to use the Nokia Wireless app, which works in conjunction with the Nokia FastMile 4G Receiver, to help you determine the mounting location for the Nokia FastMile 4G Receiver. This procedure does not involve the use of the Nokia Altiplano FastMile Controller.

The Nokia Wireless app works in conjunction with the signal strength measurement capability of the Nokia FastMile 4G Receiver to find a place to mount the Nokia FastMile 4G Receiver.

You will need the Nokia FastMile 4G Receiver and a portable battery-powered PoE injector for this procedure. You might need to provide an Ethernet cable to connect to the Compact multi-band model of the Nokia FastMile 4G Receiver (the Compact mono-band and ABA models have a pre-attached Ethernet cable). An appropriate SIM card must be installed in the Nokia FastMile 4G Receiver as described in chapter 9.

The Nokia Wireless app must be installed on a mobile phone as indicated in section 8.2 before you can use the app to help you determine the mounting location for the Nokia FastMile 4G Receiver. You will need the sheet of paper provided with the Nokia FastMile 4G Receiver that has the QR code for the Nokia FastMile 4G Receiver. As well, you will need to allow access to the mobile phone's location as part of the procedure. You will also need to know the username and password to log in to the Nokia FastMile 4G Receiver.

The following need to be considered before you can start to determine the mounting location of the Nokia FastMile 4G Receiver with the Nokia Wireless app:

- Follow the steps with exact order described in the procedure

Procedure 8 To determine the mounting location for unit that will be managed by an ACS

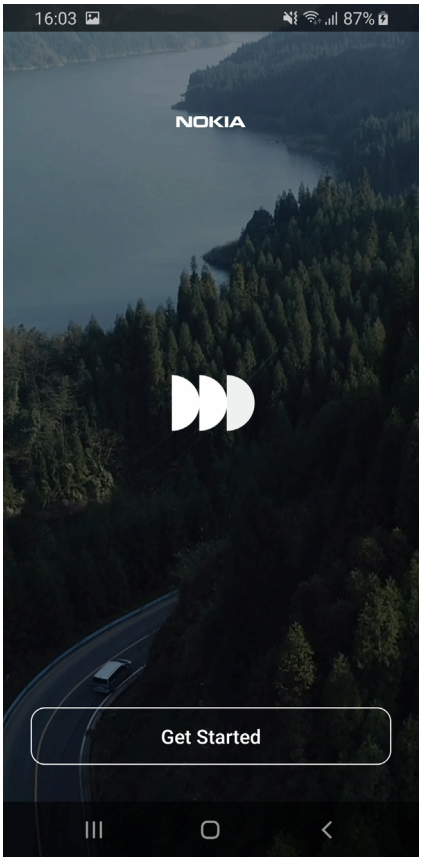
Use the following procedure to determine the mounting location for a Nokia FastMile 4G Receiver that is to be managed by an ACS through TR-069.

1 At a prospective mounting location for the Nokia FastMile 4G Receiver, connect the mobile phone to the Internet and open the Nokia Wireless app on the phone.

An introductory screen with a video appears.

Figure 30 shows the introductory screen.

Figure 30 **Introductory screen for unit that will be managed by an ACS**



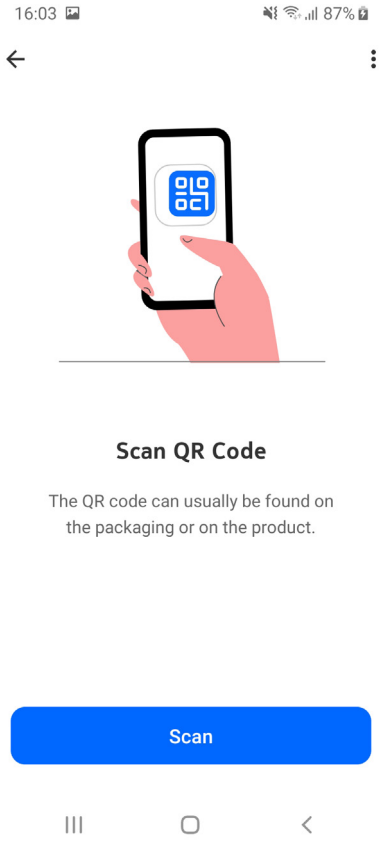
Continue by tapping on “Get started”.

2 After the introductory screen has cleared, the Nokia Wireless app shows an animation of how to scan the QR code of the Nokia FastMile 4G Receiver so that the app can obtain the MAC address, unique device identifier, enterprise id, and device type of the Nokia FastMile 4G Receiver.

The QR code is provided on a sheet of paper in the shipping package of the Nokia FastMile 4G Receiver. The sheet of paper should be saved for anyone who later needs to scan the QR code when accessing the Nokia FastMile 4G Receiver through a mobile phone after installation is complete.

Figure 31 shows the screen for the prompt to scan the QR code.

Figure 31 **Screen with prompt to scan the QR code for unit that will be managed by an ACS**

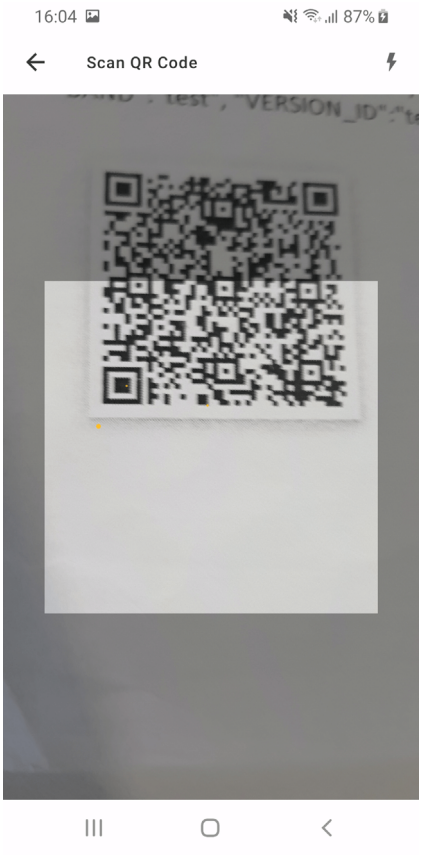


Tap on “Scan” to start the scan of the QR code.

Use the viewfinder of the phone to align with the QR code.

Figure 32 shows the QR code screen.

Figure 32 **QR code screen for unit that will be managed by an ACS**



3 The Nokia Wireless app displays the screen to install the Nolia FastMile 4G Receiver.

Tap on the “Install” option.

Figure 33 shows the Install option.

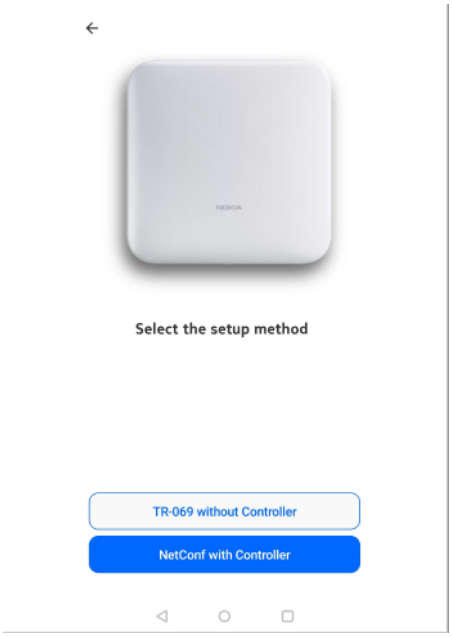
Figure 33 **Screen showing the Install option for unit that will be managed by an ACS**

4 The Nokia Wireless app displays the screen to select the setup method.

Tap on the “TR-069 without Controller” option.

