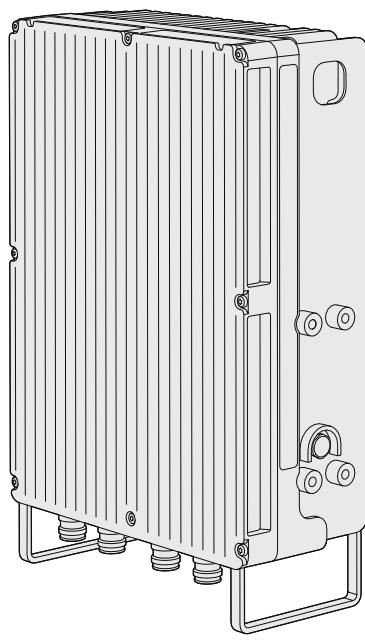


Radio Description

Radio 4461

Description



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Contents

1	Product Overview	1
1.1	Variants	1
2	Technical Data	2
2.1	Radio Capabilities	2
2.2	Output Power	2
2.3	Physical Characteristics	3
2.4	Operating Environment	8
2.5	Wind Load	9
2.6	Heat Dissipation	9
2.7	Vibration	9
2.8	Acoustic Noise	9
2.9	Power Supply Characteristics	10
2.10	RF Electromagnetic Exposure	11
2.11	Software	12
2.12	Radio Configurations	12
3	Installation Requirements	13
3.1	Indoor Locations to Avoid	13
3.2	Outdoor Locations to Avoid	13
3.3	Installation Alternatives	15
3.4	Space Requirements	17
3.5	Installations that Require Fan Unit	23
3.6	Painting Disclaimer	23
4	Interfaces	25
4.1	Antenna Interface	28
4.2	Optical Cable Interface	29
4.3	DIN 14-Pin Interface	29
4.4	ALD Ctrl Interface	30
4.5	Grounding Interface	31
4.6	-48 V DC Power Supply Interface	31
4.7	Optical Indicators	31
4.8	Maintenance Button	32



4.9	Optional Equipment Interfaces	32
5	Standards and Regulations	33
5.1	Regulatory Approval	33
5.2	Other Standards and Regulations	35



1 Product Overview

Main Features

Radio 4461 has the following main features:

- Designed for indoor use and outdoor use, for wall, pole, tower, or mast mounting.
- NR TDD
- Duplex transmitter and receiver (4TX/4RX) branches.
- EC light.
- RET support on RF ports.
- The power connection supports two-wire (DC-C)/three-wire (DC-I).
- Two CPRI up to 24.3 Gbps per port.
- Optional equipment – Fan unit.
- Basic Stand-alone Radio Installation Check support.
- Complies with 3GPP base station class Wide Area. For a list of relevant standards, see [Standards and Regulations](#) on page 33.

Note: Seals that have been implemented by Ericsson must not be broken or removed, as it otherwise voids warranty.

The product is equipped with one or more warranty seal stickers.

1.1 Variants

- Radio 4461 B77D



2 Technical Data

2.1 Radio Capabilities

For supported number of carriers, carrier bandwidth, operating bandwidth, IBW, frequency range, detailed RAT support, and mixed mode configurations, see [Supported Radio Capabilities](#).

2.2 Output Power

For maximum nominal output power, see [Supported Radio Capabilities](#).

Special considerations might apply for certain configurations, see below.

Minimum configured output power per RF port without degradation in product performance is 5 W.

Hardware Activation Codes (HWAC) are required for total output power over 20 W.

For detailed information about licenses and HWAC, see the following:

- NR: Hardware-Related Capabilities in the Radio Node libraries.

For information about maximum output power per carrier type, see [Radio Node Configurations](#).



2.3

Physical Characteristics

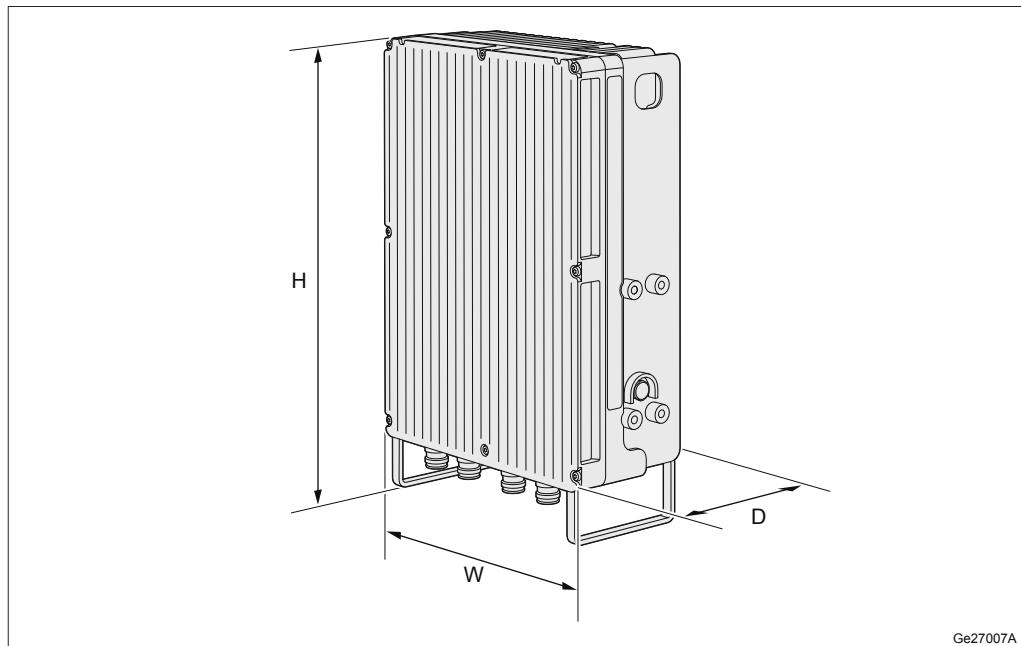


Figure 1 Radio 4461 Dimensions

Table 1 Radio 4461 Dimensions

Product		Height, H (mm)	Width, W (mm)	Depth, D (mm)
Radio 4461 B77D	With Protrusions	409	269	122
	Without Protrusions	354	261	116

Table 2 Radio 4461 Color

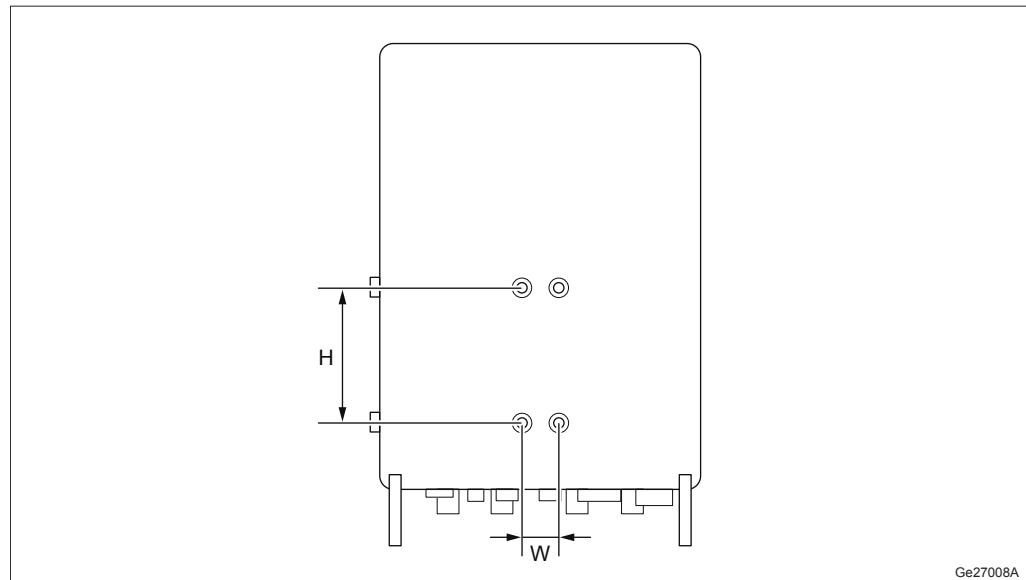
Part	Color Code
Body	NCS S 1002-B
Front	NCS S 1002-B

Table 3 Radio 4461 Weight

Product	Weight (kg) ⁽¹⁾
Radio 4461 B77D	11.2



(1) The weight is given with $\pm 5\%$ accuracy.



