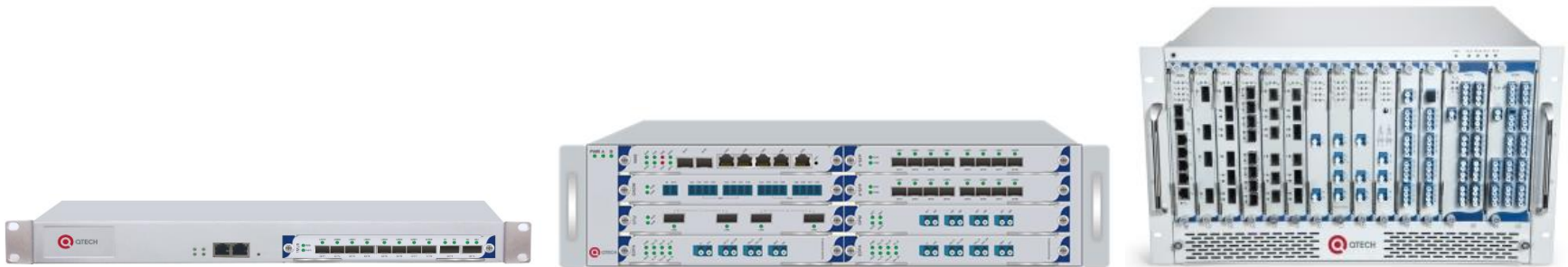




Overview of QTECH QWM-8000 Spectral Sealing Equipment



**xWDM platform
for the people**

Positioning QWM-8000 Series

heavyweights



A light weight



-Series QWM-8000



- series 1600/1800/3800



- series FiberDriver

Positioning QWM-8000 Series

heavyweights

PROS

1. Management by NMS;
2. The presence of a matrix cross-connect
3. The presence of coherent transmission of
100G / 200g / 400g
4. Encapsulation in frame OTUx
5. Fees ROADM / WSS
6. FEC
7. Monitoring of optical channels

MINUSES

1. Required training to SC NMS;
2. High power consumption
3. Very high cost due to the use of expensive
technologies
4. The high cost of service
5. Not for the people !!

A light weight

PROS

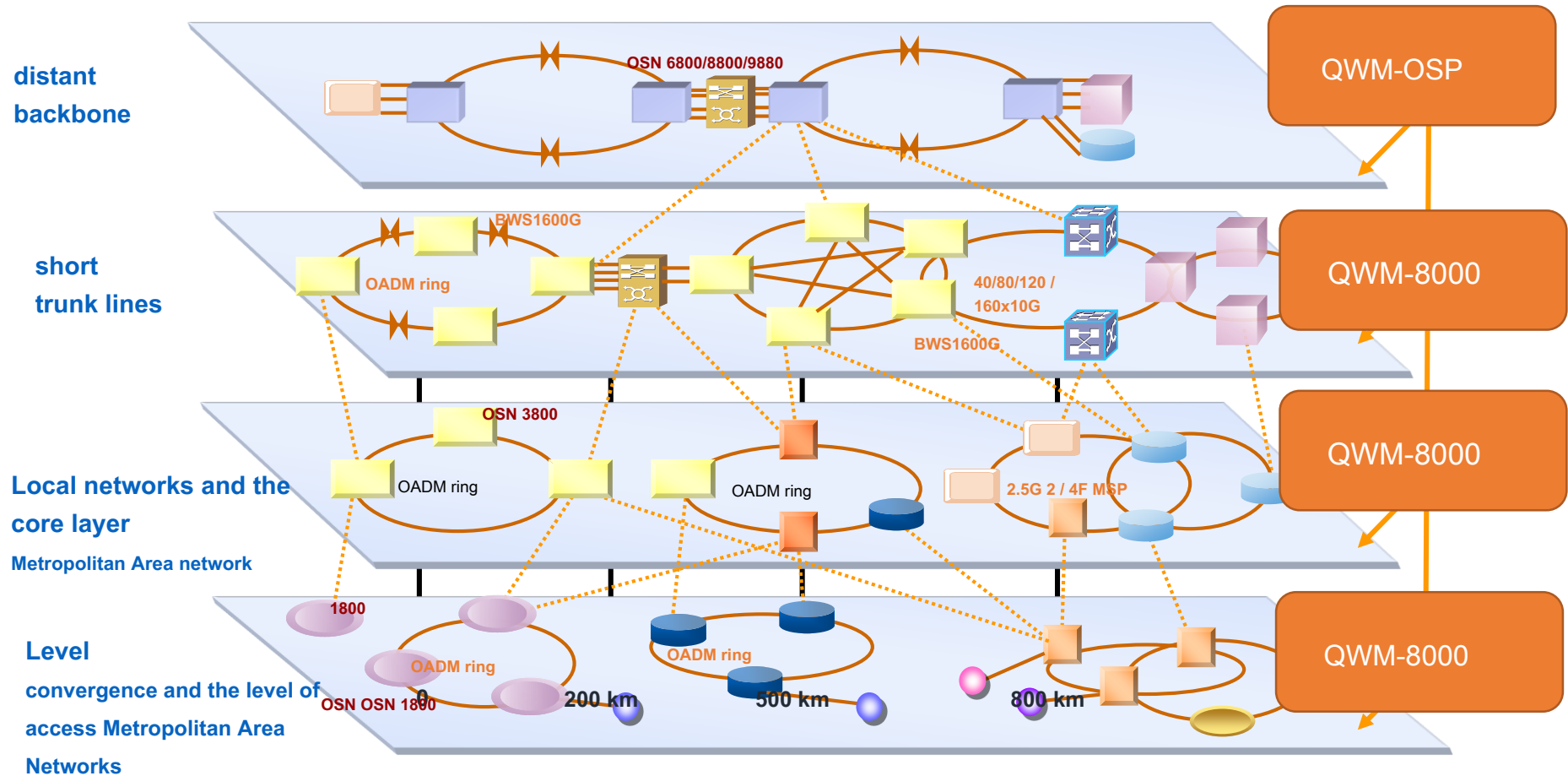
1. Easy to scale
2. Easy to use control system
3. Classic circuit Mux / DEMUX
4. Easy to maintain
5. Low-cost market
6. Supports the most common speeds of
10G / 40g / 8GFC / STM-64
7. Monitoring of optical channels
8. Easy to operate
9. Low power consumption

Minuses

1. Lack OTUx
2. Lack of FEC

xWDM platform application in comparison with Huawei

iManager T2000 / T2100



For someone QWM-8000 series

- Regional operators
- Alternative operators
- Data Centers
- campuses
- State institutions
- public office
- Educational institutions
- Medical institutions
- Airports
- Large energy companies
- Production plants and branch

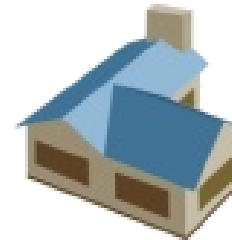


Inter-office

- PSTN / VOIP



BTS access



Internet access

- FTTH
- PON

For which you need to build links and spend TELECOMMUNICATIONS

Chassis QWM-8000

QWM-8000-1U

one. compact design

- 1U chassis
- 1 slot

2. controller

- 2 * RJ45

3. Types supported

Traffic:

- FE / GE / STM-1 / STM-4 / STM-16
- STM-64 / 10GE / 8GFC

4. Power

- 1 + 1 (DC48V / AC220V)

5. Management

- QNMS, Telnet, SNMP, Console, WEB GUI

6. Ventilation

- 4 fans.



QWM-8000-2.5U

one. compact design

- 2,5U chassis
- 8 slots

2. controller

- 3 * RJ45 + 2 * SFP + E1 + 1xConsole

3. Types supported

Traffic:

- FE / GE
- STM-1 / STM-4 / STM-16 /
- STM-64 / 10GE
- 8GFC

4.Pitanie

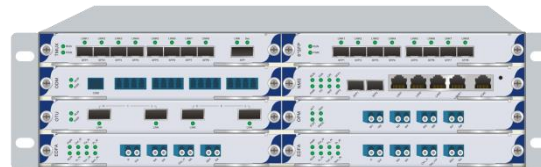
- Power 1 + 1 (DC48V / AC220V)

5. Management

- QNMS, Telnet, SNMP, WEB GUI, Console

6. Ventilation

- Blowing back, improved heat transfer



QWM-8000-6U

one. compact design

- 6U chassis
- 16 slots

2. controller

- 3 * RJ45 + 2 * SFP
- 3 * RJ45 + 2 * SFP + 1 * E1

3. Types Supported Traffic:

- FE / GE
- STM-1 / STM-4 / STM-16
- STM-64 / 10GE
- 8GFC

4. Power

- 1 + 1 (DC48V / AC220V)
- 2 PSU from the rear side

5. Management

- QNMS, Telnet, SNMP, WEB GUI, Console

6. Ventilation

- Fans rear + filter with the front panel.



OEO board for QWM-8000

controller module QWM-8000-NMS

- **8000 - QWM chassis management module**

- 3x10 / 100 Base-TX
- 2x100Mb Base-FX SFP
- 1xE1 (RJ45)
- 1xRS232

Control

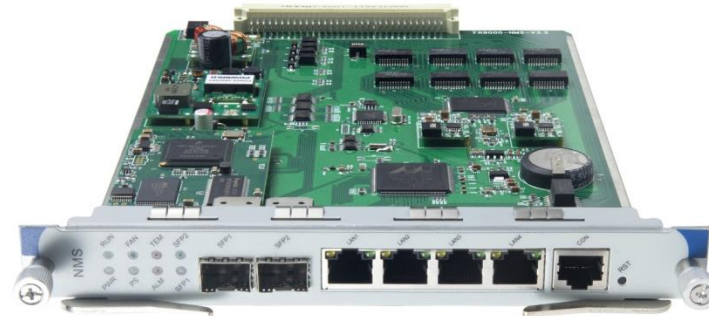
- QNMS, SNMP / Web / Telnet

- **Main functions performed**

- monitoring Alarms
- monitoring Events
- Parameters of the boards
- user management
- delimitation of rights

- **Cascading QWM chassis - 8000**

- **Optical Control Channel**



3x 10/100 / 1000BaseT COM port 2 x SFP

QWM-8000-2SFP + / 2SFP +;

QWM-8000-2SFP + / 2XFP;

QWM-8000-2XFP / 2XFP

• **Supported rate:**

- FC 8.5 Gb / s
- SONET OC-192
- STM-64
- 10G WAN
- 10G LAN

Type of optical interface

- SFP + to SFP +
- CWDM
- DWDM

• **Control via:**

- QNMS
- TELNET
- SNMP
- WEB GUI

KEY FEATURES

The wide range of applications:

- Repeater signal;
- 3R regeneration signal;
- The flexibility and scalability;
- Easy replacement of transceivers;

Support for the following optical transceivers on:

- Standard wavelengths (850, 1310, 1550 nm);
- CWDM range;
- DWDM range
- Support modules with adjustable wavelength (tunable module)



Fee with 1 + 1

QWM-8000-P-2XFP / 2XFP, QWM-8000-P-2SFP + / 2SFP +,
QWM-8000-P-2SFP + / 2XFP

- **Supported rate:**

- FC 8.5 Gb / s
- SONET OC-192
- STM-64
- 10G WAN
- 10G LAN

Type of optical interface

- XFP to XFP
- SFP + to SFP +
- SFP + to XFP
- CWDM
- DWDM

- **Control via:**

- QNMS
- TELNET
- SNMP
- WEB GUI

KEY FEATURES:

The wide range of applications:

- 3R regeneration signal;
- The flexibility and scalability;
- Easy replacement of transceivers;
- 1 + 1 redundancy

Support for the following optical transceivers on:

- Standard wavelengths (850, 1310, 1550 nm);
- CWDM range;
- DWDM range.