Figure 34 shows the TR-069 without Controller option.

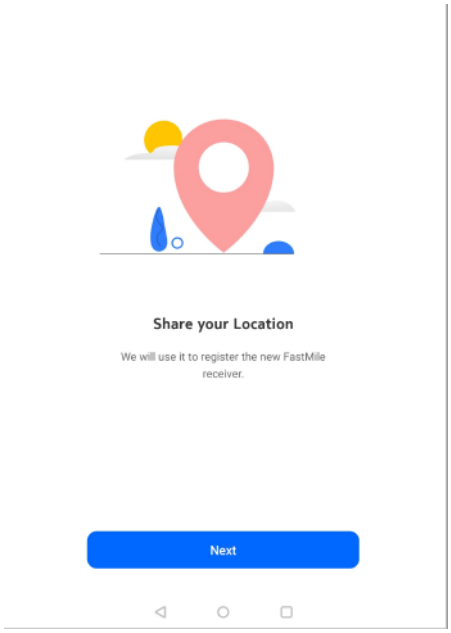
Figure 34 **Screen showing the TR-069 without Controller option for unit that will be managed by an ACS**



5 The Nokia Wireless app prompts you to share your location so that you can register the Nokia FastMile 4G Receiver.

Figure 35 shows the prompt to share your location.

Figure 35 **Screen for sharing location for unit that will be managed by an ACS**



Share your location by tapping on “Next”.

6 Unpack the Nokia FastMile 4G Receiver and connect a portable battery-powered PoE injector to the Ethernet cable (Compact mono-band and ABA models) or Ethernet port (Compact multi-band models) of the Nokia FastMile 4G so that the Nokia FastMile 4G Receiver powers up.

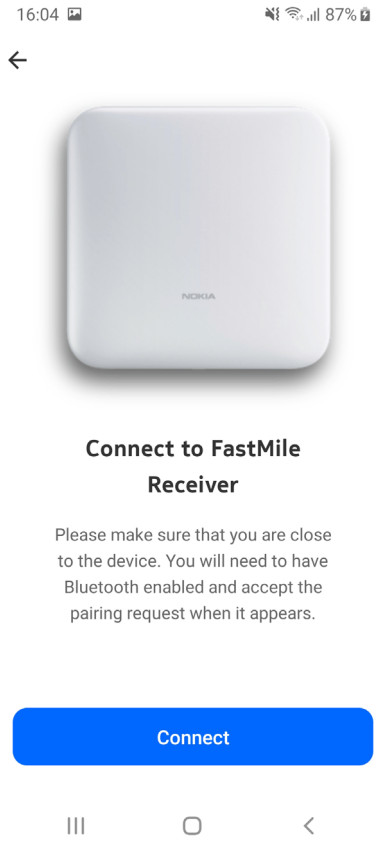
This will allow you to connect the Nokia Wireless app to the Nokia FastMile 4G Receiver so the Nokia Wireless app can set it up and work in conjunction with it to find the strongest signal as described in the next steps.

7 The Nokia Wireless app prompts you to connect to the Nokia FastMile 4G Receiver. The connection will be done through Bluetooth in conjunction with a VPN. You will need to be close to the Nokia FastMile 4G Receiver and you will need to have Bluetooth enabled on the mobile phone and accept the pairing request when it appears.

Figure 36 shows the screen to connect to the Nokia FastMile 4G Receiver.

Note — The Bluetooth connection from the Nokia Wireless app towards the Nokia FastMile 4G Receiver is closed after one hour of inactivity in order to preserve Nokia Wireless phone resources. There is a mechanism in place that enables the user to re-establish the Bluetooth connection when he or she re-enters the app.

Figure 36 **Screen for connecting to the Nokia FastMile 4G Receiver**

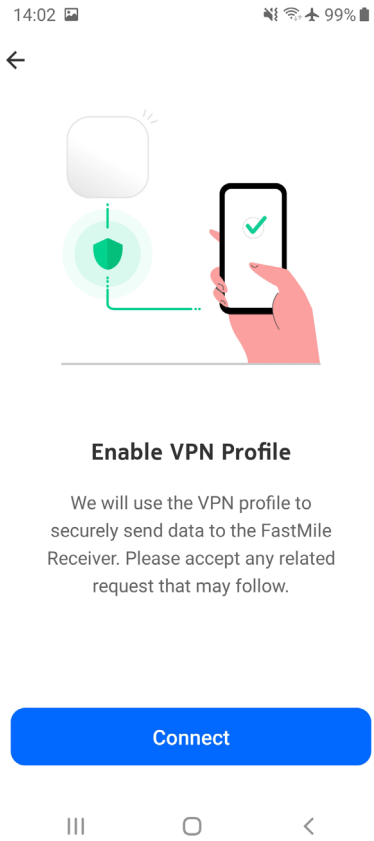


Connect to the Nokia FastMile 4G Receiver by tapping on “Connect”.

8 The Nokia Wireless app prompts you to enable the VPN profile for a secure method to communicate with the Nokia FastMile 4G Receiver.

Figure 37 shows the screen to enable the VPN profile.

Figure 37 **Screen for enabling the VPN profile**

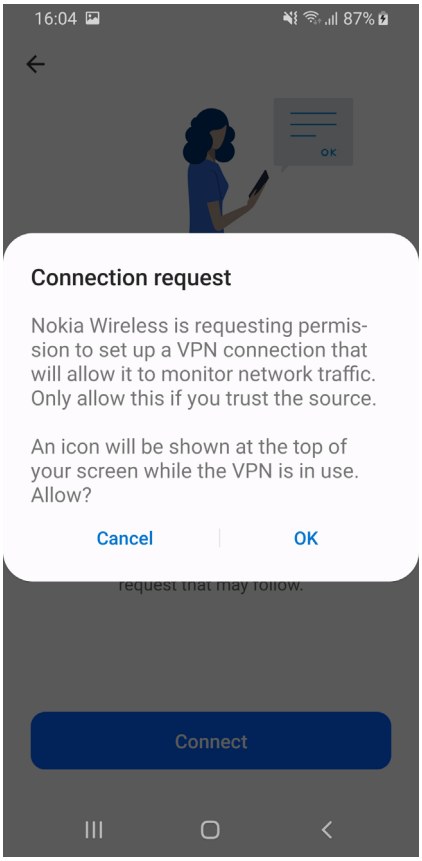


Enable the VPN profile by tapping on “Connect”.

9 The android system of the mobile phone prompts you to accept the connection request.

Figure 38 shows the prompt to accept the connection request.

