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Nokia MetroSite EDGE BTS, Release 5

Requirements for Installation and Operation

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FCC §15.105 - Information to user - 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 connected.
- Consult the dealer or an experienced radio/TV technician for help.

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1 About this document

This document introduces the requirements set by the Nokia MetroSite EDGE Base Station for successful installation and operation. Use this document as the source for the following information needed in the planning of an installation:

- specification on the environmental conditions during transportation, storage and operation
- space requirements and other site-related installation matters
- site grounding and power supply to the BTS
- interface connections
- installation tools

Read also *Nokia MetroSite EDGE Base Station: Warnings and Cautions* in conjunction with this document.

2 Environment

This chapter defines the classes of environmental conditions and the severities to which the Nokia MetroSite EDGE Base Station can be exposed. The information is organised into the conditions for: storage, transportation, and operation.

2.1 Storage

This section defines the environmental conditions to which the Nokia MetroSite EDGE Base Station can be exposed during storage.

Caution

The Nokia MetroSite EDGE Base Station must be stored in its original package before the installation.

2.1.1 International standard for storage

According to the standard ETS 300 019-1-1:1992, the storage class for the Nokia MetroSite EDGE Base Station is class 1.2: weather-protected, partly temperature-controlled storage locations.

2.1.2 Climatic conditions for storage

The possible climatic conditions under which the Nokia MetroSite EDGE Base Station can be stored are presented in the *Permitted climatic conditions for storage* Table (according to ETS 300 019-1-1:1992).

Table 1. Permitted climatic conditions for storage

Environmental parameter	**Value**
Low air temperature	- 25°C - 13°F
High air temperature	+ 55°C + 131°F
Low relative humidity	10%
High relative humidity	100%
Low absolute humidity	0.5 g/m^3
High absolute humidity	29 g/m^3
Rain intensity	none
Temperature change rate (average of 5 minutes)	0.5°C/min 0.9°F/min
Low air pressure	70 kPa 10.15 psi
High air pressure	106 kPa 15.37 psi
Solar radiation	1120 W/m^2
Surrounding air movement	30 m/s 98 ft/s
Conditions of condensation	yes
Conditions of precipitation (rain, snow, hail, etc.)	yes
Low rain temperature	none
Conditions of water from sources other than rain	dripping water
Conditions of icing and frosting	yes

2.1.3 Mechanical conditions for storage

The Nokia MetroSite EDGE Base Station complies with the standard ETS 300 019-1-1:1992 class 1.2.

2.2 Transportation

This section defines the environmental conditions to which the Nokia MetroSite EDGE Base Station can be exposed during transportation.

Caution

The Nokia MetroSite EDGE Base Station must be transported in its original package to the installation site.

2.2.1 International standard for transportation

According to the standard ETS 300 019-1-2:1992, the class for the Nokia MetroSite EDGE Base Station equipment is class 2.3. This class applies to transportation situations where special care is taken, such as special care with respect to handling in low temperatures.

Note

The typical transportation time is considered to be 30 days or less. When the total transportation time exceeds 30 days, additional storage or packaging precautions must be considered.

2.2.2 Climatic conditions for transportation

The climatic conditions permitted during the transportation are presented in the *Climatic conditions for transportation* Table (according to ETS 300 019-1-2:1992).

Table 2. Climatic conditions for transportation

Environmental parameter	**Value**
Low air temperature	-25°C -13°F
High temperature, air in unventilated enclosures	+ 70°C + 158°F
High temperature, air in ventilated enclosures or outdoor air	+ 40°C + 104°F
Temperature change air/air	-24°C / +30°C -11°F / +86°F
Temperature change air/water	+40°C / +5°C +104°F / +41°F
Relative humidity, not combined with rapid temperature changes	95% +40°C 95% 104°F
Relative humidity, combined with rapid temperature changes air/air, at high relative humidity	95% -25°C / +30°C 95% -13°F / +86°F
Absolute humidity, combined with rapid temperature changes air/air, at high water content	60 g/m^3 +70°C / +15°C 60 g/m^3 +158°F / +59°F
Low air pressure	70 kPa 10.15 psi
Change of air pressure	none
Surrounding air movement	20 m/s 65.6 ft/s
Precipitation, rain	6 mm/min 0.24 in/min
Radiation, solar	1120 W/m^2
Radiation, heat	600 W/m^2
Water from sources other than rain	1 m/s 3.28 ft/s

Table 2. Climatic conditions for transportation (cont.)

Environmental parameter	Value
Wetness	none

2.2.3 Mechanical conditions for transportation

In respect to mechanical conditions during transportation, the Nokia MetroSite EDGE Base Station complies with ETS 300 019 1-2:1992 class 2.3.

2.3 Operation

This section defines the environmental conditions which are possible during the operation of the Nokia MetroSite EDGE Base Station at locations which are not protected from direct weather influences.

Note

When surveying the prospective sites, consider the values presented in this section.

Operating conditions are defined as stationary: the equipment is mounted on a structure or mounting device, or it is permanently placed at a site. The Nokia MetroSite EDGE Base Station is not intended for portable use.

2.3.1 International standard for operation

According to the standard ETS 300 019-1-4:1992, the class for Nokia MetroSite EDGE Base Station equipment is class 4.1.

2.3.2 Climatic conditions for operation

In respect to climatic conditions during operation, the Nokia MetroSite EDGE Base Station complies principally with class 4.1, as presented in the *Climatic conditions for operation (class 4.1, extended)* Table. However, for the temperature and humidity values, the table presents extended operational climatic conditions, which differ from class 4.1. The weather shielding of the Nokia MetroSite EDGE Base Station is valid when the BTS is mounted in the recommended positions.

Table 3. Climatic conditions for operation (class 4.1, extended)

Environmental parameter	**Class 4.1 value**	**Extended value for Nokia MetroSite EDGE Base Station**
Low air temperature	-33°C -27°F	-40°C -40°F
High air temperature	+40°C +104°F	+50°C +122°F
Low relative humidity	15%	-
High relative humidity	100%	-
Low absolute humidity	0.26 g/m^3	0.03 g/m^3
High absolute humidity	25 g/m^3	36 g/m^3
Rain intensity	6 mm/min 0.24 in./min	-
Temperature change rate (average of 5 minutes)	0.5 °C/min 0.9 °F/min	-
Low air pressure	70 kPa 10.15 psi	-
High air pressure	106 kPa 15.37 psi	-
Solar radiation	1120 W/m^2	-
Heat radiation	insignificant	-

Table 3. Climatic conditions for operation (class 4.1, extended) (cont.)