Fee muxponder QWM-8000-TMUX8G

KEY FEATURES:

- linear speed port XFP 10 Gb / s
 - 8 standard SFP slots;
 - 1 slot XFP;
 - The flexibility and scalability;
 - Easy replacement of transceivers;
 - Support for the following optical and copper transceivers on:
 - Standard wavelengths (850, 1310, 1550 nm);
 - CWDM range;
 - DWDM range;
 - Management support:
 - QNMS, SNMP, CLI, TELNET, GUI-interface.
- The QWM-8000-TMUX8G transponder is used to combine 8 Gigabit Ethernet channels into a 1x10 GB channel, followed by transmission over the XFP line port.
- There is a QWM-8000-P-TMUX8G Transponder card used to combine 8 Gigabit Ethernet channels into a 1x10 GB channel, followed by transmission on the XFP line port with 1 + 1 redundancy



ORDERING INFORMATION

QWM-8000-2XFP / 2XFP	2 * XFP 2 * XFP module line card (XFP in XFP)
QWM-8000-2SFP + / 2XFP	2 * SFP + 2 * SFP + module line card (SFP + in SFP +)
QWM-8000-2SFP + / 2SFP +	2 * SFP + 2 * XFP module line card (SFP + in XFP)
QWM-8000-4SFP + / 4SFP +	4 * SFP + 4 * SFP + module line card (SFP + in SFP +)
QWM-8000-P-2XFP / 2XFP	2 * XFP 2 * XFP module line card 1 * XFP 1 * XFP protection (XFP in XFP)
QWM-8000-P-2SFP + / 2XFP	2 * SFP + 2 * XFP module line card 1 * SFP + 1 * SFP + Protection (SFP + in SFP +)
QWM-8000-P-2SFP + / 2SFP +	2 * SFP + 2 * SFP + module line card 1 * SFP + 1 * SFP + Protection (SFP + in SFP +)
QWM-8000-4SFP / 4SFP	4 * SFP 4 * SFP multi-protocol card 4M ~ 2.5Gbp / s
QWM-8000-TMUX8G	multiplexing card 8 * 1.25G SFP slot 1 * 10G XFP slot
QWM-8000-P-TMUX8G	multiplexing card 8 * 1.25G SFP slot 1 * 10G XFP slot with protection 1 * 10G XFP

On maps with a protective circuit, the SWITCHING TIME on the BACKUP CHANNEL is 30ms

multiplexer card,
EDFA amplifiers, optical line
protection, monitoring optical power

For QWM-8000

Fee multiplexer / demultiplexer DWDM QWM-8000-XXX * X

There is a charge MUX / DEMUX

- Thin-film filters
- On the AWG planar diffraction gratings:
 - TAWG and AAWG

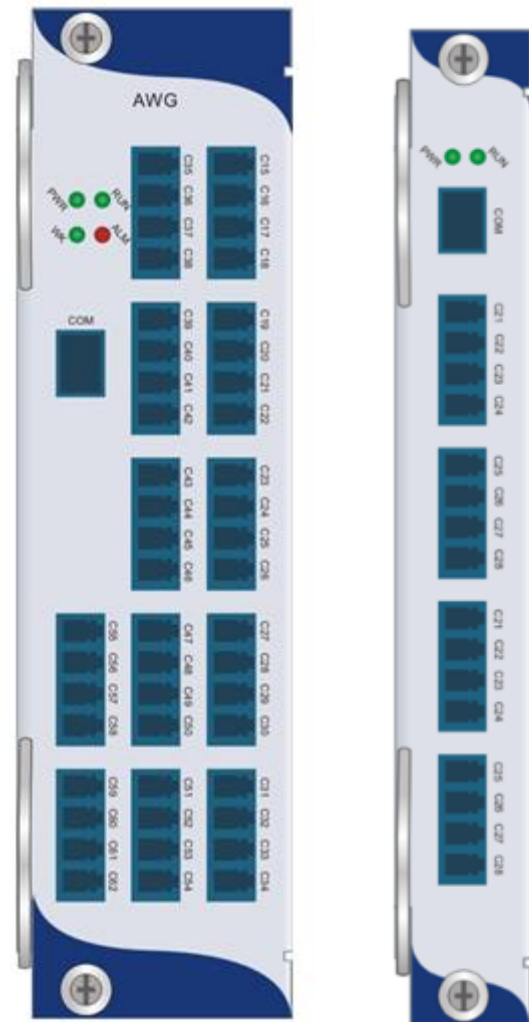
Application:

- 10V;
- 20B;
- Standard lengths DWDM ITU-T wave;
- Possible to implement a range of CWDM;
- Can be implemented in a CWDM DWDM frequency spectrum in a single chassis.

Management support:

- QNMS, SNMP, CLI, TELNET, WEB GUI-interface.

QWM-8000-ODM4 * 2-DW21-24	2 * 4kanala DWDM Demux / Mux100GHZ, 2-optic circuit (1 * 4mux + 1 * 4demux), 4servisa
QWM-8000-ODM8 * 2-DW21-28	2 * 8kanala DWDM Demux / Mux100GHZ, 2-optic circuit (1 * 8mux + 1 * 8demux), 8servisov
QWM-8000-OD / OM8 * 1	1 * 8kanala DWDM Demux / Mux100GGts - SF, Supports 6U, 4servisa
QWM-8000-OD / OM12 * 1	1 * 12kanala DWDM Demux / Mux100GGts -SF, Supports 6U, 6servisov
QWM-8000-OD / OM16 * 1	1 * 16kanala DWDM Demux / Mux100GGts -SF, Supports 6U, 8servisov
QWM-8000-TAWG40	1 * 40Ch DWDM TAWG 100 GHz - SF, Supports 6U, 20 services
QWM-8000-AAWG40	1 * 40Ch DWDM AAWG 100 GHz - SF, Supports 6U, 20 services



QWM-8000-BA, QWM-8000-LA, QWM-8000-PA

There is a fee EDFA amplifiers

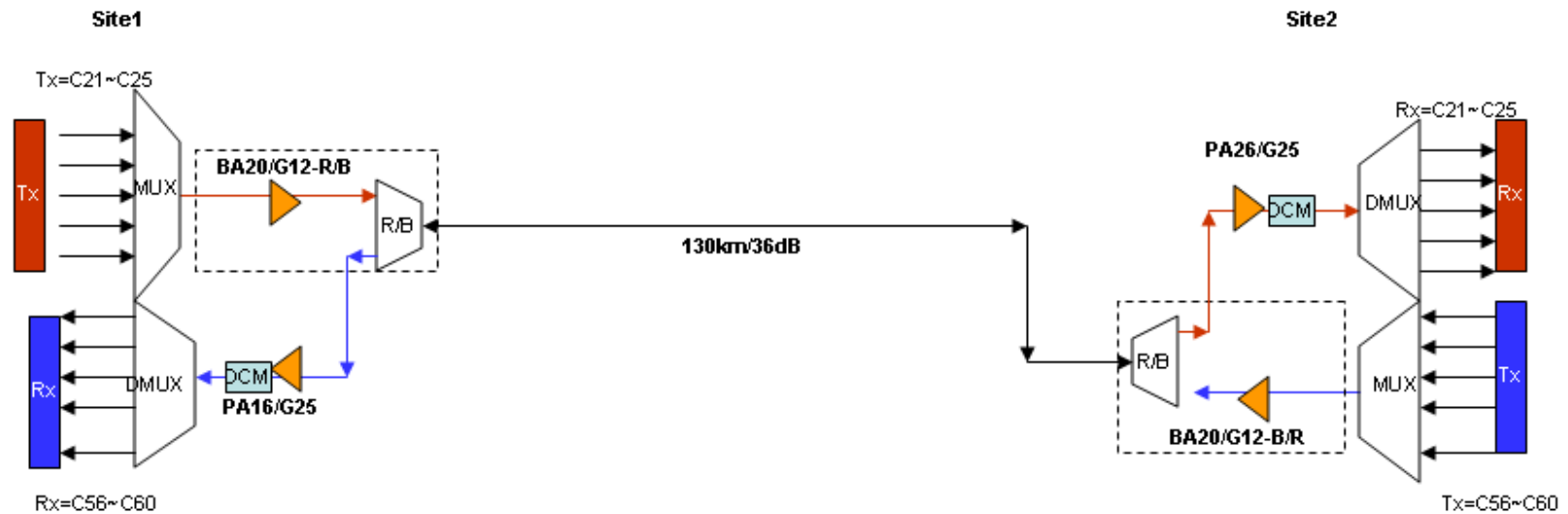
- c BLUE / RED filters;
- Boosters BA;
- Linear LA, with 2 amplification stages;
- preamplifiers PA

Application:

- 10V;
- 20B;
- Standard lengths DWDM ITU-T wave;

Management support:

- QNMS, SNMP, CLI, TELNET, WEB GUI-interface.



ORDERING INFORMATION

QWM-8000-BA16 / 12	Booster (EDFA C-range, output power: 16dBm, koef.usileniya 12db, 40kanalov with OSC)
QWM-8000-BA16 / 12-BR	Booster (EDFA C-range, output power: 16dBm, koef.usileniya 12db, 40kanalov with OSC and PASS blue 1528-1543.2nm / reflection 1547-1561nm red filter)
QWM-8000-BA16 / 12-RB	Booster (EDFA C-range, output power: 16dBm, koef.usileniya 12db, 40kanalov with OSC 1528-1543.2nm reflection and blue / PASS 1547-1561nm red filter)
QWM-8000-BA20 / 12	Booster (EDFA C-range, output power: 20dBm, koef.usileniya 12db, 40kanalov with OSC)
QWM-8000-BA20 / 12-BR	Booster (EDFA C-range, output power: 20dBm, koef.usileniya 12db, 40kanalov with OSC and PASS blue 1528-1543.2nm / reflection 1547-1561nm red filter)
QWM-8000-BA20 / 12-RB	Booster (EDFA C-range, output power: 20dBm, koef.usileniya 12db, 40kanalov with OSC 1528-1543.2nm reflection and blue / PASS 1547-1561nm red filter)
QWM-8000-PA16 / 25	Preamplifier (EDFA C-range, output power: 16dBm, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-LA16 / 25	Linear amplifier (EDFA C-band output power: 16dBm, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-PA16 / 25-8	preamplifier (C-band EDFA, the power output: 16dBm, insertion loss 8db using DCM, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-LA16 / 25-8	Linear amplifier (EDFA C-band insertion loss 8db using DCM, output power: 16dBm, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-PA20 / 25	Preamplifier (EDFA C-range, output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-LA20 / 25	Linear amplifier (EDFA C-band output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-PA20 / 25-8	preamplifier (C-band EDFA, the power output: 20dBm, insertion loss 8db using DCM, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-LA20 / 25-8	Linear amplifier (EDFA C-band insertion loss 8db using DCM, output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC)
QWM-8000-LA20 / 25-8-BR	Linear Amplifier (EDFA C-band insertion loss 8db when used with DCM, the output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC and BLUE / RED filter)
QWM-8000-LA20 / 25-8-RB	Booster (C-band EDFA, the insertion loss 8db using DCM, output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC and PASS blue 1528-1543.2nm / reflection 1547-1561nm red filter)

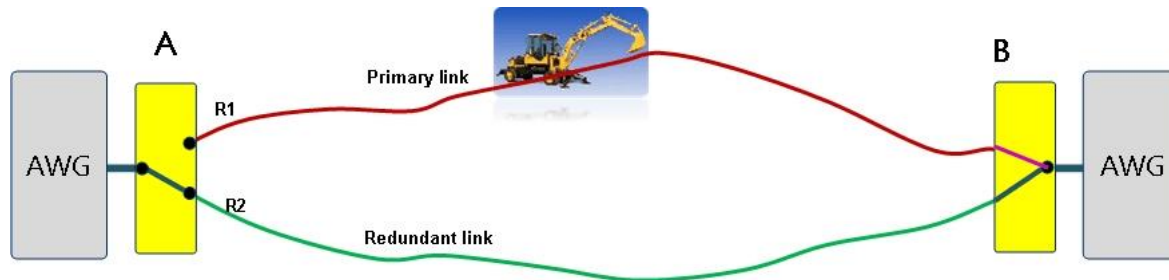
The board protection OLP linear optical 1 + 1, OLP 1: 1

Application:

- 10V;
- 20B;
- Standard lengths DWDM ITU-T wave;

Management support:

- QNMS, SNMP, CLI, TELNET, WEBGUI-interface.



QWM-8000-OLP1 + 1	Plata linear optical 1 + 1 protection
QWM-8000-OLP1: 1-BR	optical line protection fee 1: 1 c Blue / Red filter



OPM optical power measurement board

There is a fee OPM

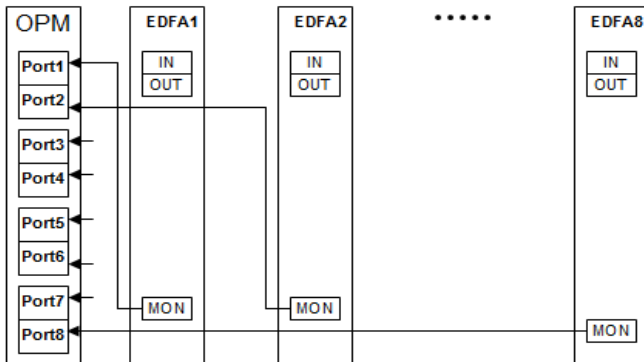
- On 1/2/4/8 ports

Application:

- optical power measurement on a standard length DWDM ITU-T wave;

Management support:

- QNMS, SNMP, CLI, TELNET, WEB GUI.

