

NOKIA

Glossary

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Abbreviations

2M	2 Mbit/s
2MCC	2 Mbit/s Cross-connection section
8k	8 kbit/s
8kCC	8 kbit/s Cross-connection section
ACI	Adjacent Channel Interference
AFINN	Auxiliary fast channel input negative signal
AFINP	Auxiliary fast channel input positive signal
AFOUTN	Auxiliary fast channel output negative signal
AFOUTP	Auxiliary fast channel output positive signal
AGC	Automatic Gain Control
AIS	Alarm Indication Signal
ALCQ	Adaptive Level Control with Quality measure
ANSI	American National Standards Institute
ASIC	Application-Specific Integrated Circuit
ASINN	Auxiliary slow channel input negative signal
ASINP	Auxiliary slow channel input positive signal
ASOUTN	Auxiliary slow channel output negative signal
ASOUTP	Auxiliary slow channel output positive signal
AT	Available Time
ATPC	Automatic Transmit Power Control
ATM	Asynchronous Transfer Mode
AXC	ATM Cross-connect
BBE	Background Block Error
BER	Bit Error Ratio
BNC	Bayonet-lock RF coaxial connector

BOIA	Base Operations and Interfaces unit
BQ	Bayonet-lock 4-pin connector
BSC	Base Station Controller
BTS	Base Transceiver Station
C/I	Carrier to Interference ratio
CC	Cross-connection
CCI	Co-Channel Interference
CEPT	Conférence Européenne des Administrations des Postes et des Télécommunications
CPU	Central Processing Unit
CW	Continuous Wave
D/A	Digital-Analog
DC	Direct Current
DCN	Data communication network
DDD	Doubly Differential Detection
DM	Degraded Minute
DQPSK	Differential Quadrature Phase Shift Keying
EMC	Electromagnetic Compatibility
EB	Errored Block
EDGE	Enhanced Data rates for Global Evolution
EIA	Electronic Industries Association
EMC	Electromagnetic Compatibility
EPSA	Enhanced Power Supply Adapter
ES	Errored Second
ESD	Electrostatic Discharge
ETSI	European Telecommunications Standards Institute

EXU	Expansion Unit
F/B	Front-to-Back (ratio of an antenna)
F/D	Framing-Deframing section
FB	Flexbus
FBB	Flexbus Block
FBP	Flexbus Plug-in unit
FBU	Flexbus Unit
FBCC	Flexbus Cross-connection section
FC	Fault Code
FE	Functional Entity
FEC	Forward Error Correction
FM	Fault Management
FXC RRI	Integrated radio interface unit with enhanced capabilities for Nokia MetroSite and UltraSite BTS and for Nokia MetroHub Transmission Node
GCS	General Communication Service
GND	Ground
GSM	Global System for Mobile communication
HSB	Hot Standby
IC	Interface Circuit
IEC	International Electrotechnical Commission
IF	Interface
IFU	Interface Unit
IFUE	Interface Unit for 3 x Flexbus
IP	Internet protocol
ITU-R	International Telecommunication Union – Radiocommunication Sector (former CCIR)

ITU-T	International Telecommunication Union – Telecommunication Standardization Sector (former CCITT)
IU	Indoor Unit
IUCO	Indoor Unit Changeover (switch)
LED	Light-Emitting Diode
LIF	Line Interface
LMP	Local Management Port
LNA	Low-noise Amplifier
MIB	Management information base
MMIC	Monolithic Microwave Integrated Circuit
MP	Measurement Point
MSC	Mobile Switching Centre
MTBF	Mean Time Between Failures
nc	Not Connected
NE	Network Element
NED	Nokia Electronic Documentation
NMS	Network Management System
NOLS	Nokia Online Services
NRZ	Non-Return-to-Zero
OU	Outdoor Unit
PDH	Plesiochronous Digital Hierarchy
PMR	Professional Mobile Radio
PRBS	Pseudo-Random Binary Sequence
PSA	Power Supply Adapter
PWR	Power supply connector / power switch
Q1	Nokia's proprietary management interface (= V.11)