Environmental parameter	Class 4.1 value	Extended value for Nokia MetroSite EDGE Base Station
Surrounding air movement	50 m/s 164 ft/s	-
Conditions of condensation	yes	-
Conditions of precipitation (rain, snow, hail etc.)	yes	-
Low rain temperature	+5°C +41°F	-
Conditions of water from sources other than rain	splashing water	-
Conditions of icing and frosting	yes	-

2.3.3 Mechanical conditions for operation

In respect to mechanical conditions during operation, the Nokia MetroSite EDGE Base Station complies with ETS 300 019-1-4:1992 class 4.1.

2.3.4 Ingress protection

The electronic components inside the units of the Nokia MetroSite EDGE Base Station are protected against the ingress of rain, snow and dust to the minimum level of IP55 of European standard EN 60529, and level 3R of UL standard 50.

2.3.5 Acoustic noise

The maximum acoustic noise generated by the Nokia MetroSite EDGE Base Station is 61 dBA. The acoustic noise is measured according to ISO 3744. The noise type is sound power.

2.3.6 EMC shielding

The chassis and the units of the Nokia MetroSite EDGE Base Station together provide the electromagnetic compatibility (EMC) shielding. The EMC shielding complies with the standards listed in *Nokia MetroSite EDGE Base Station: Product Description*.

2.3.7 Safety

The MetroSite BTS cabinet fulfils the relevant safety requirements: EN 60215, EN 60950 and UL 1950.

For more specific information refer to *Nokia MetroSite EDGE Base Station: Product Description*.

2.3.8 Cabinet covers (HVMC and WCUA)

The standard cover fitted is the HVMC. There is an optional WCUA type cover available made from high impact polycarbonate. When the WCUA is fitted the Nokia MetroSite EDGE BTS is designed to meet the requirements for GR-487-CORE.

3 Installation requirements

This chapter specifies the preparatory requirements for the installation of the Nokia MetroSite EDGE Base Station.

3.1 Checking the site

The cabinet installation phase requires that the site is properly surveyed and prepared, and that all the required external services are correctly installed. The site survey must identify any special requirements for the installation.

The site must meet the following requirements before an installation can be started:

1. The site is accessible and safe for working.
2. The safety distance calculations presented in *Nokia MetroSite EDGE Base Station: Warnings and Cautions* are being applied.
3. When radio link transmission is used, the rule for line-of-sight to the far end radios is being applied.
4. The external connections for the cabinet are in place: a site grounding point, mains power (AC or DC, according to the site) with an appropriate disconnect device, and a transmission connection point.

Caution

For 800 MHz and 1900 MHz frequency units to meet the requirements of GR-1089-CORE an approved external current limiting protector (such as heat coils) must be fitted to the FXC E1/T1 ports to protect them from over current fault conditions!

5. All required documentation is available. For example, site-specific installation instructions.

6. The correct BTS delivery package and accessories have been brought to the site. Refer to *Nokia MetroSite EDGE Base Station: Installation* for details.

3.2 Space requirements

The Nokia MetroSite EDGE Base Station can be mounted on a wall or pole. This section presents the general issues that must be considered when choosing the installation space.

3.2.1 Nokia MetroSite Base Station dimensions and weight

The *Dimensions of the Nokia MetroSite EDGE Base Station cabinet* Figure presents the external dimensions of the Nokia MetroSite EDGE Base Station.

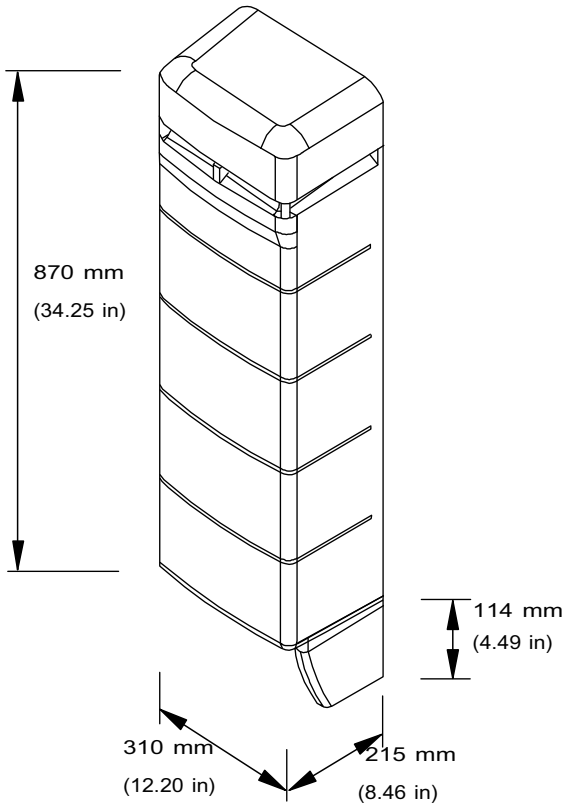


Figure 1. Dimensions of the Nokia MetroSite EDGE Base Station cabinet

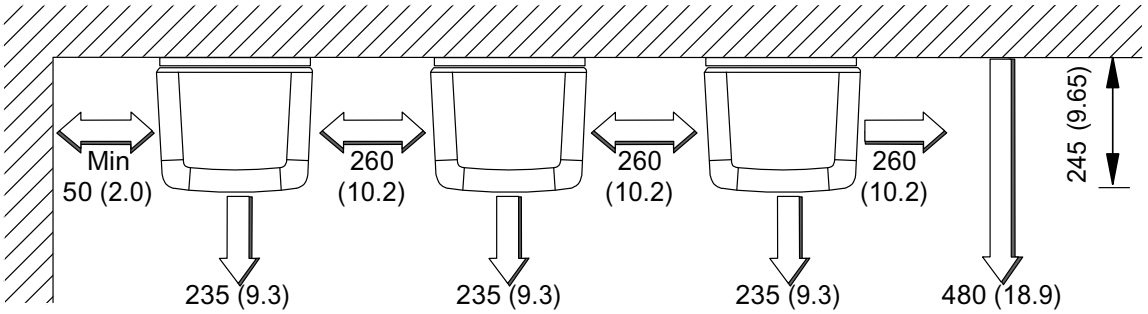
The Nokia MetroSite EDGE Base Station with four TRXs installed weighs approximately 40 kg (88.4 lb). The mounting rack weighs approximately 2 kg (4.4 lb). The dimensions and weights of the plug-in units can be found in *Nokia MetroSite EDGE Base Station: Product Description*.

3.2.2 Clearances around BTS

The required clearances around the Nokia MetroSite EDGE Base Station are shown in the *Clearances around Nokia MetroSite EDGE Base Station* Figure.

