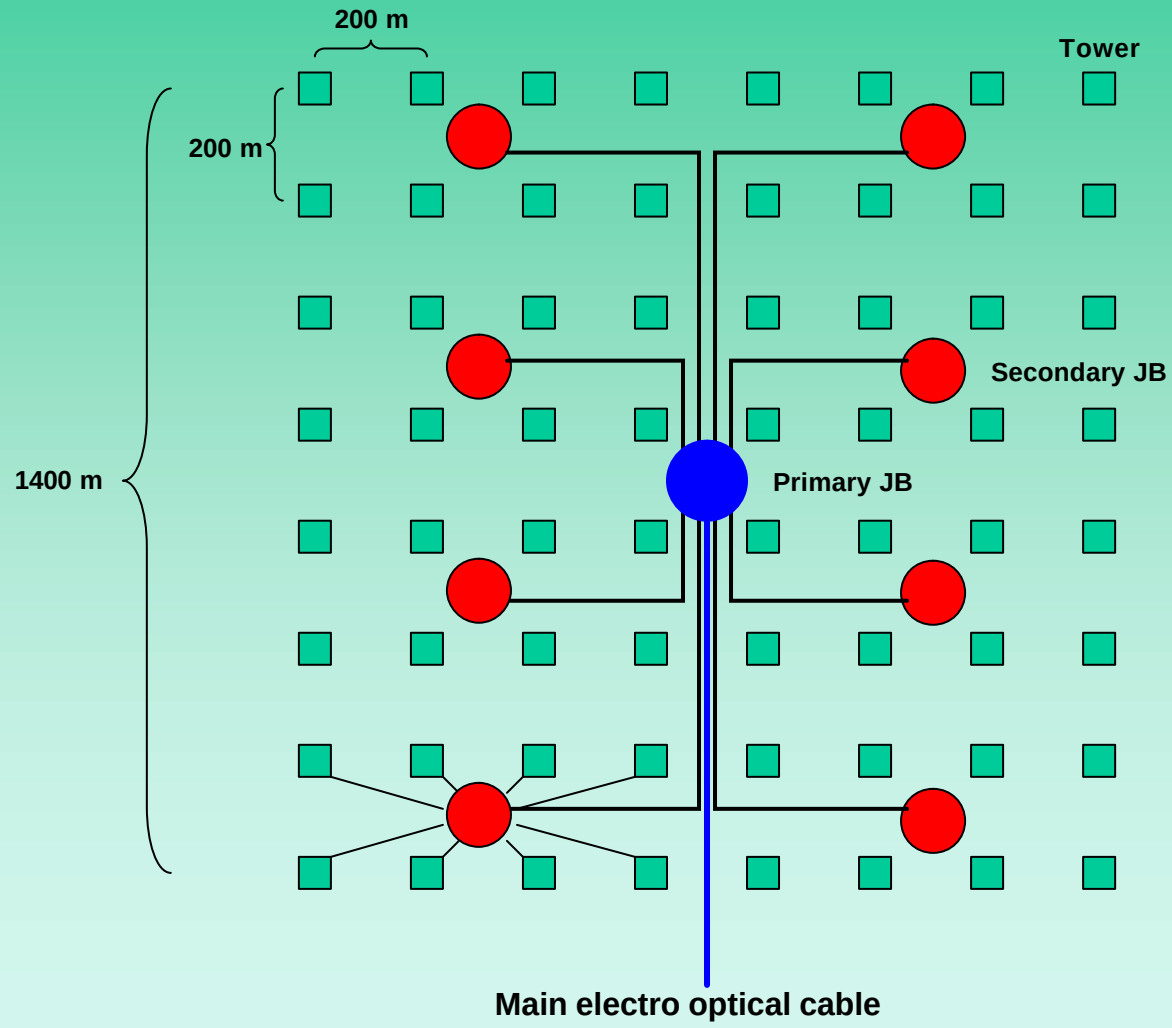