RBBER	Residual Bit Error Ratio
RD	Received Data
RF	Radio Frequency
RFC	Request for comments
RPE	Radiation Pattern Envelope
RRI	Radio Relay Interface
RRIC	Integrated radio interface unit for Nokia Talk-family base stations
RS	Reed-Solomon
RTC	Real Time Clock
Rx	Receive (Receiver)
RXCO	Receiver Changeover (switch)
RXD232 (out)	Received data of EIA-232 (output of far end)
SB	Supervision Block
SD	Space Diversity
SDH	Synchronous Digital Hierarchy
SES	Severely Errored Second
SMB	Snap-on subminiature coaxial connector
SNMP	Simple network management protocol
SSS	Site Support System
TCP	Transmission Control Protocol
TD	Transmitted Data
TDD	Time Division Duplex
TFTP	Trivial File Transfer Protocol
TNC	Threaded RF coaxial connector
TQ	Threaded 4-pin connector
TRE	Transmission Element

TRU	Base Station Transmission Unit
TRX	Transceiver
TS	Timeslot
TT	Total time
TTL	Transistor-Transistor Logic
Tx	Transmit (Transmitter)
TXCO	Transmitter Changeover (switch)
TXD232 (in)	Transmitted data of EIA-232 (input of far end)
U	Unit of height (in mechanics), 44.45 mm
VCO	Voltage Controlled Oscillator
V/H	Vertical/Horizontal polarisation (of an antenna)
VNB	Negative Battery Voltage
VPB	Positive Battery Voltage
WCDMA	Wideband Code Division Multiple Access
XPD	Cross-Polar Discrimination

Terms

19-inch rack	Rack which is 19 inches wide and conforms to the IEC 297 specification.
adjacent channel interference; ACI	Interference caused by a transmitter operating on an adjacent radio channel. ACI tolerance is expressed in dB as a carrier to interference ratio.
AGC tracking	Ability of the AGC (Automatic Gain Control) circuit to follow fast changes in the level of the received signal.
alignment unit	Set of mounting brackets of the antenna which is used to attach the antenna to the mast and to align it towards the opposite station. An outdoor unit can also be attached to the alignment unit.
antenna filter	Waveguide assembly which only allows a specified frequency range to pass from the transmitter to the antenna and from the antenna to the receiver.

ATM cross-connection; AXC	ATM connection which for point-to-point connections represents the cross-connect relationship between two virtual path or virtual channel termination points.
ATPC	A feature that enables the radio transmitter to increase or decrease the transmit power automatically so that the radio transmits at minimum power needed to maintain good transmission quality.
bit error ratio; BER	Ratio of the number of bit errors to the total number of bits transmitted in a given time interval.
BOIA	The Base Operations and Interfaces (BOIA) unit used in UltraSite BTS's. The BOIA unit takes care of the control functions common to all other units: Operations and maintenance functions, main clock functions, and external alarm collection.
branching station	Station, which distributes one or more transmission channels to other transmission paths.
burst synchronisation	Synchronisation of the TDD bursts of several radios. The synchronisation is achieved by connecting several master radios with the synchronisation bus and selecting one of them to act as the synchronising master unit.
chaining station	Station, which transmits into two directions as a part of a transmission chain. Data can be added/dropped to the signals going in either direction. A chaining station where no add/drop occurs is called a <i>repeater station</i> .
co-channel interference; CCI	Interference between two signals of the same type on the same radio channel. CCI tolerance is expressed in dB as a carrier to interference ratio.
commissioning	Process of bringing software or hardware into use for the first time.
cross-connection; CC	Connection between input port(s) and output port(s) in a network element. There are different types of cross-connections.
cross-connection bank	Information base, which defines the cross-connections of a network element. NE contains two or more banks, one of which is always active.
cross-polar discrimination; XPD	Antenna performance criterion describing the ability of an antenna to radiate and receive electromagnetic waves of a specified polarization.
degraded minute; DM	Minute containing an error ratio exceeding 1×10^{-6} but not exceeding 1×10^{-3} .
DMR 18-38	Nokia's family of microwave radios for the 18, 23, and 38 GHz frequency bands.