Figure 38 **Prompt for accepting the connection request**

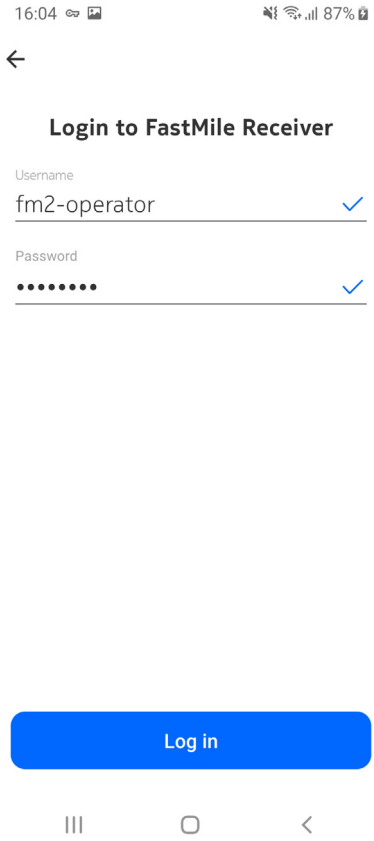


Accept the connection request by tapping on “OK”.

10 The Nokia Wireless app prompts you to log in to the Nokia FastMile 4G Receiver. You will need to input the username and password for the Nokia FastMile 4G Receiver.

Figure 39 shows the screen to log in to the Nokia FastMile 4G Receiver.

Figure 39 **Screen to log in to a Nokia FastMile 4G Receiver that will be managed by an ACS**



Log in to the Nokia FastMile 4G Receiver by tapping on “Log in”.

11 The Nokia Wireless app now sets up the Nokia FastMile 4G Receiver and shows when the set up is compete.

For a Nokia FastMile 4G Receiver that will be managed remotely by an ACS (through TR-069), as part of this step, the Nokia Wireless app uploads the mobile phone location to the Nokia FastMile 4G Receiver.

The screen shows that the Nokia FastMile 4G Receiver is being set up, and indicates the progress of the set up. The screen also indicates that you should keep the Nokia Wireless app open.

The Nokia Wireless app informs you when the setup is complete.

Proceed by tapping on “Done”.

12 The Nokia Wireless app uses the signal strength measurement capability of the Nokia FastMile 4G Receiver to help you find a place to mount the Nokia FastMile 4G Receiver.

The Nokia Wireless app provides the following screens to help you find a place to mount the Nokia FastMile 4G Receiver based on signal strength measurements:

- swipable information screen that tells you to:
  - find a location where the Nokia FastMile 4G Receiver won't be obstructed (shown in Figure 40)
  - hold the Nokia FastMile 4G Receiver in place and keep it steady (shown in Figure 41)
  - try a few locations to find the best signal (shown in Figure 42)
- screen that starts a signal strength measurement by the Nokia FastMile 4G Receiver; you start a measurement by tapping "Measure Signal"; measurements can take up to five minutes (shown in Figure 43); for a Compact multi-band model, the signal strength LEDs will light
- screen that shows a signal strength measurement in progress; you must wait for the measurement to finish
- screen that shows a signal with average strength, with a recommendation that you take another measurement
- screen that shows a signal with strong strength, with an indication that this is a good place to install
- screen that shows a signal with very strong strength, with an indication that this is a good place to install (shown in Figure 44)
- screen that shows no signal, with a recommendation that you take another measurement

When you have a signal strength measurement that is satisfactory, proceed by tapping on "Done".

Figure 40 **Information screen telling you to find a location where the Nokia FastMile 4G Receiver won't be obstructed**

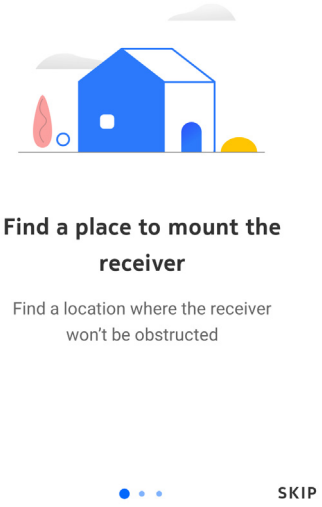


Figure 41 **Information screen telling you to hold the Nokia FastMile 4G Receiver in place**

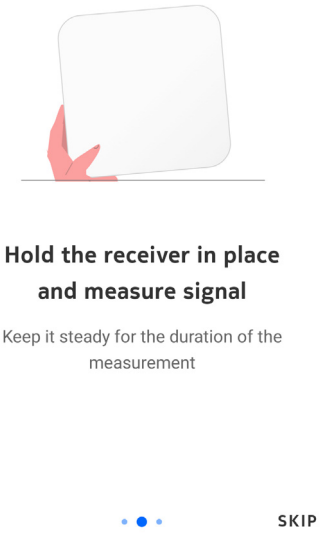


Figure 42 **Information screen telling you to try a few locations to find the best signal**

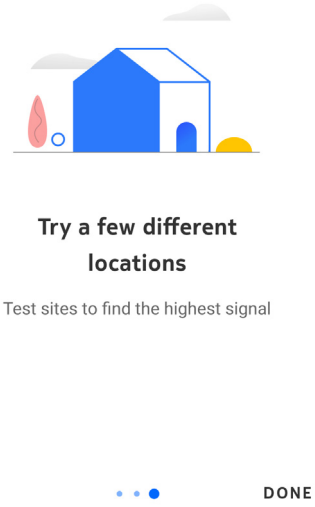
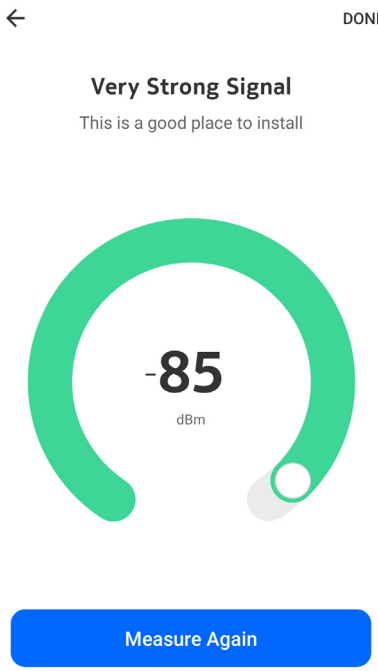


Figure 43 **Screen to start a signal strength measurement**

Figure 44 **Screen showing very strong signal**

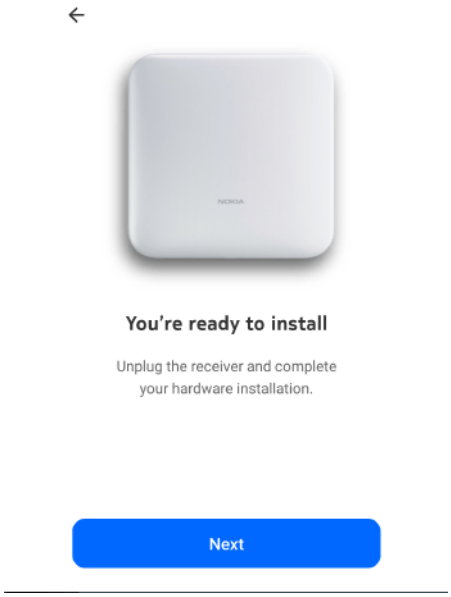


When you have a signal strength measurement that is satisfactory, proceed by tapping on “Done”.