Ge27008A

Figure 2 Radio 4461 Mounting Hole Pattern

Table 4 Radio 4461 Mounting Hole Pattern

Width, W (mm)	Height, H (mm)
30	110

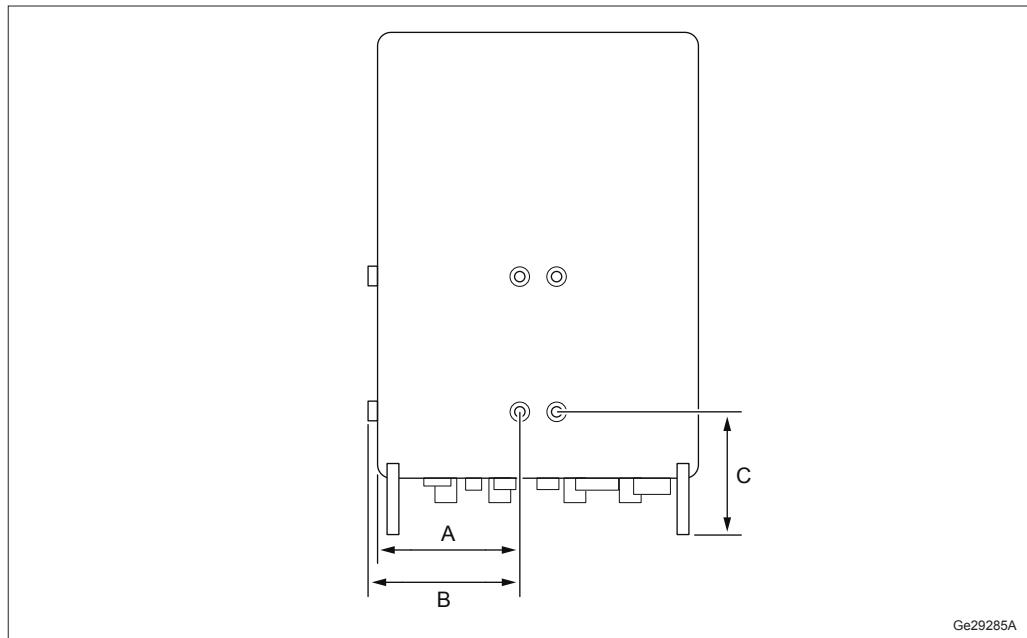


Figure 3 Mounting Hole Distances

Table 5 Radio 4461 Mounting Hole Distances

A (mm)	B (mm)	C (mm)
115.5	123.5	100

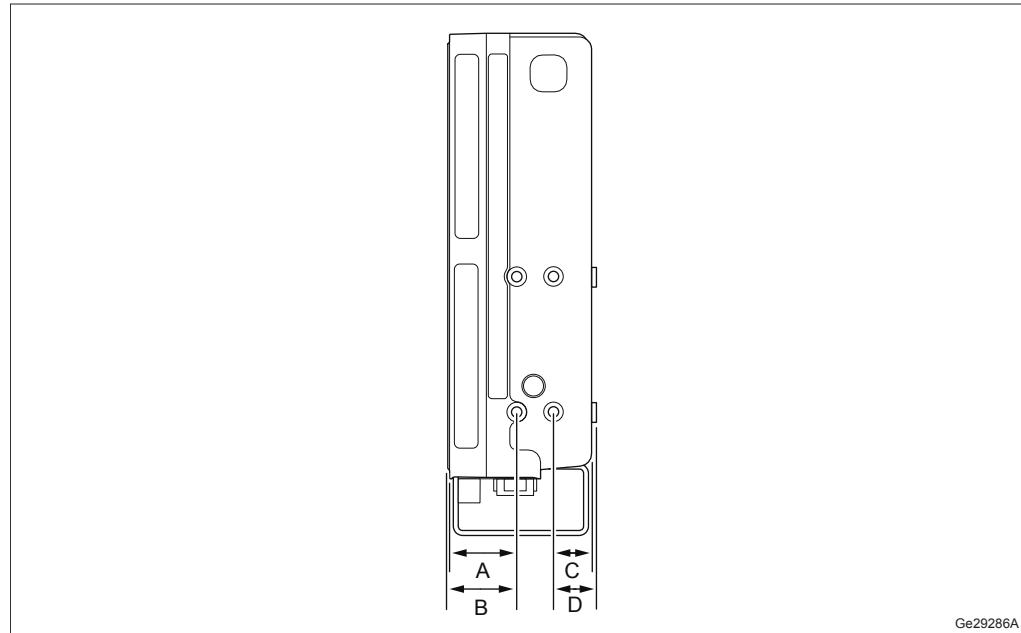


Figure 4 Mounting Hole to Edge Distances

Table 6 Radio 4461 Mounting Hole to Edge Distances

Product	A (mm)	B (mm)	C (mm)	D (mm)
Radio 4461 B77D	57.5	59.0	31.0	33.0

Note: Mounting hole pattern and radio weight information must be checked before selection of brackets. For more information, see Site Installation Products Overview.

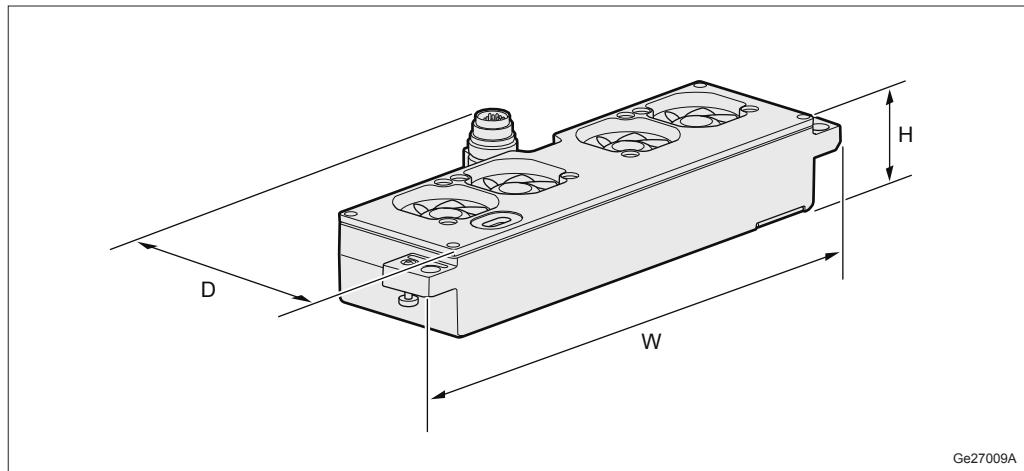


Figure 5 Fan 16 Dimensions

Table 7 Fan 16 Dimensions

Product	Height, H (mm)	Width, W (mm)	Depth, D (mm)
Fan 16	40	253	65

Table 8 Fan 16 Weight

Product	Weight (kg)
Fan 16	0.8

Table 9 Fan 16 Color

Part	Color
Front	NCS S 1002-B

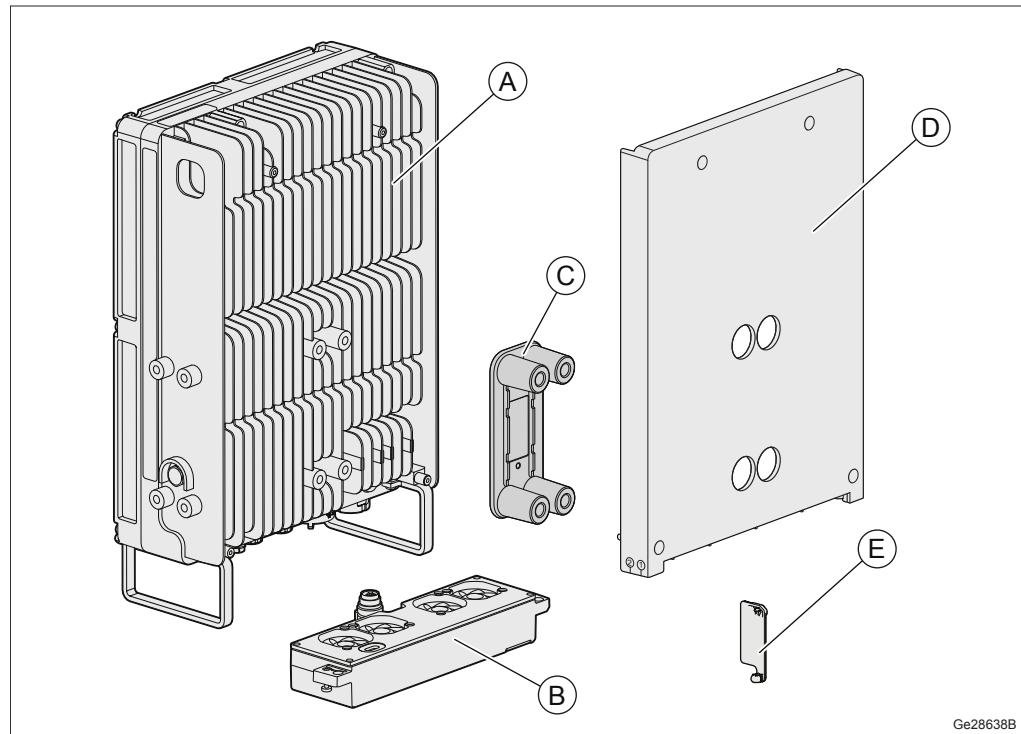


Figure 6 Radio 4461 with Fan Cover

Table 10 Key to Radio Components

Position	Component
A	Radio
B	Fan unit
C	Bracket adapter
D	Back cover
E	Optical Indicator Cover

2.4 Operating Environment

Table 11 Operating Environment

Description	Value
Temperature ⁽¹⁾	-40°C to +55°C
Solar radiation	≤ 1,120 W/m ²
Relative humidity	5–100%
Absolute humidity	0.26–40 g/m ³



(1) Depending on installation scenario, traffic load, ambient temperature and configuration, the internal heat can cause temporary reduction of output power.

