



Remote PHY QAM Profile Configuration

This document describes how to configure the QAM profile on the Cisco cBR Series Converged Broadband Router.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.

- [Hardware Compatibility Matrix for Cisco Remote PHY Device](#), on page 1
- [Information About QAM Profile](#), on page 2
- [How to Configure Remote PHY QAM Profile](#), on page 2
- [Configuration Example](#), on page 3
- [Feature Information for QAM Profile Configuration](#), on page 4

Hardware Compatibility Matrix for Cisco Remote PHY Device



Note Unless otherwise specified, the hardware components introduced in a given Cisco Remote PHY Device Software Release are supported in all subsequent releases.

Table 1: Hardware Compatibility Matrix for the Cisco 2x2 Remote PHY Device

Cisco HFC Platform	Remote PHY Device
Cisco GS7000 BAU	Cisco 2x2 RPD Software 2.x and Later Releases Cisco Remote PHY Device 2x2 PID—RPD-2X2=

Information About QAM Profile

A QAM profile describes the common downstream channel modulator settings, referred to as physical layer parameters. This includes QAM constellation, symbol rate, interleaver-depth, spectrum-inversion, and annex.

The QAM profile is described by CCAP DownPhyParams object. Default QAM profiles are supported and customized for DOCSIS or MPEG Video, which are described as DocsisPhyDefault and VideoPhyDefault objects, respectively.

A maximum of 32 QAM profiles can be defined. There are four system-defined QAM profiles (0 to 3), which cannot be deleted or modified. You can define profiles 4 to 31.

The system defined profiles are:

- Profile 0 - default-annex-b-64-qam
 - interleaver-depth: I32-J4
 - symbol rate: 5057 kilo-symbol/second
 - spectrum-inversion: off

- Profile 1 - default-annex-b-256-qam
 - interleaver-depth: I32-J4
 - symbol rate: 5361 kilo-symbol/second
 - spectrum-inversion: off

- Profile 2 - default-annex-a-64-qam
 - interleaver-depth: I12-J17
 - symbol rate: 6952 kilo-symbol/second
 - spectrum-inversion: off

- Profile 3 - default-annex-a-256-qam
 - interleaver-depth: I12-J17
 - symbol rate: 6952 kilo-symbol/second
 - spectrum-inversion: off

How to Configure Remote PHY QAM Profile

Configuring the QAM Profile on Downstream Channels

```
Enable
configure terminal
  cabledownstream qam-profile Qam_Profile_ID D
```

```
annex {A | B | C}
description LINE
interleaver-depth {I12-J17 | I128-J1 | I128-J2 |
I128-J3 | I128-J4 | I128-J5 | I128-J6 | I128-J7 |
I128-J8 | I16-J8 | I32-J4 | I64-J2 | I8-J16}
modulation {256 | 64} spectrum-inversion {off | on}
symbol-rate value
exit
```

You can configure symbol rate for Annex A video and Annex C video. The valid range for Annex A video is 3500 to 7000 kilo-symbols/sec. The valid range for Annex C video is 3500 to 5309 kilo-symbols/sec. The channel width in kHz is $\text{symbol-rate} * (1 + \alpha)$ with 0.15 alpha for Annex A and 0.13 alpha for Annex C.

Verifying QAM Profile on Downstream Channels

Use the following commands to verify the QAM Profile on Downstream Channels:

```
Router#show running-config | section downstream controller-profile
cable downstream controller-profile 0
rf-chan 0 3
type DOCSIS
frequency 111000000
rf-output NORMAL
qam-profile 1
docsis-channel-id 1
```

Configuration Example

QAM Profile Configuration

```
configure terminal
cable downstream controller-profile 1
multicast-pool 20
Rf-channel 0 15
Type docsis
Frequency 111000000
Rf-output NORMAL
Qam-profile 1
Docsis-channel-id 1
cable downstream controller-profile 2
multicast-pool 20
Rf-channel 20 47
Type video sync
Frequency 231000000
Rf-output NORMAL
Qam-profile 14
```

Feature Information for QAM Profile Configuration

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.



Note The below table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Table 2: Feature Information for QAM Profile Configuration

Feature Name	Releases	Feature Information
QAM Profile Configuration-RPHY Annex B	Cisco 2x2 RPD Software 2.x	This feature was introduced on the Cisco 2x2 Remote PHY Device.
QAM Profile Configuration-RPHY Annex A and C	Cisco 2x2 RPD Software 2.x	This feature was introduced on the Cisco 2x2 Remote PHY Device.