13 The Nokia Wireless app indicates that the Nokia FastMile 4G Receiver can now be installed.

Figure 45 shows the screen showing that you are ready to install.

Figure 45 **Screen showing that you are ready to install**



Disconnect the portable battery-powered PoE injector from the Nokia FastMile 4G Receiver so that the Nokia FastMile 4G Receiver is powered off.

Proceed by tapping on “Next”.

14 Use the camera of the mobile phone to take a photograph of the QR code that is on the sheet of paper included in the shipping package of the Nokia FastMile 4G Receiver. By doing this, in the event that the sheet of paper that has the QR code is not saved after installation, the photograph can be made available for anyone who needs the QR code when accessing the Nokia FastMile 4G Receiver through a mobile phone after installation is complete.

15 You can put the Nokia Wireless app in background as the app is not needed any more for the installation process.

16 Use a pencil or similar device to mark the location on the wall or pole where the Nokia FastMile 4G Receiver is to be mounted and be sure to note the general direction that the Nokia FastMile 4G Receiver will need to face with respect to the LTE base station.

17 Follow the steps in chapter 11 to complete the installation by mounting the Nokia FastMile 4G Receiver and making connections to it.

11 Mounting and connecting the Nokia FastMile 4G Receiver

11.1 Overview

After you have determined the mounting location for the Nokia FastMile 4G Receiver as described in chapter 10, you can mount the Nokia FastMile 4G Receiver on a wall or pole, and make connections to it as described in this chapter.

As part of mounting and connecting the Nokia FastMile 4G Receiver you will be working with most of the physical interfaces shown in the following figures:

- Figure 46 shows the location of the physical interfaces on the Compact mono-band and ABA models of the Nokia FastMile 4G Receiver
- Figure 47 shows the location of the physical interfaces on the underside of the Compact multi-band models of the Nokia FastMile 4G Receiver

Figure 46 **Location of physical interfaces on the Compact mono-band and ABA models of the Nokia FastMile 4G Receiver**

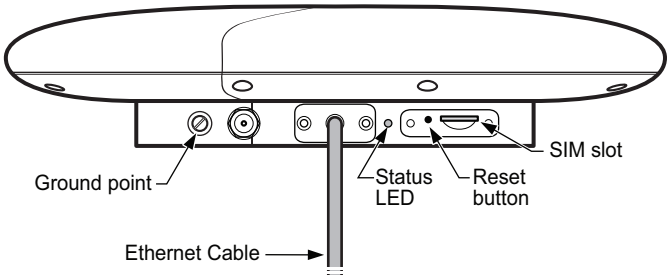
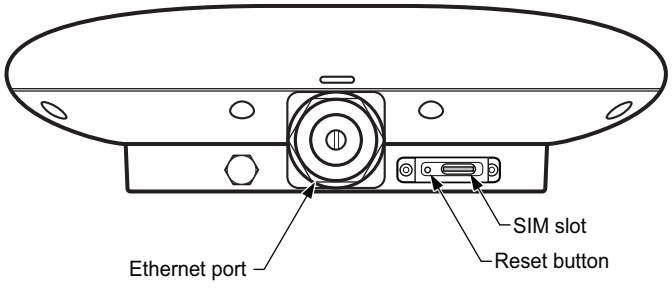


Figure 47 **Location of physical interfaces on the underside of the Compact multi-band models of the Nokia FastMile 4G Receiver**



11.2 Mounting and connecting the Nokia FastMile 4G Receiver

This section describes how to mount all models of the Nokia FastMile 4G Receiver on a wall or pole, and make all physical connections. For any installation, it is expected that a hole will need to drilled through an outside wall for passage of Ethernet cabling. The last steps of the procedure involve connecting power and checking LEDs.

The Nokia Wireless app is not required when mounting and connecting the Nokia FastMile 4G Receiver.

All models of the FastMile 4G Receiver use a supplied receiver bracket that attaches to the back of the Nokia FastMile 4G Receiver through a supplied mounting plate. The receiver bracket is used to mount the Nokia FastMile 4G Receiver on a wall or attaches to a pole adapter so that the Nokia FastMile 4G Receiver can be mounted on a pole.

Be sure that you have met the appropriate prerequisites for installing the Nokia FastMile 4G Receiver listed in section 8.2. Be sure to refer to section 8.2.1 for lightning protection information and other important considerations. Installation prerequisites may include providing cat5e shielded Ethernet cabling with standard pinouts that is a maximum of 80 m (262 ft) in length (not orderable from Nokia). For pole mounting, installation prerequisites include making sure that you have a pole adapter (orderable from Nokia) and strapping (not orderable from Nokia).

Procedure 9 To mount and connect the Nokia FastMile 4G Receiver

1 Confirm that the location identified in chapter 10 is suitable for considerations within the home, and that Ethernet cabling can be safely and securely run from the mounting location though the wall, and inside the home to the residential gateway or PoE injector, or to the prospective residential gateway or PoE injector location. The PoE injector must be a Nokia-approved PoE injector. Class I and Class II PoE injectors are available from Nokia for use with the FastMile 4G Receiver:

- Class I: can comply with EN 60950-1 if grounding is provided on the wall socket; should be put as close as possible to the place where the Ethernet cable enters the home; see section 6.2 for more information
- Class II: can comply with EN 60950-1 if no grounding is provided on the wall socket; can also be used if grounding is provided on the wall socket; see section 6.2 for more information

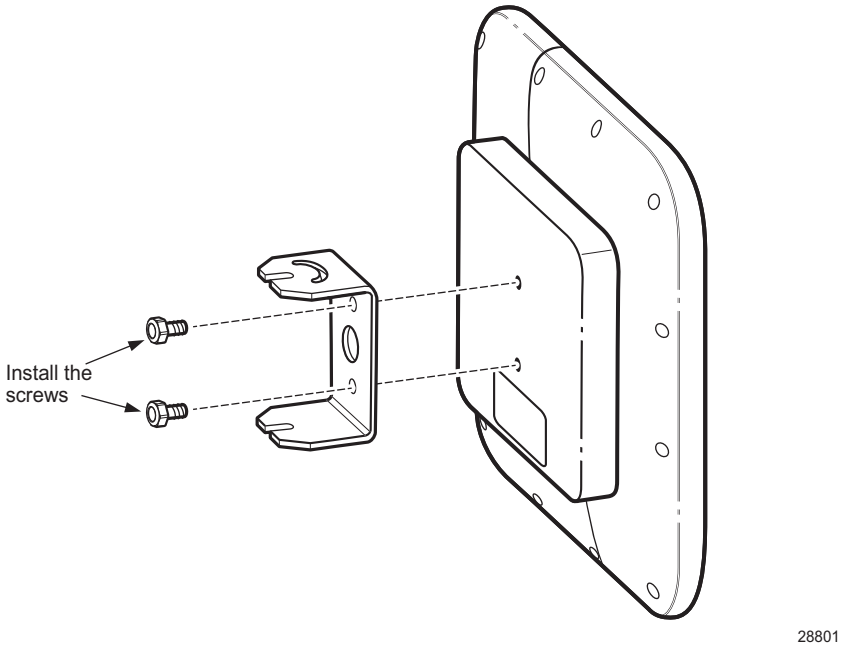
2 Make sure that you have the following from the shipping package as appropriate:

- Nokia FastMile 4G Receiver
- bracket kit consisting of:
  - mounting plate
  - receiver bracket: note that the receiver bracket is shipped attached to the mounting plate with three fasteners
  - two fasteners for attaching the mounting plate to the Nokia FastMile 4G Receiver
- pole adapter

3 Separate the mounting plate from the receiver bracket and save the three fasteners for securing the mounting plate to the receiver bracket later on in this procedure.