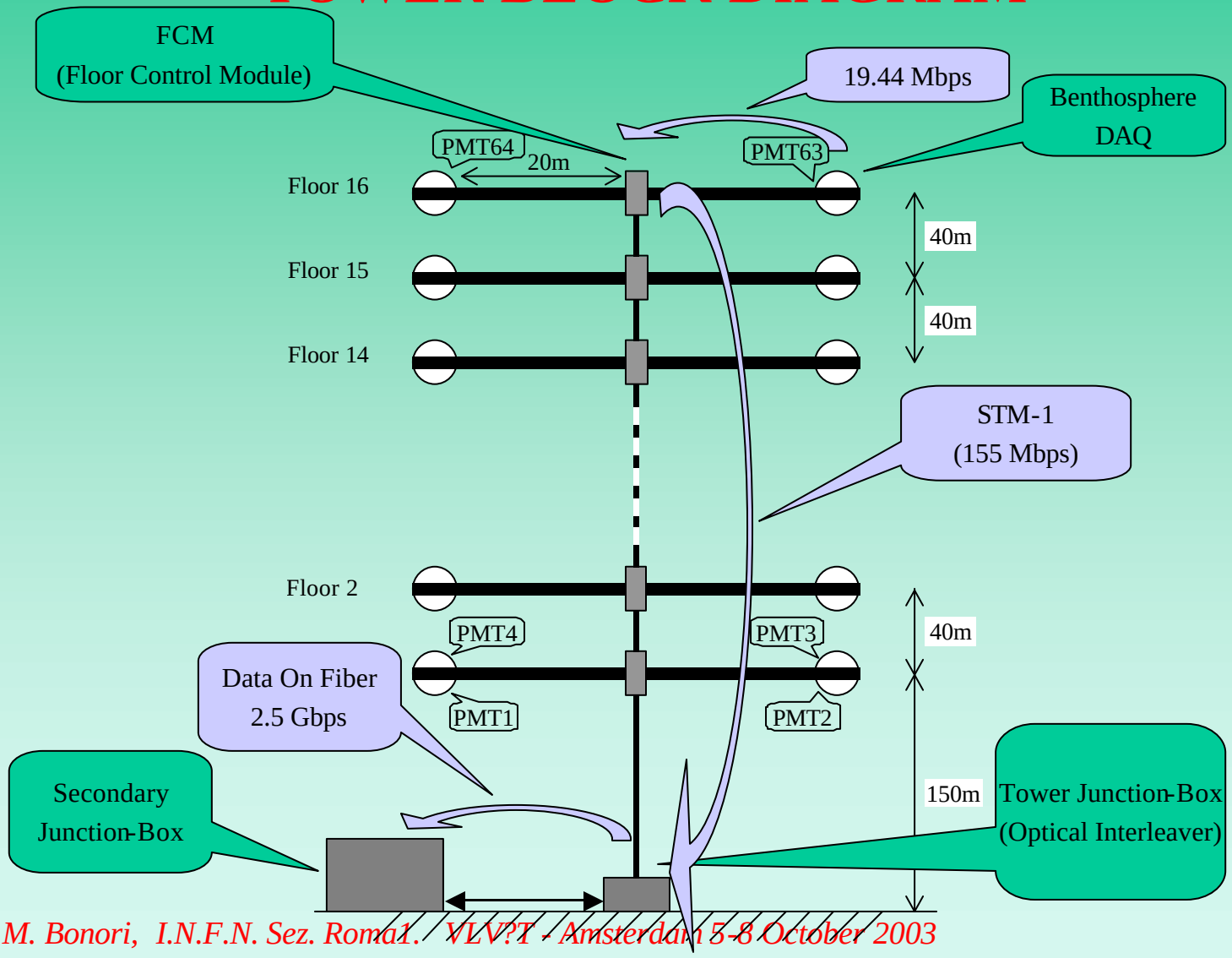
Architecture Working Group