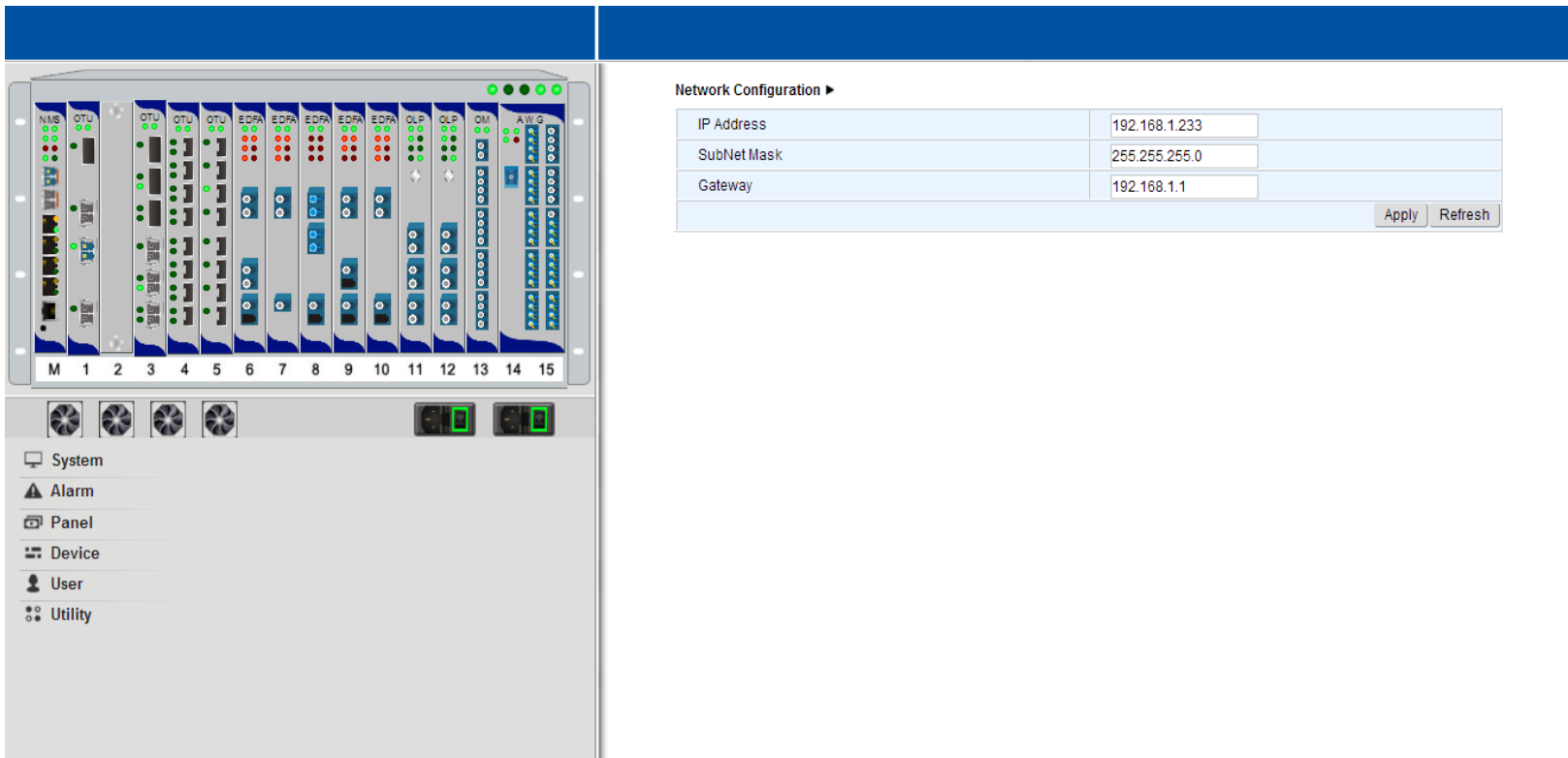


QWM-8000-OPM1	1-port optical power monitoring board
QWM-8000-OPM2	2-port optical power monitoring board
QWM-8000-OPM4	4-port optical power monitoring board
QWM-8000-OPM8	8-port optical power monitoring board

CONTROL SYSTEM

Connecting via WEB interface chassis

Connect an Ethernet cable to the control board, enter the IP-address in the address bar of your Web browser. Enter the monitoring interface. (Default is 192.168.1.233)

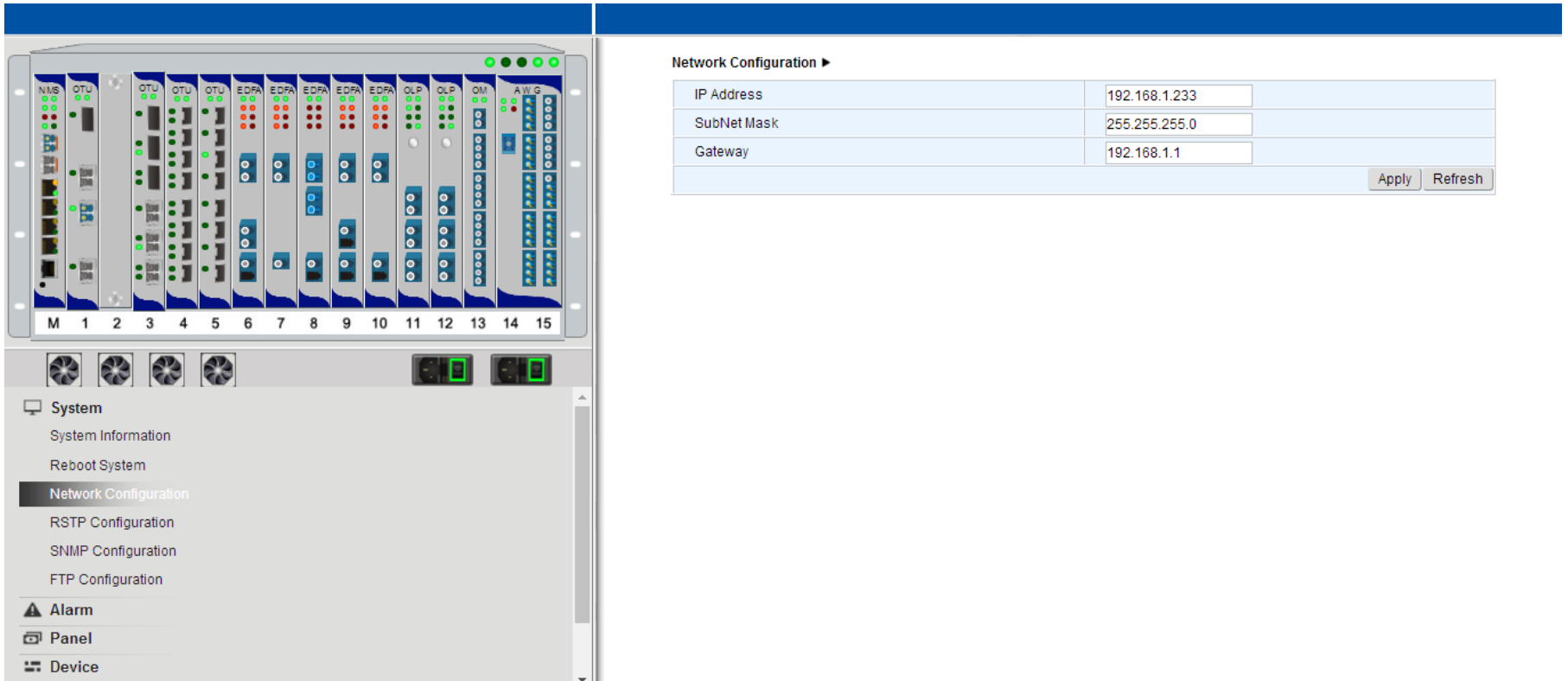


The screenshot displays the web interface for the QTECH control system. On the left, a virtual chassis is shown with 15 slots labeled M, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15. Each slot contains a different type of module, such as NIS, OTU, EDFA, OLP, OM, and A+G. Below the chassis, there are icons for fans and power supplies, and a navigation menu with options: System, Alarm, Panel, Device, User, and Utility.

On the right side of the interface, the 'Network Configuration' section is expanded, showing a table with the following settings:

Network Configuration ▶	
IP Address	192.168.1.233
SubNet Mask	255.255.255.0
Gateway	192.168.1.1
<input type="button" value="Apply"/> <input type="button" value="Refresh"/>	

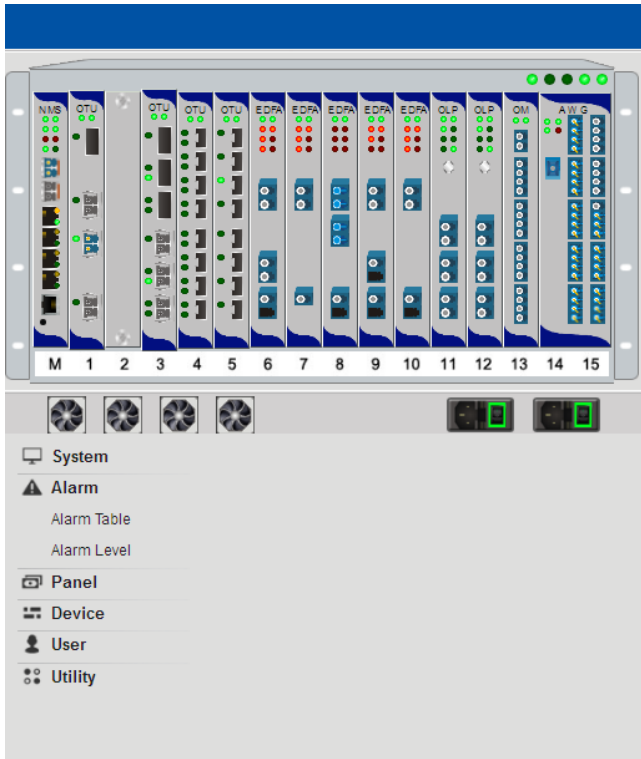
Changing the IP-address.



Network Configuration

IP Address	<input type="text" value="192.168.1.233"/>
SubNet Mask	<input type="text" value="255.255.255.0"/>
Gateway	<input type="text" value="192.168.1.1"/>

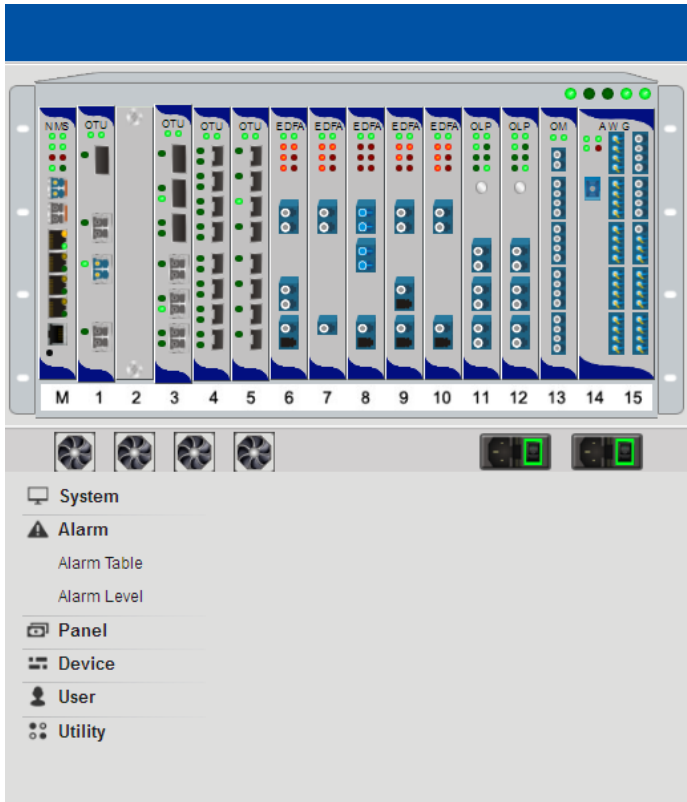
Setting alarms



Alarm Level ▶

Alarm Item	EDFA ▼			
Alarm Content	Alarm Level			
In optical power abnormal	<input type="checkbox"/> Critical	<input type="checkbox"/> Major	<input checked="" type="checkbox"/> Minor	<input type="checkbox"/> General
Out optical power abnormal	<input type="checkbox"/> Critical	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input checked="" type="checkbox"/> General
Isd_in optical power abnormal	<input type="checkbox"/> Critical	<input checked="" type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General
Isd_out optical power abnormal	<input checked="" type="checkbox"/> Critical	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General
Temperature alarm	<input type="checkbox"/> Critical	<input checked="" type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General
Current alarm	<input checked="" type="checkbox"/> Critical	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General
Power alarm	<input checked="" type="checkbox"/> Critical	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General
Chip temperature alarm	<input checked="" type="checkbox"/> Critical	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General
Cooler current alarm	<input checked="" type="checkbox"/> Critical	<input type="checkbox"/> Major	<input type="checkbox"/> Minor	<input type="checkbox"/> General