4 Use the two supplied screws to attach the mounting plate to the back of the Nokia FastMile 4G Receiver as shown in Figure 48. Be sure to orient the mounting plate as shown in the figure.

Figure 48 **Attaching the mounting plate to the Nokia FastMile 4G Receiver**

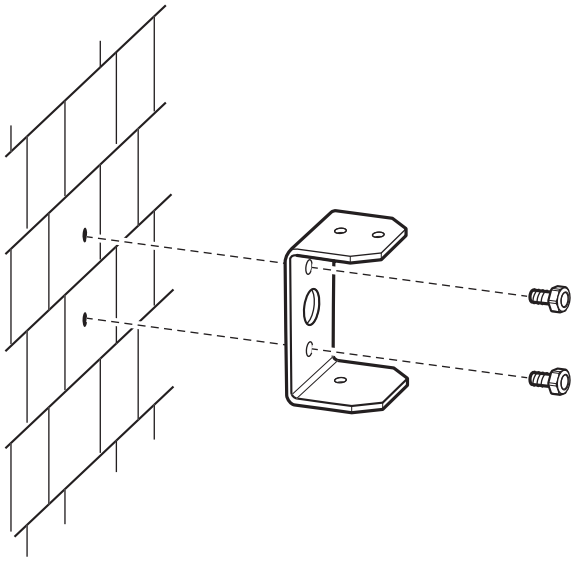


5 As appropriate, drill a hole through the wall for the Ethernet cable to be able to pass through. It is recommended that you drill the hole for the Ethernet cable at a slight angle so that any water that might enter the hole will run down towards the outside of the home.

6 If you are wall-mounting the Nokia FastMile 4G Receiver, drill two anchor holes as appropriate for the receiver bracket on the outside of the wall. The anchor holes should be one directly above the other. You can use the receiver bracket as a template for the anchor holes.

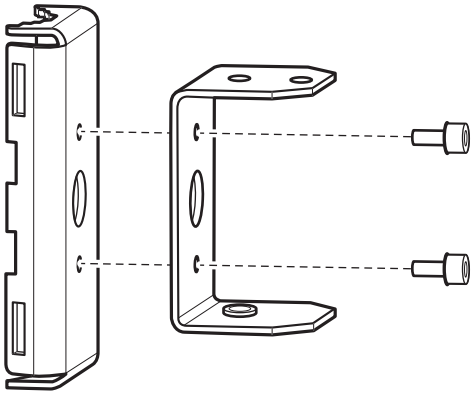
7 If you are wall-mounting the Nokia FastMile 4G Receiver, attach the receiver bracket to the outside of the wall using two appropriate fasteners in the anchor holes drilled in the previous step, as shown in Figure 49. Ensure that the receiver bracket is in a vertical position on the wall.

Figure 49 **Attaching the receiver bracket to a wall**



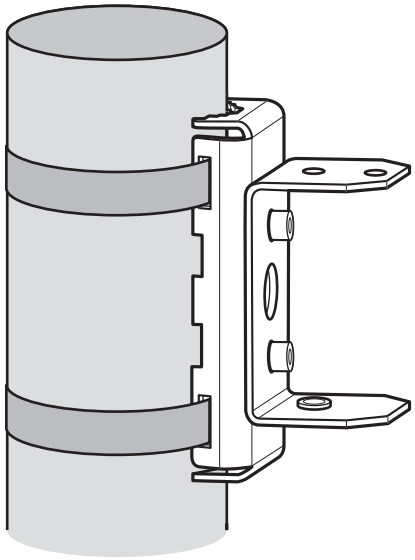
8 If you are pole-mounting the Nokia FastMile 4G Receiver, attach the receiver bracket to the pole adapter as shown in Figure 50.

Figure 50 **Attaching the receiver bracket to the pole adapter**



9 If you are pole-mounting the Nokia FastMile 4G Receiver, use strapping to attach the receiver bracket and pole adapter to the pole as shown in Figure 51.

Figure 51 **Attaching the receiver bracket and pole adapter to a pole**



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10 Line up the mounting plate (attached earlier on the back of the Nokia FastMile 4G Receiver) with the receiver bracket and temporarily secure the Nokia FastMile 4G Receiver in place with the three saved fasteners:

- Figure 52 shows one of the fasteners already in place for a wall-mount installation
- Figure 53 shows one of the fasteners already in place for a pole-mount installation

Figure 52 **Mounting the Nokia FastMile 4G Receiver on a wall**

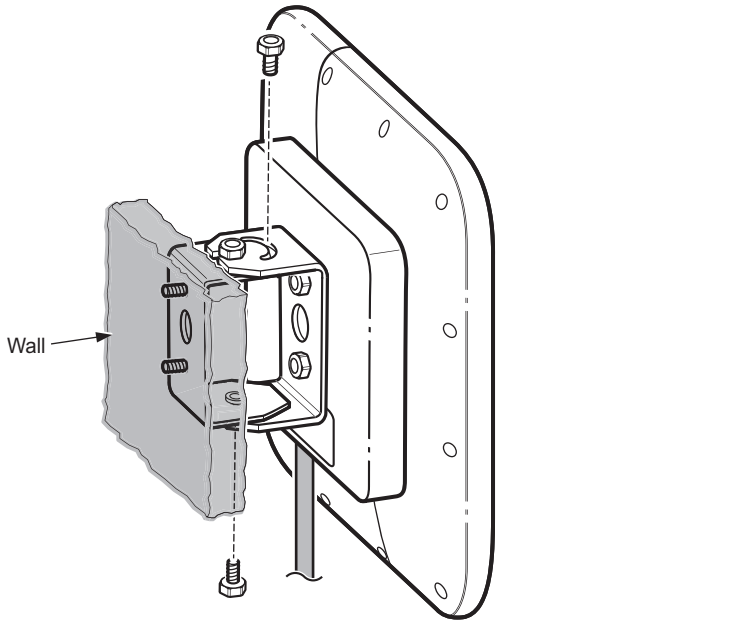
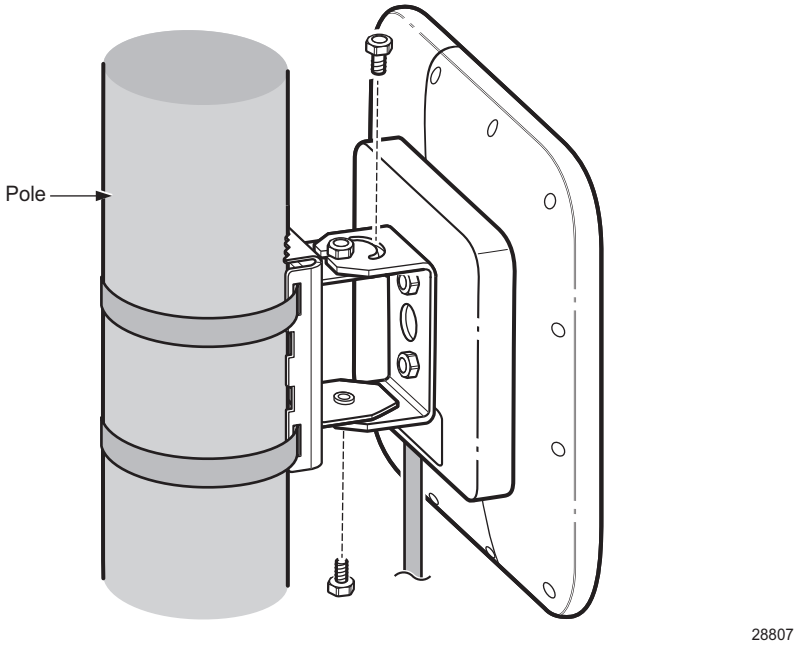


