Nokia Siemens Networks

C34240.90–D0
Nokia FlexiHopper (Plus) Product Doc, Rel. 2.7

Glossary for Nokia FlexiHopper (Plus) and Nokia MetroHopper

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Contents

1 Introduction

The purpose of this glossary is to provide definitions of the terms used in the Nokia FlexiHopper, Nokia FlexiHopper Plus, and Nokia MetroHopper related documentation. The glossary covers central concepts of telecommunications as well as the concepts related to the Nokia products mentioned in the Nokia FlexiHopper, Nokia FlexiHopper Plus, and Nokia MetroHopper documentation.

The terms and accompanying definitions contained in this glossary have been compiled at Nokia in collaboration with experts on both telecommunications and terminology work. It is based on the concept of terminology adopted in the Nordic countries and on several national and international sources, as well as on international technical and terminological standards and recommendations.

The entries are arranged in alphabetical order. Synonyms are also entered independently with a "see" reference to direct the reader to the main entry.

Neither this nor any other glossary covering terms in an advanced-technology field such as telecommunications can be considered as complete and ageless. Thus, this glossary is continuously expanded and developed. Therefore, any feedback on this glossary would be highly appreciated.

The terms used only in a limited geographical area are marked with codes according to standard ISO 3166 Names of Countries.

The codes used in this dictionary are:

/GB/	Great Britain
/US/	The United States of America

2 Glossary

2.1 Numbers

1+1 protection

See 1+1 redundancy

1+1 redundancy; *1+1 protection*

redundancy scheme in which a unit type consists of one active unit and one spare unit, and the idle spare unit can replace the active unit

19 indoor unit; *FIU 19*

indoor unit for Nokia MetroHopper, Nokia FlexiHopper, and Nokia FlexiHopper Plus

Depending on the configuration, FIU 19 supports up to four outdoor units through Flexbus connections. FIU 19 can be installed in any standard 19-inch rack or TM4 slim rack.

19-inch rack

rack which is 19 inches wide and conforms to the IEC 297 specification

2K protocol

proprietary Nokia network management protocol in which IP data links are used to connect the Nokia Hopper Manager or a management system to a node

2M

external 2048 kbit/s synchronisation source conforming to ITU-T G.703

2MCC

2 Mbit/s cross-connection section

8k

8 kbit/s

8kCC

8 kbit/s cross-connection section

2.2 A

ACI

See adjacent channel interference

adaptive level control with quality measurement

See automatic transmit power control

add-drop capacity; *add/drop capacity*

multiplexing function in connection with synchronous digital hierarchy that allows lower level signals to be added to or dropped from a high-speed optical carrier channel

add/drop capacity

See add-drop capacity

Address Resolution Protocol; *ARP*

protocol which operates on the network layer and is used for mapping IP addresses to link layer addresses

adjacent channel interference; *ACI*

interference caused by a transmitter operating on an adjacent radio channel

AF

See antenna filter

AFINN

auxiliary fast channel input negative signal

AFINP

auxiliary fast channel input positive signal

AFMM

See automatic fading margin measurement

AFOUTN

auxiliary fast channel output negative signal

AFOUTP

auxiliary fast channel output positive signal

AGC

See automatic gain control

AGC tracking

ability of the automatic gain control (AGC) circuit to follow fast changes in the level of the received signal

AI

See radio interface

air interface

See radio interface

AIS

See alarm indication signal

alarm

announcement given to the management system about abnormal functioning of the system or about a failure, or an indication of the degradation of the service level or reliability

alarm description

description of the severity, reason, instructions, cancellation, and other information which is related to an alarm

alarm event history

See alarm history

alarm history; *alarm event history*

finite list of previous alarm events (notices, disturbances, alarms, and alarm cancellations) of a network element

alarm indication signal; *AIS*

signal that replaces the normal traffic signal when a maintenance alarm indication has been activated

alarm signal

signal that indicates an alarm situation

ALCQ

See automatic transmit power control

alignment unit

set of mounting brackets for the antenna that are used to attach the antenna to the mast and to align it towards the opposite station

American National Standards Institute; *ANSI*

national standardization organization of the United States

amplification

See gain

ANSI

See American National Standards Institute

antenna cable; *antenna feeder*

cable between an antenna and radio relay equipment, transmitting the RF signal in either direction

antenna feeder

See antenna cable

antenna filter; *AF*

waveguide assembly which only allows a specified frequency range to pass from the transmitter to the antenna and from the antenna to the receiver

antenna flange

flange of the waveguide of an antenna which is coupled with the flange of the waveguide of a radio section

application-specific integrated circuit; *custom circuit*; *custom IC*; *ASIC*

integrated circuit which is designed for a specific application and a specific customer and which is not available to other customers

ARP

See Address Resolution Protocol

ASIC

See 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

asynchronous transfer mode; *ATM*

transfer mode in which the information is organised into cells: it is asynchronous in the sense that the recurrence of cells containing information from an individual user is not necessarily periodic

AT

See available time

ATM

See asynchronous transfer mode

ATM CC

See ATM cross-connection

ATM cross connect

See ATM cross-connect

ATM cross-connect; *ATM cross connect*; *AXC node*; *AXC*

transmission node that provides semi-permanent virtual path connections (VPC) and semi-permanent virtual channel connections (VCC) according to an alterable memory map

ATM cross-connection; *ATM CC*; *AXC*

ATM connection which for point-to-point connections represents the cross-connect relationship between two virtual path link (VPL) or virtual channel link (VCL) termination points, and for multipoint connections the cross-connect relationship between an instance of the VPL or VCL termination point and an instance of the multipoint bridge

ATM inverse multiplexing

See inverse multiplexing for ATM

ATPC

See automatic transmit power control

automatic fading margin measurement; *AFMM*

fading margin measurement which is executed during radio relay commissioning to verify the quality of radio link network planning, and which is carried out without the aid of any additional tools or measurement equipment

automatic gain control; *AGC*

electronic circuit in tape recorders, speakerphones, and other voice devices which is used to maintain volume

automatic transmit power control; *adaptive level control with quality measurement*; *ATPC*; *ALCQ*

feature that enables the radio transmitter to increase or decrease the transmit power automatically so that the radio transmits at the minimum power needed to maintain good transmission quality

Aux data plug-in unit; *Aux plug-in unit*

in Nokia FlexiHopper (Plus), a plug-in unit that provides two auxiliary (Aux) data channels which support a variety of data formats and speeds

Aux plug-in unit

See Aux data plug-in unit

available time; *AT*

Available Time as specified in G.826.

