PBN-AIMA3000 hlavní stanice pro CATV

Brno, 13.3.2015

Radek Kocian

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AIMA3000 Platforma

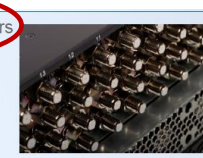
Vysoká kapacita
Max. 64 opt. vysílačů Tx
Max. 64 opt. přijímačů zpětného směru Rx
Nízká energetická náročnost
2W na modul Rx
6W na modul Tx
Webový management

AIMA3000 Platforma

- Max. output power 460 W
- Load-share functions
- Field-replaceable supply, fuse & fan

Power Supply

- 64 Fitted RF connectors
- Supports hot-plug modules
- One back-panel for all types of modules



RF Panel

Fiber Management

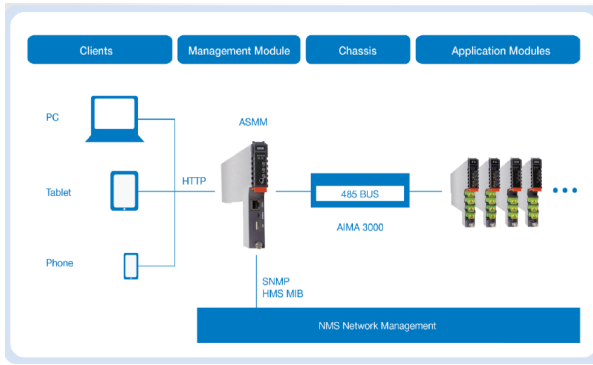
- 1RU space for fiber management
- Specially designed fiber guide

Fan Tray

- Hot plug fan tray
- CPU controlled fans based on temperature
- Fans Field-replaceable

AIMA3000 Platforma

ASMM Control Module

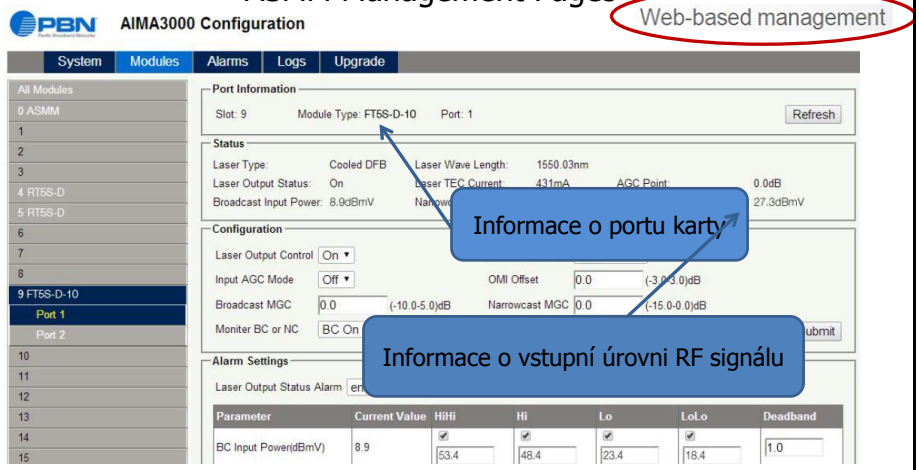


- Central control for all AIMA3000 modules within a chassis
  - Configuration
  - Status
  - Alarms
- Firmware Management
- Configuration Management with external backup
- Embedded HTTP web interface
- USB tethering port
- SNMP v1/2c/3

Integrace do lokálního dohledového systému VIVO CONNECTION, s.r.o.