Figure 53 **Mounting the Nokia FastMile 4G Receiver on a pole**



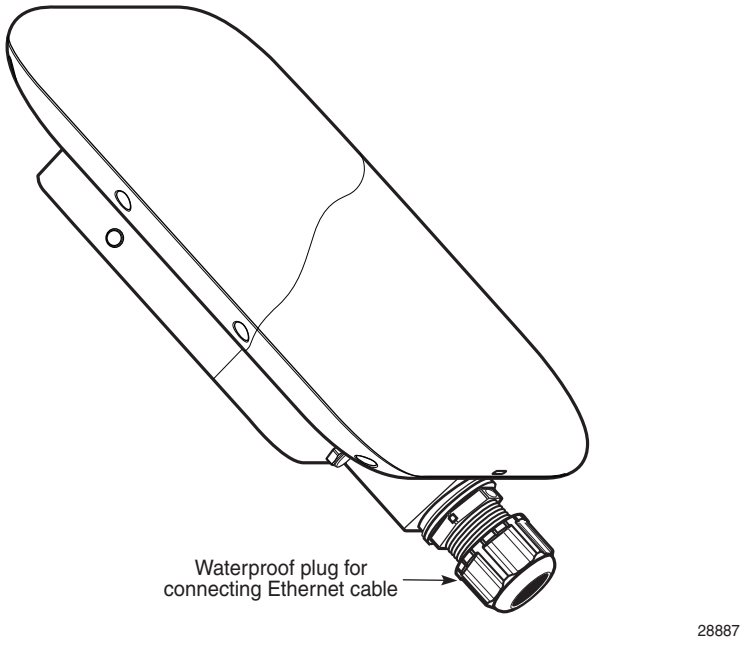
11 Rotate the Nokia FastMile 4G Receiver +/-35 degrees horizontally so that it faces the direction of the LTE base station that was determined in chapter 10, and tighten the fasteners to securely hold the Nokia FastMile 4G Receiver in place.

Note that if needed, you can rotate the Nokia FastMile 4G Receiver horizontally later on by loosening the fasteners, rotating the Nokia FastMile 4G Receiver, and tightening the fasteners.

12 If you are installing a Compact multi-band model of the Nokia FastMile 4G Receiver, you will need to provide and attach a cat5e shielded Ethernet cable that has standard pinouts and is a maximum of 80 m (262 ft) in length to the Ethernet port of the Nokia FastMile 4G Receiver as described below (you will need to provide a male RJ 45 connector to connect the Ethernet cable to Nokia FastMile 4G Receiver):

i Remove the waterproof plug and gland from the Ethernet port of the Nokia FastMile 4G Receiver. Figure 54 shows the location of the waterproof plug.

Figure 54 **Location of the waterproof plug (Compact multi-band models only)**



ii Slide the end of the Ethernet cable through the waterproof plug and gland that were removed from the Ethernet port, and attach the male RJ 45 connector to the end of the Ethernet cable.

iii Connect the male RJ 45 connector to the Ethernet port of the Nokia FastMile 4G Receiver.

iv Slide the waterproof plug and gland to the Ethernet port of the Nokia FastMile 4G Receiver and tighten securely to the port.

13 If you are installing a Compact mono-band model or ABA model of the Nokia FastMile 4G Receiver and the Ethernet cable pre-attached to the Nokia FastMile 4G Receiver will not be long enough to reach the residential gateway or PoE injector, make the cable longer by using a waterproof IP67 female RJ 45 plug to attach additional cat5e shielded Ethernet cabling to it. The maximum combined length is 80 m (262 ft).

14 Pass the Ethernet cable from the Nokia FastMile 4G Receiver through the hole that was drilled in the wall, and use silicone or other waterproof sealing or caulking compound to seal the hole.

Do not run the Ethernet cable to the residential gateway or PoE injector yet.

15 Confirm that the residential gateway that is going to provide service for the Nokia FastMile 4G Receiver is installed and powered up, or install and power up the residential gateway.

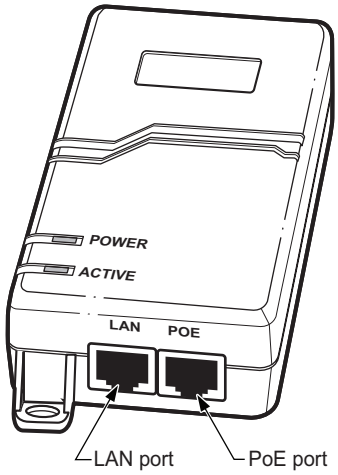
Nokia advises that a properly earthed wall socket should be used for powering the residential gateway.

16 If the Nokia FastMile 4G Receiver is not going to be powered from the residential gateway, set up a Nokia-approved PoE injector that is going to provide power over Ethernet to the Nokia FastMile 4G Receiver, including connecting the PoE injector to the residential gateway at the PoE injector's “LAN” port and to power. The following classes of PoE injector are available from Nokia:

- Class I: can comply with EN 60950-1 if grounding is provided on the wall socket; should be put as close as possible to the place where the Ethernet cable enters the home; see section 6.2 for more information
- Class II: can comply with EN 60950-1 if no grounding is provided on the wall socket; can also be used if grounding is provided on the wall socket; see section 6.2 for more information

Figure 55 shows the location of the “LAN” port on a PoE injector. Specifics of the set up will depend on the PoE injector and residential gateway.

Figure 55 **Location of ports on a PoE injector**



17 Connect the Nokia FastMile 4G Receiver to the residential gateway or PoE injector:

If the outside Ethernet cable is longer than 20 meters (64 feet), you will need to use a PoE+ capable surge protector in front of the residential gateway or PoE injector for lightning protection, subject to local regulations.