Top view

NOTE: DIMENSIONS mm (inch)



Front view

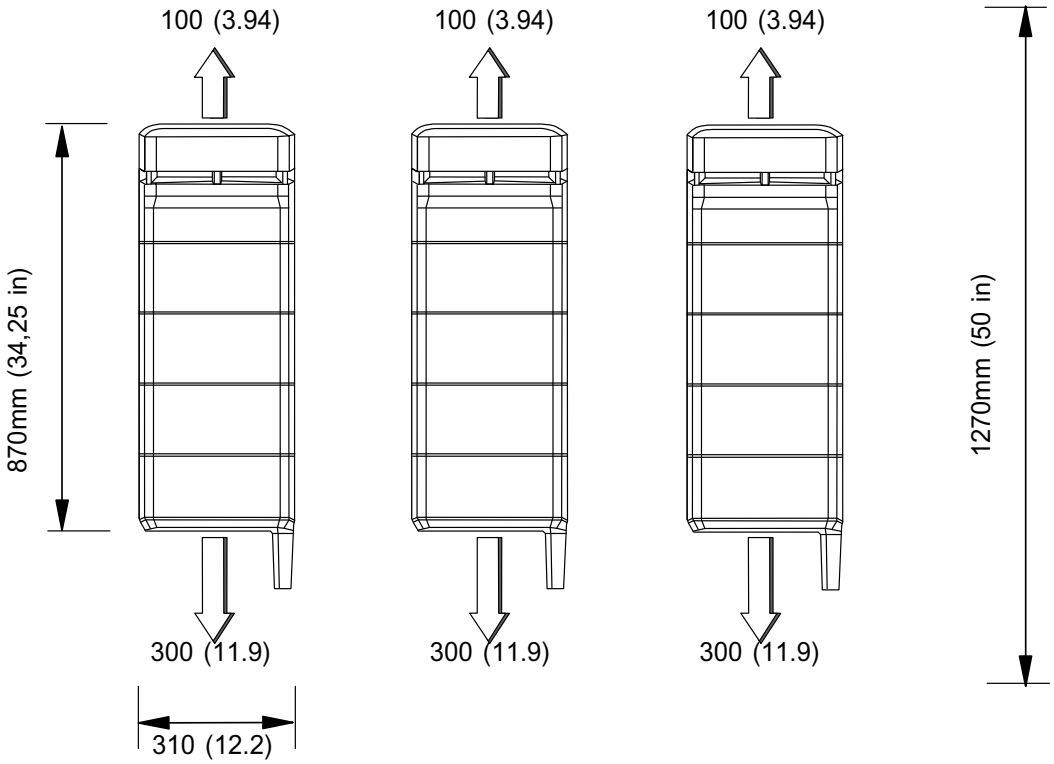


Figure 2. Clearances around Nokia MetroSite EDGE Base Station

The packing cardboard in the BTS transportation package includes a marked-out template for defining the clearances around the BTS and for marking the drilling holes needed for wall mounting. Use the template for defining how much space is required:

- to remove units from the BTS when it is installed on a wall or pole
- to remove and replace the cover when the BTS is installed on a wall or a pole
- for cables and for cooling under the BTS

Refer to wall mounting instructions in *Nokia MetroSite EDGE Base Station: Installation* for more information on using the cardboard template.

3.3 Mounting locations and positions

The Nokia MetroSite EDGE Base Station can be mounted on a wall or on a pole. Both indoor and outdoor applications are possible. The Nokia MetroSite EDGE Base Station can also be mounted horizontally in the position shown in the *Mounting of the Nokia MetroSite EDGE Base Station* Figure, item B. No other horizontal positions are permitted.

The space in which the Nokia MetroSite EDGE Base Station is located must have proper ventilation.

Note

Horizontal mounting is not recommended for all site conditions. Nokia MetroSite EDGE is not tested to the requirements of GR-1089-CORE, GR-487-CORE or GR-63-CORE for horizontal mounting, contact your Nokia representative for more information.