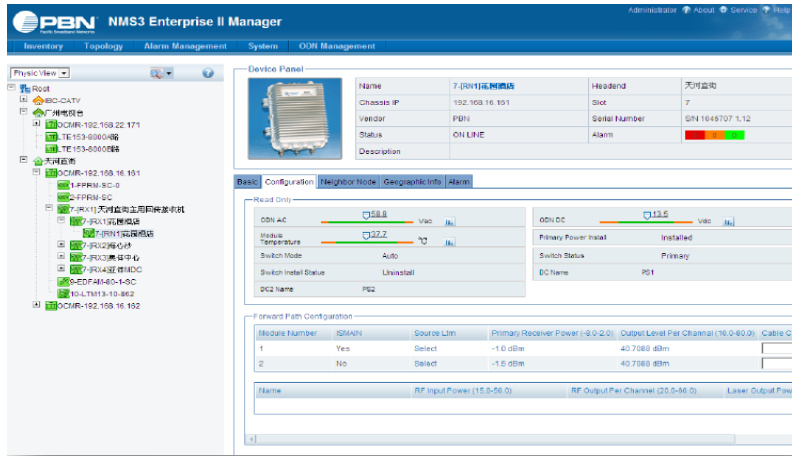
AIMA3000 Platforma

ASMM Management Pages



AIMA3000 Platforma

NMS3 Network Management

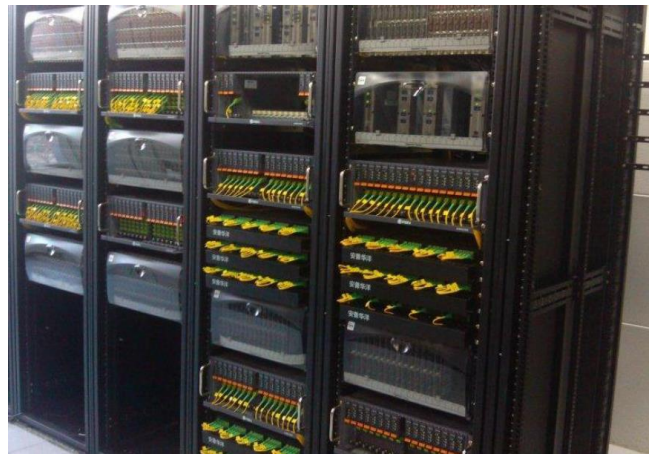


AIMA3000 Platforma

AIMA versus OCMR

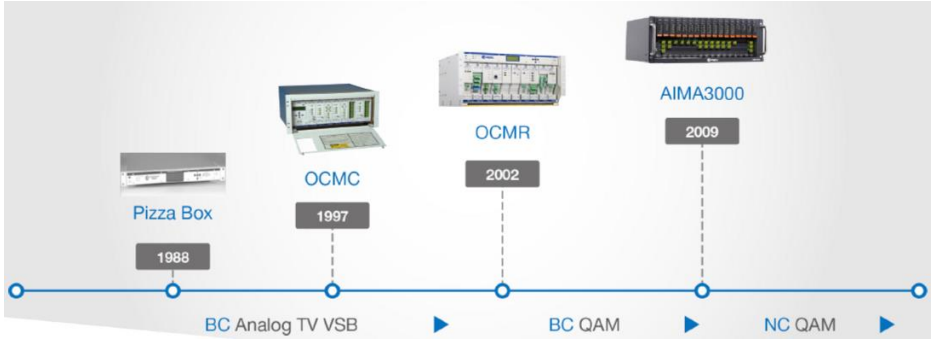
BOM Node 512 Home/node	PBN AIMA3000	PBN OCMR
Required rack space		
Total chassis	1	3
Total RU	**4**	**12**
TX 7dBm	10	20
RRX	5	5
Required power consumption per year (Per unit)		
Chassis + Controller	24.0 W	24.3 W
TX 7dBm	140.0 W	388.0 W
RRX	32.9 W	25.6 W
Total Watt	196.9 W	437.9 W
Total cost of operation		
KWH / Year	1724 KWh	3836 KWh
Forced Cooling	431 KWh	959 KWh
total KWH / Year	2156 KWh	4795 KWh
Cost / Year	**$754**	**$1,678**