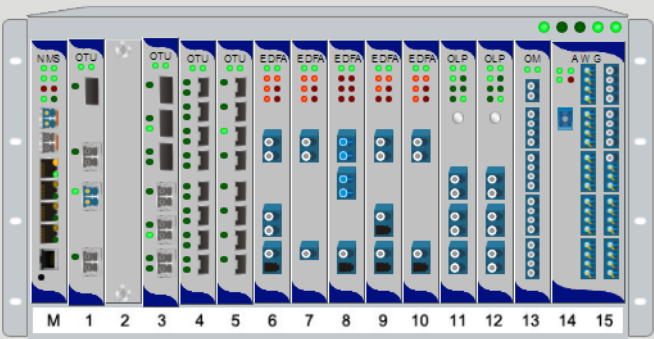
alarms Journal



System Alarm Log ▶

No.	yy/mm/dd	hh/mm/ss	Slot	Level	Alarm Info
Clear Refresh					
803	2016/12/27	12:48:10	10	General	EDFA module temperature recover normal
802	2016/12/27	12:48:06	10	Major	EDFA module temperature abnormal
801	2016/12/27	12:48:03	10	General	EDFA module temperature recover normal
800	2016/12/27	12:48:00	10	Major	EDFA module temperature abnormal
799	2016/12/27	12:47:57	10	General	EDFA module temperature recover normal
798	2016/12/27	12:47:54	10	Major	EDFA module temperature abnormal
797	2016/12/27	12:47:51	10	General	EDFA module temperature recover normal
796	2016/12/27	12:47:48	10	Major	EDFA module temperature abnormal
795	2016/12/27	12:47:46	10	General	EDFA module temperature recover normal
794	2016/12/27	12:47:42	10	Major	EDFA module temperature abnormal
793	2016/12/27	12:47:39	10	General	EDFA module temperature recover normal
792	2016/12/27	12:47:36	10	Major	EDFA module temperature abnormal
791	2016/12/27	12:47:30	10	General	EDFA module temperature recover normal
790	2016/12/27	12:47:28	10	Major	EDFA module temperature abnormal
789	2016/12/27	12:47:25	10	General	EDFA module temperature recover normal
788	2016/12/27	12:47:22	10	Major	EDFA module temperature abnormal
787	2016/12/27	12:47:18	10	General	EDFA module temperature recover normal
786	2016/12/27	12:47:16	10	Major	EDFA module temperature abnormal
785	2016/12/27	12:47:13	10	General	EDFA module temperature recover normal

General information about the chassis



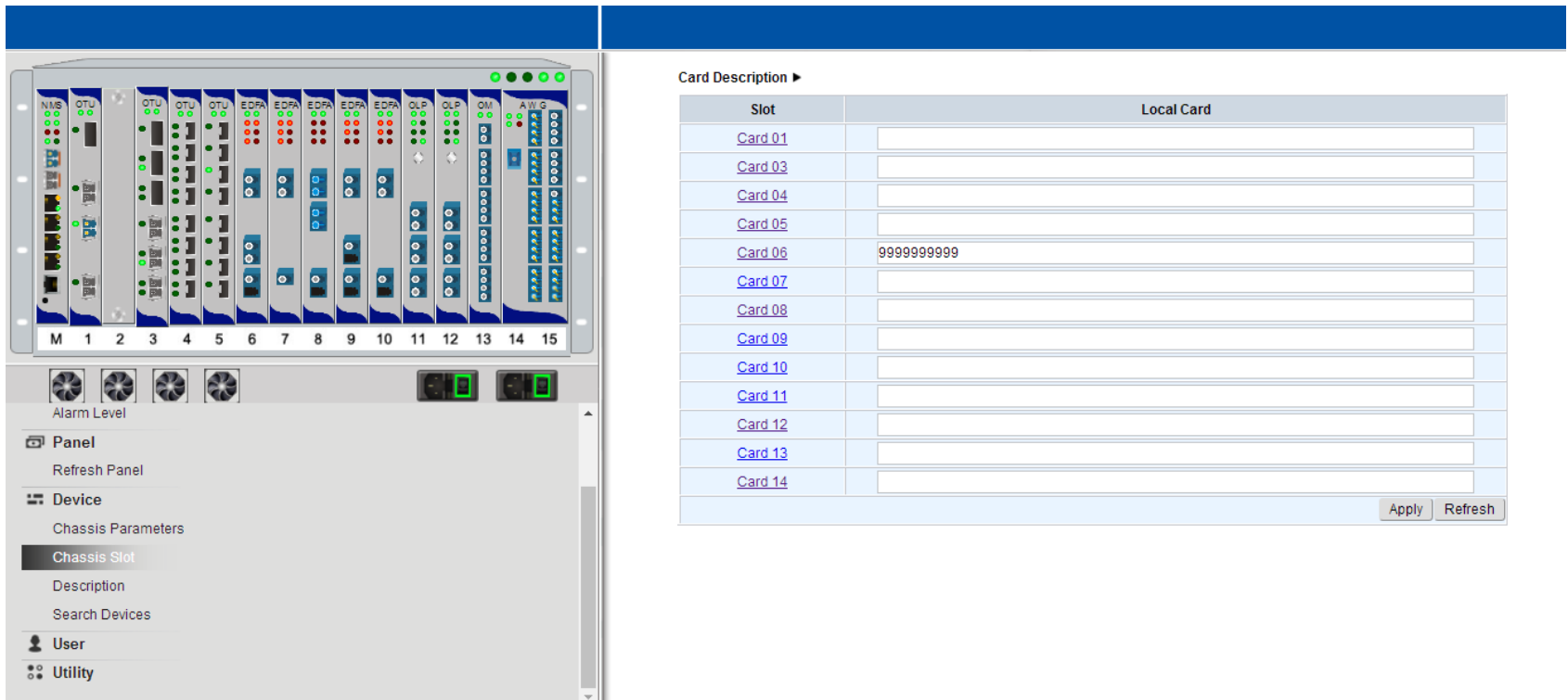
Alarm Level

- Panel
 - Refresh Panel
- Device
 - Chassis Parameters**
 - Chassis Slot
 - Description
 - Search Devices
- User
- Utility

Shelf Information ▶

Parameter	Value
Description	6U Chassis; 16 Slots; Max 4 powers; Max 4 fans.
Temperature	30.38 °C
Temperature Threshold(°C)	<input type="text" value="78.00"/>
Fan	Fan Status
Fan A	Normal
Fan B	Normal
Fan C	Normal
Fan D	Normal
Psu	Type Status
Psu A <input type="checkbox"/>	---- ----
Psu B <input type="checkbox"/>	---- ----
Psu C <input checked="" type="checkbox"/>	AC Power Normal
Psu D <input checked="" type="checkbox"/>	AC Power Normal

General information about fees



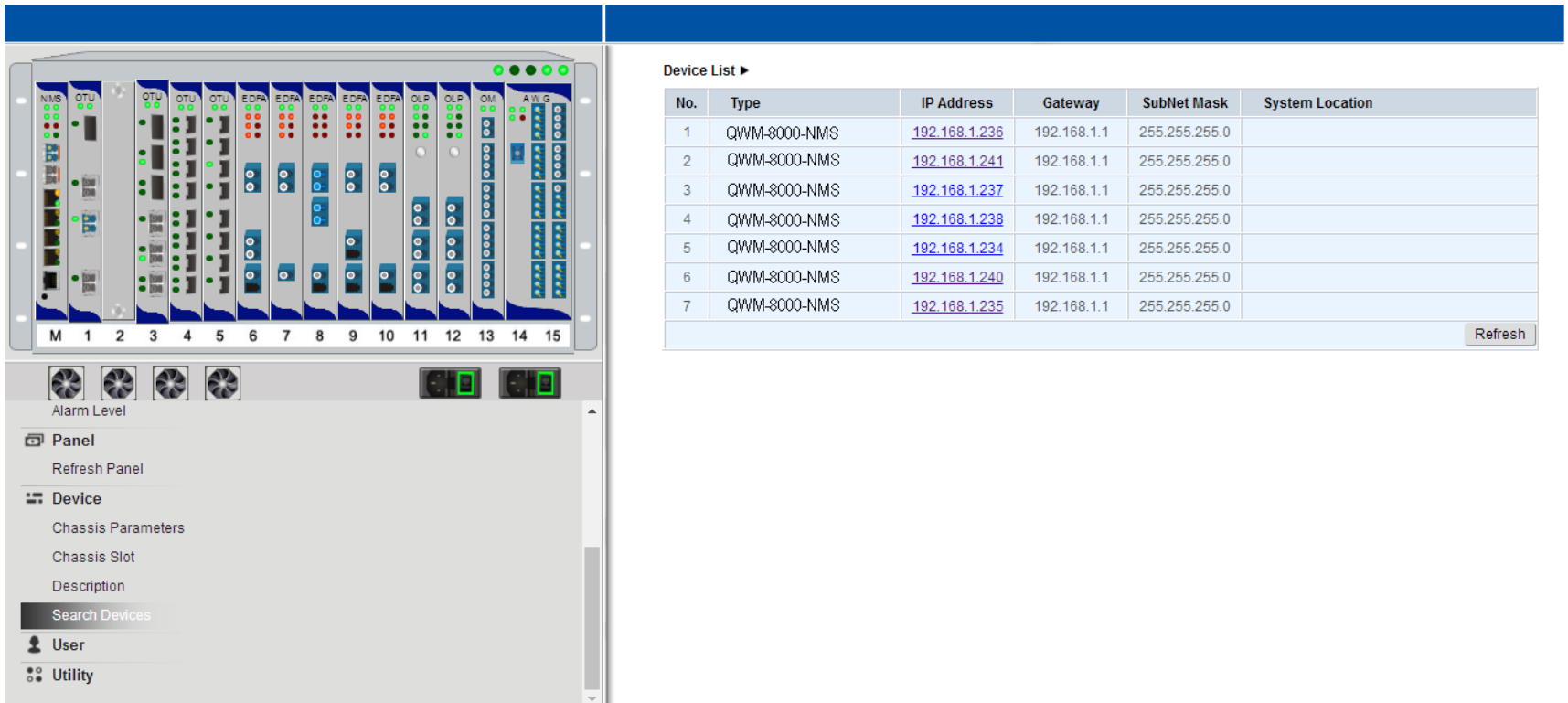
The screenshot displays a control system interface. On the left, a rack of 15 slots is shown, labeled M, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15. Each slot contains a card with various indicators and labels: NIS, OTU, EDPA, OLP, OH, and A III C. Below the rack, there are four fans, two power buttons, and a navigation menu with options: Alarm Level, Panel (Refresh Panel), Device (Chassis Parameters, Chassis Slot, Description, Search Devices), User, and Utility.

On the right, the 'Card Description' table is displayed:

Slot	Local Card
Card 01	<input type="text"/>
Card 03	<input type="text"/>
Card 04	<input type="text"/>
Card 05	<input type="text"/>
Card 06	9999999999
Card 07	<input type="text"/>
Card 08	<input type="text"/>
Card 09	<input type="text"/>
Card 10	<input type="text"/>
Card 11	<input type="text"/>
Card 12	<input type="text"/>
Card 13	<input type="text"/>
Card 14	<input type="text"/>

At the bottom right of the table, there are 'Apply' and 'Refresh' buttons.