DMR 18-38 models are available for the 2 x 2, 4 x 2, 8 x 2, 16 x 2, and 1 x 34 Mbit/s capacities. Five models exist for different applications. These models are parallel to the Nokia DynaHopper (W, C, CE, I) and Nokia PrimeHopper (S) models.

duplex spacing	Difference between transmitting and receiving frequencies.
EIA-232	Standard of EIA to ensure physical and signal uniformity of interface between data communication equipment and data processing terminal equipment
elliptical waveguide	Waveguide, which has an elliptical cross section and corrugated wall giving it good flexibility.
equipment protection	Equipment protection requires two identical pieces of equipment. When one piece of equipment fails, it is switched off and the faultless equipment is used in its place. Also called <i>equipment redundancy</i> .
errored block; EB	Block of bits containing one or more bit errors.
errored second; ES	Second containing one or more digital transmission errors, excluding any unavailable time.
ETSI rack	Rack that conforms to the ETSI specification ETS 300 119-3 and houses 500 mm wide subracks.
FIU 19	Radio indoor unit for Nokia FlexiHopper and Nokia MetroHopper. Depending on configuration, FIU 19 supports up to four outdoor units through Flexbus connections. FIU 19 can be installed in any standard 19-inch rack, ETSI rack, or TM4 slim rack.
FIU 19E	Radio Indoor Unit for Nokia MetroHopper and Nokia FlexiHopper.
Flexbus	Bidirectional coaxial cable that carries up to 16 x 2 Mbit/s signals and power between transmission equipment, for example, between radio outdoor unit and indoor unit.
flexible waveguide	Waveguide constructed to permit limited bending and twisting without appreciable change of its electrical properties.
forward error correction; FEC	Technique allowing the receiver to correct errors occurring on a transmission channel without requiring retransmission of the data.
front-to-back ratio; F/B ratio	For a directional antenna, ratio of field strength in front of the antenna to field strength behind the antenna (180 degrees \pm 40 degrees). The ratio is measured at a fixed distance from the radiator and expressed in dB.
functional entity; FE	Part of a network element, for example, FlexiHopper outdoor unit and 4 x 2M plug-in unit.

The functional entities are numbered so that the network element is always FE 0 and numbers 1 through 254 are reserved for the actual FEs. A functional entity can contain several *supervision blocks (SB)*.

FXC RRI

Radio indoor unit for Nokia FlexiHopper and Nokia MetroHopper, which has cross-connection capability at 8kbit/s level.

FXC RRI supports two outdoor units through Flexbus connections. FXC RRI can be installed in Nokia MetroSite GSM BTS, Nokia UltraSite EDGE BTS, or Nokia MetroHub.

gain

Amplification; gain of an antenna is expressed dBi, decibels over a theoretic, isotropic, uniformly radiating antenna.

**General
Communication
Service; GCS**

A communication stack that is used by Nokia agents, alarm managers, node managers, and NMS/10 Command scripting (RCM) to communicate with Nokia's PDH/Primary Rate network elements. GCS is also used by MML Alarm Manager to communicate with MML network elements.

IFUE

An interface unit, which can be installed in Nokia MetroSite WCDMA and Nokia UltraSite WCDMA base stations. The IFUE has three Flexbus interfaces and it provides up to 16 x 2 Mbit/s capacity.

**IFUE interface
unit**

Transmission interface unit for three Flexbus interfaces.

indoor unit

Part of the microwave radio, which is installed indoors and usually contains the baseband parts.

The indoor unit is installed in, for example, a base station cabinet or a 19-inch rack.

interleaving

Distribution of symbols in one block over a plurality of adjacent blocks, whereby burst errors can be corrected more effectively than without interleaving.