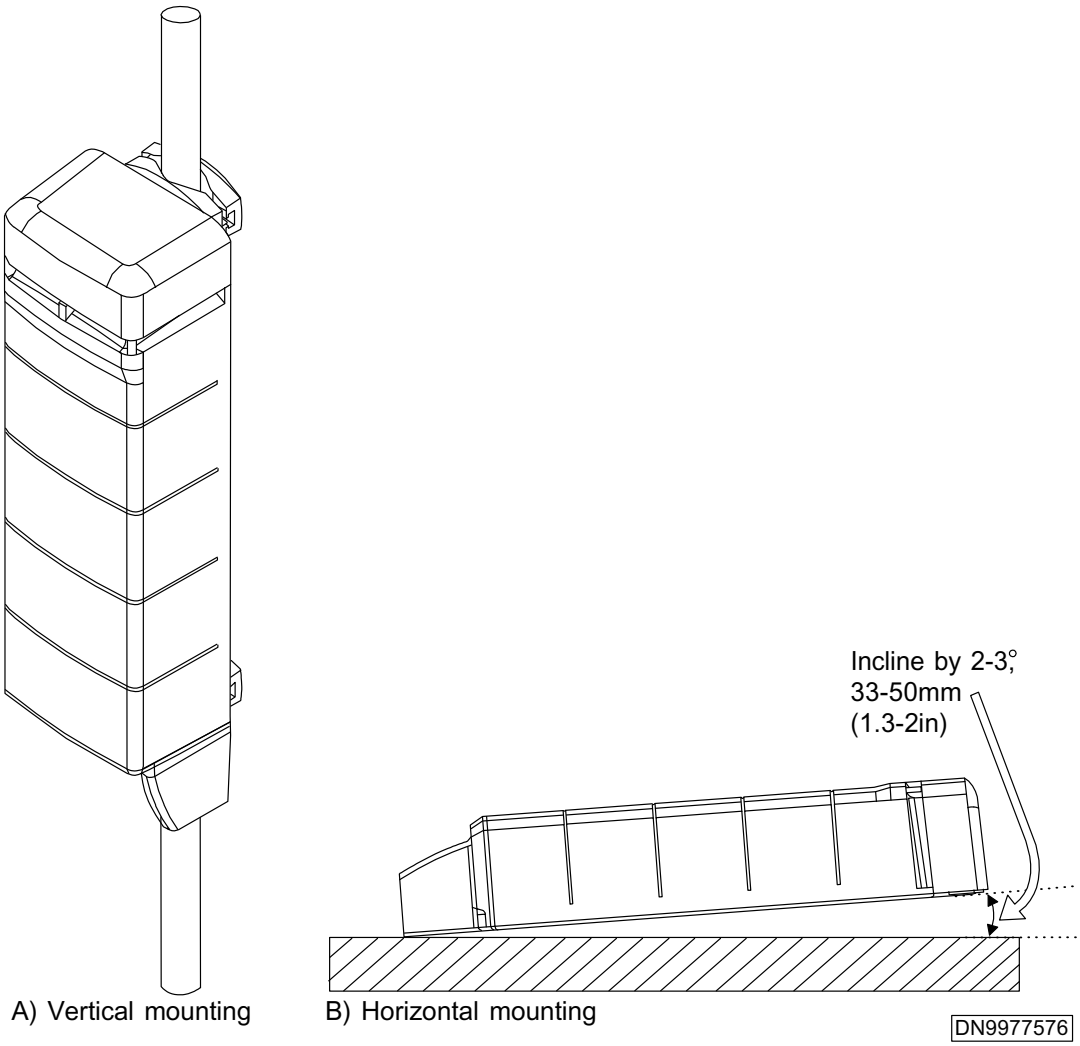


Figure 3. Mounting of the Nokia MetroSite EDGE Base Station

Note

If there is a risk that lumps of snow or pieces of ice can fall onto the BTS (from the antenna or microwave radio pole, for example), an effective roof must be mounted to shield the BTS.

3.4 Requirements for wall and pole installation

The installation wall or pole must be inspected by qualified personnel before mounting the BTS. This is to ensure that the mounting is strong enough to bear the weight of the BTS (maximum 40 kg / 88.2 lb) in its operating environment.

Pole mounting kit

An optional pole mounting kit is required for pole installations. This kit is ordered separately if required. The pole diameter can be between 60 and 300 mm (2.36 and 11.81 in.). Refer to *Nokia MetroSite EDGE Base Station: Installation* for detailed information on pole mounting of the BTS.

Anchor screws

Anchor screws are used for attaching the Nokia MetroSite EDGE Base Station to the wall. These screws are not included in the delivery.

The anchor screws must be M6 size, stainless steel, and with the minimum breaking strength (R_m) of 800 N/mm^2. An appropriate mounting counterpart for the anchor screw (such as an anchor plug) must be selected according to the screw and the mounting base material. If the anchor screws are of a type other than metric, they must be selected to meet the strength requirements mentioned above.

Wind load

For pole mounting, a pole strong enough to withstand stormy conditions must be selected. The *Wind loads and pole strength requirements* Table shows the loads imposed on the pole (with a BTS attached to it) for two possible wind velocities.

Table 4. Wind loads and pole strength requirements

Wind velocity	Load imposed on the pole
40 m/s 89 mph	410 N
50 m/s 112 mph	640 N

3.5 Grounding

To protect the Nokia MetroSite EDGE Base Station from damaging over voltages through antenna equipment, communication cables, or power supply lines, grounding cabling must be planned and installed before installation of the base station. To avoid interference, it is recommended that large grounding systems be designed case-specifically.

A electrical plug with a ground connection is not sufficient for the Nokia MetroSite EDGE Base Station. Grounding must have a fixed, non-removable connection.

Note

Regulations issued by local authorities must be followed when planning the grounding of a BTS site!

In general, grounding is planned according to the following requirements:

- The grounding cable is connected to the grounding points inside the BTS cabinet.

  All Nokia MetroSite EDGE Base Stations are equipped with two grounding point alternatives: a cable clamp location and a pair of grounding studs. Selection is made in accordance with local regulations.
- The minimum cross-section of the grounding cable's copper (Cu) conductor is 16 mm^2 (5 AWG) in outdoor installations. In indoor installations, the minimum cross-section of the copper conductor is 2.5 mm^2 (12 AWG).
- The maximum cross-section of the grounding cable's copper conductor is 35 mm^2 (2 AWG).
- The maximum value for ground resistance is 10 mΩ.
- The grounding cable must be connected to a main grounding bus bar.
- The routing of the grounding cable must be as direct as possible. Unnecessary loops should be avoided.
- The external antenna feeders must also be grounded if the antennas are exposed to the risk of lightning.

Note

A grounding cable can be ordered from Nokia.

3.6 Current limiting protection for GR-1089-CORE

Caution

For 800 MHz and 1900 MHz frequency units to meet the requirements of GR-1089-CORE an approved external current limiting protector (such as heat coils) must be fitted to the FXC E1/T1 ports to protect them from over current fault conditions!

3.7 Mains power

Warning

The power switch on the power supply unit (PSU) of the Nokia MetroSite EDGE Base Station does not disconnect it from the power network (AC or DC), but leaves it in a stand-by mode. The switch has two positions: ON and stand-by. A separate main switch on the site is considered to be the disconnect device for safety and service purposes.

Follow the national legislation when working with the power supply. The Nokia MetroSite EDGE Base Station must be permanently wired to a disconnect device (such as a circuit breaker) in accordance with your current local and national wiring standards.

All ground connections must be secure and non-removable.

All power cabling must meet the requirements of the appropriate national standard.

The Nokia MetroSite EDGE Base Station has five power supply options: 230 VAC, 110 VAC, -48 VDC, +24 VDC and 230 VAC (Wide range). The permitted voltage fluctuation for the different options is presented in the *Permitted operating voltage fluctuation* Table.

Table 5. Permitted operating voltage fluctuation

Nominal operating voltage	Permitted operating voltage fluctuation
230 VAC	±20%
110 VAC	±20%
-48 VDC	+50%, -25%
+24 VDC	±20%
230 VAC (Wide range)	+70V, -80V

It is recommended that the AC mains be protected with a lightning and transient overvoltage protector (mains wire-in protector). This protection is not included in the Nokia MetroSite EDGE Base Station.

3.7.1 Power consumption

The power consumption of the Nokia MetroSite EDGE Base Station is dependent on the following factors:

- BTS configuration
- ambient temperature
- direction of the temperature change

The power consumption is higher when the ambient temperature is decreasing and the heating power of the BTS is increasing. When the ambient temperature rises, the heating power reduces. Consequently, the power consumption of the Nokia MetroSite EDGE Base Station at a given temperature varies according to the direction of temperature change. The power consumption values at different ambient temperatures for a typical BTS configuration are shown in the following figures. The *Power consumption of the 5W Nokia MetroSite EDGE Base Station* Figure presents the 5W consumption and *Power consumption of the 10W Nokia MetroSite EDGE Base Station* Figure presents the 10W consumption.