AXC

See ATM cross-connection

AXC

See ATM cross-connect

AXC node

See ATM cross-connect

2.3 B

background block error; *BBE*

errored block not occurring as part of a severely errored second (SES)

bandwidth; *frequency bandwidth*; *BW*

quantitative difference between the limiting frequencies of a frequency band

Base Operations and Interfaces unit; *BOIA*

The Base Operations and Interfaces unit (BOIA) is 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.

base station

See base transceiver station

base station controller; *BSC*

network element in the public land mobile network (PLMN) for controlling one or more base transceiver stations (BTS) in the call set-up functions, in signalling, in the use of radio channels, and in various maintenance tasks

base transceiver station; *base station*; *BTS*; *BS*

network element in a mobile network responsible for radio transmission and reception to or from the mobile station

bayonet Neill Concelman

See BNC connector

BQ

bayonet-lock 4-pin connector

BBE

See background block error

BER

See bit error ratio

BFI

Buffer Frame Interface in FIU 19 (E).

bit error rate

See bit error ratio

bit error ratio; *BER*

ratio of the number of bit errors to the total number of bits transmitted in a given time interval

BNC

See BNC connector

BNC coax connector

See BNC connector

BNC connector; *BNC coax connector*; *bayonet Neill Concelman*; *BNC*

connector for coaxial cable connections that is used in situations which require shielded cable for signal connections or controlled impedance

BOIA

See Base Operations and Interfaces unit

BQ

See bayonet-lock 4-pin connector

branching station

station which distributes one or more transmission channels to other transmission paths

BS

See base transceiver station

BSC

See base station controller

BTS

See base transceiver station

burst synchronisation

synchronisation of time division duplex (TDD) bursts by connecting several master radios with the synchronisation bus and selecting one of them to act as the synchronising master unit

BW

See bandwidth

2.4 C

C/I

See carrier-to-interference ratio

capacity sharing

radio link operational mode which allows the use of two individual data channels through a single radio hop

carrier-to-interference ratio; *CIR*; *C/I*

interference-specifying ratio used in microwave relays and other communication systems

CB

See compliance boundary

CC

See cross-connection

CCI

See co-channel interference

CCIR

See ITU Radiocommunication Sector

CCITT

See ITU Telecommunication Standardization Sector

central processing unit; *CPU*

part of computer containing the circuits that control and execute instructions. It generally contains the arithmetic logic unit, a number of special registers and control circuits

CEPT

Conference of European Post and Telephone Administrations

CEPT1

See E1

chaining station

station which transmits into two directions as a part of a transmission chain

channel separation

radio link operational mode which provides two independent data channels for traffic over two radio hops

channel spacing

difference in frequency between successive channels

channel unit

See interface unit

CIR

See carrier-to-interference ratio

circuit breaker

See power switch

CM

See configuration management

co-channel interference; *CCI*

interference between two signals of the same type on the same radio channel

commissioning

process of bringing software or hardware into use for the first time

commissioning wizard

wizard that guides the user through commissioning

community name

See community string

community string; *community name*

text string that acts as a password and is used to authenticate messages sent between a management station and a router containing an SNMP agent

compliance boundary; *limit distance*; *limit boundary*

physical distance from an antenna within which the basic restrictions are exceeded

configuration management; *CM*

set of functions used to control the configuration of the system, that is, to control the extension or reduction of a system, the status of the constituent parts, and the identity of their allocation

continuous wave; *CW*

radio or radar wave that maintains a constant amplitude and a constant frequency

CPU

See central processing unit

critical alarm; *three star alarm*; *prompt maintenance alarm*; *PMA*

alarm that is likely to cause disturbances in traffic and requires action on alarm to be taken within one hour

cross polarisation

See orthogonal polarisation

cross-connection; *CC*

either fixed or flexible connection between two termination points with the same data rate

cross-connection bank

See cross-connection table

cross-connection granularity; *granularity*

bit rate at which a cross-connection is made

cross-connection table; *cross-connection bank*

information base which defines the cross-connections of a network element

cross-polar discrimination

See cross-polarisation discrimination

cross-polarisation decoupling

See cross-polarisation discrimination

cross-polarisation discrimination; *cross-polarisation decoupling*; *cross-polarisation isolation*; *cross-polar discrimination*; *cross-polarization discrimination /US/*; *cross-polarization decoupling /US/*; *cross-polarization isolation /US/*; *XPD*

antenna performance criterion describing the ability of an antenna to radiate and receive electromagnetic waves of a specified polarisation

cross-polarisation isolation

See cross-polarisation discrimination

cross-polarization decoupling /US/

See cross-polarisation discrimination

cross-polarization discrimination /US/

See cross-polarisation discrimination

cross-polarization isolation /US/

See cross-polarisation discrimination

crossed loop

test loop in which traffic from one interface is connected to another interface

crossed media dependent interface; *MDIX*

media dependent interface (MDI) port on a hub that has an internal crossover signal

custom circuit

See application-specific integrated circuit

custom IC

See application-specific integrated circuit

CW

See continuous wave

2.5 D

D/A

digital-analogue

data communication network; *data transmission network*; *data network*; *DCN*

telecommunication network mainly meant for data transmission

data network

See data communication network

data transmission

See transmission

data transmission network

See data communication network

DC

See direct current

DCN

See data communication network

DDD

Doubly Differential Detection

deferred maintenance alarm

See major alarm

degraded minute; *DM*

group of 60 consecutive seconds, after excluding severely errored seconds (SES), with an excessive bit error ratio (BIR)

differential quadrature phase shift keying; *differential quaternary phase shift keying*; *DQPSK*

quadrature phase shift keying (QPSK) in which only the differences between the values of the phase of the sine wave are transmitted, instead of the full absolute value

differential quaternary phase shift keying

See differential quadrature phase shift keying

digital microwave radio; *microwave radio*; *DMR*; *MWR*

radio link used in transmission inside a base station system

direct current; *DC*

current that is independent of time

directional coupler

device put in a microwave system's waveguide to couple a transmitter and receiver to the same antenna

disturbance

See warning

DM

See degraded minute

DMA

See major alarm

DMR

See digital microwave radio

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.