2.5 Wind Load

Table 12 Radio 4461 Maximum Wind Load at 42 m/s

Product	Front (N) ⁽¹⁾	Side (N) ⁽¹⁾
Radio 4461 B77D	160	45

(1) According to EN 1991-1-4 pole installed radio.

2.6 Heat Dissipation

Radio 4461 is convection cooled and designed for outdoor installation.

Avoid indoor installation in a room without adequate ventilation and cooling.

Max heat dissipation is calculated using the following formula:

Max Heat Dissipation = Max Power Consumption - Configured Output Power

Heat dissipation can be calculated for different traffic loads using values from Power Consumption Data. For more information, see Power Consumption Calculations.

2.7 Vibration

For information on which standards the product meets, see [Vibration and Shock](#) on page 36.

2.8 Acoustic Noise

Radio 4461 sound pressure level is lower than 28 dBA at 1-meter distance for hemispherical distribution, based on ISO 9614-2 and ISO 11203.

With the fan, the acoustic noise is ambient temperature dependent, as listed below.



Table 13 Maximum Sound Pressure Level (dBA) for Radio 4461 with Fan

Temperature (°C)	Radio 4461 Sound Pressure Level (dBA) at 1-meter Distance ⁽¹⁾
+10	38.6
+15	38.6
+20	38.6
+25	38.6
+30	38.6
+40	41.8
+45	43.8
+55	48.7

(1) The sound pressure level is measured at hemispherical distribution.

2.9 Power Supply Characteristics

This section describes the power supply characteristics, circuit breaker (CB) recommendations and power consumption.

2.9.1 DC Power Supply Characteristics

The following DC power supply characteristics apply:

Table 14 Radio 4461 DC Power Supply Characteristics

Conditions	Values and Ranges
Rated voltage	-48 V DC
Operating Voltage Range	-36.0 to -58.5 V DC
Startup voltage	Above -46 V DC

Circuit Breaker Specifications

The product must be preceded by a protection device. The protection device is recommended to be an external circuit breaker that fulfills the following general characteristics:

- Provides protection for DC circuits
- Has a working voltage of at least 80 V DC
- Has a time-current trip characteristic of Type C in accordance with IEC 60898-2, or a type with a tripping time that is faster than Type C



- Complies with local regulations.

Table 15 Radio 4461 Circuit Breaker Recommendations

Product	Recommended CB Rating ⁽¹⁾	Maximum Allowed CB Rating ⁽²⁾
Radio 4461 B77D	20 A	25 A

(1) At 100% output RF power.

(2) Product Safety Certification is valid up to this value.

2.9.2

Power Consumption

For information on power consumption, see Power Consumption Calculations and Power Consumption Data.

2.10

RF Electromagnetic Exposure

For general information on RF EMF exposure, see Radio Frequency Electromagnetic Fields.

The tables list the compliance boundaries (exclusion zones), outside of which the RF EMF exposure from Radio 4461 is below the limits applicable in:

- USA (47 CFR 1.1310) [Table 16](#)
- Canada ISED RSS-102 (Health Canada Safety Code 6) [Table 17](#)

Table 16 Dimensions of the box-shaped compliance boundary for general public (GP) and occupational (O) applicable in the USA and markets employing the FCC RF exposure limits. The compliance boundaries are determined for maximum output power with 0.5 dB transmission loss, 0.6 dB output power tolerance and TDD downlink duty cycle included.

Mode and Output Power					Dimensions of the Box-Shaped Compliance Boundary ⁽¹⁾ (m)							
					Distance in Front of Antenna		Width		Height		Distance Behind Antenna	
Product	Standard ⁽²⁾	Maximum Nominal Peak Output Power from the Radio	TDD DL Duty Cycle	IEC 62232 Installation Class	GP	O	GP	O	GP	O	GP	O
Radio 4461 B77D	NR	52.0 dBm / 4 × 40 W	75%	E+	5.3	2.4	4.3	2.0	3.6	1.6	0.3	0.2

(1) The compliance boundaries are determined for maximum output power with transmission loss, power tolerance and TDD downlink duty cycle included using the antenna KRE 101 2570/1 for an electrical tilt of 0°.



(2) If the radio supports NB-IoT, the distances are the same.

Table 17 Dimensions of the box-shaped compliance boundary for general public (GP) and occupational (O) applicable in Canada. The compliance boundaries are determined for maximum output power with 0.5 dB transmission loss, 0.6 dB output power tolerance and TDD downlink duty cycle included.

Mode and Output Power					Dimensions of the Box-Shaped Compliance Boundary ⁽¹⁾ (m)							
					Distance in Front of Antenna		Width		Height		Distance Behind Antenna	
Product	Standard ⁽²⁾	Maximum Nominal Peak Output Power from the Radio	TDD DL Duty Cycle	IEC 62232 Installation Class	GP	O	GP	O	GP	O	GP	O
Radio 4461 B77D	NR	52.0 dBm / 4 x 40 W	75%	E+	6.2	2.7	5.1	2.2	4.2	1.8	0.3	0.2

(1) The compliance boundaries are determined for maximum output power with transmission loss, power tolerance and TDD downlink duty cycle included using the antenna KRE 101 2570/1 for an electrical tilt of 0°.

(2) If the radio supports NB-IoT, the distances are the same.

2.11 Software

For information on software dependencies, see [Supported Radio Capabilities](#).

2.12 Radio Configurations

For information about available radio configurations, see [Radio Node Configurations](#).



3

Installation Requirements

To achieve reliable operation, and maximum performance, an appropriate installation location must be chosen.

3.1

Indoor Locations to Avoid

Although the unit is designed for outdoor use, it can also operate in an indoor environment according to ETSI EN 300 019-1-3 class 3.1, 3.2, 3.3, and 3.6. This does not cover installation with heat traps or installation in lofts, where air ventilation does not exist. To ensure smooth performance of the product, it is recommended to ensure that the planned installation site for the unit is not a potential microclimate location. This typically occurs in places such as unventilated lofts, sites with heat traps, or sites where the product is exposed to direct sunlight through windows. Ensure proper ventilation and avoid installing the equipment under glass covers or skylight windows.

3.2

Outdoor Locations to Avoid

Although Ericsson declares this product suitable for most outdoor environments, this does not cover installations where the planned installation site for the unit is a potential microclimate location. Typical examples of these microclimate locations are sites where the products are not only exposed to the actual temperature, but also additional temperature as heat coming from dark-colored planes, for example, reflections from the floor or walls. The additional temperature can generate heat traps with temperatures up to 10°C higher than expected.