Search in network equipment. Easy maintenance



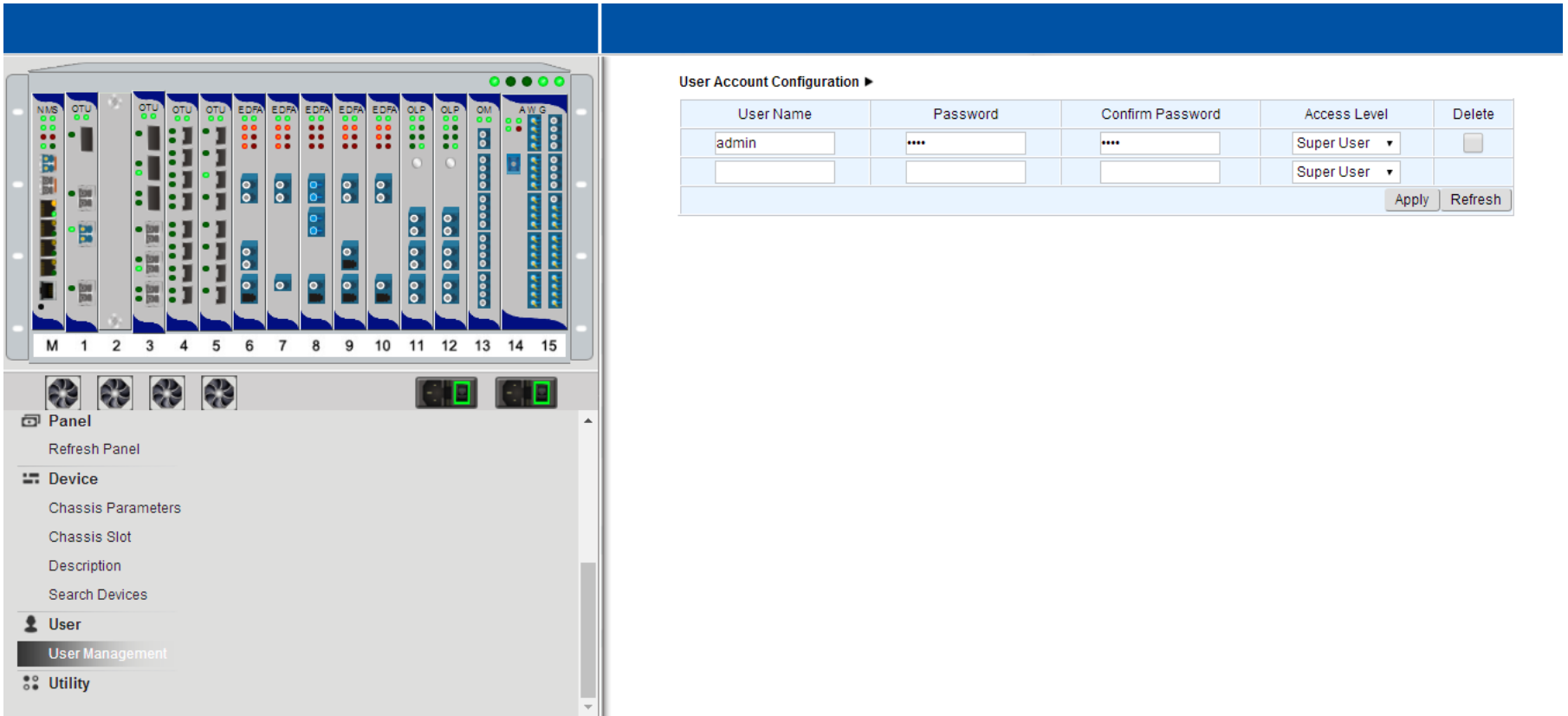
The screenshot displays the control system interface for a QTECH QWM-8000. On the left, a virtual rack of 15 slots is shown, labeled M, 1 through 15. Slot M contains the NMS (Network Management System). Slots 2-4 contain OTU (Optical Transport Unit) modules. Slots 5-9 contain EDFA (Erbium-Doped Fiber Amplifier) modules. Slots 10-11 contain OLP (Optical Line Protection) modules. Slot 12 contains an OM (Optical Monitor) module. Slot 13 contains an A/W/G (Alarm/Warning/Guard) module. Below the rack, there are four fan icons and two power button icons, with an 'Alarm Level' indicator.

On the right, the 'Device List' table is displayed, showing a list of 7 QWM-8000-NMS devices. The table has columns for No., Type, IP Address, Gateway, SubNet Mask, and System Location. A 'Refresh' button is located at the bottom right of the table.

No.	Type	IP Address	Gateway	SubNet Mask	System Location
1	QWM-8000-NMS	192.168.1.236	192.168.1.1	255.255.255.0	
2	QWM-8000-NMS	192.168.1.241	192.168.1.1	255.255.255.0	
3	QWM-8000-NMS	192.168.1.237	192.168.1.1	255.255.255.0	
4	QWM-8000-NMS	192.168.1.238	192.168.1.1	255.255.255.0	
5	QWM-8000-NMS	192.168.1.234	192.168.1.1	255.255.255.0	
6	QWM-8000-NMS	192.168.1.240	192.168.1.1	255.255.255.0	
7	QWM-8000-NMS	192.168.1.235	192.168.1.1	255.255.255.0	

Refresh

Access rights



The screenshot displays the control system interface. On the left, a rack of 15 modules is shown, labeled M, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15. The modules include NMS, OTU, EDFA, OLP, OM, and A W G. Below the rack is a navigation menu with sections for Panel, Device, User, and Utility. The 'User' section is currently selected, showing 'User Management'.

On the right, the 'User Account Configuration' section is active, displaying a table with the following data:

User Name	Password	Confirm Password	Access Level	Delete
admin	****	****	Super User	<input type="checkbox"/>
			Super User	

Buttons for 'Apply' and 'Refresh' are located at the bottom right of the table.

APPLICATION SCHEMES

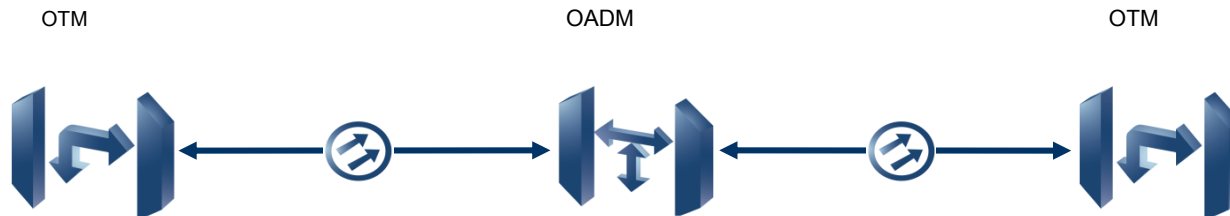
xWDM platform network topology

- QWM-8000 supports the following network topologies: point-to-point, chain, ring and mixed topology.

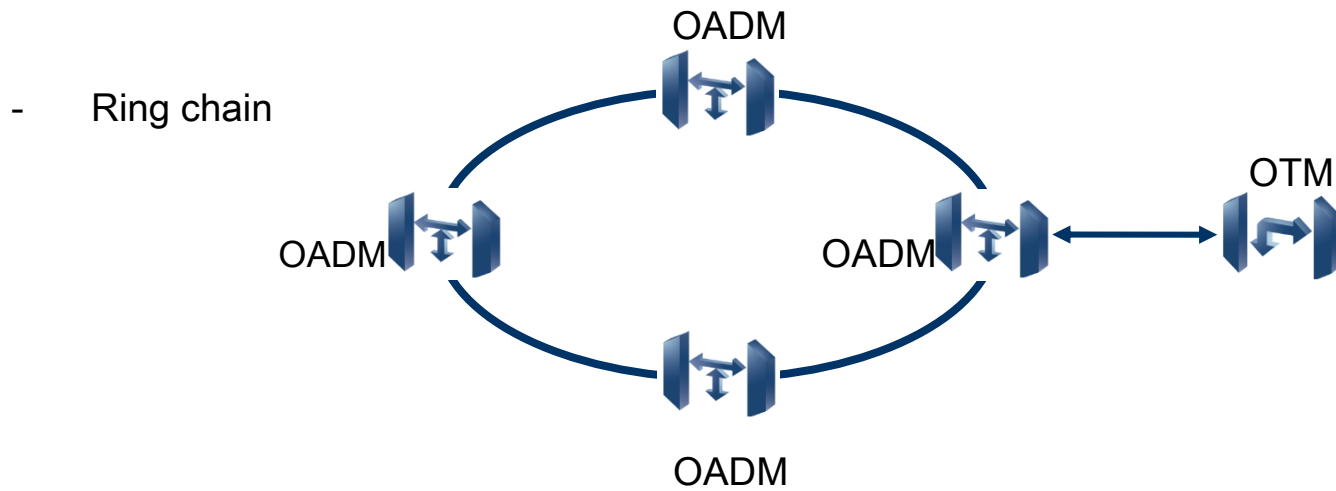
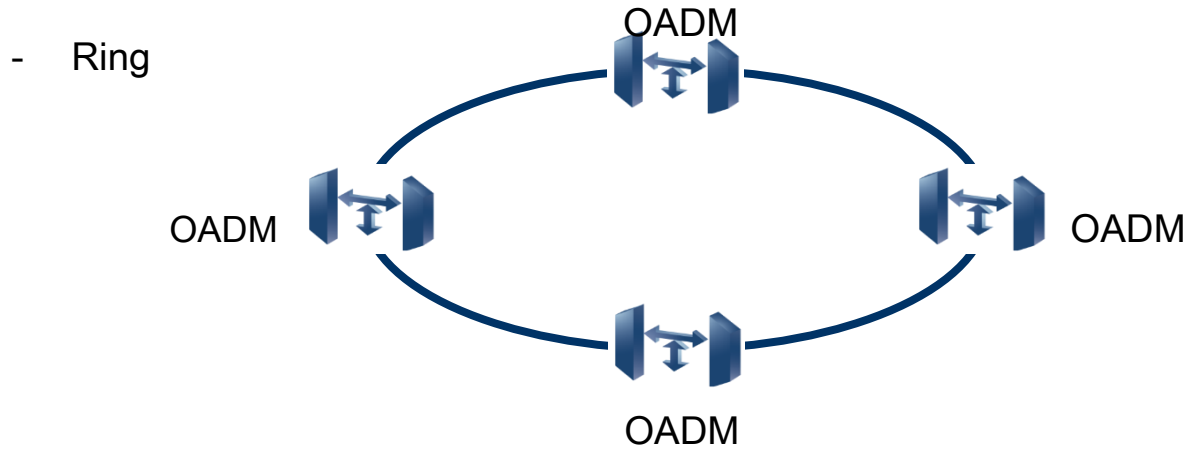
- Point-to-point



