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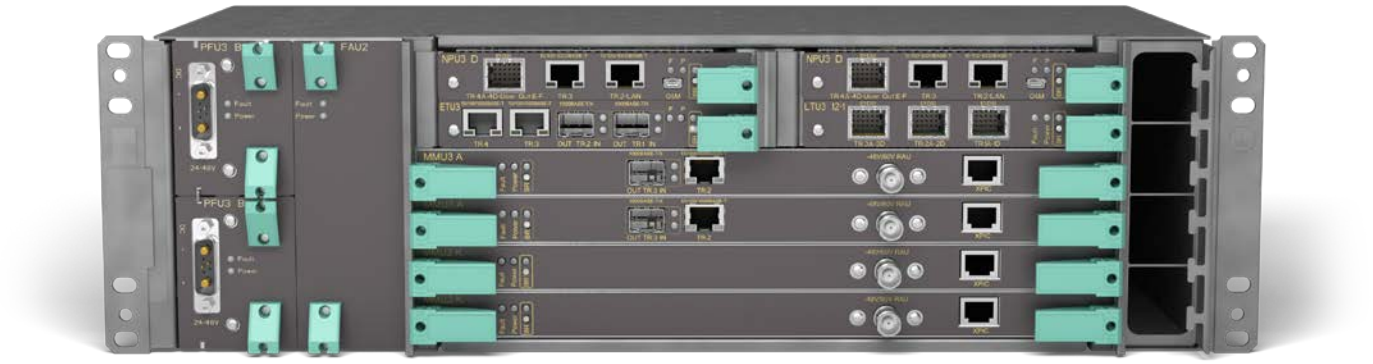

MINI-LINK TN

MINI-LINK the Network Node
The increasing complexity of today's and future networks require flexible and well-integrated microwave nodes. Building an efficient microwave backhaul network with end-to-end performance in mind, requires high node capacity, advanced packet functionality, compact and modular building practice.

The microwave nodes need to be capable of handling single hops as well as advanced hub sites for larger networks. The MINI-LINK network nodes have since many years proven to be the most cost optimized building practice versus a 'hop-by-hop' approach, reducing investments with 40%. By combining MINI-LINK outdoor units and indoor units, all network scenarios are supported with superior performance and lowest possible cost of ownership.

Ericsson is the market leader in microwave transmission and has over 40 years of microwave experience with more than 3.5 million radio units delivered to over 175 countries.

High Node Capacity
A network node for the future requires high node capacity which means high capacity for switch, radio links and interfaces. The MINI-LINK TN has a market leading switch capacity of 60 Gbps and can easily connect up to 16 radio link directions, in a very compact form factor. With 1, 2.5 and 10 Gbps interfaces, fiber rings and multi-Gbps E-band links can easily be connected to the node. The node supports radio links with high modulation of 4096 QAM and is prepared for future high capacity MIMO capabilities, which makes it well positioned on the road to 5G.

Flexible and modular building practice
The node is using plug-in units, which make it easy to customize configurations and make future upgrades. The full range of MINI-LINK outdoor units can easily be combined in many different ways: traditional frequencies (6-42 GHz), V-band 60 GHz, E-band 70/80 GHz, single and dual carrier, Coax and Ethernet interface.

Advanced packet handling
A microwave network node needs to have integrated Ethernet Switching functionality, reducing the cost and complexity by not needing external equipment. Hierarchical QoS enable sharing of networks between several operators with multiple technologies.

Efficient network migration
Different packet migration strategies are supported by MINI-LINK TN. Many microwave networks are built in a tree structure, where a switched Ethernet network is an efficient way for packet transport. As the networks evolve with more advanced structures, like rings or meshed, a routed network can gradually be implemented.
For cost efficient migration MINI-LINK TN is hop compatible with MINI-LINK 6600. Upgrading a site to MINI-LINK 6600, the radio unit, antenna and cabling can be reused.

Technical Specification MINI-LINK TN

RADIO LINK 5-42 GHZ*	1 Gbps 1+0 in 112 MHz (ETSI) 1 Gbps 2+0 in 56 MHz(ETSI) 1 Gbps 1+0 in 80 MHz (ANSI) 1 Gbps 2+0 in 60 MHz (ANSI) using 4096 QAM 1+0 to 8+0 and 1+1 working and hot standby
RADIO LINK 60 GHZ*	1 Gbps over 200 MHz using 256 QAM
RADIO LINK 70/80 GHZ*	5.5 Gbps over 750 MHz using 256 QAM
RADIO LINK	ATPC, Radio Link bonding, adaptive modulation, Multi-layer Header compression
PROTECTION	1+1 Radio equipment and propagation protection, MSP 1+1 Equipment protection, ELP Protection, EEP Protection, SNCP Network protection
DIMENSIONS (HXWXD)	AMM 2p: 44 x 448 x 236 mm, 1.7 x 17.6 x 9.3 inch AMM 6p: 133 x 438 x 240 mm, 5.2 x 17.2 x 9.4 inch
POWER SUPPLY	-48 V DC
OPERATIONAL TEMPERATURE	-25°C to +60°C / -13F to +140F
TRAFFIC INTERFACES	E1, 10/100/1000 BASE-T IEEE802.3 Optical GbE via 1000/2500/10 G BASE-SX/LX/ ZX/CWDM IEEE802.3
SYNCHRONIZATION	Sync E, 1588v2 (Telecom profile G.8275.1), NTP transparent, E1 and 2MHz
SWITCHING	IEEE 802.1Q-2011 Customer and Provider Bridge IEEE 802.1w RSTP IEEE 802.1AX LAG/LACP Hierarchical QoS Bandwidth notification (G.8013)
OAM	Link OAM Service OAM FM/PM, two way delay measurement (Y.1731), TWAMP reflector
SWITCH CAPACITY	Up to 60 Gbps full duplex, non-blocking
DATA COMMUNICATION NETWORK	IP DCN and Site LAN service DCN interfaces via 10/100 BASE-T, E1, E0 In-band transport over Microwave
NETWORK MANAGEMENT	Supported by IP transport NMS, ServiceON, Craft and CLI SNMP v3, SSH, RADIUS, TACACS
STANDARDS AND RECOMMENDATIONS	CEN/CENELEC, ETSI, ITU, IEC, IEEE, IETF

* For antennas and frequency bands, please see MINI-LINK outdoor datasheets

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