Avoid installing equipment in the following locations:

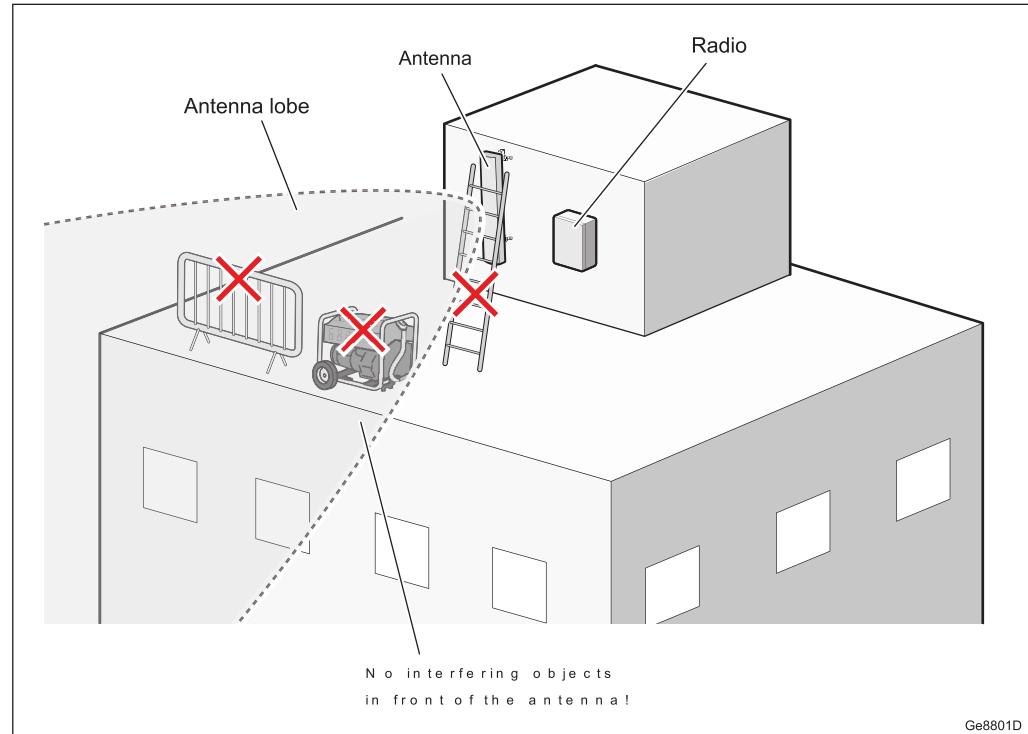
- Near the exhaust of the building ventilation system.
- Near the exhaust of the chimney.
- Opposite large surfaces made of glass or new concrete.
- Near overhanging structures such as roof overhangs.

Avoid radio interference by keeping the area directly in front of the antenna clear of the following:

- Metal surfaces or objects such as railings, ladders or chains
- Equipment generating electromagnetic fields, such as electric motors in air conditioners or diesel generators



— RBS equipment





3.3 Installation Alternatives

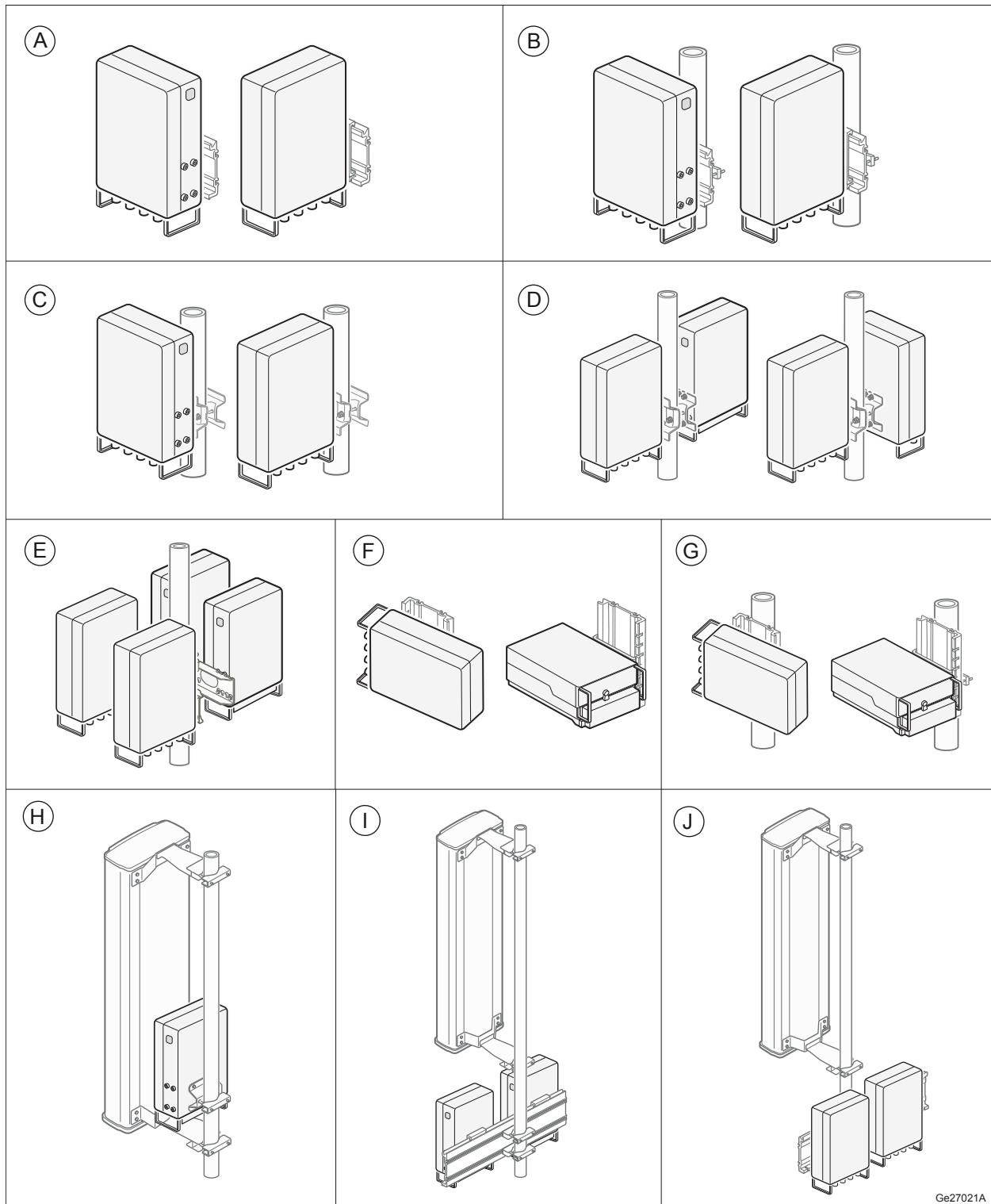


Figure 7 Installation Alternatives



Table 18 Installation Alternatives

Installation Method	Description
A ⁽¹⁾	Wall installation with rail.
B ⁽¹⁾	Pole installation with rail.
C	Pole installation with Single ERS Bracket.
D	Pole installation with Dual ERS Bracket
E ⁽²⁾	Pole installation with Multi ERS Bracket XL Heavy.
F	Wall installation (Requires a fan unit is installed).
G	Pole installation (Requires a fan unit is installed).
H	Radio mounted behind the antenna.
I	Radio mounted below the antenna.
J	Radio mounted below the antenna.

(1) Allow a maximum of three radios installed side by side on the same rail.

(2) For the maximum numbers of bookshelf mounted radios, see [Table 19](#).

Table 19 Number of Bookshelf Mounted Radios on Multi ERS Bracket XL Heavy

Radio	Number of Bookshelf Mounted Radios per Side of the Multi ERS Bracket XL Heavy	
	Without Fan	With Fan
Radio 4461 B77D	3	3



3.3.1

Mounting Direction Alternatives

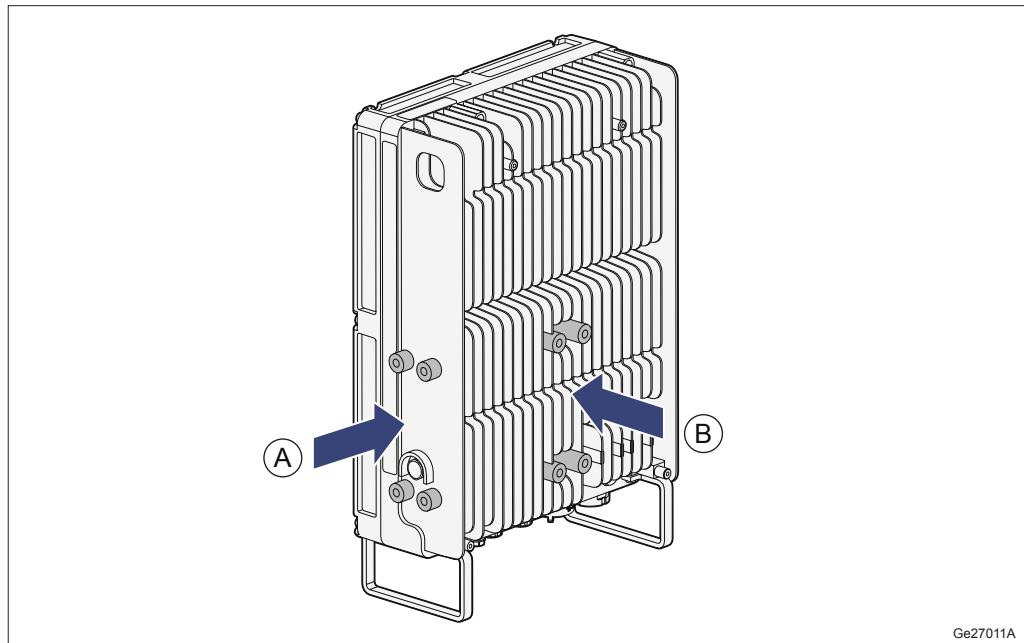


Figure 8 Mounting Direction Alternatives

Table 20 Mounting Direction Alternatives

Alternative	Mounting Direction
A	Bookshelf
B	Portrait

3.4

Space Requirements

3.4.1

Generic Requirements

Parts of the radio can attain high temperatures during normal operation. Therefore the radio must be installed in a classified service access area. Exception applies when the radio is installed at a height that is not reachable from ground level.