- Chain

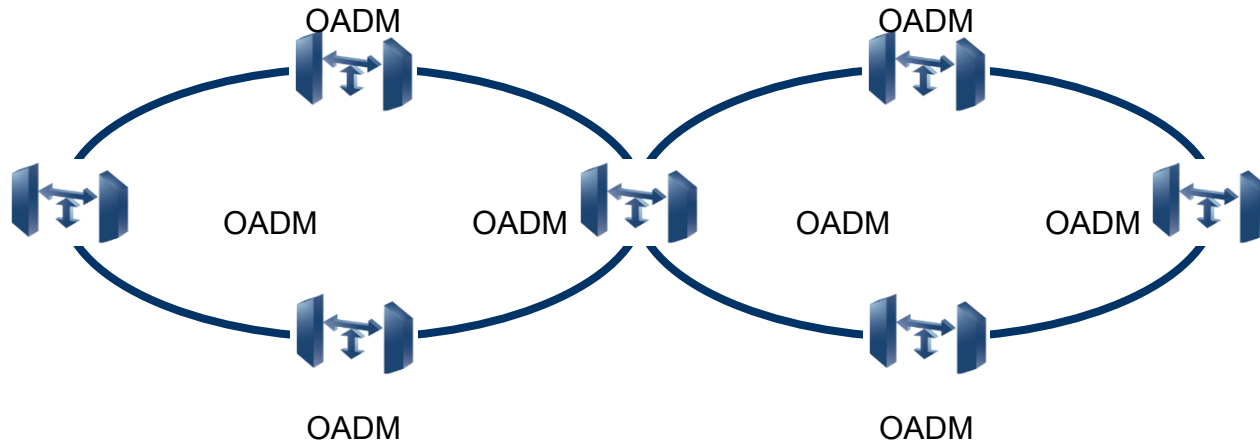


xWDM platform

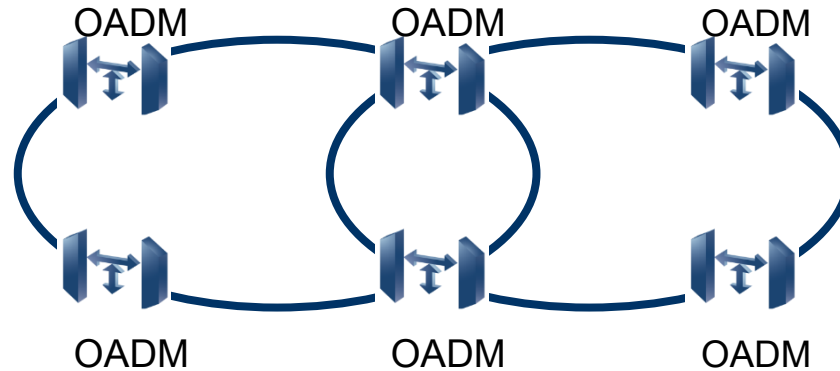


xWDM platform

- adjoining rings

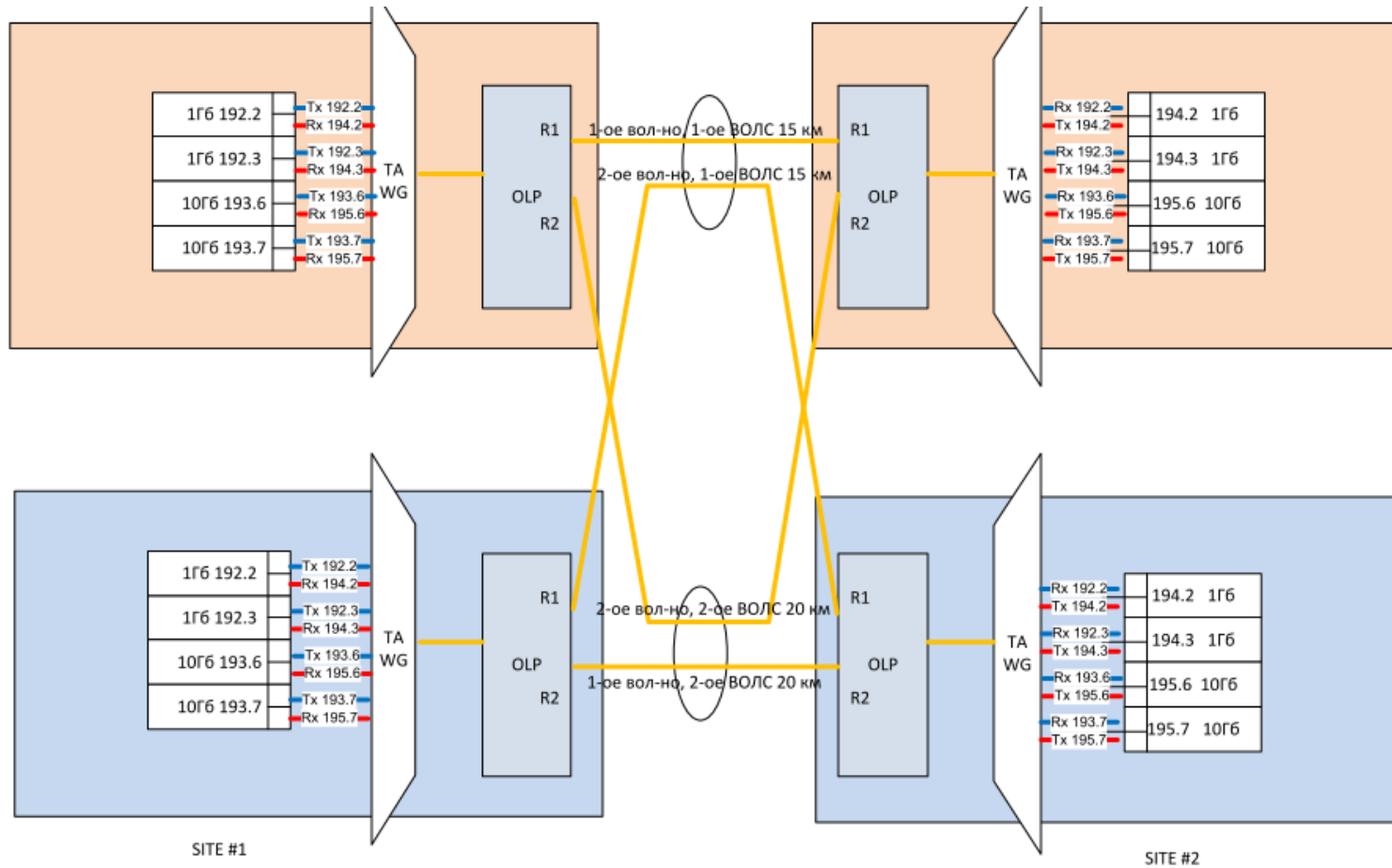


- intersecting rings



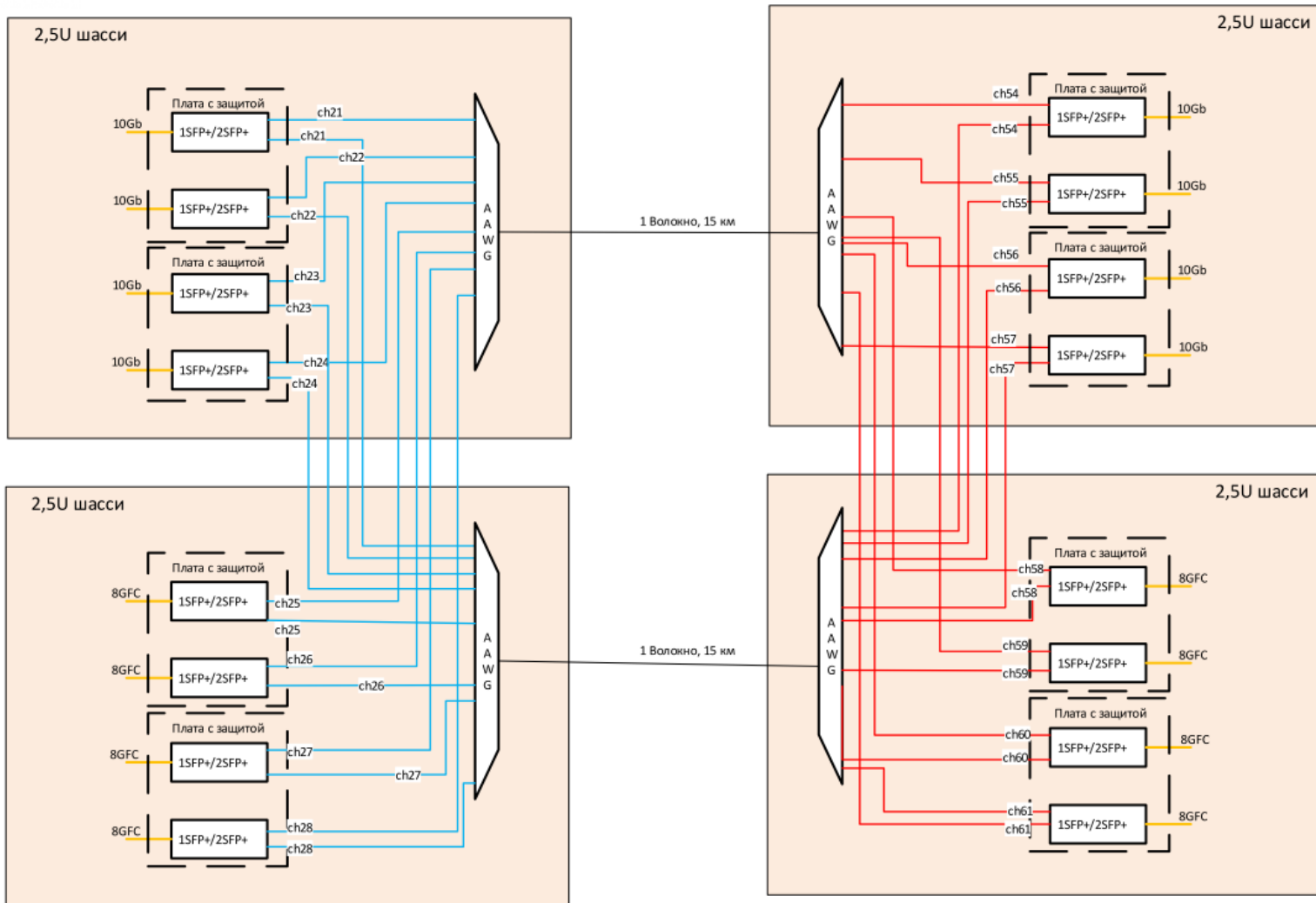
SPECIFIED AND IMPLEMENTED CASES

DWDM Scheme for 10V with OLP 1 + 1 protection



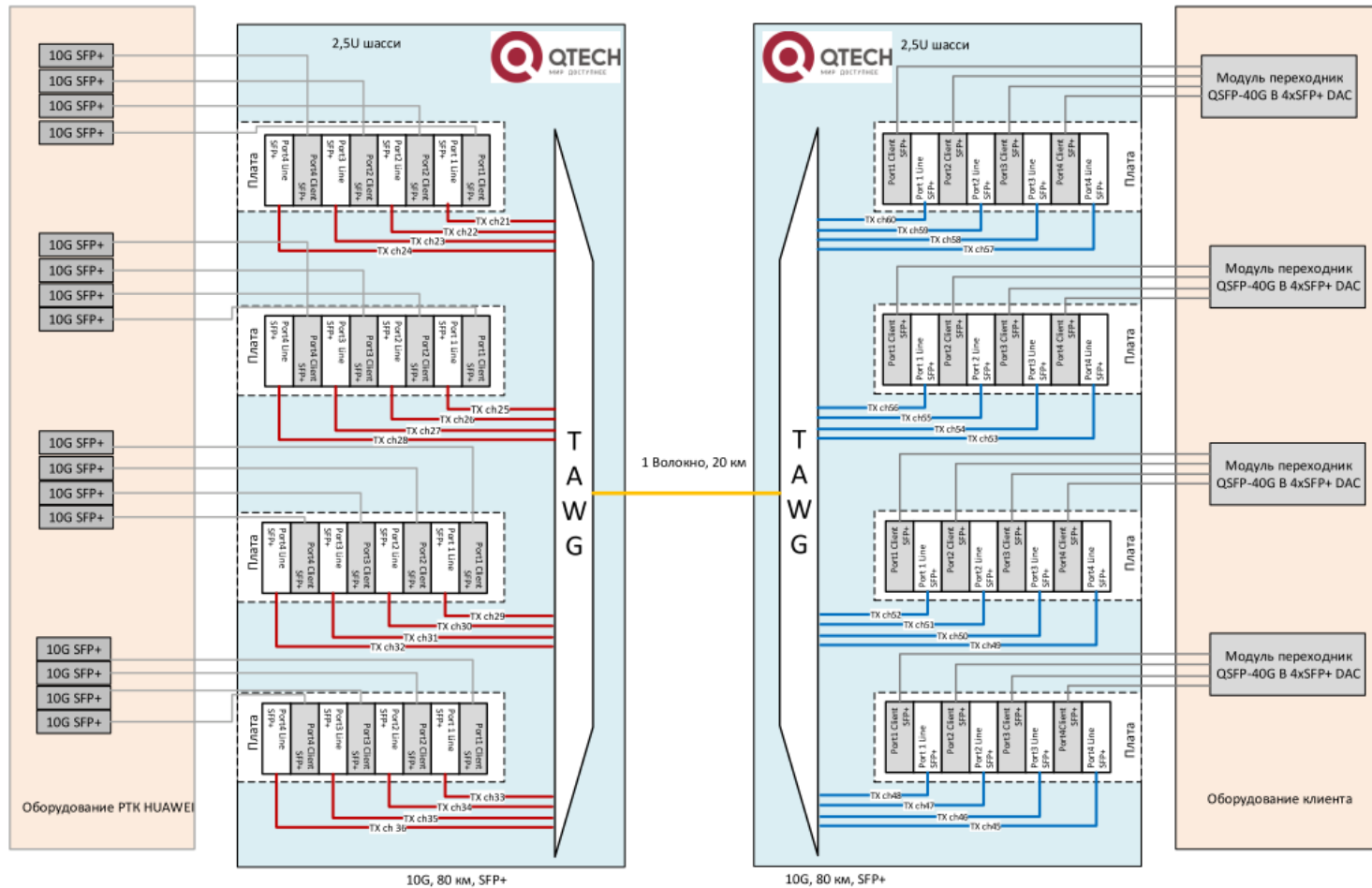
The cost of RPL considering spare parts amounted to approximately \$ 81,000 for the entire solution !!!