2-depth interleaving: symbols are distributed over two blocks.

4-depth interleaving: symbols are distributed over four blocks.

loop protection

Protection method where traffic is routed via two routes around a ring.

Loop protection protects against hardware faults as well as disturbances in the propagation path.

**loop to
equipment**

Method for testing the operation of an interface in which a signal transmitted from an interface of the equipment is connected back to the equipment.

loop to interface

Method for testing the operation of an interface in which a signal fed into an interface is connected to the output of the same interface.

loopback

See *loop to equipment* and *loop to interface*.

microwave radio	Radio equipment for establishing an aligned and fixed radio connection between two points.
network element; NE	<p>Telecommunication equipment having capability for surveillance, reporting and/or control. Identified by a unique management address. Also called a <i>node</i>.</p> <p>Nokia Q1 network element contains two or more <i>functional entities</i>. FE number zero refers to the whole network element.</p>
Network Management System; NMS	System for controlling and monitoring the resources of a telecommunications network and recording their use and performance, in order to provide telecommunication services.
node	See <i>network element</i> .
node manager	PC software application which allows the user to manage individual network elements.
Nokia DynaHopper	<p>Nokia's family of microwave radios for the 18, 23, 26, and 38 GHz frequency bands.</p> <p>Nokia DynaHopper models are available for the 2 x 2, 4 x 2, 8 x 2, 16 x 2, and 1 x 34 Mbit/s capacities. Four indoor unit models exist for different applications (models W, C, CE, and I). These models are parallel to the DMR 18-38 models.</p>
Nokia FlexiHopper	<p>Nokia's family of Flexbus-compatible microwave radios for the 7, 8, 13, 15, 18, 23, 26, and 38 GHz frequency bands, in which the radio transmission capacity can be selected using software.</p> <p>The radio transmission capacity of Nokia FlexiHopper can be 2 x 2, 4 x 2, 8 x 2, or 16 x 2 Mbit/s. The Nokia FlexiHopper outdoor unit can be used with different indoor units (FIU 19(E), RRIC, and FXC RRI).</p>
Nokia Hopper Manager	PC software application used for controlling and monitoring Nokia FlexiHopper and Nokia MetroHopper radios connected to FIU19 or RRIC indoor units.
Nokia MetroHopper	<p>Nokia's Flexbus-compatible radio for the 58 GHz frequency band, which does not require coordinated frequency planning.</p> <p>The main use of Nokia MetroHopper is to provide 4 x 2 Mbit/s point-to-point wireless access for Nokia MetroSite BTS and Nokia MetroHub. The Nokia MetroHopper outdoor unit can be used with different indoor units (FIU 19(E), RRIC, and FXC RRI).</p>
Nokia MetroHub	<p>Nokia's compact transmission node with cross-connection and grooming functions.</p> <p>Nokia MetroHub contains 1 – 5 transmission units (FXC RRI, for example).</p>