Allow a sufficient working space in front of the radio.

It is recommended that the radio is installed below, or behind the antenna. Do not install the radio closer than 25 m from the main lobe of its own antenna, or antennas belonging to other services or operators using the same site.



3.4.2

Pole or Mast Installation

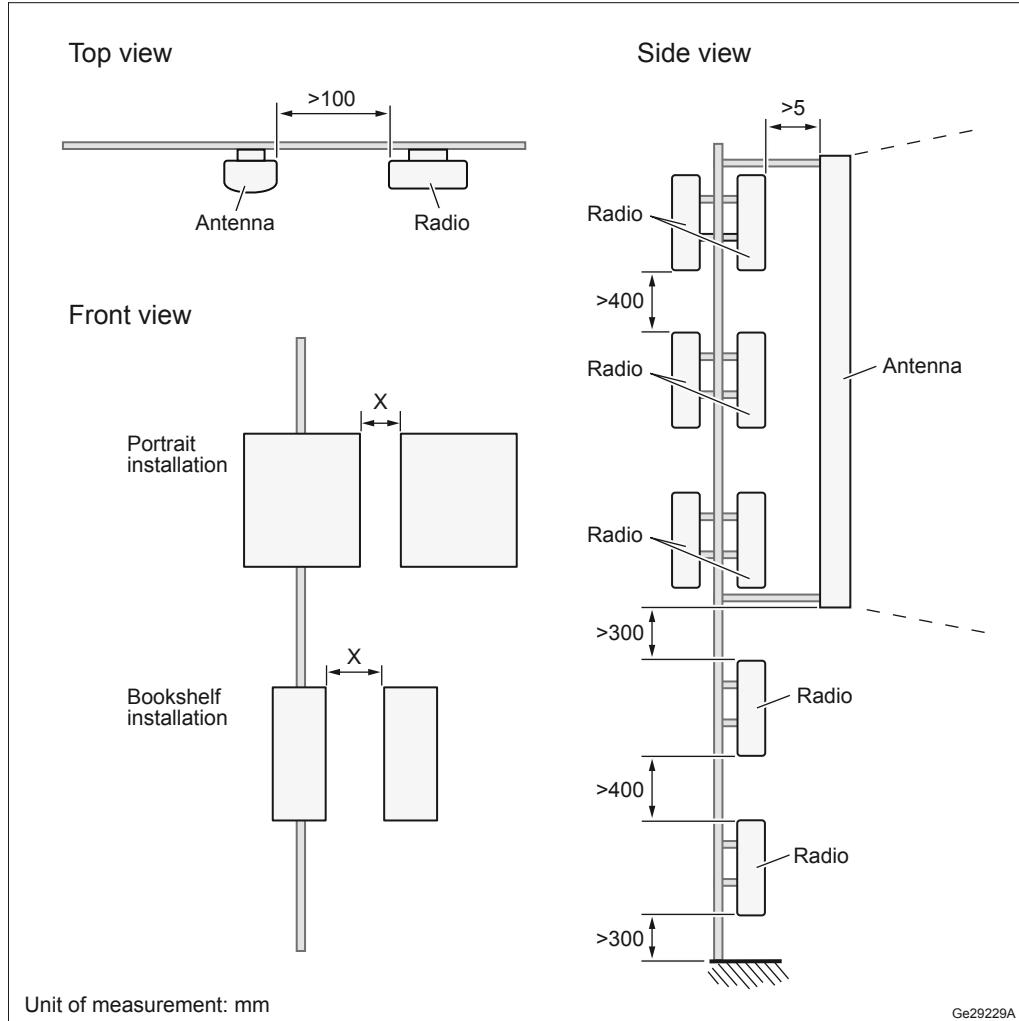


Figure 9 Radio Pole Installation Requirements

The minimum distance X depends on the mounting direction of radio unit and if the radio unit is installed with or without fan unit. For minimum space between radio units installed side by side, see [Table 21](#).

To ensure adequate airflow between the units, allow a minimum of 400-mm free space between radios vertically installed on a horizontal rail on a single pole, or a dual pole installation. Allow a minimum vertical distance of 300 mm between radio and antenna, if installed above or below an antenna. The minimum horizontal distance between a radio mounted behind an antenna and the antenna is 5 mm. The radio cooling fins must not face the antenna. The minimum vertical distance from the bottom of the radio to the floor is 300 mm.



Table 21 Space Requirements between Radio Units Installed Side by Side

Product	Mounting Direction	Variants		Minimum Free Horizontal Space between Radio Units (X)	
Radio 4461 B77D	Portrait	With optical indicator cover		100 mm	
		Without optical indicator cover		55 mm	
	Bookshe lf	Output Power 4 × 40 W	With fan unit	50 mm	
			Without fan unit	Ambient temperature below +45°C	140 mm ⁽¹⁾
				Ambient temperature above +45°C and below +50°C	200 mm
				Ambient temperature above +50°C and below +55°C	300 mm ⁽²⁾

(1) For more information about installing or removing multiple radios, see [Install Radio and Replace Radio](#).

(2) An adjacent heat source with 500 W maximum heat dissipation requires minimum 400 mm free space between the radio unit and the heat source.

Note: A radio cannot be installed in the uppermost position of a pole or mast.

3.4.3

Rail Installation on Wall

This section describes the installation requirements when installing the radio on a wall.



