

Cisco Remote PHY Model 220 RPD



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Product Description

The Cisco Remote PHY Model 220 2x2 Remote Phy Device (RPD) module for the GS7000 BAU node enables customers to prepare their networks for the future with higher bandwidth per subscriber.

An extension of the Modular Headend Architecture (MHA), MHA_{v2} splits Cable Modem Termination System (CMTS) functions so that Converged Cable Access Platform (CCAP) core and physical-layer functions can run separately, in different locations (see Figure 1 for an architectural overview of MHA_{v2}). CCAP core routing can run out of larger hubs (or even cloud CMTS instances in a data center), while Quadrature Amplitude Modulation (QAM) and Orthogonal Frequency Division Multiplexing (OFDM) modulation gets pushed out to Remote PHY Devices (RPDs) located nearer to subscribers.

Remote PHY is the product of cable operators asking the industry to help them overcome the limitations of analog fiber and break through the Hybrid-Fiber Coaxial (HFC) bottleneck. In its most basic form, Remote PHY unlocks major bandwidth increases in existing access networks. But it also enables “fiber-deep” architectures that push digital fiber out much closer to homes. Ultimately, Remote PHY helps cable operators deliver capacity and Gigabit service tiers on par with any pure-fiber competitor, at a fraction of the cost of ripping and replacing the existing HFC plant.

With Remote PHY, you can deploy fewer sophisticated CCAP routing platforms, connected to many smaller-footprint, less expensive RPDs. You don't have to run a large number of full-featured I-CMTS platforms at every hub, consuming huge amounts of space and power as you scale, and requiring advanced onsite expertise to deploy and maintain. You can consolidate CCAP core functions to larger hubs or data centers and push digital fiber deeper into your access network—in some cases, all the way to the node. You only have to worry about converting to analog HFC for the last few hundred feet to the residence. And you can dramatically boost bandwidth to every home.

The Cisco[®] Remote PHY model 220 RPD has been integrated with the Cisco Smart PHY deployment automation software. Cisco Smart PHY deployment automation software is a micro-service-based software tool that enables full automation for provisioning, configuration, and maintenance of standards-based RPDs, shelves, and Cisco RPHY cores.

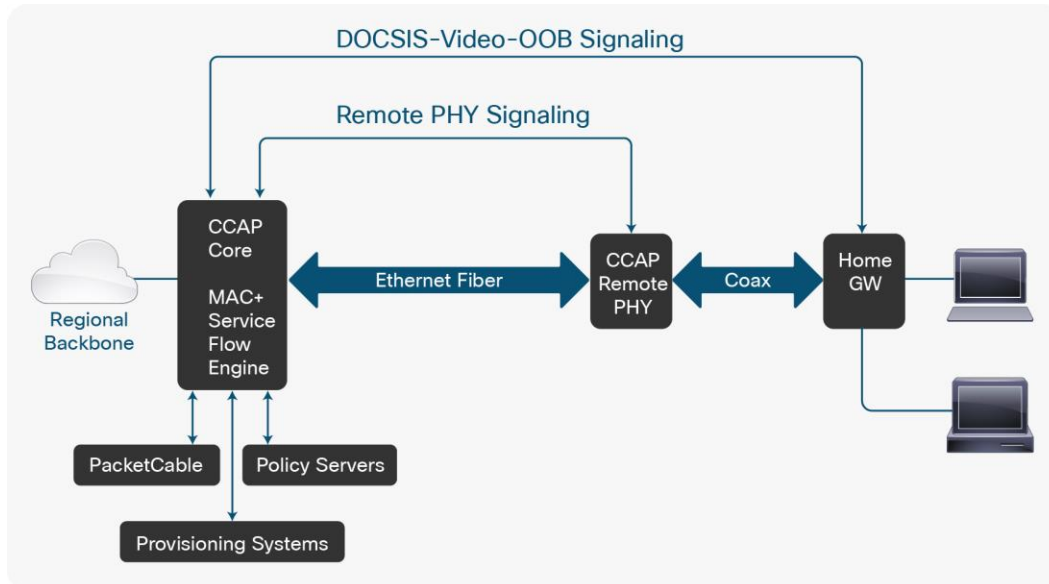


Figure 1.
MHA_{v2} reference architecture

Features and Benefits

The Cisco Remote PHY 220 RPD module offers Small Form-Factor Pluggable Plus (SFP+) support. Table 1 outlines some key features of the Remote PHY 220 RPD Module. Table 2 describes the module's specifications.

