



Nokia MetroHopper™ Radio – innovative base station access

Nokia MetroHopper™ Radio is a wireless access link using the 58 GHz frequency for reliable transmission. Part of the Nokia MetroSite™ capacity solution, this radio provides access to Nokia MetroSite base stations in dense microcellular networks. Compact and unnoticeable, Nokia MetroHopper Radio enables a variety of new site locations and can eliminate the costly delays associated with traditional cellular transmission.

Nokia MetroHopper Radio enables same-day base station (BTS) access using the 58 GHz frequency band, which does not require coordinated frequency planning. Because the band is self-regulating, delays caused by frequency licence applications or waiting for leased lines are completely eliminated. This allows you to more easily synchronise network rollout and avoid the wasted investment of base stations lying idle on-site due to transmission delays.

In the Nokia MetroSite solution, the indoor unit of Nokia MetroHopper Radio is fully integrated in the Nokia MetroSite Base Station cabinet and the outdoor radio unit includes a small, flat panel antenna. The radio and BTS are connected using a single Nokia Flexbus™ cable, allowing fast and simple installation.

Truly affordable access

The integrated, rectangular flat panel antenna makes the Nokia MetroHopper Radio so hard to spot in the urban environment that it can be deployed in locations unreachable for conventional microwave radios. And weighing only 3 kg, the outdoor unit is quick and easy to install. Together the unobtrusive design and compact size help to cut the cost of network implementation by contributing to simplified site selection, which may enable mass site acquisition.

Compared to the cost of leased line transmission, Nokia MetroHopper Radio is simple and cost-effective to install and operate, making microcellular network access truly affordable.



Reliable access improves network availability

Because this radio uses the 58 GHz frequency, it takes advantage of the band's unique characteristic of high oxygen absorption. This allows very high reuse of the same frequency, so you can establish hundreds of transmission access points per square kilometre. And because it is based on proven microwave technology, Nokia MetroHopper Radio offers reliable transmission access, regardless of climate, as well as high mean time between failure performance and loop protection. The Automatic Channel Selection

Procedure selects the best channel for transmission during initial set-up of the radio relay, reducing the need for on-site configuration.

Access service provided by Nokia MetroHopper radios also can be deployed easily from existing Nokia Talk-family Base Station sites with a base station integrated indoor unit. This offers a cost-effective way to maximise the usage of existing sites. Another option is to use the FIU 19 indoor unit which provides general telecommunications interfaces and mounts to a standard 19" rack.

Main features

- Fast base station access eliminates costly delays caused by frequency licence applications or leased line availability.
- Unique 58 GHz frequency band enables high-density networks.
- Reliable microwave access improves network quality to help reduce subscriber churn.
- Lightweight and compact design allows innovative urban locations to simplify site acquisition and lower costs.

Technical Specification of Nokia MetroHopper Radio / Outdoor Unit

General	Frequency range	57,200 – 58,200 GHz
	Transmission capacity	4 x 2 Mbit/s
	Modulation	MSK
	Channel spacing	100 MHz (ETS 300 408)
	Power consumption (max)	13 W
	Operational temperature	-45 to +50 °C
	Weight and dimensions	3 kg, 255 mm x 196 mm x 114 mm
Transmitter	Output power (typical)	5 dBm
Receiver	Threshold level BER 10 ⁻³ (typical)	< -75 dBm
	Threshold level BER 10 ⁻⁶ (typical)	< -73 dBm
Antenna type	Integrated flat panel antenna with vertical polarisation	
	Antenna gain	34 dBi
Alignment bracket	Horizontal adjustment coarse / fine	±90° / ±12°
	Vertical adjustment coarse / fine	±90° / ±12°
	Weight	1.7 kg
	Accessories	Optical alignment tool

Technical Specifications of Indoor Units

Base Station Integrated Indoor Unit	Integration into	Number of Outdoor Units
FC RRI	Nokia MetroSite Base Station	1
FXC RRI	Nokia MetroSite and Nokia UltraSite™ base stations and Nokia MetroHub Transmission Node	1 – 2
RRIC	Nokia Intratalk BTS and Nokia Citytalk BTS	1 – 2
19" Indoor Unit FIU 19	<i>Integration into</i> Standard 19" rack and Nokia Extratalk cabinet	<i>Number of Outdoor Units*</i> 1 – 3
<i>Main Channels</i>		
Electrical interface	4 – 16 x 2 Mbit/s, ITU-T G.703, 75 ohm SMB or 120 ohm TQ	
Auxiliary data channels (plug-in-unit)	EIA-232 or ITU-T V.11: max. 9600 bit/s ITU-T V.11 or ITU-T G.703: max. 64 kbit/s Four programmable I/O interfaces	
Weight and dimensions	2.45 kg, 2/3 U x 440 x 300	
Power consumption	max 17 W	

*Nokia FlexiHopper microwave radios and Nokia MetroHopper radios can be mixed and one Nokia FlexiHopper Microwave Radio can be protected