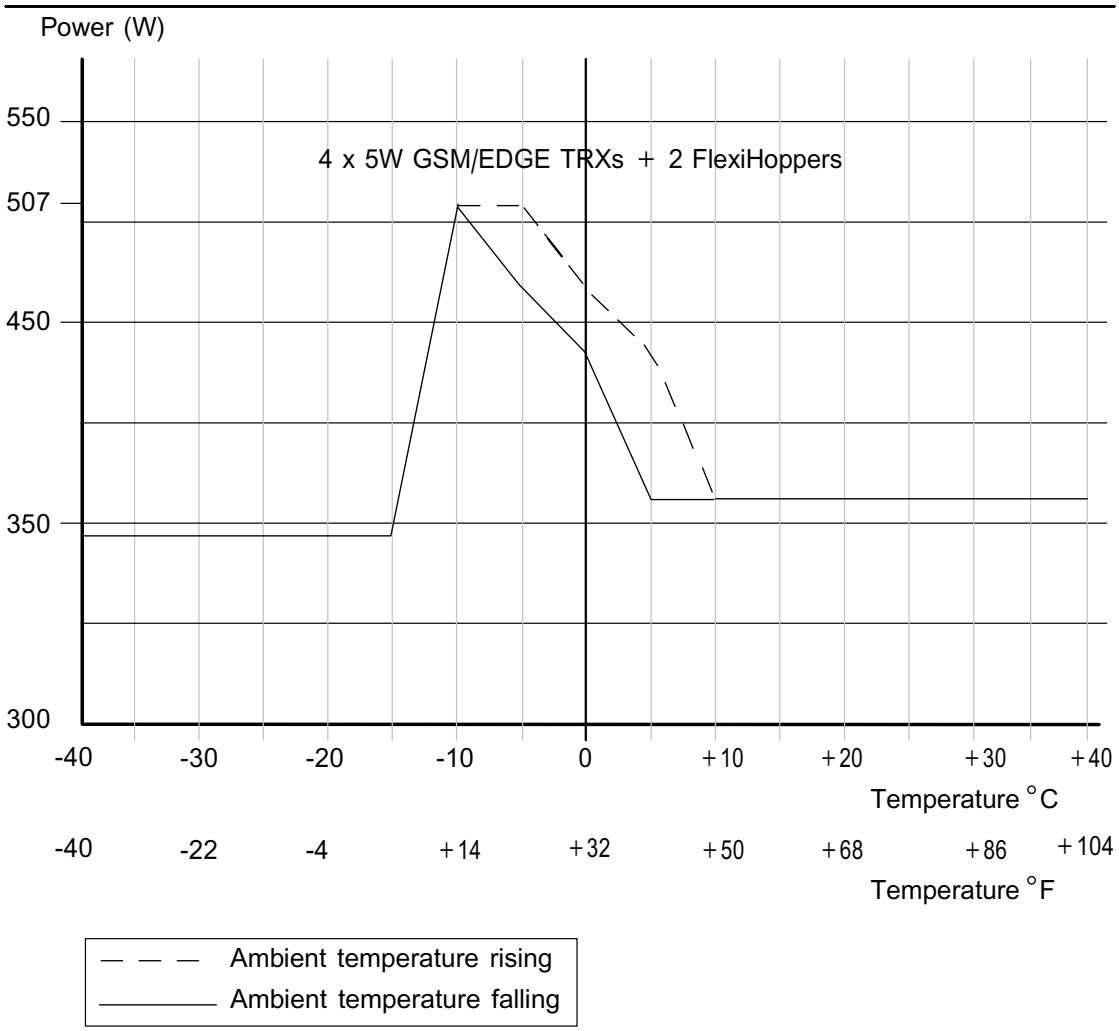


Figure 4. Power consumption of the 5W Nokia MetroSite EDGE Base Station

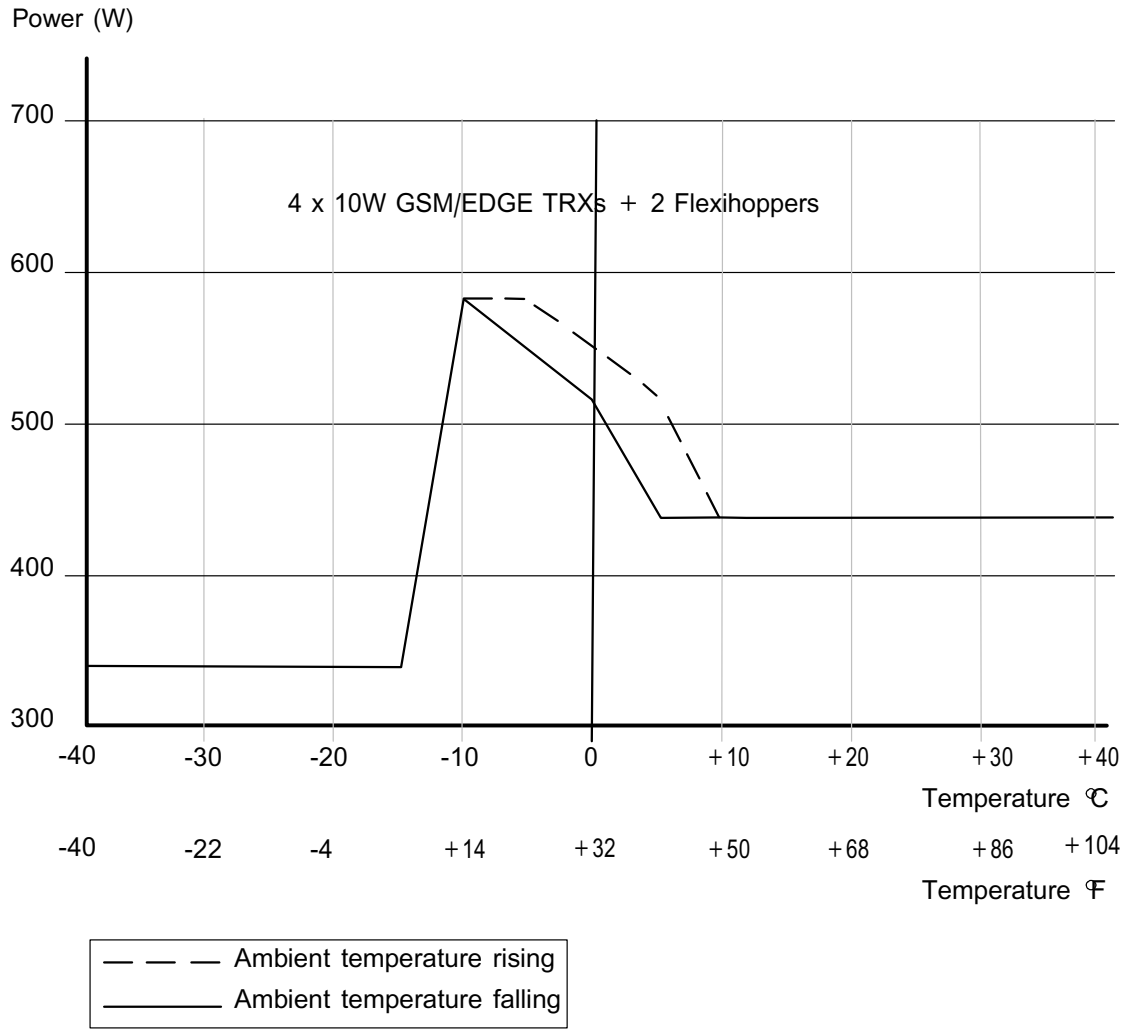


Figure 5. Power consumption of the 10W Nokia MetroSite EDGE Base Station

3.7.2 Acoustic sound power

The fan unit of the Nokia MetroSite EDGE Base Station generates acoustic noise. The level of acoustic sound power is dependent on the following factors:

- ambient temperature
- rate of the temperature change
- output power

The acoustic sound power level is higher when the ambient temperature is changing rapidly. See the *Range of acoustic sound power generated by Nokia MetroSite EDGE Base Station* Figure for the range of acoustic sound power levels at different ambient temperatures.

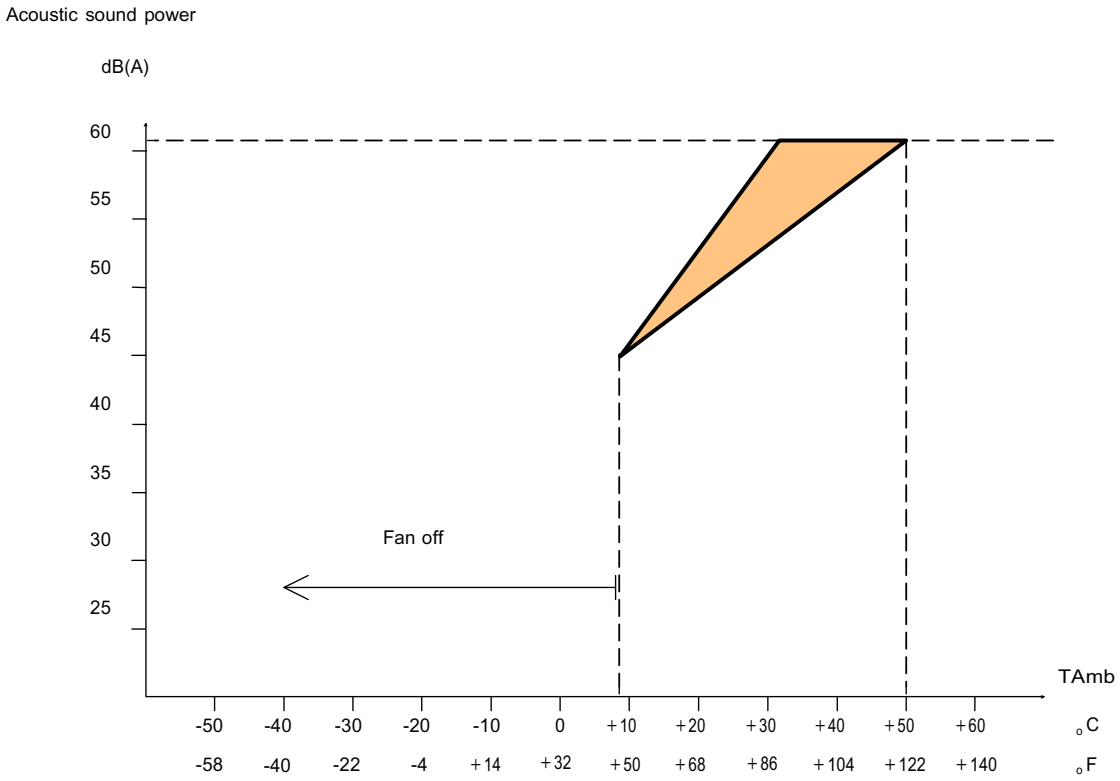


Figure 6. Range of acoustic sound power generated by Nokia MetroSite EDGE Base Station

3.7.3 Connectors, cables, and fuses for cable protection

Note

Prefabricated mains power cables can be ordered from Nokia.

Note

If you use the prefabricated mains power cable supplied by Nokia, make sure that the power distribution box (mains power supply) is located no further than 10 metres from the BTS's power supply unit.

The *Connectors, cables and recommended fuses* Table presents the requirements for power supply cables and the recommended mains fuses.

Table 6. Connectors, cables and recommended fuses

Power supply type	**Connector type at the end of cable**	**Cable**	**Recommended fuse for cable protection**