Table 1. Features

| | |
|---|--|
| Downstream and upstream configurations | 2x2 (downstream x upstream) |
| Downstream capacity | 48 narrowcast QAMs, 80 broadcast QAMs and one 192 MHz Orthogonal Frequency-Division Multiplexing (OFDM) blocks per port. |
| Upstream capacity | 4 upstream channels per port 1 OFDMA block (48 MHz) per port |
| Channel assignment | Flexibility QAM channel frequency placement |
| Video | Broadcast, VOD, and SDV SCTE 55-1 and SCTE 55-2 OOB |
| Video encryption | PowerKEY, VPME, and DVB |
| CIN connectivity | Dual 10 GBE SFP+ Daisy chaining |
| Operation and maintenance | AGC and leakage detection tone generation Upstream monitoring |

Table 2. Specifications

| Description | Specification |
|--|--|
| Design to be compliant with Cablelabs Remote PHY specifications | <ul style="list-style-type: none"> • CM-SP-R-PHY-I11-180926 Remote PHY Specification • CM-SP-R-DEPI-I11-180926 Remote Downstream External PHY Interface Specification • CM-SP-R-UEPI-I09-180926 Remote Upstream External PHY Interface Specification • CM-SP-GCP-I04-180509 Generic Control Plane Specification • CM-SP-R-DTI-I07-180509 Remote DOCSIS Timing Interface Specification • CM-SP-R-OOB-I10-180926 Remote Out-of-Band Specification • CM-SP-R-OSSI-I10-180926 Remote PHY OSS Interface Specification • CM-SP-DRFI-I16-170111 |
| Power requirements | |
| Power consumption | 52W typical |
| Environmental specifications | |
| Operating temperature range | -40° to 140°F (-40° to 60°C) external to the node |
| Operating humidity range | 5 to 95% |
| Mechanical specifications | |
| Dimensions | L x H x D: 10.0 x 3.0 x 5.75 in (254 x 76 x 146 mm) |
| Weight | 1.4 kg |

| Description | Specification |
|---------------|------------------|
| RF connectors | AFI-HD connector |

Optical SFP+ Options

Table 3. Optical SFP+ Module Options

| 20 KM SFP+ PIDs 400 ps / nm / km dispersion | 40 KM SFP+ PIDs 800 ps / nm / km dispersion | 80 KM SFP+ PIDs 1600 ps / nm / km dispersion |
|--|--|---|
| RPHY-S10G-20K-200= | RPHY-S10G-40K-200= | RPHY-S10G-80K-200= |
| RPHY-S10G-20K-210= | RPHY-S10G-40K-210= | RPHY-S10G-80K-210= |
| RPHY-S10G-20K-220= | RPHY-S10G-40K-220= | RPHY-S10G-80K-220= |
| RPHY-S10G-20K-230= | RPHY-S10G-40K-230= | RPHY-S10G-80K-230= |
| RPHY-S10G-20K-240= | RPHY-S10G-40K-240= | RPHY-S10G-80K-240= |
| RPHY-S10G-20K-250= | RPHY-S10G-40K-250= | RPHY-S10G-80K-250= |
| RPHY-S10G-20K-260= | RPHY-S10G-40K-260= | RPHY-S10G-80K-260= |
| RPHY-S10G-20K-270= | RPHY-S10G-40K-270= | RPHY-S10G-80K-270= |
| RPHY-S10G-20K-280= | RPHY-S10G-40K-280= | RPHY-S10G-80K-280= |
| RPHY-S10G-20K-290= | RPHY-S10G-40K-290= | RPHY-S10G-80K-290= |
| RPHY-S10G-20K-300= | RPHY-S10G-40K-300= | RPHY-S10G-80K-300= |
| RPHY-S10G-20K-310= | RPHY-S10G-40K-310= | RPHY-S10G-80K-310= |
| RPHY-S10G-20K-320= | RPHY-S10G-40K-320= | RPHY-S10G-80K-320= |
| RPHY-S10G-20K-330= | RPHY-S10G-20K-330= | RPHY-S10G-80K-330= |
| RPHY-S10G-20K-340= | RPHY-S10G-40K-340= | RPHY-S10G-80K-340= |
| RPHY-S10G-20K-350= | RPHY-S10G-20K-350= | RPHY-S10G-80K-350= |
| RPHY-S10G-20K-360= | RPHY-S10G-40K-360= | RPHY-S10G-80K-360= |
| RPHY-S10G-20K-370= | RPHY-S10G-20K-370= | RPHY-S10G-80K-370= |
| RPHY-S10G-20K-380= | RPHY-S10G-40K-380= | RPHY-S10G-80K-380= |
| RPHY-S10G-20K-390= | RPHY-S10G-40K-390= | RPHY-S10G-80K-390= |

Ordering Information

The RPD is available in the following configuration:

| PID | Description |
|----------|--|
| RPD-2X2= | Remote PHY 220 RPD with SCTE 55-1 and 55-2 OOB |

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