DQPSK

See differential quadrature phase shift keying

dual polarisation mode

mode of operation, in which the transmission capacity of a radio channel is doubled by the use of both the vertical and horisontal polarisations

duplex filter; *duplexer filter*; *duplexer*

filter which is used to connect the radio relay equipment's transmitter and receiver to the antenna

duplex frequency; *duplex spacing*; *transmit to receive spacing*

difference between transmitting and receiving frequencies

duplex spacing

See duplex frequency

duplexer

See duplex filter

duplexer filter

See duplex filter

2.6 E

E 1

See E1

E1; *E1 system*; *European Digital Signal 1*; *CEPT1*

European PCM system that carries 32 channels in a 256-bit frame transmitted at 2.048 Mbit/s basic multiplex rate

E1 system

See E1

earth /GB/; *ground /US/*; *GND*

conductive mass of the earth, whose electric potential at any point is conventionally taken as zero

EB

See errored block

EDGE; *enhanced data rates for global evolution*; *enhanced data rates for GSM evolution*

radio interface modulation technique which increases HSCSD (high speed circuit switched data) and GPRS (general packet radio service) data rates

EER

See excessive error rate

EIA

See Electronic Industries Alliance

EIA-232

Standard of EIA to ensure physical and signal uniformity of interface between data communication equipment and data processing terminal equipment.

electromagnetic compatibility; *EMC*

ability of equipment or a system to function satisfactorily in its electromagnetic environment without introducing intolerable electromagnetic disturbances to anything in that environment

Electronic Industries Alliance; *EIA*

trade organisation of manufacturers which sets standards for use of its member companies, and conduct educational programs in the United States

electrostatic discharge; *ESD*

transfer of electric charge between bodies of different electrostatic potential in proximity or through direct contact

elliptical waveguide

waveguide which has an elliptical cross section and a corrugated wall giving it good flexibility

embedded data communication channel

See embedded operations channel

embedded operations channel; *embedded data communication channel*; *EOC*

channel which is provided as an integral part of a communications facility for the purpose of carrying operations messages

EMC

See electromagnetic compatibility

engineering order-wire; *order-wire*; *EOW*

connection used to provide a voice communication channel between network elements

enhanced data rates for global evolution

See EDGE

enhanced data rates for GSM evolution

See EDGE

EOC

See embedded operations channel

EOW

See engineering order-wire

EPIU

See Ethernet plug-in unit

EPSA

Enhanced Power Supply Adapter

equipment loopback; *loop to equipment*

method for testing the operation of an interface in which the outgoing signal is looped back to the input

equipment protection

See equipment redundancy

equipment redundancy; *equipment protection*

redundancy scheme in which, when the standby equipment fails, the unbroken equipment is chosen and the broken equipment is switched off

error rate

See error ratio

error ratio; *error rate*

ratio of the number of digital errors received in a specified period to the total number of digits received in the same period

errored block; *EB*

block in which one or more bits are in error

errored second; *ES*

period of time of duration one second during which one or more digital errors occur in a given digital signal

ES

See errored second

ESD

See electrostatic discharge

ESW

See Ethernet switch

Ethernet

local area network (LAN) that uses carrier sense multiple access with collision detection (CSMA/CD) and connects personal computers by means of coaxial cable or twisted-pair conductors

Ethernet interface

concrete connection between a computer and Ethernet

Ethernet plug-in unit; *EPIU*

plug-in unit of FIU 19E providing two 10/100Base-T Ethernet interfaces for carrying up to 2x32 Mbit/s Ethernet payload traffic over two microwave radio links

Ethernet switch; *ESW*

network device that connects local area networks and is capable of switching packets from one Ethernet segment to another

ETSI

See European Telecommunications Standards Institute

ETSI rack

rack which is 600 mm wide and conforms to ETSI standards

European Digital Signal 1

See E1

European Telecommunications Standards Institute; *ETSI*

European standards organization that produces European standards which are applied and accepted in the area of telecommunications

excessive error rate; *EER*

error rate that is greater than a defined threshold

EXU

Expansion Unit

2.7 F

F/B ratio

See front-to-back ratio

F/D

framing-deframing section

fade margin; *fading margin*

design allowance that provides for sufficient system gain or sensitivity to accommodate expected fading, for the purpose of ensuring that the required quality of service is maintained

fading margin

See fade margin

fading margin measurement; *FMM*

measurement of fading margin that is used to verify the quality of the radio link by comparing the measured value to the required fading margin value

far-end loop

loop at the remote end of a link that is used for testing and diagnosis

far-field region

region of the field of an antenna where the angular field distribution is essentially independent of the distance from the antenna

fault code; *FC*

number that identifies the fault type of a fault on a piece of transmission equipment

fault management; *maintenance management*; *trouble management*; *FM*

functions which enable the detection and localisation of failures, the scheduling of repairs, and the testing out and return to service of repaired equipment

FB

See Flexbus interface

FBB

Flexbus Block

FBCC

Flexbus cross-connection section

FB interface

See Flexbus interface

FBP

Flexbus Plug-in unit

FBU

Flexbus Unit

FC

See fault code

FE

See functional entity

FE

See functional entity

FEC

See forward error correction

FIU 19

See 19 indoor unit

FIU 19E

Radio indoor unit for Nokia FlexiHopper, Nokia FlexiHopper Plus, and Nokia MetroHopper.