NEMO Phase 1 data transmission: considerations toward km3

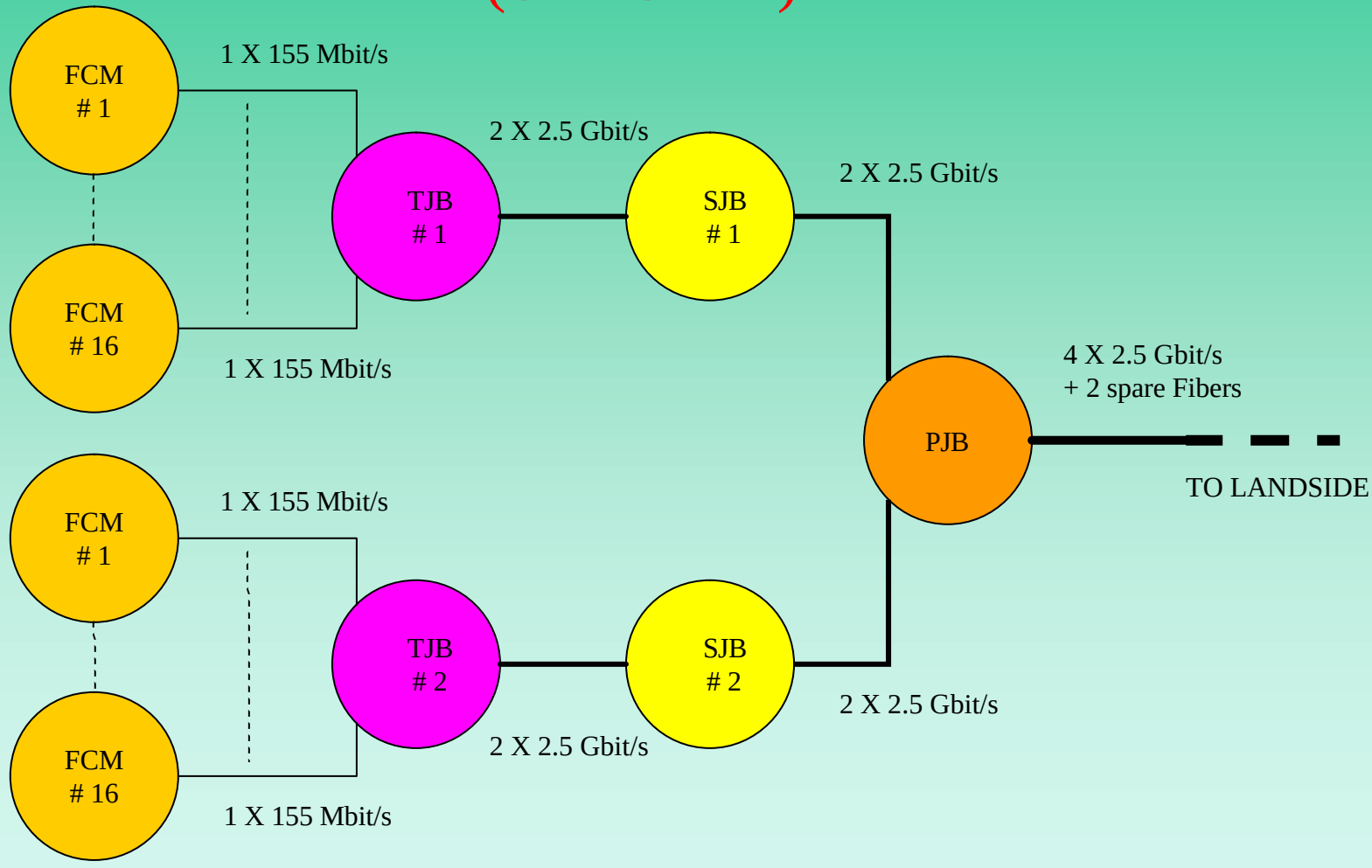
NEMO KM3 EXPERIMENT LAYOUT