DWDM Scheme for 10V with 1 + 1 protection on board

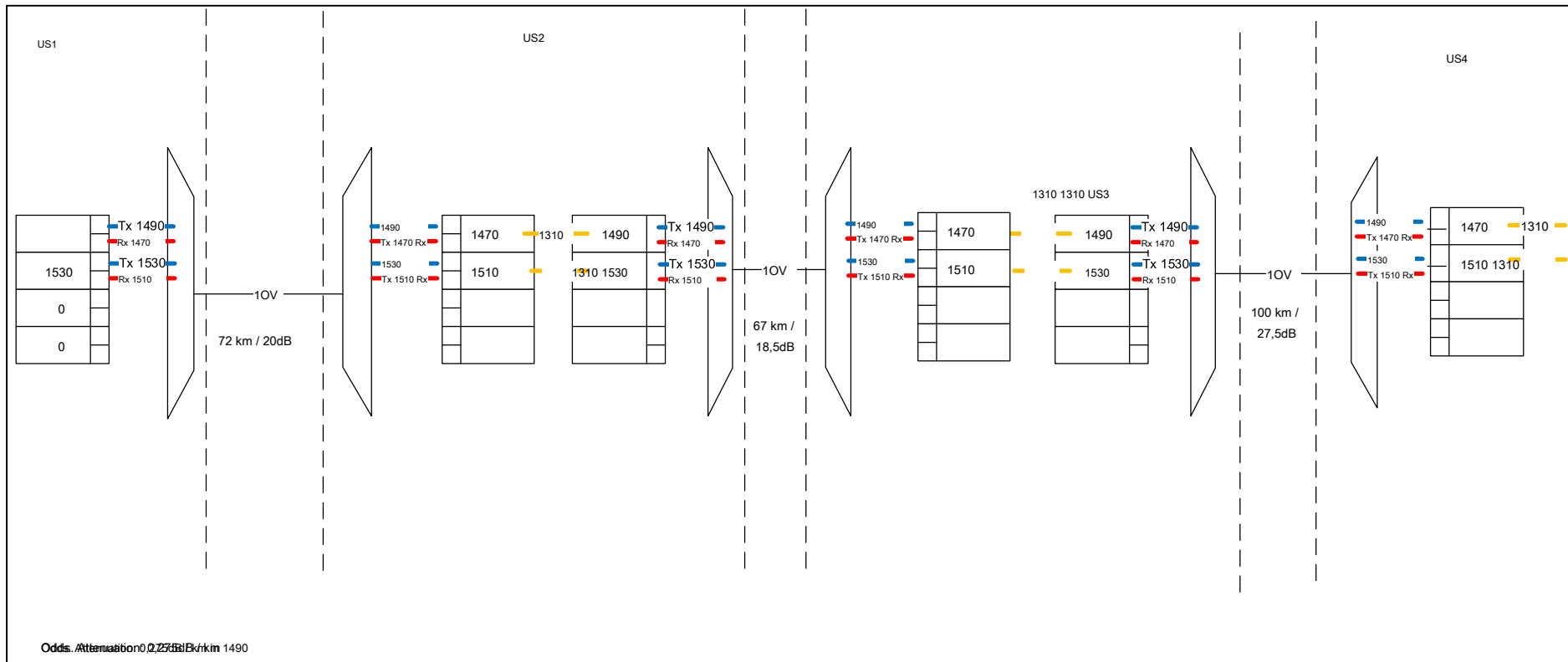


The cost of RPL considering spare parts amounted to approximately \$ 68,000 for the entire solution !!!

SCHEMES on 10V with breakdown 4x40G in 16x10G



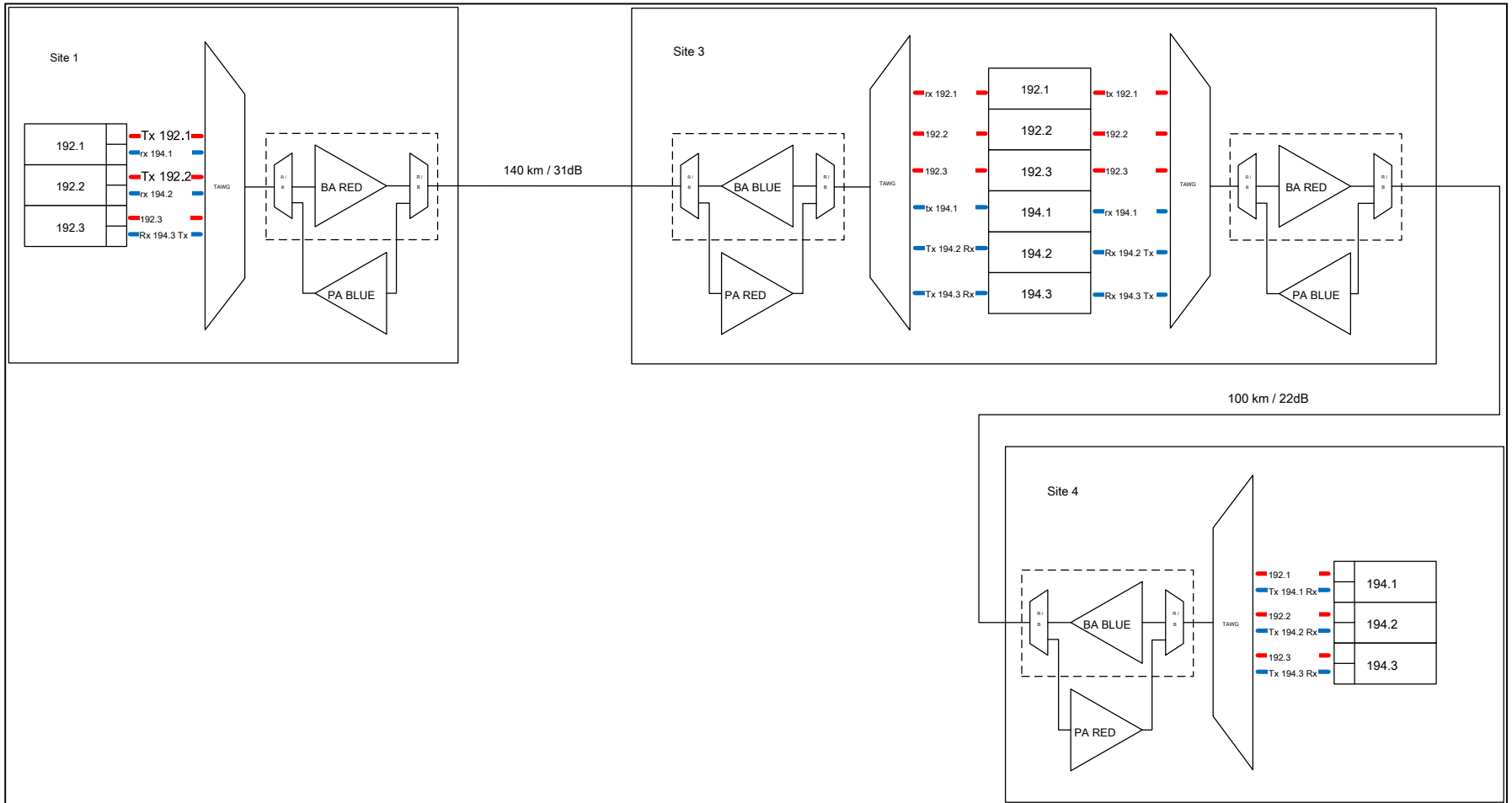
CWDM SCHEME for 10V with 3R regeneration



QWM-8000-2.5U / 1-2AC	2.5U 7 slots 1 to upravlyaeniya 2 * 220V AC	1	1	1	1	4
QWM-8000-NMS	Control Map 4 * RJ45 + 2 * SFP + 1xConsole	1	1	1	1	4
QWM-8000-CW-OD / OM8	1 * 8kanala CWDM Demux / Mux - SF, Supports 6U, 4servisa	2	4	4	2	12
QWM-8000-4SFP / 4SFP	4 * SFP 4 * SFP multiprotocol card 4M ~ 2.5Gbps	1	2	2	1	6
QSC-SFP10GE-31D	1,25Gbit / c, 1310 nm, 10 km, SM, LX, DDM, FP,	2	4	4	2	12
QSC-SFP160-GECW-47D	CWDM SFP module 160 km, 1.25G, Tx = 1470nm, 37dB		1	1		2
QSC-SFP160-GECW-49D	CWDM SFP module 160 km, 1.25G, Tx = 1490nm, 37dB	1	1			2
QSC-SFP160-GECW-51D	CWDM SFP module 160 km, 1.25G, Tx = 1510nm, 37dB		1	1		2
QSC-SFP160-GECW-53D	CWDM SFP module 160 km, 1.25G, Tx = 1530nm, 37dB	1	1			2
QSC-SFP160-GECW-59D	CWDM SFP module 160 km, 1.25G, Tx = 1590nm, 37dB (under control)	1	1			2
QSC-SFP160-GECW-61D	CWDM SFP module 160 km, 1.25G, Tx = 1610nm, 37dB (under control)		1	1		2
QSC-SFP200-GECW-47D	CWDM SFP module 200 km, 1.25G, Tx = 1470nm, 41dB				1	1
QSC-SFP200-GECW-49D	CWDM SFP module 200 km, 1.25G, Tx = 1490nm, 41dB			1		1
QSC-SFP200-GECW-51D	CWDM SFP module 200 km, 1.25G, Tx = 1510nm, 41dB				1	1
QSC-SFP200-GECW-53D	CWDM SFP module 200 km, 1.25G, Tx = 1530nm, 41dB			1		1
QSC-SFP200-GECW-55D	CWDM SFP module 200 km, 1.25G, Tx = 1590nm, 41dB (under control)			1		1
QSC-SFP200-GECW-61D	CWDM SFP module 200 km, 1.25G, Tx = 1610nm, 41dB (under control)				1	1

RPL cost was about \$ 15,000 for the entire solution !!!