Flexbus

See Flexbus interface

Flexbus interface; *FB interface*; *Flexbus*; *FB*

proprietary coaxial interface that carries16 x 2 Mbit/s signals and power feeding towards a microwave radio outdoor unit

Flexbus interface unit; *interface unit IFUE*; *IFUE*

in ATM cross-connect, a transmission interface unit (IFU) with three Flexbus interfaces

flexible waveguide

waveguide constructed to permit limited bending and twisting without appreciable change in its electrical properties

flush

See flush procedure

flush procedure; *flush*; *flushing*

procedure used for deleting or clearing something, or for aborting an operation

flushing

See flush procedure

FM

See fault management

FMM

See fading margin measurement

forced control

user command (MML command or a switch in the equipment) which cannot be realised under controlled circumstances

forward error correction; *FEC*

technique allowing the receiver to correct errors occurring on a transmission channel without requiring retransmission of the data

frequency band

continuous set of frequencies lying between two specified limiting frequencies

frequency bandwidth

See bandwidth

frequency diversity

propagation or equipment protection where several frequencies are used for the transmission of signals

front-to-back ratio; *F/B ratio*

for a directional antenna, the ratio of field strength in front of the antenna to field strength behind the antenna (180 degrees +-40 degrees)

full switch mode

radio link operational mode in which the Ethernet plug-in unit (EPIU) operates as a standard Ethernet switch with four ports, two of these ports being connected to the Flexbus interfaces

functional entity; *FE*

subset of functions in a single location required to provide a service

functional entity; *FE*

part of a network element

FXC RRI

Radio indoor unit for Nokia FlexiHopper, Nokia FlexiHopper Plus, 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 EDGE BTS, Nokia UltraSite EDGE BTS, or Nokia MetroHub.

2.8 G

gain; *amplification*

signal increase resulting from amplification

GCS

See general communication service

general communication service; *GCS*

communication stack that is used by Nokia agents, alarm managers, node managers, and NMS/10 command scripting (RCM) to communicate with Nokia's plesiochronous digital hierarchy (PDH) primary rate network elements

Global System for Mobile Communications

See GSM system

GND

See earth /GB/

granularity

See cross-connection granularity

grooming; *traffic grooming*

merging of partially filled transmission lines into almost fully utilised lines for increased transmission efficiency

ground /US/

See earth /GB/

GSM

See GSM system

GSM system; *Global System for Mobile Communications*; *GSM*

European digital system for mobile communications

2.9 H

height unit; *U*; *HU*

unit that equals to 44.45 millimetres

hop

transmission path from one point to another using freely propagating electromagnetic waves

Hopper Manager

See Nokia Hopper Manager

horizontal polarisation; *horizontal polarization /US/*

polarisation of radio waves in such a way that the electric lines of force are horizontal

horizontal polarization /US/

See horizontal polarisation

hot standby

method of equipment redundancy in which two units are kept fully energised, so that if one fails, the other is readily available and immediately carries the signal

hot-standby operation

See hot standby

HSB

See hot standby

HU

See height unit

2.10 I

IC

Interface Circuit

IEC

See International Electrotechnical Commission

IF

See interface

IFU

See interface unit

IFU

See intermediate frequency unit

IFUE

See Flexbus interface unit

IMA

See inverse multiplexing for ATM

indoor unit; *radio indoor unit*; *IU*

piece of radio relay equipment which is installed indoors and usually contains the baseband parts

insertion loss

loss in the amount of power which results from the insertion of a device in a transmission line, usually expressed in decibels (dB)

installation; *installing*; *mounting*

process of placing equipment or software in position, and connecting and adjusting it for use

installing

See installation

interface; *IF*

common boundary between two associated systems

interface loopback; *loop to interface*

method for testing the operation of an interface in which the incoming signal is looped back to the output

interface Q1

See Q1 interface

interface unit; *IFU*

functional unit within equipment which is connected to the main unit and involved in the processing of input and output traffic

interface unit IFUE

See Flexbus interface unit

interleaving

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

intermediate frequency unit; *IFU*

radio frequency unit that contains the voltage-controlled oscillator (VCO) and automatic gain control (AGC) functions required in an outdoor unit, and the required intermediate frequency circuits

International Electrotechnical Commission; *IEC*

global organization that prepares and publishes international standards for all electrical, electronic and related technologies

International Radio Consultative Committee

See ITU Radiocommunication Sector

International Telegraph and Telephone Consultative Committee

See ITU Telecommunication Standardization Sector

Internet Protocol; *IP*

network layer protocol in the TCP/IP stack that offers a connectionless internetwork service

inverse multiplexing

See inverse multiplexing for ATM

inverse multiplexing for ATM; *ATM inverse multiplexing*; *inverse multiplexing*; *IMA*

transmission method in which the ATM cells in a cell stream are divided across several physical E1 links on a cell-by-cell basis and then reassembled at the receiving end without affecting the original cell order

IP

See Internet Protocol

ITU Radiocommunication Sector; *ITU-R*

As a consequence of a reform within the International Telecommunication Union (ITU), the International Radio Consultative Committee (CCIR) and the International Frequency Registration Board (IFRB) have been replaced by the Radiocommunication Sector as of 1 March 1993; ITU-R publishes standards on the use of radio frequencies.