AIMA3000 Platforma



Peking – připojeno 4.5 M domácností, realizováno koncem roku 2013, migrace z OCMR

AIMA3000 Platforma



Optické sítě v CATV – HFC/RFoG

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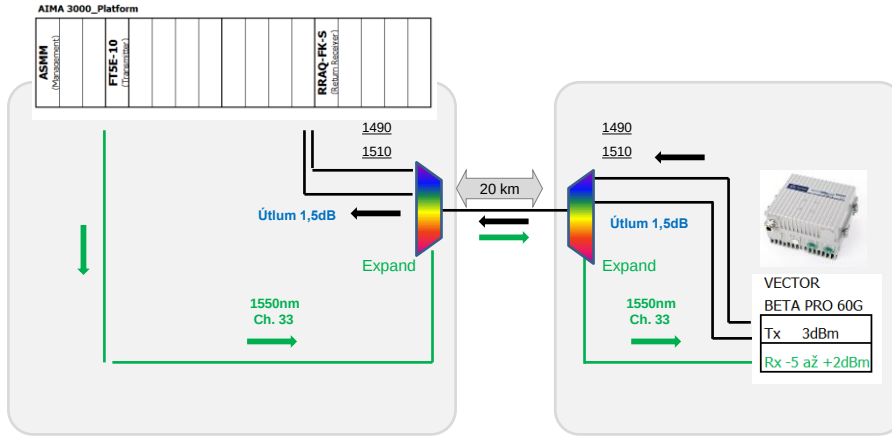
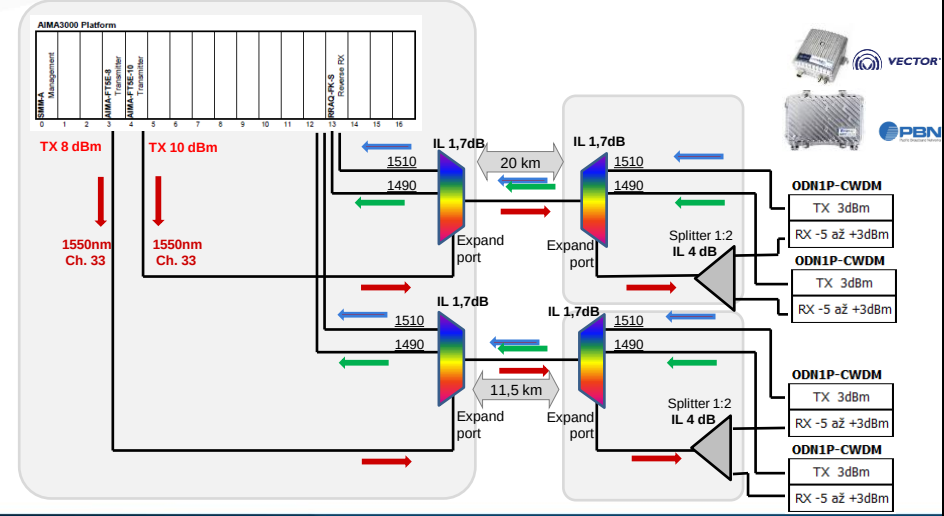


Optické sítě v CATV – HFC/RFoG



Optické sítě v CATV – HFC/RFoG

Application Modules

AIMA-FT5E

1550 nm Forward Transmitter - Enhanced

Optical Performance	
Optical wavelength	ITU standard wavelength
Optical outputs	1
Output power	8 dBm, 9 dBm, 10 dBm
Optical connector	SC/APC[1], FC/APC, LC/APC, E2000/APC
Laser RIN	<-155 dB/Hz

RF Performance	
RF bandwidth	45 MHz to 1000 MHz
RF flatness	± 0.75 dB
RF input return loss	> 16 dB
RF input level, NC nominal [2]	25–35 dBmV per channel
RF input level, BC nominal [2]	15–25 dBmV per channel
AGC range	±3 dB
RF impedance	75 Ω