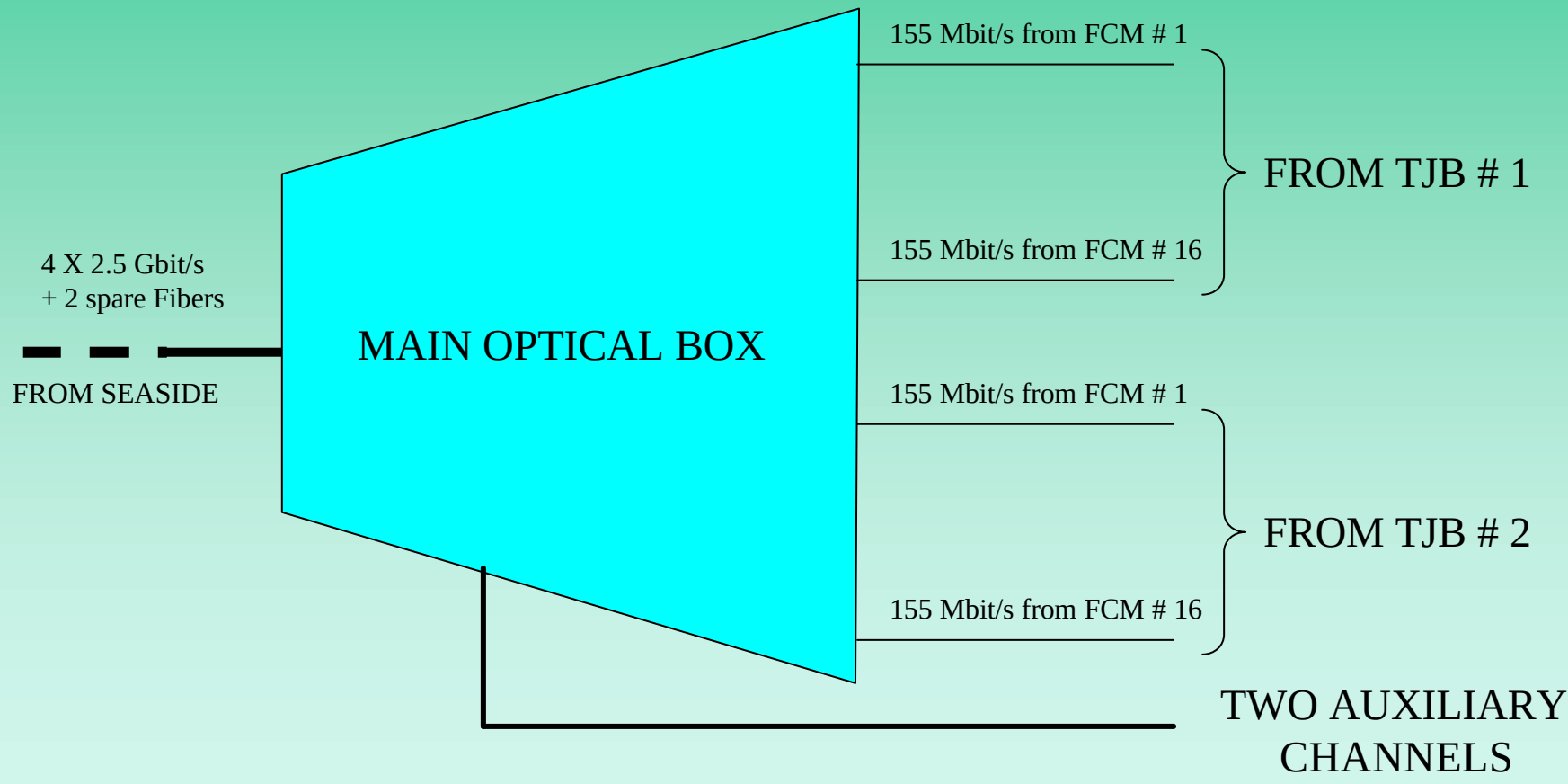
TOWER BLOCK DIAGRAM



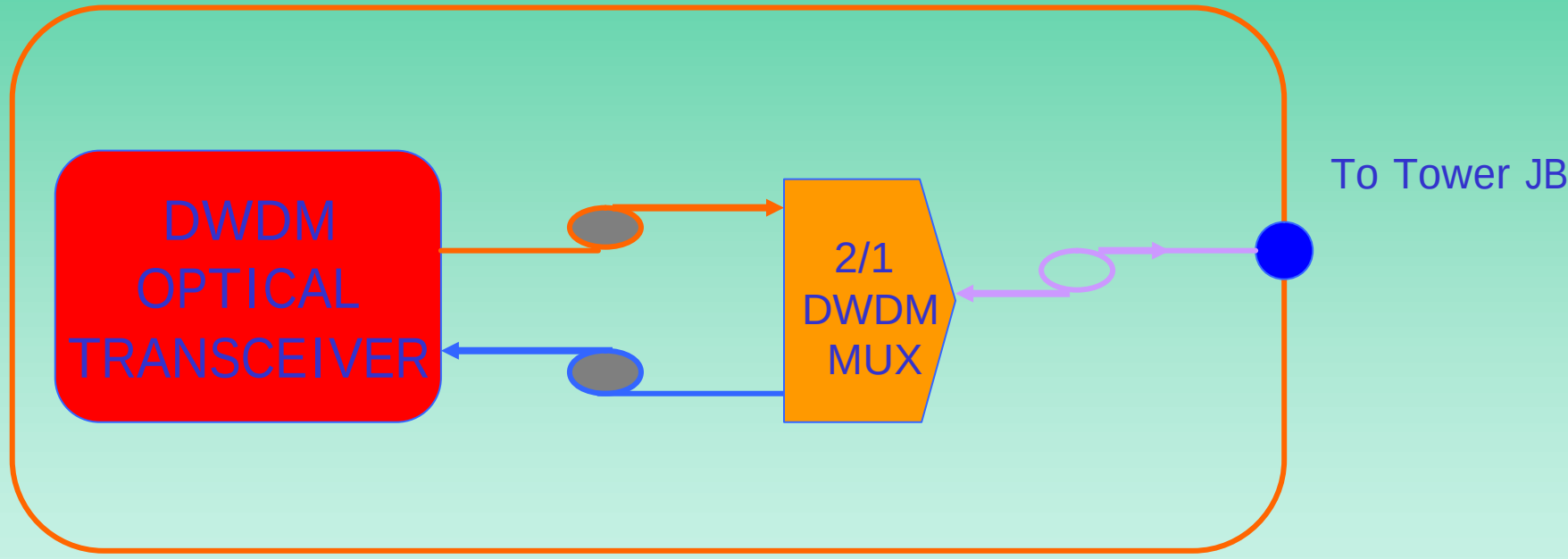
OPTICAL DATA TRANSPORT TOPOLOGY (SEASIDE)