ITU Telecommunication Standardization Sector; *ITU-T*

permanent organ of the International Telecommunication Union responsible for studying technical, operating and tariff questions and for issuing Recommendations on them with a view of standardising telecommunications on a worldwide basis

ITU-R

See ITU Radiocommunication Sector

ITU-T

See ITU Telecommunication Standardization Sector

ITU-TS

See ITU Telecommunication Standardization Sector

IU

See indoor unit

IUCO

Indoor Unit Changeover (switch)

2.11 K

knowledge search

search engine that is used as a web-based knowledge-sharing service providing case-specific problem-solving knowledge both within Nokia and outside Nokia

2.12 L

lazy changeover

See lazy transmitter changeover

lazy transmitter changeover; *lazy Tx changeover*; *lazy changeover*

protection method against transmitter faults that cannot be detected by the equipment itself and where the switchover is performed when the system experiences bit errors for a longer period

lazy Tx changeover

See lazy transmitter changeover

LED

See light emitting diode

licence; *license /US/*

agreement with the owner of a product that gives permission to use or produce the product according to the agreed conditions

licence key; *license key*

information key which enables the activation and deactivation of a licensed optional feature

license /US/

See licence

license key

See licence key

licensing

buying or selling a licence to a product, brand, technologies or any intellectual property

LIF

See line interface

light emitting diode; *light-emitting diode*; *LED*

pn-junction diode which emits light when biased in the forward direction

light-emitting diode

See light emitting diode

limit boundary

See compliance boundary

limit distance

See compliance boundary

line interface; *LIF*

interface on the transmission line side of the line terminal

link loss forwarding; *LLF*

method of error propagation into the Ethernet domain, in which the link state of the port is used to signal whether a viable connection to the remote side Ethernet port is possible

LLF

See link loss forwarding

LMP

See local management port

LNA

See low-noise amplifier

local management port; *LMP*

physical connector for local management with a connection to the local processor and optionally to an internal Local Management Bus (LMB)

loop protection; *protection loop*; *protection ring*

protection method where traffic is routed via two routes around a ring

loop to equipment

See equipment loopback

loop to interface

See interface loopback

loopback

switching where the outgoing signal is used as the incoming signal

low-noise amplifier; *LNA*

amplifier used for amplifying the RF signal coming from the receiver antenna

2.13 M

MAC

See media access control

maintenance event information

See minor alarm

maintenance information

See minor alarm

maintenance management

See fault management

major alarm; *deferred maintenance alarm*; *two star alarm*; *DMA*

alarm which requires action during normal working hours

management information base; *MIB*

set of managed objects within an open system which has no physical or logical storage for the information, and which can be transferred or affected through the use of OSI management protocols

manager

See node manager

MDI

See media dependent interface

MDIX

See crossed media dependent interface

mean operating time between failures

See mean time between failures

mean time between failures; *mean operating time between failures*; *MTBF*

expected time between failures

measurement interface

interface for the connection of measuring equipment when measuring the main functions of equipment

media access control; *MAC*

local network control protocol that governs station access to a shared transmission medium

media dependent interface; *medium dependent interface*; *MDI*

connector which is used to make a physical and electrical connection between a transceiver and a media segment

medium dependent interface

See media dependent interface

MEI

See minor alarm

MI

See minor alarm

MIB

See management information base

microwave radio

See digital microwave radio

microwave radio

See radio relay equipment

microwave unit; *MWU*

radio frequency unit that includes the required microwave circuits and in which the fundamental oscillator frequency is multiplied in order to obtain the voltage-controlled oscillator (VCO) signal for the transmitter and receiver

minor alarm; *one star alarm*; *maintenance information*; *maintenance event information*; *MI*; *MEI*

alarm that does not require action unless it occurs repeatedly

MMIC

See monolithic microwave integrated circuit

mobile exchange

See mobile services switching centre

mobile services switching centre; *mobile telephone exchange*; *mobile exchange*; *MSC*; *MTX*; *USC*; *MX*

mobile network element which performs the switching functions in its area of operation and controls the interworking with other networks

mobile telephone exchange

See mobile services switching centre

modem board

printed board that contains an embedded microprocessor system and an application-specific integrated circuit (ASIC) that consists of a digital modulator and demodulator with forward error correction (FEC)

modulation

method for altering a certain basic characteristic of a certain wave according to some basic characteristic of a modulating wave or signal

monolithic microwave integrated circuit; *MMIC*

microwave circuit in which the active and passive components are fabricated on the same semiconductor substrate

mounting

See installation

MP

Measurement Point

MSC

See mobile services switching centre

MTBF

See mean time between failures

MTX

See mobile services switching centre

MWR

See digital microwave radio

MWU

See microwave unit

MX

See mobile services switching centre

2.14 N

NC

not connected

NE

See network element

near-end loop

loop at the local end of a link that is used for testing and diagnosis

near-field region

region of the field of an antenna which exists close to the antenna and in which the electric and magnetic fields do not have a substantially plane-wave character but vary considerably from point to point

NED

See Nokia electronic documentation

network element; *NE*

telecommunication system belonging to the telecommunications environment that can be managed, monitored, or controlled in a telecommunications network, that has one or more standard interfaces, and is identified by a unique management address

network management system; *network management workstation*; *NMS*; *NMWS*

system for controlling and monitoring the resources of a telecommunication network and recording their use and performance, in order to provide telecommunication services

network management workstation

See network management system

Network Time Protocol; *NTP*

protocol for synchronising clocks on hosts and routers connected to a network, with reference to clocks located on the Internet

NM

See node manager

NMS

See network management system

NMWS

See network management system

node

See network element

node B

See base transceiver station

node manager; *manager*; *NM*

application which allows a user to manage individual network elements

Nokia electronic documentation; *NED*

web-browser for browsing documentation that is used in Nokia Networks, NET

Nokia FlexiHopper

Nokia's family of Flexbus-compatible microwave radios for the 7, 8, 13, 15, 18, 23, 26, 28, 32, and 38 GHz frequency bands, in which the radio transmission capacity can be selected using software.

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 FIU 19 (E) and FXC RRI indoor units.

Nokia FlexiHopper Plus

Nokia's family of Flexbus-compatible microwave radios for the 15, 23, 26, 32, and 38 GHz frequency bands, in which the radio transmission capacity can be selected using software.