- If the Nokia FastMile 4G Receiver is going to be powered directly by the residential gateway, safely and securely run the Ethernet cable from the hole drilled in the wall, through the home to the residential gateway, and make the connection at the residential gateway. The Nokia FastMile 4G Receiver powers up when it receives power from the residential gateway.
- If the Nokia FastMile 4G Receiver is going to be powered by the PoE injector, safely and securely run the Ethernet cable from the hole drilled in the wall, through the home to the PoE injector, and make the connection at the PoE injector's “POE” port. Figure 55 shows the location of the “POE” port on a PoE injector. Specifics of the set up will depend on the PoE injector. The Nokia FastMile 4G Receiver powers up when it receives power from the PoE injector.

18 Check the Status LED on the Nokia FastMile 4G Receiver:

- Figure 56 shows the location of the status LED on the Compact mono-band and ABA models of the Nokia FastMile 4G Receiver
- Figure 57 shows the location of the status LED on the Compact multi-band models of the Nokia FastMile 4G Receiver

Figure 56 **Location of the Status LED on the Compact mono-band and ABA models of the Nokia FastMile 4G Receiver**

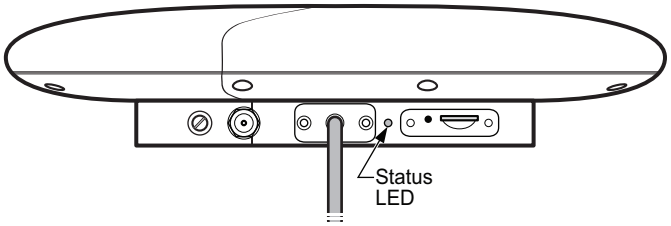


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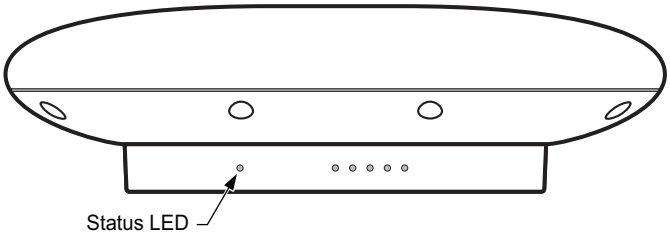
Figure 57 **Location of the status LED on the Compact multi-band models of the Nokia FastMile 4G Receiver**



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The status LED behaves differently depending on whether the Nokia FastMile 4G Receiver will be remotely managed from:

- the Nokia Altiplano FastMile Controller (through NETCONF): see Table 6
- an ACS (through TR-069): see Table 7

Table 6 **Status LED behavior for a Nokia FastMile 4G Receiver remotely managed from the Nokia Altiplano FastMile Controller**

LED color	LED priority	LED behavior	Status information
Blue	First priority	Blinking	Bluetooth connection in progress
		Solid	Bluetooth connection established
		Off	No Bluetooth connection
Red	Second priority	Blinking	Critical alarm
		Solid	Major or minor alarm
		Off	No alarm

(1 of 2)

LED color	LED priority	LED behavior	Status information
Green	Third priority	Blinking twice per second	Kernel and application start up
		Blinking one per second	Application start up
		Solid	Start up
		Off	OAM link is established

(2 of 2)

Table 7 Status LED behavior for a Nokia FastMile 4G Receiver remotely managed from an ACS

LED color	LED priority	LED behavior	Status information
Blue	First priority	Blinking	Bluetooth connection in progress
		Solid	Bluetooth connection established
		Off	No Bluetooth connection
Green	Second priority	Blinking twice per second	Kernel and application start up
		Blinking one per second	Application start up
		Solid	Start up
		Off	Software is stable

19 If you installed a Compact multi-band model of the Nokia FastMile 4G Receiver, you can check the signal strength LEDs on the Nokia FastMile 4G Receiver by pressing the measurement button on the side of the unit. Figure 58 shows the location of the measurement button.

Figure 58 **Location of the measurement button**

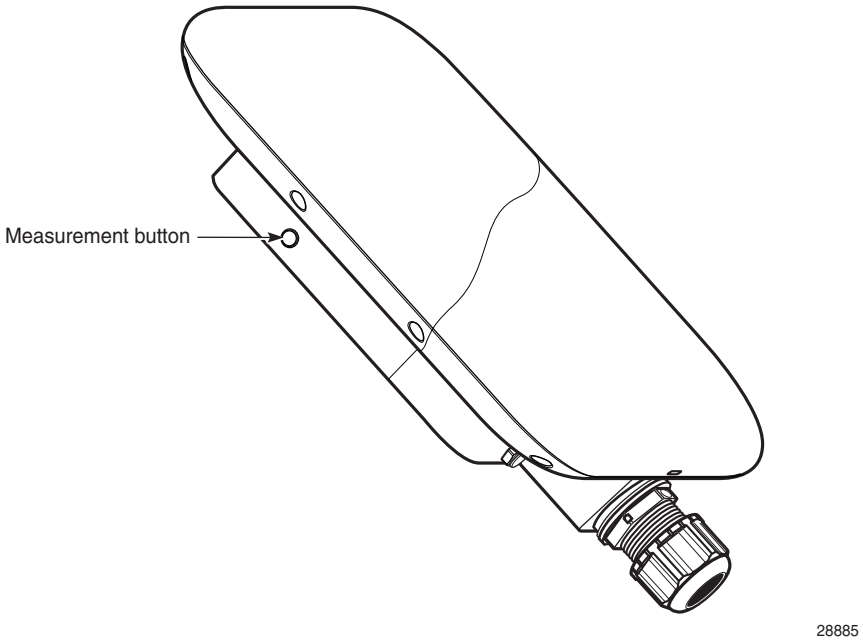
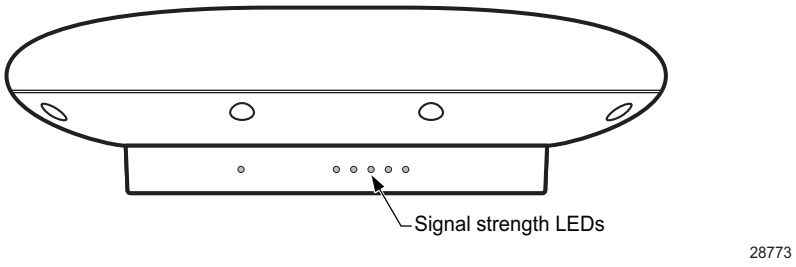


Figure 59 shows the location of the signal strength LEDs.

Figure 59 **Location of the signal strength LEDs**



After the Nokia FastMile 4G Receiver receives power, all five signal strength LEDs turn on for five seconds and then turn off.

During measurement, the five signal strength LEDs blink one-by-one on a 1,2,3,4,5,off,1,2,3,5,off cycle repeatedly until the best signal in the direction is found. When the best signal in the direction is found, the number of LEDs that correspond to the signal strength level will blink together for five seconds. For example, if the signal strength is fourth level, LEDs 1, 2, 3, and 4 will blink together for five seconds.

Stop the measurement by pressing the measurement button. When the Nokia FastMile 4G Receiver attaches to a cell, the number of LEDs that correspond to the signal strength level will be on continuously.

