

SDH Transmission

TransportNode X/40 Radio

High-capacity, 512 QAM point-to-point radio solutions for long-haul SDH transmission in ITU frequency bands L4, 5 and U6 GHz

The TransportNode X/40 radio transceivers lead the technological revolution in broadband transport products. Using leading-edge 512 QAM technology, these radios pack two STM-1s into a single 40 MHz channel, achieving optimum spectral efficiency within standard ITU-R interleaved frequency plans. This and other key features give network planners selectivity and flexibility when building their high-capacity transport and access networks.



Benefits

- Simple frequency coordination since two STM-1s fit into a single 40 MHz channel
- Most economical solution for deploying SDH networks over adverse terrain, when infrastructure exists or when capacity doesn't warrant optical fiber
- Flexible system scaling for incremental growth without staggering start-up costs
- Rapid deployment for fast time-to-market and quick return on investment
- Low operating costs attributed to high component reliability, standby protection and centralized network management

Features

- Standard optical interfaces for seamless interconnectivity with other SDH network elements
- Flexible architecture: Add/Drop Multiplexer (ADM) terminal, pass-through terminal, end terminal and regenerator configurations
- High traffic capacity: 2xSTM-1 per 40 MHz channel; or STM-4 capacity per bay/rack
- Optional wayside traffic of up to 2xE1 per RF channel
- Integrated 1:N frequency diversity errorless protection switch

- Adaptive transmit power control
- Optional space diversity operation with two or three receiver inputs
- Local and express orderwire embedded in the SDH overhead
- Local and remote Operations, Administration, Maintenance and Provisioning (OAM&P) facilities
- Extension of OAM&P through Nortel Networks Integrated Network Management system



TN-X/40 SDH Radio Solutions

Technical Specifications

SYSTEM	L4 GHz	5 GHz	U6 GHz
Frequency Range (MHz)	3620-4180	4430-4970	6460-7080
Channel Bandwidth (MHz)	40	40	40
Maximum Two-Way Channels (ITU-R)	7	7	8
Minimum T-T or R-R Channel Spacing (MHz)			
Same Polarization	80	80	80
Opposite Polarization	40	40	40
System Gain at 10 ⁻³ BER* (dB)			
Single Port (non diversity)	100	100	100
Dual Port	103	103	103
Triple Port	105	105	104
T-R Spacing (MHz)	320	300	340
Forward Error Correction	BCH triple error correction on each data rail of a Gray-coded 512 QAM modem		
Frequency Stability	±10 ppm		
TRANSMITTER			
RF Power Output* (dBm)	+37	+37	+37
Adaptive Transmit Power Control (ATPC) Range	20 dB (+17 to +37 dBm)	20 dB (+17 to +37 dBm)	19 dB (+18 to +37 dBm)
Modulation	512 QAM for a spectral efficiency of 8 b/s/Hz		
RECEIVER			
Threshold at 10 ⁻³ BER* (dBm)			
Single Port (non diversity)	-63	-63	-63
Dual Port	-66	-66	-66
Triple Port	-68	-68	-67
Noise Figure for inputs less than -50 dBm (dB)	1.7	2.1	2.32
POWER REQUIREMENTS			
Input Voltage	-42 to -56 VDC		
Power Consumption† (W)			
Radio Terminal with STM-4 Line Access & Two RF Channels	595 typical; 760 maximum		
Radio Regenerator with Two RF Channels	560 typical; 720 maximum		
OAM&P rack with One OPC	165 typical; 190 maximum		
MECHANICAL			
Dimensions	66 cm W x 220 cm H x 37.6 cm D, or 66 cm W x 260 cm H x 37.6 cm D		
Weight	325 kg for a fully-loaded bay		
ENVIRONMENTAL			
Operating Temperature	0 to +50°C		
Relative Humidity	0 to 95%		

* Given values are typical and are as measured at the antenna port(s) of the branching circulator(s).

† Typical power consumption is measured at an output power of +22 dBm and maximum at +37 dBm.

For more information, contact your Northern Radio and Wireless Corporation representative, or call 1-514-685-9847 from anywhere in North America.

Copyright (C) 2002 Northern Radio and Wireless Corporation. All rights reserved. Information in this document is subject to change without notice. Northern Radio and Wireless Corporation assumes no responsibility for any errors that may appear in this document.

SMIC #56178.06/11-99, Issue 02

Printed in Canada