The radio transmission capacity of Nokia FlexiHopper Plus 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 FIU 19 (E) and FXC RRI indoor units.

Nokia Hopper Manager; *Hopper Manager*

PC software application used for controlling and monitoring Nokia FlexiHopper (Plus) and Nokia MetroHopper radios connected to FIU19 (E) indoor unit.

Nokia ID

See product code

Nokia MetroHopper

Nokia's Flexbus-compatible radio for the 58 GHz frequency band, which does not require coordinated frequency planning.

The main use of Nokia MetroHopper is to provide 4 x 2 Mbit/s point-to-point wireless access for Nokia MetroSite EDGE BTS and Nokia MetroHub. The Nokia MetroHopper outdoor unit can be used with FIU 19 (E) and FXC RRI indoor units.

Nokia MetroHub

Nokia's compact transmission node with cross-connection and grooming functions.

Nokia MetroHub contains 1 – 5 transmission units (FXC RRI, for example).

Nokia MetroSite EDGE Base Station

Nokia's compact 4-TRX GSM base station for the Nokia MetroSite capacity solution.

Nokia MetroSite EDGE BTS can contain one transmission unit.

Nokia Online Services; *NOLS*

Nokia-wide online service concept for infrastructure business including operators, enterprises, and value added resellers

Nokia Q1 Connection Tool

Program that allows to make connection definitions and node definitions for identifying objects on a Nokia Q1 managed network.

Nokia UltraSite EDGE Base Station

Nokia's GSM / EDGE base station for the Nokia UltraSite solution, available in Outdoor, Indoor, and Midi Indoor cabinet versions.

Nokia UltraSite EDGE BTS has four slots for the FXC transmission units.

NOLS

See Nokia Online Services

non-crossed loop

test loop in which traffic is echoed back to the same interface from where it came

non-return-to-zero code; *NRZ code*

code form having two states, zero and one, with no neutral or rest condition

non-return-to-zero signal

See NRZ signal

NRZ code

See non-return-to-zero code

NRZ signal; *non-return-to-zero signal*

binary signal formed through non-return-to-zero coding

NTP

See Network Time Protocol

2.15 O

on-off switch

See power switch

one star alarm

See minor alarm

order-wire

See engineering order-wire

orthogonal polarisation; *cross polarisation*; *perpendicular polarisation*

polarisation of a linearly polarised wave for which the electric field strength vector at a given point in space is normal to that of a reference linearly polarised wave with the same or different direction of propagation

OU

See outdoor unit

outdoor unit; *radio outdoor unit*; *OU*

piece of radio relay equipment which is installed outdoors

overflow

disappearance of bits which takes place if data is stored to a too small space

2.16 P

PDH

See plesiochronous digital hierarchy

performance management; *PM*

set of functions which enable the performance of the network services to be measured and corrective actions to be taken

perpendicular polarisation

See orthogonal polarisation

PI

See programmable interface

PI bit cross-connection

cross-connection that determines which Aux data plug-in unit input/output (I/O) lines are activated when an alarm with a programmable interface (PI) bit set becomes active

pi/4 differential quadrature phase shift keying; *pi/4 DQPSK*

quadrature phase shift keying (QPSK) where the phase of the carrier is always changed for each symbol, with each symbol representing two bits

pi/4 DQPSK

See pi/4 differential quadrature phase shift keying

PIU

See plug-in unit

plesiochronous digital hierarchy; *PDH*

transfer mode in which the timing relationship of the corresponding significant instants of a signal is not limited

PLMR

See professional mobile radio

plug-in unit; *slide in unit*; *PIU*

hardware product that contains electronic components and that can be connected to a cartridge, subrack, or to some other construction

PM

See performance management

PMA

See critical alarm

PMR

See professional mobile radio

Point-to-Point Protocol; *PPP*

TCP/IP remote access protocol used to transmit network layer datagrams such as IP packets over serial point-to-point links

polarisation; *polarization /US/*

attribute of an electromagnetic wave which describes the direction of the electric field

polarisation diversity; *polarization diversity /US/*

equipment and propagation protection in which the information is transmitted and received using both vertically and horizontally polarised radio waves

polarization /US/

See polarisation

polarization diversity /US/

See polarisation diversity

power switch; *on-off switch*; *PWR*

switch that connects or disconnects power to the equipment

PPP

See Point-to-Point Protocol

PRBS

See pseudo-random binary sequence

private land mobile radio

See professional mobile radio

private mobile radio

See professional mobile radio

product code

code for identifying plug-in units, programs, equipment, and other sales items

professional mobile radio; *private mobile radio*; *private land mobile radio*; *PMR*; *PLMR*

mobile communication network which is meant for a special group of users, for example for one or more enterprises or institutions

programmable interface; *PI*

interface whose settings can be changed through a service terminal or a transmission management computer (TMC)

prompt maintenance alarm

See critical alarm

propagation delay

time required for a signal to travel from one point to another

propagation protection; *propagation redundancy*

mode of protection against propagation disturbances in which the best of received radio signals is chosen automatically

propagation redundancy

See propagation protection

propagation time

See propagation delay

protection loop

See loop protection

protection lost

See protection lost alarm

protection lost alarm; *protection lost*

alarm indicating that protection is lost due to a faulty unit and that redundant signal path is in use

protection ring

See loop protection

PSA

Power Supply Adapter

pseudo-random binary sequence; *pseudo-random bit sequence*; *PRBS*

two-level signal that has a repetitive sequence, but a random pattern within the sequence

pseudo-random bit sequence

See pseudo-random binary sequence

PWR

Power Supply Connector

PWR

See power switch

2.17 Q

Q1

See Q1 interface

Q1

serial protocol used in transferring management information to and from a network element

Q1 address

unique address for each network element in a Q1 network

Q1 bus

in management equipment, the external management channel to which Q1-managed devices have been connected