EDFA Erbium Doped Fiber Amplifier
FPAS RF Forward Path Amplifier - Standard
RFSW RF A/B Protection Switch
Optical A/B Protection Switch
1310 nm Return Transmitter - Standard
1550 nm Return Transmitter - Standard
RF Return Path Amplifier - Standard

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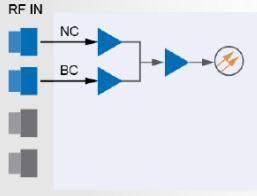
Optické sítě v CATV – HFC/RFoG

FT5 Forward transmitter

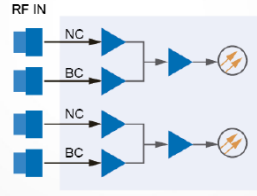
- Maximum 4x transmitters per slot
- Minimum cabling changes required when upgrading to higher density

FT5S-S 1550 nm Forward TX — 2 RF IN, 1 TX OUT



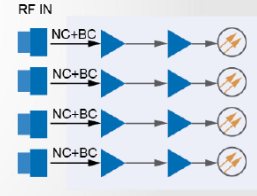
2012

FT5S-D 1550 nm Forward TX — 4 RF IN, 2 TX OUT



2013

FT5X-Q* 1550 nm Forward TX — 4 RF IN, 4 TX OUT



2014

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Optické sítě v CATV – HFC/RFoG

AIMA-RRAF

Analog Return Receiver - FSK

Optical Performance	
Optical wavelength	1260 nm to 1620 nm
Optical inputs	-18 dBm to +2 dBm
Optical return loss	> 50 dB
Optical connectors	4 x SC/APC [1], FC/APC, LC/APC, E2000/APC

RF Performance	
RF bandwidth	5 MHz to 200 MHz
RF output level [2]	48 dBmV
RF flatness	± 0.75 dB (5 MHz to 200 MHz, no 4.5 MHz pilot tone option)
Gain adjustment	up to 52 dB in 0.5 dB increments (default 42 dB)
RF impedance	75 Ω

Optické sítě v CATV – HFC/RFoG

ODN4P

Optical Distribution Node with Four Amplified RF Ports

Forward Path Optical Performance	
Operating wavelength	1200 nm ~ 1600 nm
Input range	-5dBm ~ +3dBm
Nominal design input	-1 dBm
Optical return loss	> 60 dB
Optical connectors	SC/APC [1] E2000/APC FC/APC

Forward Path RF Performance	
ODN4P-[TUVW]-3045-[Y]-[Z] ODN4P-[TUVW]-4254-[Y]-[Z] ODN4P-[TUVW]-5570-[Y]-[Z] ODN4P-[TUVW]-6585-[Y]-[Z]	Bandwidth 45 ~ 1000 MHz Bandwidth 54 ~ 1000 MHz Bandwidth 70 ~ 1000 MHz Bandwidth 85 ~ 1000 MHz
RF amplifier	Dual GaAs FET
Output level	> 55 dBmV @ 1000 MHz
RF flatness	± 0.75 dB
Return loss	> 16 dB
Impedance	75Ω

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Optické sítě v CATV – HFC/RFoG

ODN2000/LE2000

Optical Distribution Node with two amplified RF ports

Forward Path Optical Performance	
Operating wavelength	1200 nm ~ 1610 nm
Input range	-5 dBm ~ +3 dBm
OAGC (optical input)	-4 dBm ~ +2 dBm
Nominal design input	-1 dBm
Optical return loss	> 50 dB