AC supply 230 V	IEC 320 (female)	Multicore cable 3 x 0.75 to 1.5 mm^2 ($18^1/_2$ to $15^1/_2$ AWG)	10A for 1.5 mm^2 ($15^1/_2$ AWG) 6A for 0.75 mm^2 ($18^1/_2$ AWG)
AC supply 110 V	IEC 320 (female) with notch	Multicore cable 3 x 1.5 mm^2 ($15^1/_2$ AWG)	10 A
DC supply - 48 V	Anderson Power Pole	Multicore cable 3 x 2.5 mm^2 or 3 single wires 2.5 to 4.0 mm^2 (13 to 11 AWG)	No recommendation, refer to local regulations
DC supply +24 V	Anderson Power Pole	Multicore cable 3 x 5.3 mm^2 or 3 single wires 3 x 5.3 mm^2 (10 AWG)	No recommendation, refer to local regulations

Note

In general, the fuses for cable protection must be rated according to the national electrical safety regulations.

For information on the pin configurations for the different BTS power supply connector types, refer to *Nokia MetroSite EDGE Base Station: Product Description.*

3.8 Painting the BTS cover

If desired, the standard BTS cover (HVCU) can be painted to blend into the surrounding environment, although some dark colours with high absorptivity may be restricted because of heat retention. Painting of the high impact type cover (WCUA) is not recommended.

For painting the cover, Nokia recommends a primer-topcoat combination of Beckers TD 130 primer and Beckers TH 141 surface paint. Other paints suitable for polycarbonate surfaces may also be used.

Caution

Do not use any paints that contains alkalis, esters, ketones, or aromatic, chlorinated, or fluorinated hydrocarbons. These chemicals may damage the cover and paint containing them can only be used if approved by the manufacturer for painting polycarbonate objects.