Caution — This step only measures signals, and indicates the signal strength level of the best signal in the direction, during measurement when the Nokia FastMile 4G Receiver is not attached to a cell. If you do a measurement for a Nokia FastMile 4G Receiver that is attached to a cell, the Nokia FastMile 4G Receiver will detach from the cell during the measurement. At the end of the measurement, the Nokia FastMile 4G Receiver requires a reboot in order to attach to the best cell.

20 Installation is complete.

See the Product Overview for information about managing the Nokia FastMile 4G Receiver.

12 Troubleshooting

12.1 Overview

This chapter describes how to troubleshoot potential problems that can occur during the installation and startup phase as well as ones that can occur during the execution phase.

12.2 Subscriber has been registered to a different location

If the Nokia Altiplano FastMile Controller is deployed, the subscriber will be registered to a Nokia FastMile 4G Receiver, and the Nokia FastMile 4G Receiver will have a restriction relative to its registered location, for example, a radius of 100 m from its registered location.

The Nokia FastMile 4G Receiver cannot be installed outside its registered location, and any subscriber that is registered to a Nokia FastMile 4G Receiver that is outside its registered location cannot be registered.

See section 12.7 for information about installing a Nokia FastMile 4G Receiver outside its registered location.

12.3 Further installation prevented

The system will prevent further installation of the Nokia FastMile 4G Receiver after the initial installation is completed for a Nokia FastMile 4G Receiver that is managed by the Nokia Altiplano FastMile Controller.

12.4 SIM not inserted

If the SIM is not in place in the Nokia FastMile 4G Receiver, insert or re-insert the SIM in the Nokia FastMile 4G Receiver while it is not connected to power.

12.5 Failed to connect to the LTE network

If the Nokia FastMile 4G Receiver is not able to connect to the LTE network, check the LTE signal strength through the Nokia Wireless app.

12.6 Cannot attach to LTE network due to hardware mismatch

This issue can be due to E-UTRA band support mismatch between the Nokia FastMile 4G Receiver and LTE network because the Nokia FastMile 4G Receiver is not the correct model for the E-UTRA band of the LTE network.

Check the models listed in the Product Overview document to see if the model you are installing supports the E-UTRA band of the LTE network. If there is a mismatch, change the Nokia FastMile 4G Receiver to a model that supports the E-UTRA band of the LTE network. If the model is correct, contact operator.

12.7 The receiver cannot be installed at this position

This issue is due to the location of Nokia Fastmile 4G Receiver that is being installed is too far away from the recommended location. The recommended location is the location for the Nokia Fastmile 4G Receiver that has been configured through the Nokia Alitplano FastMile Controller.

In order to overcome this issue, move the Nokia FastMile 4G Receiver closer to the recommended location. Press the Retry button to continue.

Note that the subscriber registered to the Nokia Fastmile 4G Receiver cannot be registered if the Nokia Fastmile 4G Receiver is outside its registered location. See section 12.2 for information about registering a user for a Nokia FastMile 4G Receiver that is outside its registered location.

12.8 This subscription ID is not provisioned by the Fastmile Controller

This issue can occur in the following two cases:

- Invalid input of Subscription ID: In order to overcome this issue, check the spelling and enter a valid Subscription ID
- Subscription ID does not exist on Controller side:In order to overcome this issue, actions on the Nokia Alitplano FastMile Controller will be needed in order to include the subscription ID.

12.9 This subscriber ID has already completed a successful installation

This issue can occur when a successful installation has already been performed for the specific Subscription ID, meaning that a successful call home has been done.

To overcome this issue, action is needed on the Nokia Alitplano FastMile Controller to unregister the subscription ID and perform the installation again.

12.10 Nokia FastMile 4G Receiver firmware upgrade to latest build failed

This issue can be due to a radio signal issue in the LTE network for the Nokia FastMile 4G Receiver.

If the issue is due to a radio signal issue in the LTE network, wait for the radio signal to be resolved. When the connection to the Nokia Altiplano FastMile Controller is recovered, check the radio signal condition. If no problem, then perform the firmware upgrade again.

12.11 Nokia FastMile 4G Receiver detached from network

This can be caused by the LTE Radio Base Station being out of service. Can be indicated by the Nokia FastMile 4G Receiver status LED changing to blinking red.

If another LTE Radio Base Station is available, the Nokia FastMile 4G Receiver will attach to it through it cell re-selection process.

12.12 Trace request

The Nokia FastMile 4G Receiver has a trace and log function that can be used for troubleshooting purposes and for help in performing root cause analysis.

If internet is available for the Nokia FastMile 4G Receiver, contact Nokia to request that the trace and log function be used for the Nokia FastMile 4G Receiver.

The trace log can be uploaded to the Nokia Altiplano FastMile Controller or other HTTP file servers.

13 Glossary

This glossary provides the expansions and optional descriptions of most acronyms and initialisms that appear in this document.

3GPP 3rd Generation Partnership Project

ABA Automated Beam Alignment

ACS Auto Configuration Server

ANSI American National Standards Institute

APN Access Point Name

CA Certificate authority

CRoHS China Restriction of Hazardous Substances

DSCP Differentiated Services Code Point

DUID Device Unique Identifier

EARFCN E-UTRA Absolute Radio Frequency Channel Number

ECI External Call Interface

EPC Evolved Packet Core

E-UTRA Evolved Universal Terrestrial Radio Access

EIP Electronic Information Products

EMC Electromagnetic Compatibility

EMI Electromagnetic Interference

EPC Evolved Packet Core

ESD Electrostatic Discharge

ETL Electrotechnical Laboratory

ETSI European Telecommunications Standards Institute

FCC Federal Communications Commission

FDD Frequency Division Duplex

FM FastMile

HSS Home Subscriber Server

IDU Indoor Unit

IEEE	Institute of Electrical and Electronics Engineers
IP	International Protection or Internet Protocol
LAN	Local Area Network
LED	Light Emitting Diode
LTE	Long-Term Evolution
MAC	Media Access Control
MCV	Maximum Concentration Value or Minimum Concentration Value
MIMO	Multiple-Input Multiple-Output
MME	Mobility Management Entity
NAC	Network Access Control
NEC	National Electrical Code
OAM	Operations and Maintenance
PCI	Physical Cell Identifier
PCRF	Policy and Charging Rules Function
PDF	Portable Document Format
PIN	Personal Identification Number
PoE	Power over Ethernet
QCI	QoS Class Identifier
QoS	Quality of Service
QR	Quick Response
RF	Radio Frequency
RoHS	Restriction of Hazardous Substances
RSRP	Reference Signal Received Power
RSRQ	Reference Signal Received Quality
RSSI	Received Signal Strength Indicator
SIM	Subscriber Identify Module
SINR	Signal-to-Interference-plus-Noise Ratio
TCP	Transmission Control Protocol

TDD	Time Division Duplex
UDP	User Datagram Protocol
UL	Underwriters’ Laboratories
URL	Uniform Resource Locater
VDC	Volts Direct Current
VPN	Virtual Private Network
WiFi	Wireless Fidelity
ZIP	Compressed File

Customer document and product support

Customer documentation

Customer Documentation Welcome Page

Technical Support

Customer Documentation Technical Support

Documentation feedback

Customer Documentation Feedback