3.4.3.1

Radio Installation on Outdoor Wall

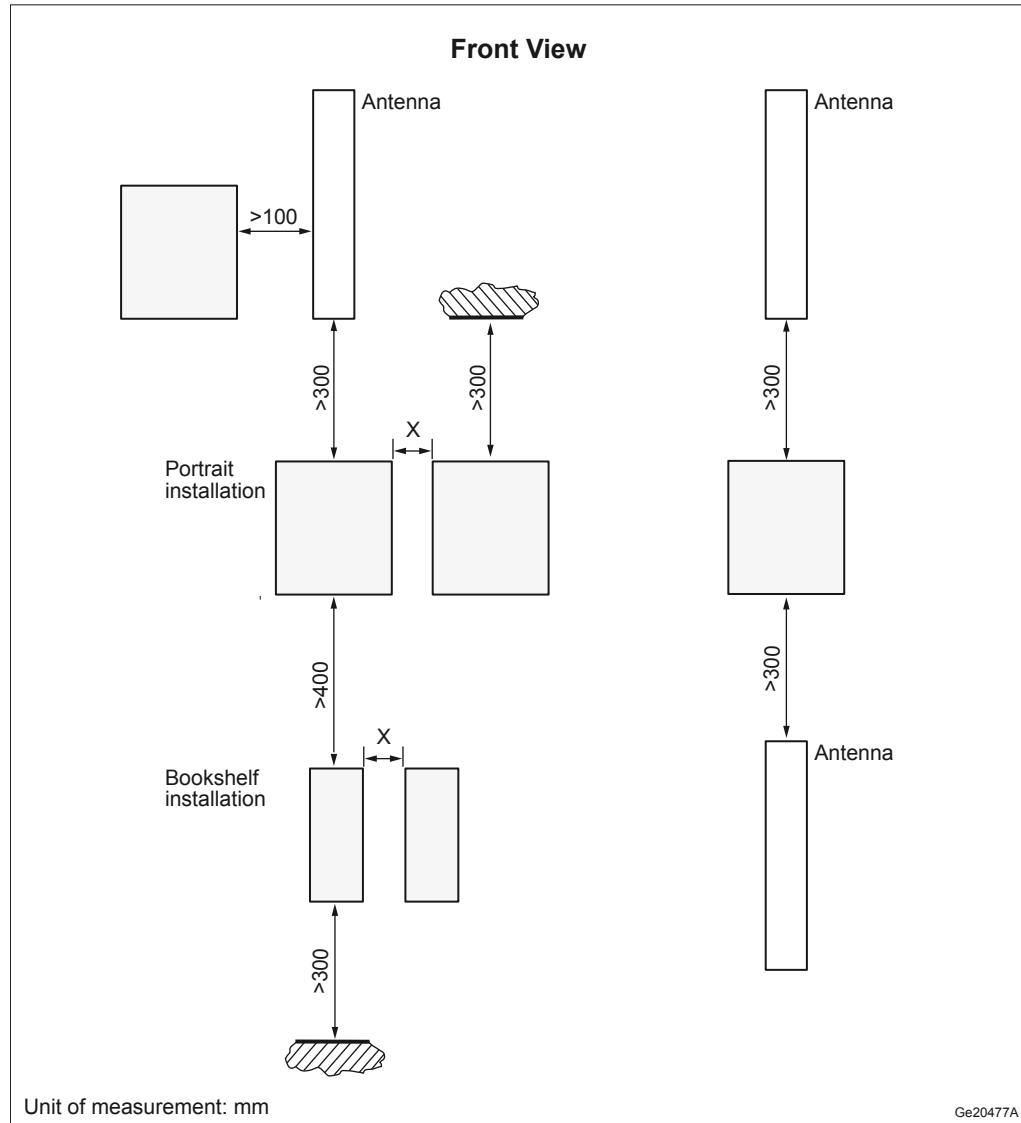


Figure 10 Radio Outdoor Wall Installation Requirements

The minimum distance X depends on the mounting direction of radio unit and if the radio unit is installed with or without fan unit. For minimum space between radio units installed side by side, see [Table 22](#).

To ensure adequate airflow between the units, allow a minimum of 400-mm free space between radios vertically installed on a horizontal rail on a wall. Allow a minimum vertical distance of 300 mm between radio and antenna, if installed above or below an antenna. The minimum distance from the bottom of the radio to the floor is 300 mm.



Allow a minimum of 300-mm free space to any overhanging roof or other structure that can obstruct airflow and create a heat trap.

Table 22 Space Requirements between Radio Units Installed Side by Side

Product	Mounting Direction	Variants		Minimum Free Horizontal Space between Radio Units (X)	
Radio 4461 B77D	Portrait	With optical indicator cover		100 mm	
		Without optical indicator cover		55 mm	
	Bookshe lf	Output Power 4 × 40 W	With fan unit	50 mm	
			Without fan unit	Ambient temperature below +45°C	140 mm ⁽¹⁾
				Ambient temperature above +45°C and below +50°C	200 mm
				Ambient temperature above +50°C and below +55°C	300 mm ⁽²⁾

(1) For more information about installing or removing multiple radios, see [Install Radio and Replace Radio](#).

(2) An adjacent heat source with 500 W maximum heat dissipation requires minimum 400 mm free space between the radio unit and the heat source.



3.4.3.2

Radio Installation on Indoor Wall

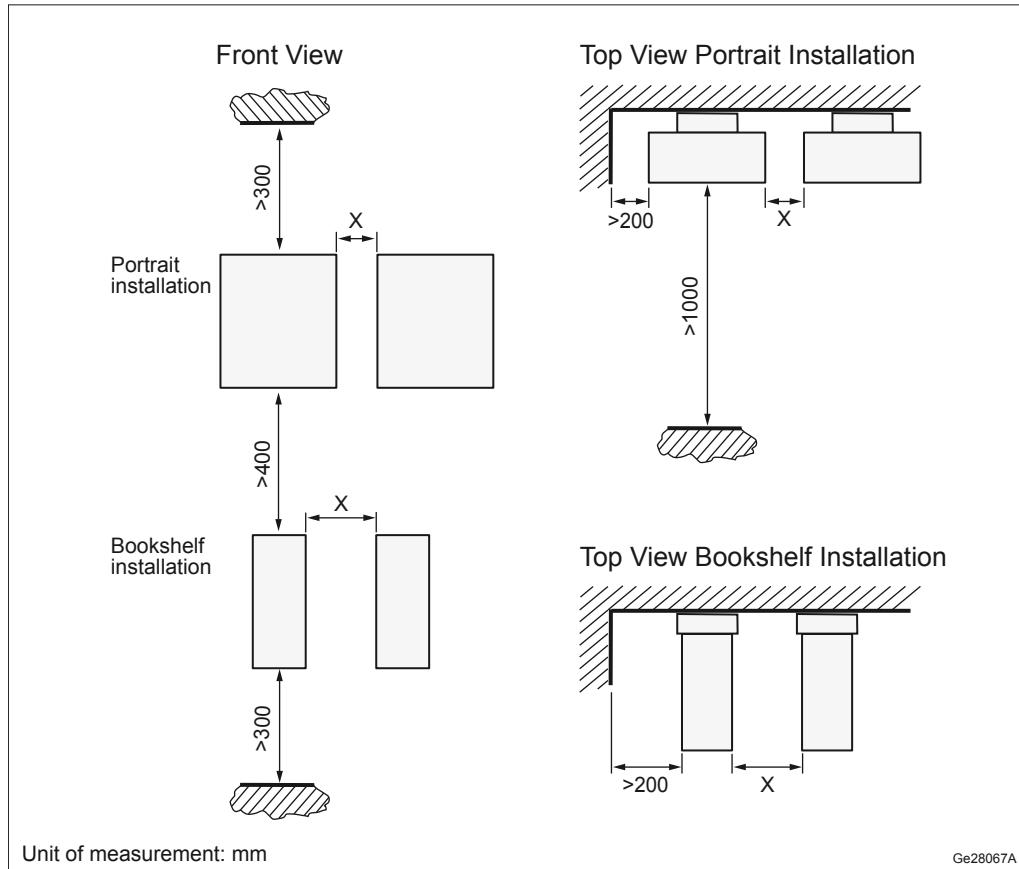


Figure 11 Radio Indoor Wall Installation Requirements

The minimum distance X depends on the mounting direction of radio unit and if the radio unit is installed with or without fan unit. For minimum space between radio units installed side by side, see [Table 23](#).

To ensure adequate airflow between the units, allow a minimum of 400-mm free space between radios vertically installed on a horizontal rail on a wall. The minimum distance from the bottom of the radio to the floor is 300 mm.

Allow a minimum of 300-mm free space to the ceiling or any overhanging structure that can obstruct airflow and create a heat trap.

Table 23 Space Requirements between Radio Units Installed Side by Side

Product	Mounting Direction	Variants	Minimum Free Horizontal Space between Radio Units (X)
Radio 4461 B77D	Portrait	With optical indicator cover	100 mm



Product	Mounting Direction	Variants		Minimum Free Horizontal Space between Radio Units (X)	
Bookshe lf	Output Power 4 × 40 W	Without optical indicator cover		55 mm	
		With fan unit	Without fan unit	50 mm	
				Ambient temperature below +45°C	140 mm ⁽¹⁾
				Ambient temperature above +45°C and below +50°C	200 mm
				Ambient temperature above +50°C and below +55°C	300 mm ⁽²⁾

(1) For more information about installing or removing multiple radios, see [Install Radio and Replace Radio](#).

(2) An adjacent heat source with 500 W maximum heat dissipation requires minimum 400 mm free space between the radio unit and the heat source.

3.5

Installations that Require Fan Unit

The fan unit must be used in all installation scenarios where the cables from the radio are not pointing directly downwards. Bookshelf installation requires a fan unit. The fan unit must also be used in extreme conditions, such as installations with poor ventilation or installations with heat traps.

3.6

Painting Disclaimer

Ericsson recommends to not paint the product as it can affect performance of the product.

Ericsson applies limitations to the warranty and service contract if the product is painted.

If the product is painted, the following commercial limitations apply:

- Failure modes directly related to overheating because of painting are not valid for repair within the scope of the warranty or standard service contract.
- Product failures related to paint contamination of components of the unit are not valid for repair within the scope of warranty or standard service contract.
- When a painted unit is repaired, it might be restored to the standard color before being returned to the market. It is not possible to guarantee that the same unit is sent back to the same place. This is also valid for units repaired under a service contract.



- For repairs within the warranty period or a standard service contract, the customer is charged the additional costs for replacing all painted parts of the unit or the complete unit.

If adaptations are required, contact Ericsson for information.