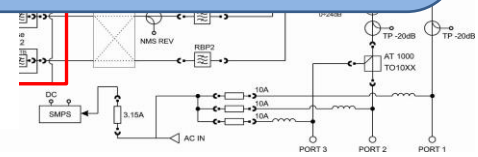
Forward Path RF Performance	
Bandwidth	54 / 70 / 85 ~ 1000 MHz
Output level	> 50 dBmV @ 1000 MHz[1] (ODN2xxx-A) > 55 dBmV @ 1000 MHz[1] (ODN2xxx-B)
RF flatness	± 0.75 dB
Return loss	> 16 dB
Impedance	75 Ω

Optické sítě v CATV – HFC/RFoG

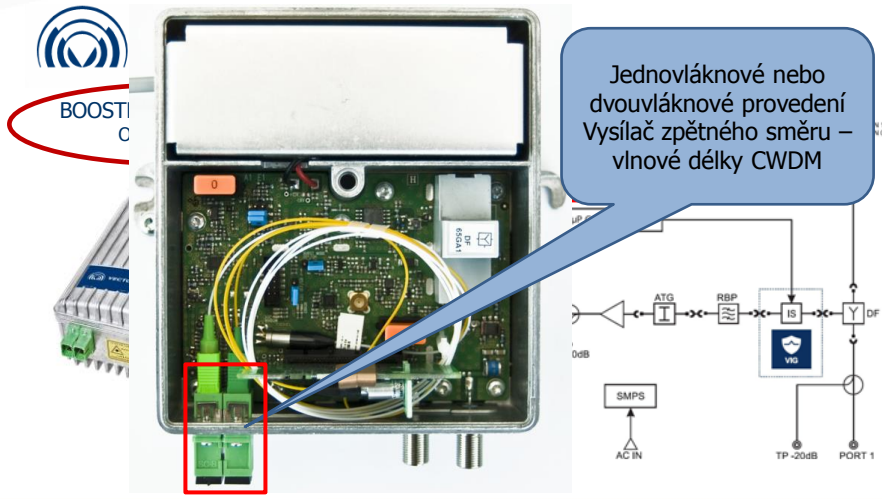
Basic
Terminal (BHHT)

Nastave
1) Segm
RF p
RF
2) S uče
RF port 1, 2, 3 - opt. vysílač č.1
3) Redundantní
RF port 1, 2, 3 - opt. vysílač č.1 i 2

Možnost místního nastavení pomocí terminálu BHHT, PC nebo možnost vzdáleného monitoringu a nastavení

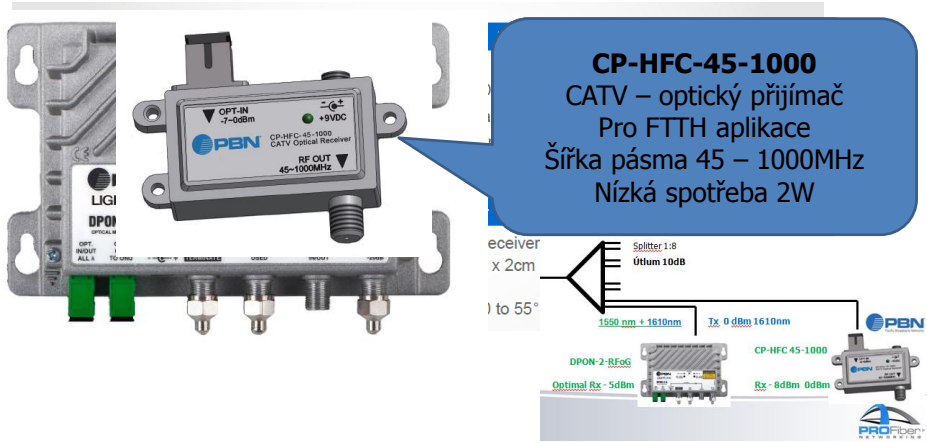


Optické sítě v CATV – HFC/RFoG



Optické sítě v CATV – HFC/RFoG

RFoG Node , Micro Node



Optické sítě v CATV – HFC/RFoG

(Návrh, proměření, osazení technologie)

FITEL

MaxTester 715B

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