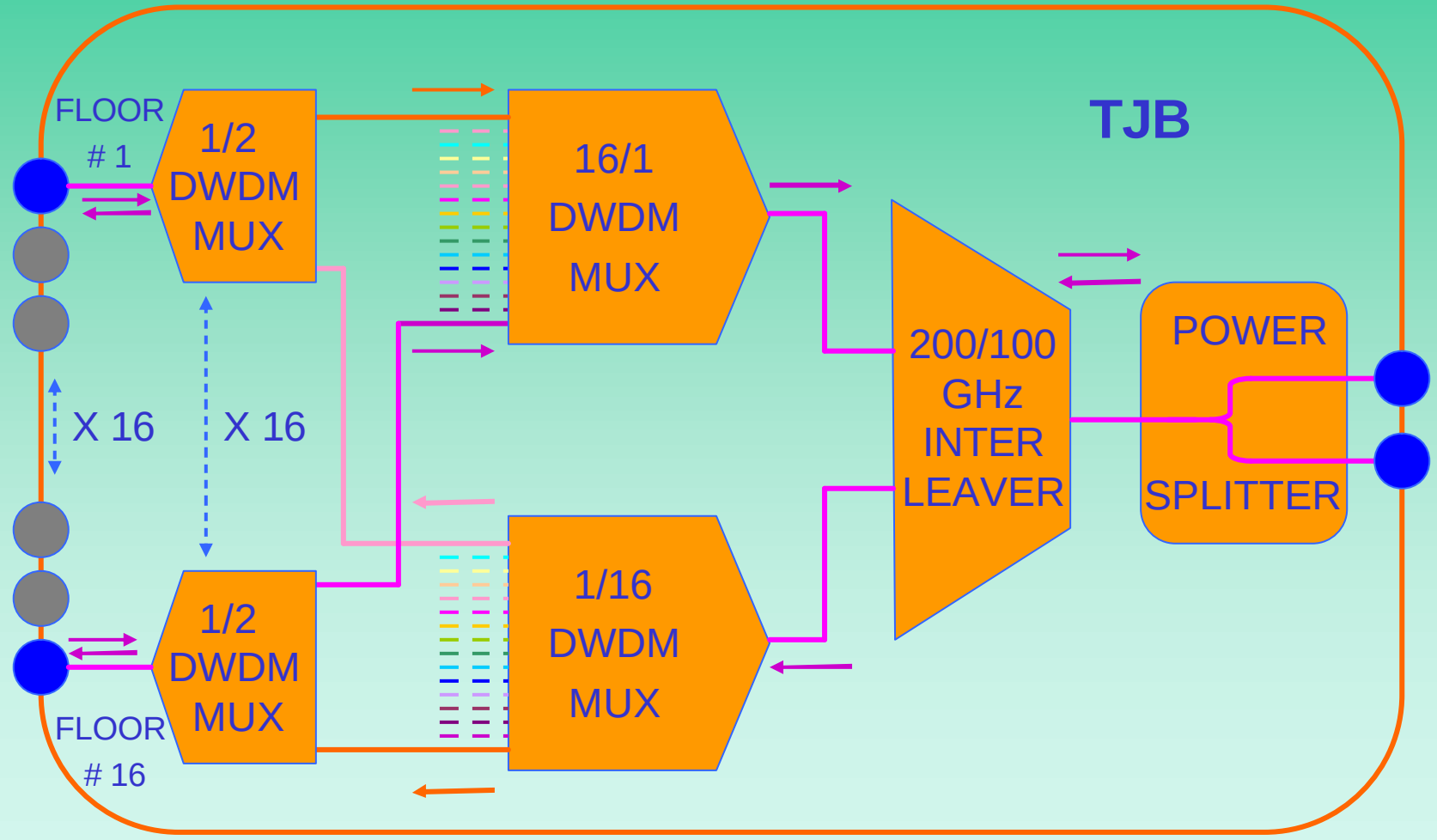
OPTICAL DATA TRANSPORT TOPOLOGY (LANDSIDE)