4 Interfaces

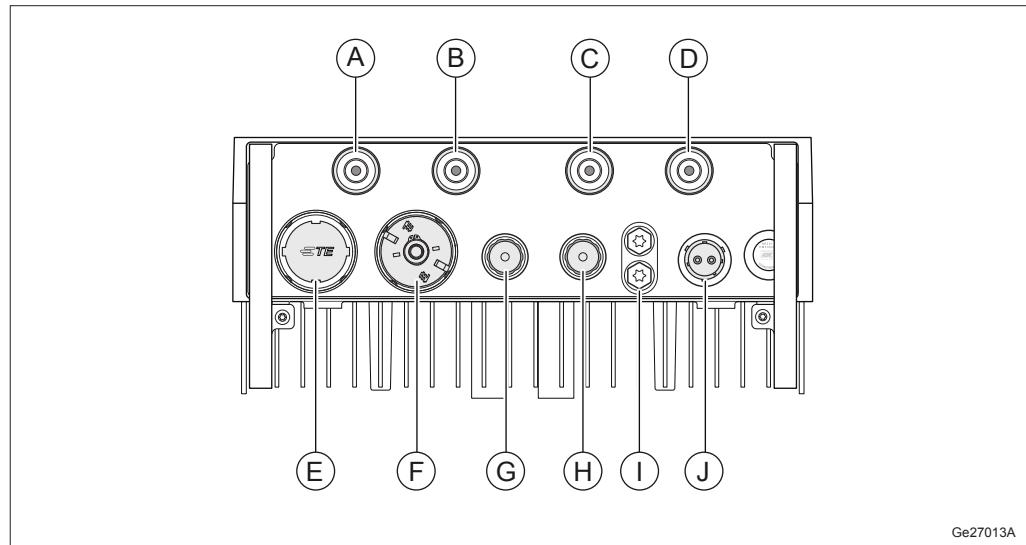
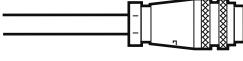
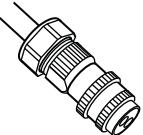


Figure 12 Radio 4461 Connection Interfaces

Table 24 Radio 4461 Connection Interfaces

Position	Description	Marking	Connector Types	Cable Illustration
A	Antenna A	A	4.3-10P	
B	Antenna B	B		
C	Antenna C	C		
D	Antenna D	D		
E	Optical cable 1	DATA 1	LC (On SFP28) with support for FullAXS	
F	Optical cable 2	DATA 2		



Position	Description	Marking	Connector Types	Cable Illustration
G	DIN 14 pin, following functions supported: <ul style="list-style-type: none">— Fan unit power supply and control— EC-light— External alarms <p>Note: If using more than one function, a Y-cable must be connected to the DIN 14 connector for each added function.</p>	ALARM/FAN	DIN connector, 14 pin	
H	ALD (used for a RET unit for example)	AISG	DIN connector, 8 pin	
I	Grounding	⏚	2 × 6 mm dual lug	
J	-48 V DC power supply	-48 V \equiv	Power connector	

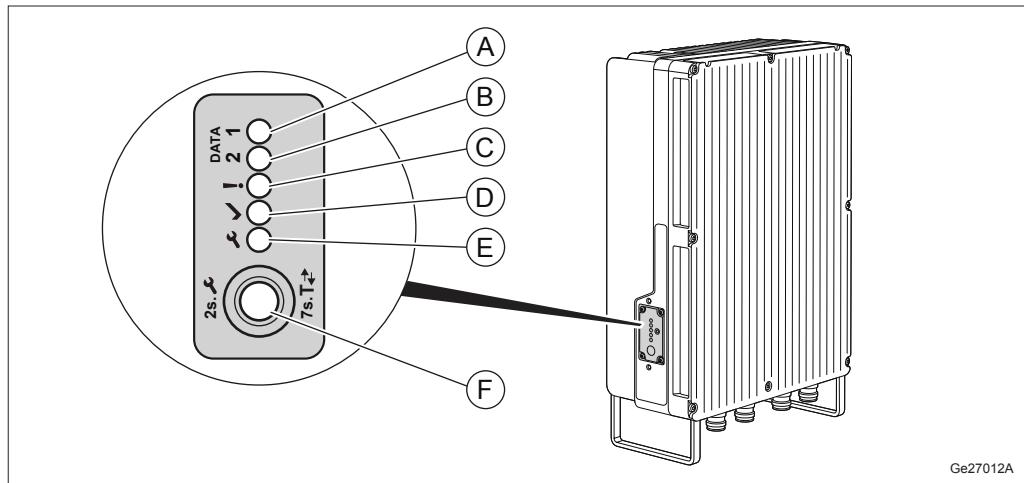


Figure 13 Radio 4461 Optical Indicators

Table 25 Radio 4461 Optical Indicators and Buttons

Position	Name	Marking
A	Interface 1	DATA 1
B	Interface 2	DATA 2
C	Fault	!
D	Operational	✓
E	Maintenance	⚡
F	Maintenance button	2s. ⚒ 7s. T↔

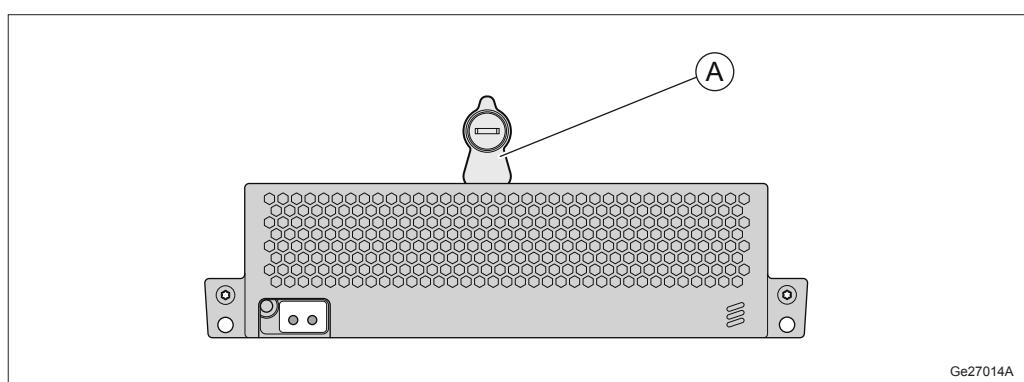


Figure 14 Fan 16 Connection Interface



Table 26 Fan 16 Connection Interface

Position	Description
A	DIN connector, 14 pin Power supply and control

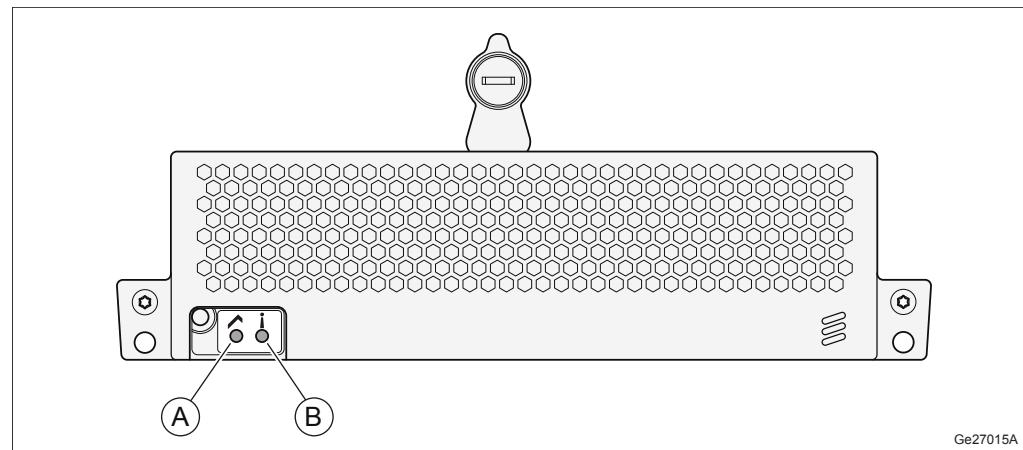


Figure 15 Fan 16 Optical Indicators

Table 27 Fan 16 Optical Indicators

Position	Name	Marking
A	Operational	✓
B	Fault	!

4.1 Antenna Interface

The antenna interfaces provide connections for the radio to antennas. RF cables connect the radio to the antenna.

The antenna interfaces also provide support for control and power to ALD.

The on-off keying (OOK) is supported on Antenna A port to Antenna D port; the DC bias is supported on Antenna A port and Antenna C port.

Table 28 DC Output from RF Ports that Support DC Bias

Description	Value
Output voltage	30 V DC
Maximum output current	1.5 A DC



Note: The total current from the ALD port and the RF ports cannot exceed 2.5 A DC.