Q1 interface; *Q1 management interface*; *interface Q1*; *Q1*

Q interface intended to connect network elements containing no mediation functions (MF) to mediation devices (MD) or to network elements containing mediation functions via a local communication network (LCN)

Q1 management interface

See Q1 interface

QoS

See quality of service

quality of service; *QoS*

collective effect of service performance, which determines the degree of satisfaction of a service user

2.18 R

radar dome

See radome

radiation pattern envelope; *RPE*

graph that represents the maximum side lobe levels of an antenna over the specified band

radio access interface

See radio interface

radio channel spacing

difference between the centre frequencies of two adjacent radio channels

radio frequency; *RF*

frequency range of electromagnetic waves: 3kHz - 3000 GHz

radio indoor unit

See indoor unit

radio interface; *radio access interface*

interface between the mobile station (MS) and the radio equipment in the network, defined by functional characteristics, common radio (physical) interconnection characteristics, and other characteristics, as appropriate

radio link; *RL*

telecommunication transmission path between two points provided by means of radio waves

radio link equipment

See radio relay equipment

radio outdoor unit

See outdoor unit

radio path

telecommunication path that comprises a radio section or a number of tandem-connected radio sections

radio receiver; *receiver*; *RX*; *Rx*

device connected to an aerial or other source of radio signals in order to make available in some desired form the required information content of the signals

radio relay equipment; *radio link equipment*; *RLE*

radio equipment for establishing an aligned and fixed radio connection between two points

radio relay interface; *RRI*

interface that provides the link between a terminal and the infrastructure network

radio transmitter; *transmitter*; *Tx*; *TX*

assembly of devices which generates, modulates and amplifies a radio-frequency signal and couples it to an antenna for radiation into space as electromagnetic waves

radome; *radar dome*

plastic cover for a microwave antenna, which is used to protect the antenna from weather and which has only little effect on the radiation pattern

RBER

See residual bit error ratio

RCM

See remote control and measurement

RD

received data

RD

See knowledge search

real time clock; *RTC*

clock within the network element (NE) which provides date and time information to equipment management functions within the NE

receiver

See radio receiver

Reed-Solomon error correction

See Reed-Solomon forward error correction

Reed-Solomon forward error correction; *Reed-Solomon error correction*

coding scheme in which first a polynomial is constructed from the data symbols to be transmitted, and then an over-sampled plot of the polynomial is sent instead of the original symbols themselves

remote control and measurement; *RCM*

NMS/10 application providing the ability to write and execute scripts for commissioning and testing of Nokia Q1 managed elements

repeater station

radio station which receives and retransmits radio signals carrying the same information

request for comments; *RFC*

formal document written by members of the Internet Engineering Task Force (IETF) that is reviewed by interested parties on the Internet

residual bit error ratio; *RBER*

bit error ratio in service data units (SDU) which have not been declared as erased

resolution database

See knowledge search

return loss

ratio of incident to reflected power expressed in dB

RF

See radio frequency

RFC

See request for comments

RJ-45

See RJ45 connector

RJ45 connector; *RJ-45*

eight-pin connector used for data transmission over a standard telephone wire

RL

See radio link

RLE

See radio relay equipment

RMON2 MIB

See RMON2-MIB

RMON2-MIB; *RMON2 MIB*

remote monitoring MIB that provides data on traffic at the network layer in addition to the physical layer, and thus allows administrators to analyse traffic by using a protocol

RPE

See radiation pattern envelope

RRI

See radio relay interface

RS

Reed-Solomon

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.

RTC

See real time clock

RX

See radio receiver

Rx

See radio receiver

RXCO

Receiver Changeover (switch)

RXD

received data

RXD232 (out)

Received data of EIA-232 (output of far end)

2.19 S

sales item

See product code

SB

See supervision block

SD

See space diversity

SDH

See synchronous digital hierarchy

serial data channel inside Flexbus; *serial IO*; *SIO*

full-duplex data channel inside Flexbus, which is used, for example, in transmitting Ethernet payload traffic between indoor unit and microwave radio outdoor unit

serial IO

See serial data channel inside Flexbus

SES

See severely errored second

severely errored second; *SES*

one-second period which contains 30 % or more errored blocks or at least one severely disturbed period (SDP)

Simple Network Management Protocol; *SNMP*

network management protocol which primarily defines the functions of network management software and describes the way in which the reports are defined and sent

single network management protocol

See Simple Network Management Protocol

SIO

See serial data channel inside Flexbus

SiSS

See site support system

site

See base transceiver station

site

location where network elements or other telecommunication equipment have been installed

site support system; *SiSS*; *SSS*

system that contains all the elements for providing a battery backed-up, positive-earthed, 48V DC power supply for use by internal and co-sited telecommunications equipment located at non-weather and weather protected sites

site wizard

wizard that supports the network operator with the installation of the configuration plans during the roll-out of network elements to a site

slide in unit

See plug-in unit

SMB

See SMB connector

SMB connector; *snap-on subminiature coaxial connector*; *SMB*

subminiature coaxial connector with a snap-on coupling mechanism for quick connect and disconnect capabilities for use where packaging density is critical

snap-on subminiature coaxial connector

See SMB connector

SNMP

See Simple Network Management Protocol

SNMP trap

See trap

space diversity; *SD*

propagation protection employed to minimise the effects of fading by simultaneous use of two or more antennas spaced a number of wavelengths apart

spectrum

See spectrum mask

spectrum mask; *spectrum*

graphical representation of the required power distribution as a function of frequency for a modulated transmission

spurious emission

See spurious emission of a transmitting station

spurious emission of a transmitting station; *spurious emission*

emission on a frequency or frequencies outside the necessary bandwidth and whose level may be reduced without affecting the corresponding transmission of information

SSS

See site support system

supervision block; *SB*

group of fault supervision, measurement, and control objects

synchronous digital hierarchy; *SDH*

transfer mode in which there are specified limits to the timing relationship of the corresponding significant instants of a signal

2.20 T

Talk-family

Nokia's product family of GSM base stations, including Nokia Citytalk, Nokia Intratalk, and Nokia Flexitalk.