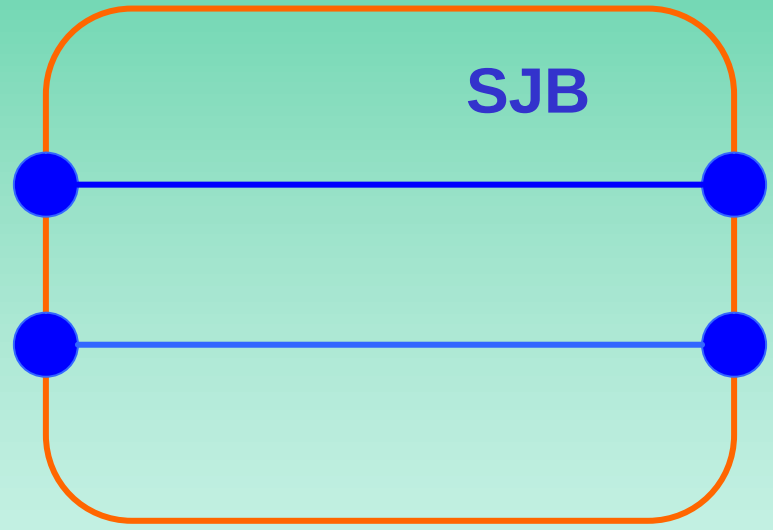
FLOOR DATA TRANSPORT



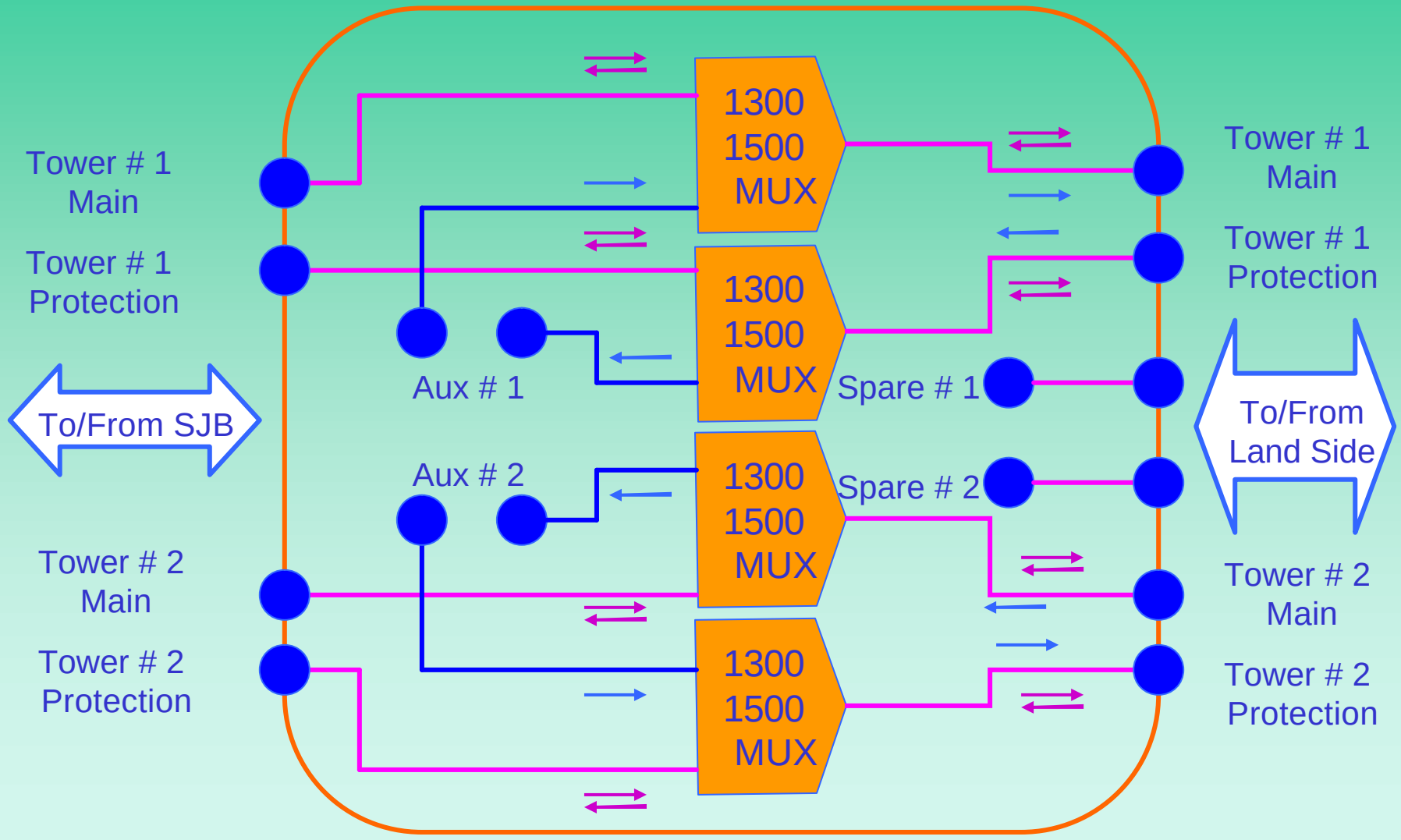
TJB DATA TRANSPORT



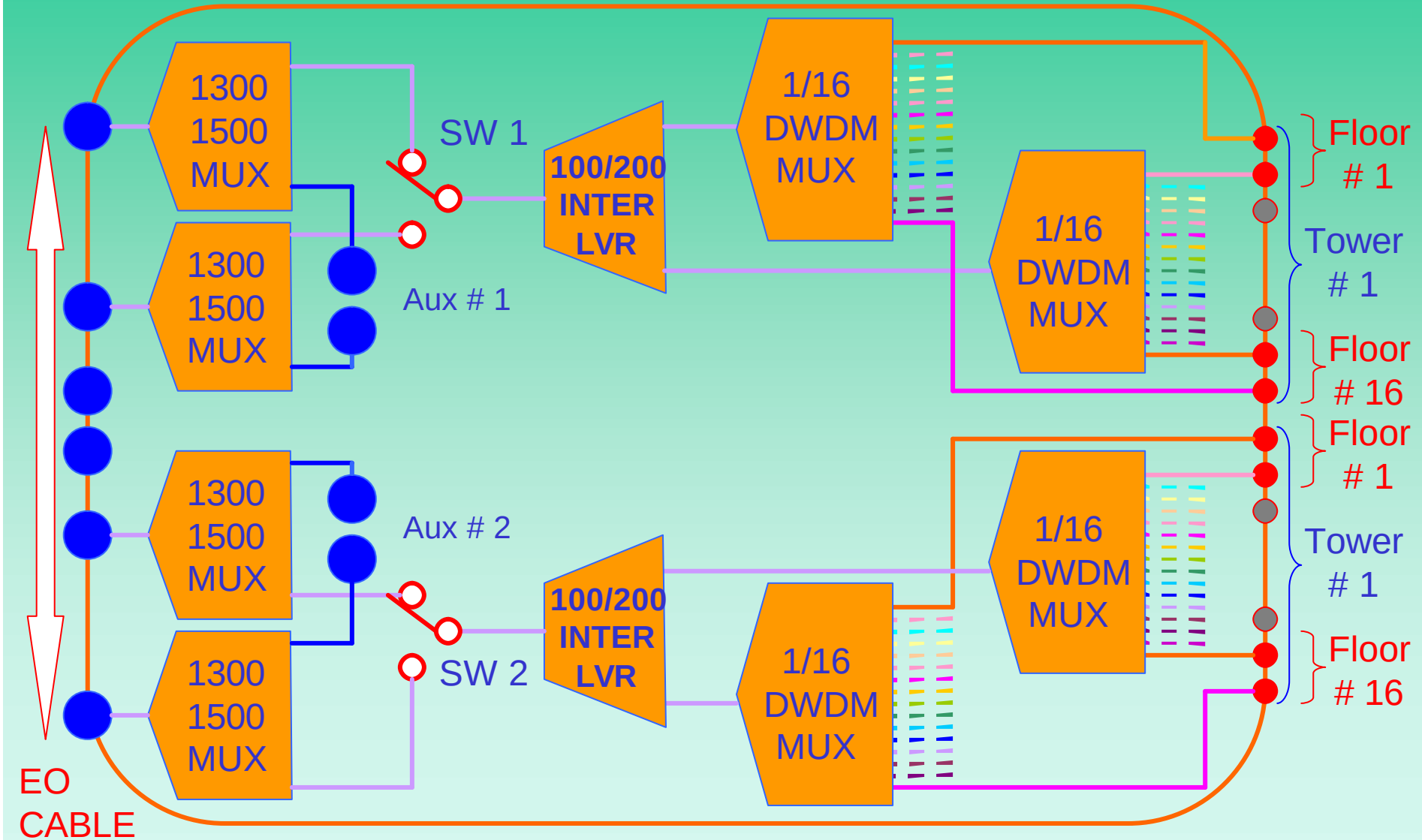
SJB DATA TRANSPORT



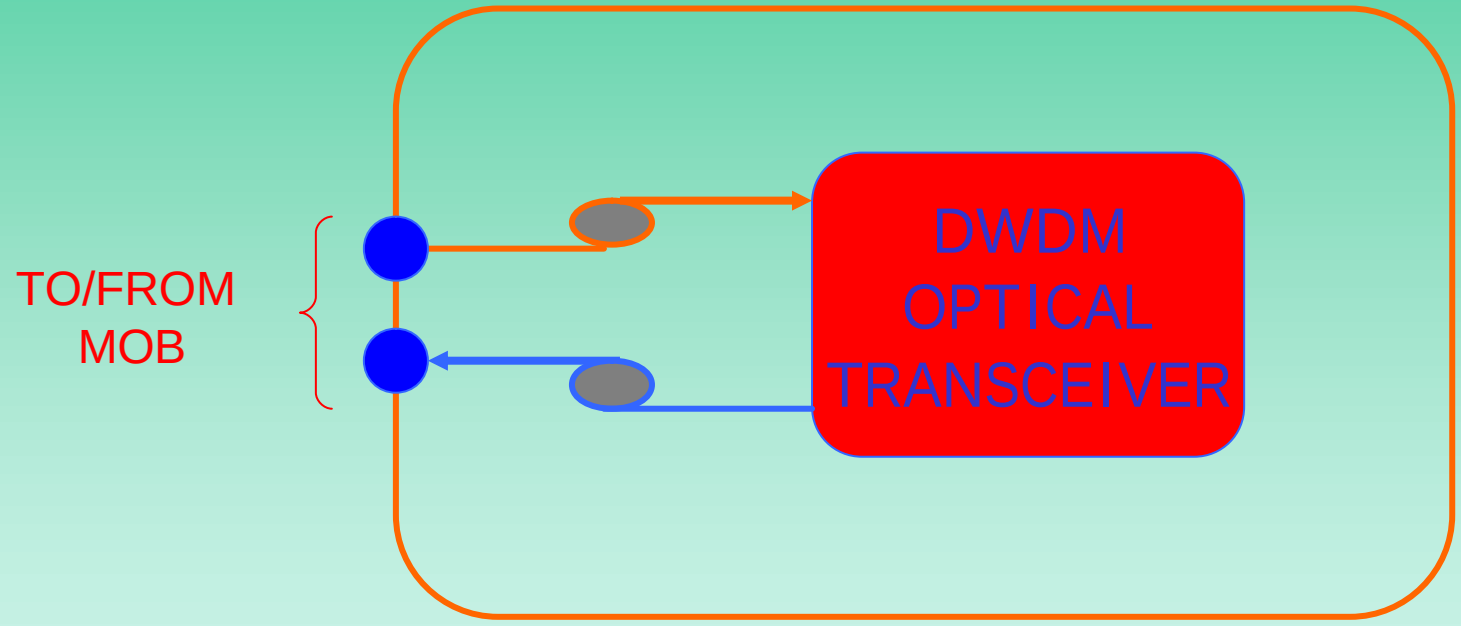
PJB DATA TRANSPORT



MOB DATA TRANSPORT



LABORATORY DATA TRANSPORT



POWER LOSS BUDGET

2:1 DWDM MUX	**(FCM)**	2 dB
1:2 DWDM MUX	**(TJB)**	2 dB
16:1 DWDM MUX	**(TJB)**	2 dB
200:100 GHz INTERLEAVER	**(TJB)**	3 dB
1:2 POWER DIVIDER	**(TJB)**	3 dB
1.3 nm:1.5 nm CWDM MUX	**(PJB)**	2 dB
ELECTRO OPTICAL CABLE	**(~ 30 km)**	9 dB
1.3 nm:1.5 nm CWDM MUX	**(MOB)**	2 dB
100:200 GHz INTERLEAVER	**(MOB)**	3 dB
1:16 DWDM MUX	**(MOB)**	2 dB
TOTAL POWER LOSS		30 dB

AGILENT DWDM TRANSCEIVER

Agilent AFKC-xxxx
Pluggable DWDM Transceiver for operation up to 2.7 Gb/s
Part of the Agilent METRAK family
Data Sheet

Description
The MSA compliant transceivers are high performance, compact, cost effective modules for serial optical communications at data rates up to 2.7 Gb/s. They are designed to provide SONET/SDH compliant links at 2.488 Gb/s. They are also compatible with other standard data rates such as GbE. The optical power and receiver