



# 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 that are documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. The Feature Information Table at the end of this document provides information about the documented features and lists the releases in which each feature is supported.

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

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## 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 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 the 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 the [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn) link. An account on the [Cisco.com](http://Cisco.com) page is not required.



**Note** The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

**Table 1: Feature Information for QAM Profile Configuration**

Feature Name	Releases	Feature Information
QAM Profile Configuration-RPHY Annex B	Cisco 1x2 / Compact Shelf RPD Software 1.1	This feature was introduced on the Cisco Remote PHY Device.
QAM Profile Configuration-RPHY Annex A and C	Cisco 1x2 / Compact Shelf RPD Software 3.1	This feature was introduced on the Cisco Remote PHY Device.