DWDM SCHEME for 10V with EDFA BLUE / RED amplifiers

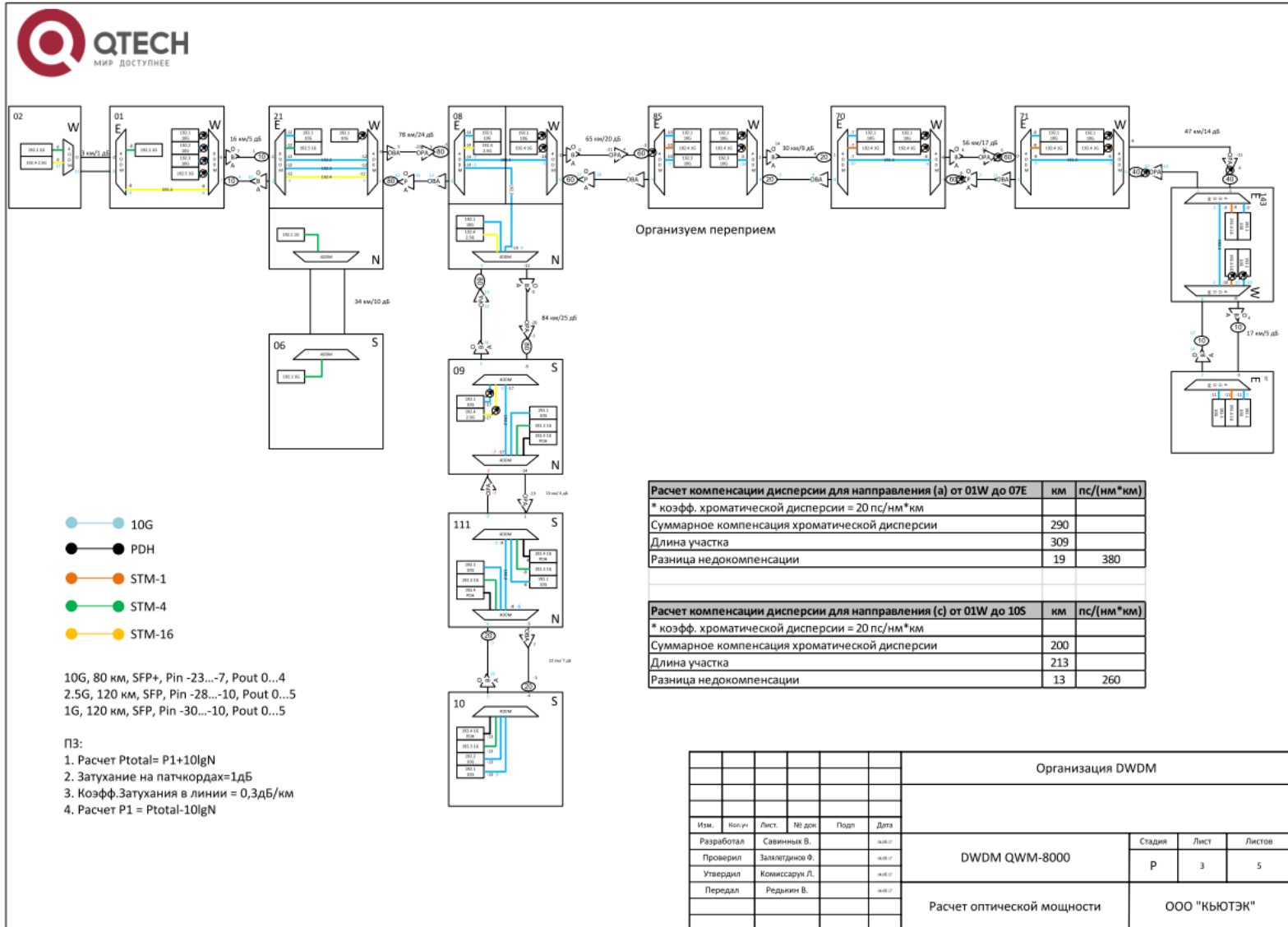


DWDM SCHEME for 10V with EDFA BLUE / RED amplifiers

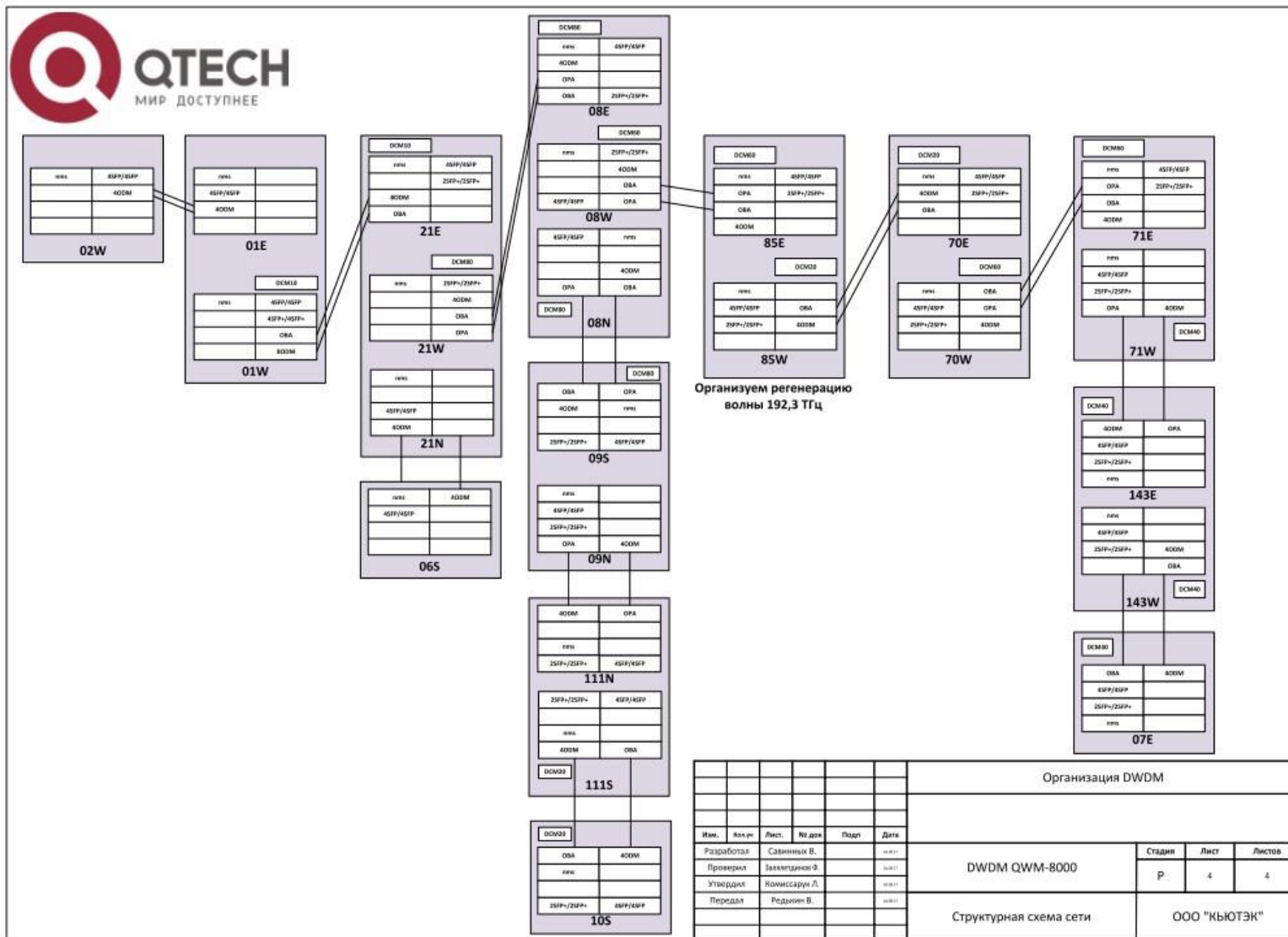
vendor code	Description	BUT	B	AT	Quantity, pcs.
QWM-8000-2.5U / 1-2AC	2.5U 7 slots 1 to upravlyaeniya 2 * 220V AC	one	one	one	3
QWM-8000-NMS	Control Map 4 * RJ45 + 2 * SFP + 1xConsole	one	one	one	3
QWM-8000-TAWG40	1 * 40Ch DWDM TAWG 100 GHz - SF, Supports 6U, 20 services	one	2	one	four
QWM-8000-4SFP / 4SFP	4 * SFP 4 * SFP multi-protocol card 4M-2.5Gbps	one	2	one	four
QSC-SFP10GE-31D	1,25Gbit / c, 1310 nm, 10 km, SM, LX, DDM, FP,	3	6	3	12
QSC-SFP120-GEDW-21D	DWDM SFP module 120 km, 1.25G, Tx = 192,1TGts	one	one	0	2
QSC-SFP120-GEDW-22D	DWDM SFP module 120 km, 1.25G, Tx = 192,2TGts	one	one	0	2
QSC-SFP120-GEDW-23D	DWDM SFP module 120 km, 1.25G, Tx = 192,3TGts	one	one	0	2
QSC-SFP120-GEDW-41D	DWDM SFP module 120 km, 1.25G, Tx = 194,1TGts	0	one	one	2
QSC-SFP120-GEDW-42D	DWDM SFP module 120 km, 1.25G, Tx = 194,2TGts	0	one	one	2
QSC-SFP120-GEDW-43D	DWDM SFP module 120 km, 1.25G, Tx = 194,3TGts	0	one	one	2
QWM-8000-BA16 / 12-B / R	Booster (C-band EDFA, the power output: 16dBm, koef.usileniya 12db, 40kanalov with OSC and PASS blue 1528-1543.2nm / reflection 1547-1561nm red filter)	0	one	0	one
QWM-8000-BA16 / 12-R / B	Booster (EDFA C-range, output power: 16dBm, koef.usileniya 12db, 40kanalov with OSC 1528-1543.2nm reflection and blue / PASS 1547-1561nm red filter)	0	0	one	one
QWM-8000-LA20 / 25-8-BR	Linear amplifier (C-band EDFA, the insertion loss 8db using DCM, output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC and BLUE / RED filter)	one	0	0	one
QWM-8000-LA20 / 25-8-RB	Linear amplifier (EDFA C-band insertion loss 8db using DCM, output power: 20dBm, koef.usileniya 25db, 40kanalov with OSC and RED / BLUE filter)	0	one	0	one
QWM-8000-PA16 / 25	Preamplifier (EDFA C-range, output power: 16dBm, koef.usileniya 25db, 40kanalov with OSC)	one	2	one	four

RPL cost was about \$ 45,000 for the entire solution !!!

Diagrams for 20V with EDFA amplifiers

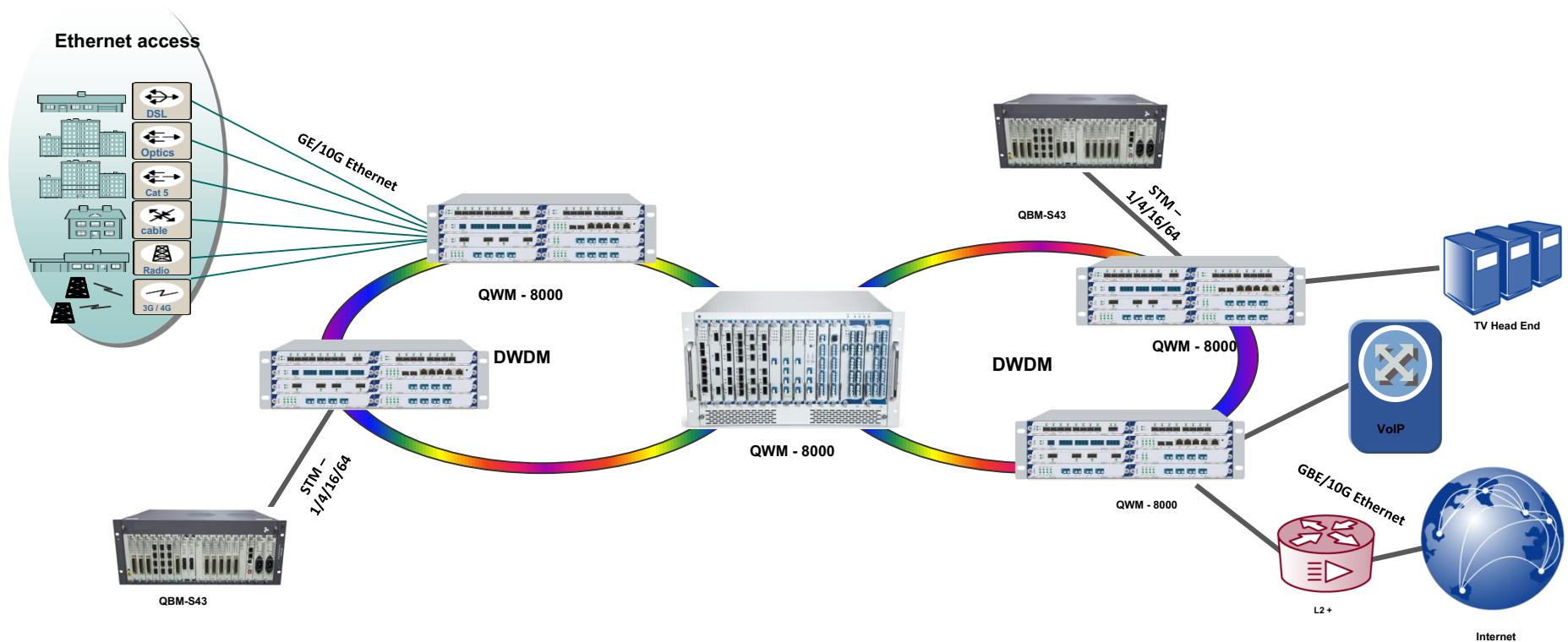


Diagrams for 20V with EDFA amplifiers



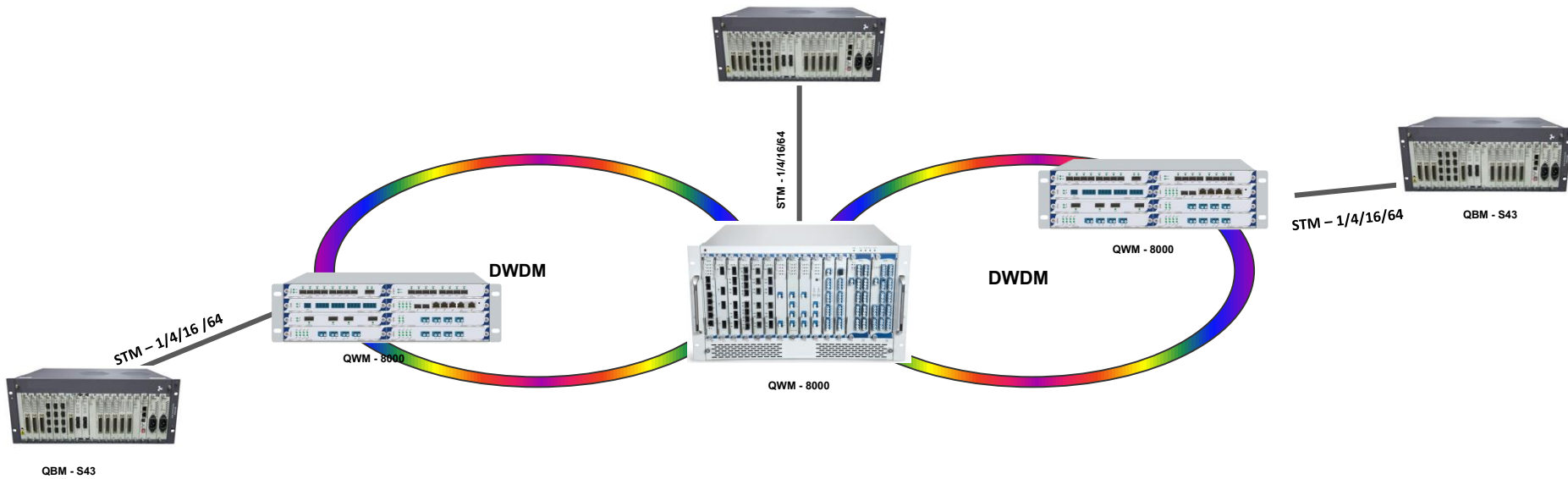
Applications: multiservice xWDM transport

- **Transparent to any type of traffic**
 - 1Gb / s, 10Gb / s
 - SDH STM-1 / STM-4 / STM-16 / STM-64
 - 8GFC
 - The compact design and the high density of 1G / 10G interfaces
 - Up to 500 km without regeneration
 - The implementation of a variety of client interfaces



- **Transparent to the traditional SDH signals**

- STM - 1/4/16/64
- 3R regeneration
- xWDM conversion



QWM-8000 Classical xWDM platform for the best price!

Thanks for attention!

**For failures specifications and various circuits, write
send information to agents@qtech.ir-09129532560**