TCM

See trellis coded modulation

TCP

See Transmission Control Protocol

TCP/IP; *transmission control protocol/Internet protocol*

basic communication protocol used to transmit data over networks, on the Internet as well as on private networks

TD

transmitted data

TDD

See time division duplex

TDM

See time-division multiplexing

TFTP

See Trivial File Transfer Protocol

threaded Neill Concelman connector

See TNC connector

three star alarm

See critical alarm

time division duplex; *TDD*

duplex in which several signals are interleaved in time for transmission over a common frequency channel

time slot

See time-slot

time-division multiplexing; *TDM*

multiplexing technique in which two or more lower bandwidth communications channels are combined into a higher bandwidth channel by allocating frequency time slots in turn to each of the lower bandwidth communications

time-slot; *time slot*; *timeslot*; *TS*; *ts*; *TSL*

cyclic time interval that can be recognised and defined uniquely

timeslot

See time-slot

TM4 rack

CEPT A type slim rack

TNC

See TNC connector

TNC connector; *threaded Neill Concelman connector*; *TNC*

connector developed by Paul Neill and Carl Concelman that is threaded and used for high mechanical loads

total time; *TT*

Total Time as specified in G.826.

TQ

threaded 4-pin connector

traffic grooming

See grooming

transceiver; *transmitter-receiver*; *TRX*

combination of transmitting and receiving equipment in a common housing

transistor-transistor logic; *TTL*

bipolar technology where the multiple-diode cluster of the diode-transistor logic in the circuit has been replaced by a multiple-emitter transistor

transit delay; *transmission delay*

time difference between the instant at which the first bit of the address field of a frame crosses one designated boundary, and the instant at which the last bit of the closing flag of the frame crosses a second designated boundary

transmission; *data transmission*

action of conveying signals from one point to one or more other points

Transmission Control Protocol; *Transport Control Protocol*; *TCP*

protocol that provides the transport service located in the transport layer of the OSI model

transmission control protocol/Internet protocol

See TCP/IP

transmission delay

See transit delay

transmission loader

application that allows a simultaneous software upgrade of Q1 network elements used in a transmission network, and thus helps to keep software in the transmission network elements up-to-date

transmission node; *transport node*

transmission equipment that includes interfaces and a cross-connect function and performs a variety of different transport tasks in WCDMA RAN networks

transmission unit; *TRU*

equipment type used at a base transceiver station site to implement the Abis interface to a base station controller

transmit power

power of a transmitted signal progressing from the transmit filter to the antenna, measured at the antenna port

transmit to receive spacing

See duplex frequency

transmitter

See radio transmitter

transmitter-receiver

See transceiver

Transport Control Protocol

See Transmission Control Protocol

transport node

See transmission node

trap; *SNMP trap*

alarm generated by network equipment provided with an SNMP agent to inform the network supervision of faults occurred in them

trap destination

name or IP address of a computer, to which the SNMP service must send traps and community names

TRE

Transmission Element

trellis code modulation

See trellis coded modulation

trellis coded modulation; *trellis code modulation*; *trellis coding modulation*; *TCM*

quadrature amplitude modulation (QAM) in which sophisticated mathematics is used to predict the best fit between the incoming signal and a large set of possible combinations of amplitude and phase changes

trellis coding modulation

See trellis coded modulation

Trivial File Transfer Protocol; *TFTP*

simplified version of FTP that transfers files but does not provide password protection or user-directory capability

trouble management

See fault management

TRU

See transmission unit

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.

TRX

See transceiver

TS

See time-slot

ts

See time-slot

TSL

See time-slot

TT

See total time

TTL

See transistor-transistor logic

two star alarm

See major alarm

Tx

See radio transmitter

TX

See radio transmitter

TXCO

Transmitter Changeover (switch)

TXD

transmitted data

TXD232 (in)

Transmitted data of EIA-232 (input of far end)

type designation

See product code

2.21 U

U

See height unit

USC

See mobile services switching centre

2.22 V

V/H

Vertical/Horizontal polarisation (of an antenna)

VC

See virtual channel

VCO

See voltage-controlled oscillator

vertical polarisation; *vertical polarization /US/*

polarisation of radio waves in such a way that the electric lines of force are vertical, while the magnetic lines of force are horizontal

vertical polarization /US/

See vertical polarisation

virtual channel; *VC*

unidirectional transport of ATM cells associated by a common unique identifier value

virtual LAN

See virtual local area network

virtual local area network; *virtual LAN*; *VLAN*

group of devices on one or more local area networks that communicate as if they were attached to the same wire, although they are located on a number of different local area network segments

virtual node

image of a real network element on a computer file, managed offline

virtual path; *VP*

unidirectional transport of ATM cells belonging to virtual channels that are associated by a common identifier value

VLAN

See virtual local area network

VNB

negative battery voltage

voltage-controlled oscillator; *VCO*

oscillator for which a change in tuning voltage results in predetermined change in output frequency

VP

See virtual path

VPB

positive battery voltage

2.23 W

W-CDMA

See wideband code division multiple access

warning; *disturbance*

alarm that does not require any action to be taken

waveguide

transmission line consisting of a system of material boundaries or structures for guiding electromagnetic waves

WBTS

See WCDMA base station

WCDMA

See wideband code division multiple access

WCDMA base station; *WCDMA BTS*; *WBTS*

base transceiver station of the third generation network

WCDMA BTS

See WCDMA base station

wideband CDMA

See wideband code division multiple access

wideband code division multiple access; *wideband code-division multiple access*; *wideband CDMA*; *WCDMA*; *W-CDMA*

spread spectrum CDMA technique used to increase the capacity and coverage of wireless communication networks

wideband code-division multiple access

See wideband code division multiple access

wind load

total wind pressure on an antenna system

2.24 X

XPD

See cross-polarisation discrimination