The selected paint must be UV and weather resistant, and suitable for temperatures ranging from -40°C to +50°C (-40°F to 122°F). For environmental conditions, refer to ETS 300 019-1-4:1992 class 4.1.

Painting the BTS cover

1. Remove the BTS cover as instructed in *Nokia MetroSite EDGE Base Station: Maintenance.*

2. Before painting, detach the cable cover and remove the cable cover support. The cover top can also be detached from the cover by unscrewing the Torx T20 screws (see the *Removing the top of the BTS cover* Figure).

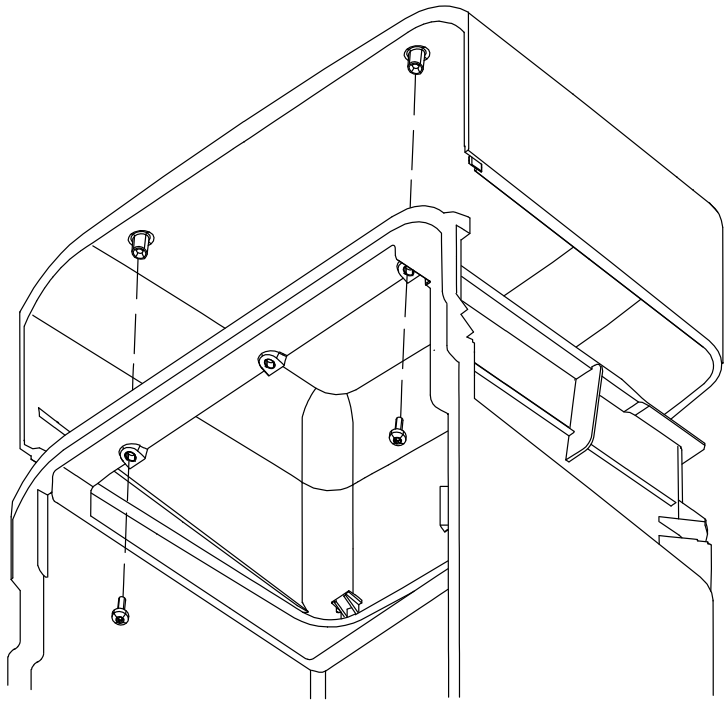


Figure 7. Removing the top of the BTS cover

3. Remove any stains and dust from the surface of the cover with an alcoholic or acidic wash, or with water and a mild washing agent. Do not use washing agents that contain alkalis, esters, ketones, or aromatic, chlorinated, or fluorinated hydrocarbons.

4. Rinse with water to remove any residue of cleaning chemicals.

5. Dry the cover parts by blowing ionized air on them to remove electrostatic charges and dust particles.

6. Place a support under the cover and the cover top so that you do not have to touch the parts during painting.

7. Use a clamp or hook for holding the cable cover and the cable cover support during painting. See the *Areas used for holding the cable cover parts during painting* Figure for areas on which to place the clamp.

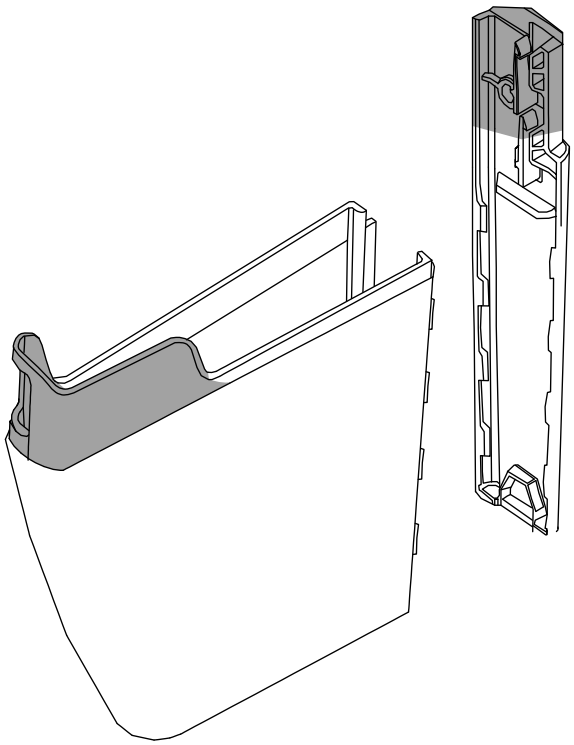


Figure 8. Areas used for holding the cable cover parts during painting

8. Spray paint over the outside surface of the cover. Spraying should be done at room temperature with relative air humidity of 50-65%.

Note

The maximum thickness of the paint should not exceed 100 µm.

9. Dry the parts either in an oven or let the paint dry at room temperature according to the paint manufacturer's drying instructions.

Note

The temperature of the drying oven must not exceed 90°C (194°F).

10. When the paint is dry, attach the cover top to the cover. Tighten the screws to 1.6 Nm (1.18 lb ft).

4 Cabinet interfaces and cables

This chapter describes the external interfaces and interconnecting cables (excluding the grounding and power supply cables) for the Nokia MetroSite EDGE Base Station. For information on the pin configurations of the relevant connectors, refer to *Nokia MetroSite EDGE Base Station: Product Description*.

Note

Antenna line cables, the LMP cable, Abis cables and Flexbus cables can be ordered from Nokia.

The MetroSite BTS interface connectors and cables are described in the *MetroSite BTS connectors* and the *Transmission connectors of the Nokia MetroSite EDGE Base Station* Tables.

For information about the FXC transmission units, refer to *FXC E1 and FXC E1/T1 Transmission Unit Description* and *FXC RRI Transmission Unit Description*.

Table 7. MetroSite BTS connectors

Interface connector	Number of connectors	Connector type	Cable type/diameter
Antenna connector	1 for each TRX	N-type	1/4” or 3/8” RF cable
External Alarms and Controls	1 (10 alarm inputs, 4 control outputs)	26-pin mini D (female)	13-pair 28 AWG, 106 Ω Flexible SCSI-2 Cable type CL2/FT1
Extension connectors	2	50-pin mini D (female)	N/A

Table 7. MetroSite BTS connectors (cont.)

Interface connector	Number of connectors	Connector type	Cable type/diameter
Q1 interface	1	TQ	2-pair telecom cable, max. 6 mm
Local Management Port	1	BQ, RS- 232 (at the BTS end) D9 female (at the PC end)	2-pair telecom cable. For more information, refer to *Nokia MetroSite EDGE Base Station: Commissioning*.