sensitivity allow for an optical power budget of 33 dB and the dispersion performance enables a range of link distances up to 160 km. The full range of C band wavelengths is available on the ITU 100 GHz grid.

The benefits include the most compact multisourced package style available, hot pluggability and integrated power, wavelength and APD bias control. Device monitoring is provided via a 2-wire serial interface. System monitoring is via a loss of signal alarm.

The transmitter section contains a cooled DFB laser and wavelength locker and has IEC 825 Class 1M and CDRH Class 1 eye safety. The receiver section uses an APD receiver for excellent sensitivity across the whole of C band.

Connectors

Optical Connector
Simplex LC optical connector receptacles.

Electrical Connector
70 way two-row connector.

Applications
- DWDM optical interfaces up to OC-48/STM-16 data rates with FEC
- Optical transport platforms
- Multi-service provisioning platform
- Optical add/drop multiplexers
- Optical switch and cross-connect
- Metro core and access networks
- Video Transport Systems

Features
- MSA Compliant (http://www.hotplugdwdm.org)
- Low power dissipation <2 W typical
- Controlled hot plugging
- Mountable either through the front panel or directly on the host PCB
- Integrated wavelength locker
- Data rates from 155 Mb/s to 2.7 Gb/s (no internal data re-timing)
- Operation across C band on the 100 GHz ITU grid
- Link optical power budget of 33 dB minimum
- Dispersion performance allows links of up to 160 km
- Compliant with SONET OC-48/ SDH STM-16
- Directly modulated, cooled, InGaAsP MQW DFB laser
- High sensitivity APD based receiver
- Automatic optical power control
- Automatic wavelength control
- Automatic internal APD bias generation and control
- Received power monitor
- AC-coupled CML compatible differential data input and output
- Simplex LC optical connector receptacles
- 70 way two-row electrical connector
- Single +3.3 V power supply
- Slow or fast TX_DISABLE

SYSTEM BENEFITS

- NETWORK TOTALLY PASSIVE (but for the Transceivers)
- PROVIDES AN AUXILIARY CHANNEL FOR TOWER
- LEAVES TWO FIBERS FREE FOR FUTURE NEEDS
- USES ONLY ONE FIBER FROM EACH FLOOR TO TJB
- ACHIEVES 100 % FIBER REDUNDANCY FROM TJB TO MOB
- ALL REDUNDANCY SWITCHES ARE ONSHORE
- USES ONLY COMMERCIALLY AVAILABLE COMPONENTS
- LOW COST