Table 29 Radio Antenna Connection Interface Characteristics

Connector Type	RF Cable Type	Cable Connector Type
4.3-10P, insert-receiver type	50 Ω coaxial	4.3-10P type

Table 30 Radio Antenna Cable Connectors

Radio Connectors	Antenna Connectors
A TxRx	TX/RX
B TxRx	TX/RX
C TxRx	TX/RX
D TxRx	TX/RX

Table 31 AISG and DC Supply

Radio Connectors	AISG and DC Supply
A	AISG, DC supply ⁽¹⁾
B	AISG
C	AISG, DC supply (1)
D	AISG

(1) Layer 2 communication can only be sent on ports containing DC supply.

4.2 Optical Cable Interface

The optical cable interfaces provide connections to optical cables for traffic and timing signals between Radio 4461 and a Baseband unit. An SFP is used to connect the optical cable to Radio 4461.

Note: There are different SFP modules for different products.

Only use SFP modules approved and supplied by Ericsson.

For recommended SFP modules, see SFP Module Selector Guide.

4.3 DIN 14-Pin Interface

The DIN 14-pin interface supports the following functions:



- EC light
- External alarm

4.3.1 EC-Light

The EC-light function delivers communication signals and alarms between the optional PSU and the radio.

4.3.2 External Alarm Interface

Two external alarms can be connected to the radio external alarm port.

Each alarm can be configured to be triggered by the following two alarm conditions:

- Closed loop condition
 - An alarm is triggered when an open switch is closed.
- Open loop condition
 - An alarm is triggered when a closed switch is opened (default alarm condition).

Table 32 External Alarms and Output Characteristics

Alarm Input Port Details	Characteristics
Number of input ports	2
Maximum sensed impedance for a closed loop condition	Closed (less than 5 kΩ)
Minimum sensed impedance for an open loop condition	Open (greater than 60 kΩ)
Maximum current sourced from port interface	6.0 mA
Maximum voltage sourced from port interface	5.5 V

The fan unit is DC-powered (+29.5 V DC) and controlled through the radio external alarm port.

4.4 ALD Ctrl Interface

The ALD control (ALD Ctrl) connects an ALD (RET) cable to the radio for antenna system communication.



ALD control is also supported on Antenna Interface connectors.

Table 33 DC Output from ALD Control Interface

Description	Value
Output voltage	30 V DC
Maximum output current	2.5 A DC

Note: The total current from the ALD port and the RF ports cannot exceed 2.5 A DC.

4.5 Grounding Interface

The unit must be grounded to protect it from overvoltage and lightning strikes.

For more information about grounding principles, see [Grounding Guidelines for RBS Sites](#).

4.6 -48 V DC Power Supply Interface

The -48 V DC power connection is made through a connector with a 3-wire (DC-I) connection or a connector with a 2-wire (DC-C) connection.

For power cable dimensioning, see [Site Installation Products Overview](#).

The power cable to be used with this product can have two conductors (wires) and a cable shield. One conductor (wire) is for 0 V and another for -48 V DC.

The power cable must be shielded. The shielding must be properly connected both to the power connector and to the grounding interface in the power supply equipment, otherwise, the Radio 4461 overvoltage and lightning protection do not function properly.

Note: When using an AC/DC PSU, it is recommended to use one supplied by Ericsson. If the AC/DC PSU is not supplied by Ericsson, it must comply with the Class B requirements for the AC power supply interface.

4.7 Optical Indicators

Optical indicators show the system status.

For more information about the optical indicators, see [Indicators, Buttons, and Switches](#).



4.8 Maintenance Button

The maintenance button is at the left of the  symbol.

For more information about the maintenance button, see [Indicators, Buttons, and Switches](#).

4.9 Optional Equipment Interfaces

The equipment presented in this section is optional and can be ordered separately.

4.9.1 Fan Unit

The fan is a replaceable unit.



5

Standards and Regulations

This section presents a brief overview of standards, regulatory product approval, and declaration of conformity for the radio.

Declaration of Conformity

"Hereby, Ericsson AB, declares that this product is in compliance with the essential requirements and other relevant provisions of Radio Equipment Directive 2014/53/EU and RoHS Directive 2011/65/EU. The full text of the declaration of conformity is available at the following internet address: <https://portfolio.ericsson.net/c/FGB1010529>."

5.1 Regulatory Approval

The Radio System complies with the following market requirements:

- North American market requirements

5.1.1 Safety Standards Compliance

In accordance with market requirements, the Radio System complies with the following product safety standards and directives:

USA

- UL 62368-1
- FCC CFR 47 Part 1.1310

Canada

- CAN/CSA-C22.2 No. 62368-1
- Health Canada Safety Code 6

5.1.1.1 Outdoor specific requirements

The Radio complies with the following outdoor specific requirements:

USA

- UL 50E



Canada

- UL 50E

5.1.2 EMC Standards Compliance

The Radio System complies with the following Electromagnetic Compatibility (EMC) standards:

USA

- FCC CFR 47 Part 15 B

Canada

- ICES-003

5.1.3 Radio Standards Compliance

The Radio System complies with the following radio standards:

USA

- FCC CFR 47 Part 2
- FCC CFR 47 Part 27

Canada

- ISED RSS-Gen
- ISED RSS 192
- RSP-100

5.1.4 Marking

To show compliance with legal requirements, the product is marked with the following labels:

USA

- FCC CFR 47 Part 15 Compliance Statement:

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:



- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.
- cETLus
- FCC ID

Canada

- ISED ICES-003 Compliance statement: "CAN ICES-3 (B)/NMB-3(B)"
- cETLus
- ISED Certification Number and HVIN (IC ID)

[Figure 16](#) shows where the labels are placed on the radio.

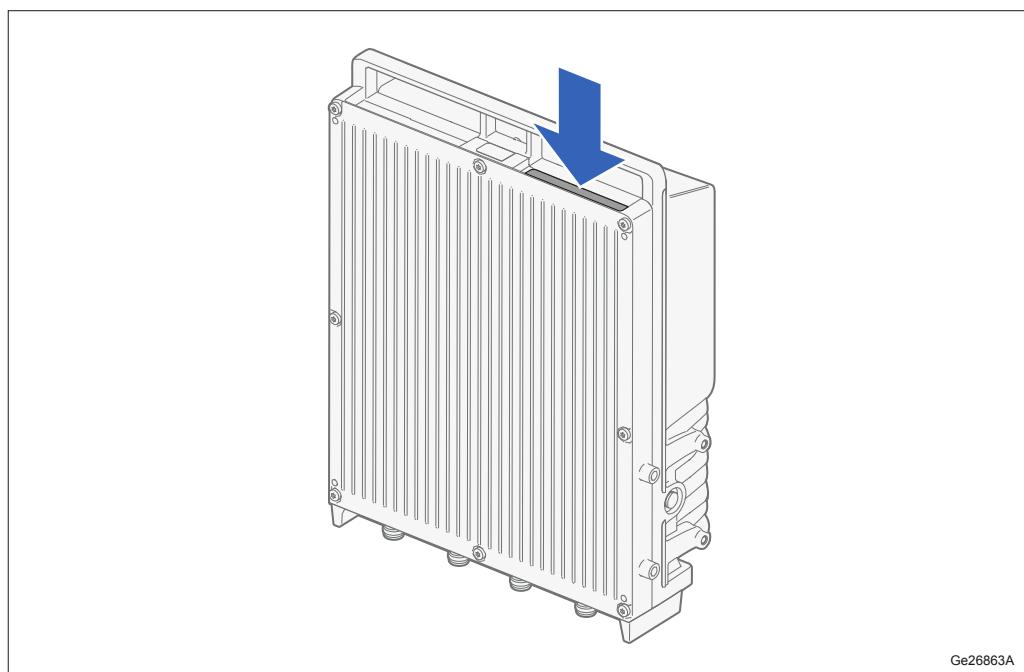


Figure 16 Legal Requirement Labels

5.2

Other Standards and Regulations

The standards and regulations in this section are not regulatory requirements.



5.2.1 Spare Parts

The product adheres to the Ericsson Serviceability and Spare Part Strategy.

5.2.2 Surface Quality

The surface quality of the radio is according to Ericsson standard class A5 for the top, front, side of the heat-sink, and side covers, and A6 for the fins on the heat-sink.

5.2.3 Vandal Resistance

Unauthorized access is not possible without damaging the tamper proof warranty seal.

5.2.4 Vibration and Shock

The product fulfills the following standards, assuming proper installation and use of approved accessories only:

- Random vibration and shock: ETSI EN 300 019-2-4 and Telcordia GR-3178-CORE
- Seismic: Telcordia GR-63-CORE

5.2.5 Materials

All Ericsson products fulfill the legal and market requirements regarding the following:

- Material declaration
- Materials' fire resistance, components, wires, and cables
- Recycling
- Restricted and banned material use