Table 8. Transmission connectors of the Nokia MetroSite EDGE Base Station

Transmis-sion unit type	Number of connectors	Connector type	Cable
FC E1/T1	3	Two coaxial BT43 connectors (75 Ω) one balanced TQ connector (100/120 Ω)	Coaxial for 75 Ω connector twisted pair for 100/120 Ω connector. Max. allowed attenuation for E1 20 dB; for T1 26 dB
FXC RRI	2	TNC 50 Ω	Coaxial Flexbus RG-223 (max. length 140 m), coaxial Flexbus RG-214 (max. length 300 m). For more information, refer to *Nokia MetroSite EDGE Base Station: Product Description*.
FXC E1 75 Ω	8	Coaxial BT43 connectors	Coaxial Max. allowed attenuation 20 dB
FXC E1/T1 120/ 100 Ω version	4	Balanced TQ connectors	Twisted pair Max. allowed attenuation for E1 20 dB, for T1 26 dB

4.1 Cable entry block

The size of the cable entry holes must be considered when planning the cabling of the Nokia MetroSite EDGE Base Station. The holes can accommodate various cable diameters, as shown in the *Cable entry block: cable diameters* Figure.

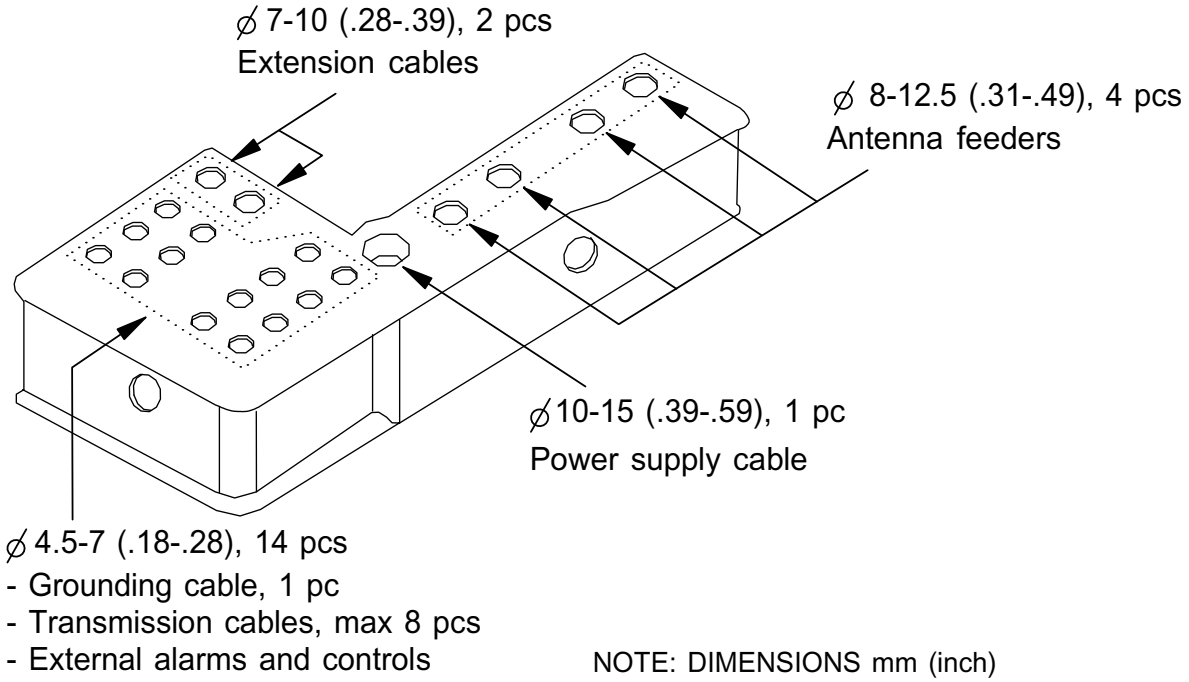
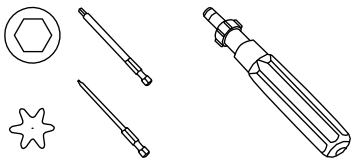


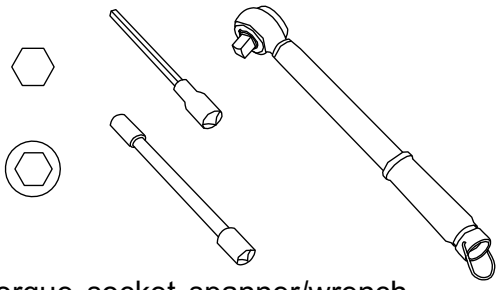
Figure 9. Cable entry block: cable diameters

5 Installation equipment

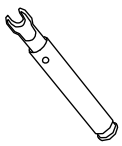
This section specifies the equipment that is recommended for the installation of the Nokia MetroSite EDGE Base Station. This equipment is not included in the BTS delivery.



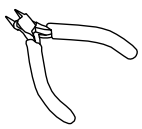
Torque driver (0-6 Nm/0-5 ft-lb) with:
- T10 Torx bit with min. 60 mm shaft for unit retaining screws (1.5 Nm/1.11 ft-lb)
- 4 mm Allen bit with min. 60 mm shaft:
  A) for BTS fixing screws (5.5 Nm/4.06 ft-lb)
  B) for fixing cable entry block screws
  C) for fixing grounding cable (5.5 Nm/4.06 ft-lb)



Torque socket spanner/wrench (5-20 Nm/3-14 ft-lb) with:
- 6 mm Allen bit
  A) for bolts of pole bracket version 1 (12 Nm/8.85 ft-lb)
  B) with 80 mm extension for L-beam offset screws (12 Nm/8.85 ft-lb)
- 8 mm hexagon socket with min. 80 mm extension
  A) for worm screw on pole bracket version 2 (10 Nm/7.37 ft-lb)
  B) for fixing the grounding nut (5.5 Nm/4.06 ft-lb)



Torque key
- for diversity cables (1 Nm/.74 ft-lb)



Side-cutting pliers
- for cutting the cable ties

Figure 10. Recommended tools for installing the BTS

Additional equipment includes:

- LMP cable for connecting the manager PC to the BTS
- antistatic wrist strap
- spirit level for checking the horizontal level of the BTS
- tape measure
- cable ties for securing the cable routing out of the BTS
- crimping tool for fitting a crimp terminal to the grounding cable

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Note

A set of tools needed for assembling the cable connectors is available from Nokia.

- cable stripper for preparing the grounding cable
- ladder (depending on the installation height from the ground)
- 10 mm spanner for removing the grounding bridge on the transmission unit (optional)
- T20 Torx torque driver for removing and tightening the BTS cover top retaining screws (optional)
- centre punch for marking drill hole locations when mounting the BTS on a wall (optional)

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