Nokia MetroSite GSM Base Station	<p>Nokia's compact 4-TRX GSM base station for the Nokia MetroSite capacity solution.</p> <p>Nokia MetroSite GSM BTS can contain one transmission unit.</p>
Nokia Online Services; NOLS	<p>Nokia Online Services (NOLS) is a web-based service concept offered by Nokia to its customers. NOLS provides online access to Nokia product and system information, including manuals and technical descriptions.</p>
Nokia PowerHopper	<p>Nokia PowerHopper is a compact SDH radio-relay transmission system. It has 18, 23, 26 and 38 GHz frequency bands with 56 MHz bandwidth and 7, 8, 13, 15, 18, 23, 26, and 38 GHz with 28 MHz bandwidth.</p> <p>The STM-1 PowerHopper system consists of an indoor unit, an outdoor unit, and an antenna. The indoor unit may be equipped with different types of STM-1 data interfaces, available via plug-in modules.</p>
Nokia PrimeHopper	<p>Nokia's family of microwave radios for the 18, 23, 26, and 38 GHz frequency bands, used for siteless low-capacity access applications.</p> <p>Nokia PrimeHopper models are available for the 2 x 2 and 4 x 2 Mbit/s capacities. Nokia PrimeHopper is parallel to the DMR 18-38S model.</p>
Nokia Q1 Connection Tool	<p>Program that allows to make connection definitions and node definitions for identifying objects on a Nokia Q1 managed network.</p>
Nokia UltraSite EDGE Base Station	<p>Nokia's GSM / EDGE base station for the Nokia UltraSite solution, available in Outdoor, Indoor, and Midi Indoor cabinet versions.</p> <p>Nokia UltraSite EDGE BTS has four slots for the FXC transmission units.</p>
Nokia WCDMA BTS	<p>Base transceiver station of the third generation network. WCDMA is an abbreviation of wideband code division multiple access.</p>
outdoor unit	<p>Part of the microwave radio which is installed outdoors.</p> <p>The outdoor unit of Nokia FlexiHopper is composed of only the radio section.</p>
pi/4 differential quadrature phase shift keying; pi/4 DQPSK	<p>Type of quadrature phase shift keying (QPSK) where the phase of the carrier is always changed for each symbol, with each symbol representing two bits.</p>
product code	<p>Code, which is used for identifying sales items: plug-in units, programs, manuals etc.</p>
propagation protection	<p>Propagation protection is used to minimise traffic interruptions caused by interference on the transmission path. Also called <i>propagation redundancy</i>.</p>
Q1 bus	<p>Management channel to which Q1-managed devices have been connected.</p>

radio channel spacing	Difference between centre frequencies of two adjacent radio channels.
repeater station	Radio station, which receives and retransmits radio signals carrying the same information.
return loss	Ratio of incident to reflected power expressed in dB.
RRIC	Radio indoor unit for Nokia FlexiHopper and Nokia MetroHopper. RRIC supports two outdoor units through Flexbus connections. RRIC can be installed in Nokia Citytalk and Nokia Intratalk BTS.
RS(63,59)	Reed-Solomon algorithm. Code for forward error correction, which uses 4 redundancy symbols for every 59 data symbols and is able to correct two symbol errors in the formed 63-symbol block.
severely errored second; SES	Second with a binary error ratio greater than or equal to 10^{-3} .
site	Location where telecommunication equipment has been installed. Site can contain, for example, a base station and transmission equipment, with an equipment shelter and antenna tower. Several <i>network elements</i> can be located at a site.
spurious emission	Emission on a frequency or frequencies which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Includes harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but excludes out-of-band emission.
supervision block; SB	Part of a functional entity, for example, power supply of the FIU 19 unit. Each supervision block has its own alarms, statistics, measurements, loops, and so on. The numbering of SBs within a functional entity runs from 0 to 255.
Talk-family	Nokia's product family of GSM base stations, including Nokia Citytalk, Nokia Intratalk, and Nokia Flexitalk. Citytalk or Intratalk cabinets can house two RRIC indoor units.
TCP/IP	Basic communication protocol used to transmit data over networks, on the Internet as well as on private networks.
time division duplex (TDD)	Time-division-based duplexing method in which each end of a bidirectional connection alternates between transmitting and receiving bursts of data. TDD application uses the same frequency for both transmission directions.
TM4 rack	CEPT A type slim rack.

TruMan	Node manager used for managing the settings, line interface cross-connections, and 8 kbit/s cross-connections of Nokia's TRUx Base Station Transmission Units.
TRUx	Base Station Transmission Unit, x denoting the submodel, for example, TRUA in Nokia Talk-family base stations.
virtual channel	Unidirectional transport of ATM cells associated by a common unique identifier value.
virtual node	Image of a real network element on a computer file, managed offline.
virtual path	Unidirectional transport of ATM cells belonging to virtual channels that are associated by a common identifier value.
waveguide	Carefully dimensioned, usually rectangular, hollow, metal pipe through which microwaves are transmitted.