



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.

For more information about the downstream interface configuration, see [Downstream Interface Configuration](#).

But be aware that, if you configure annex A 6MHz or 7MHz in a QAM profile, then this QAM profile cannot be applied to a DOCSIS channel.

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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.

For more information about the downstream interface configuration, see [Downstream Interface Configuration](#).

But be aware that, if you configure annex A 6MHz or 7MHz in a QAM profile, then this QAM profile cannot be applied to a DOCSIS channel.

How to Configure the Video QAM Carriers

Configuring the Video QAM Profile

To configure the video QAM profile, complete the following procedure:

```
configure terminal
cable downstream qam-profile id
annex {A freq_spacing|B|C}
modulation value
```

```

interleaver-depth value
symbol-rate value
spectrum-inversion {on|off}
description line

```

The frequency spacing of 6MHz, 7MHz and 8 MHz can be selected or annex A. In this case, the QAM profile can only be applied to a video channel.

Spectral inversion happens as a result of mixing processes in RF or IF electronics. Spectrum inversion allows for the adaptation of older equipment with the new plant. The mixing of I and Q are used to create a quadrant profile. For some settops, the inversion of the quadrant profile is needed where the axis are flipped such that I represents the X and Q represents the Y-axis. Most modern equipment can detect and resolve the inversion split.

Configuring the Video QAM Carriers

To configure the Video QAM carriers, complete the following procedure:

```

configure terminal
controller integrated-cable slot/bay/port
rf-channel start-channel - end-channel
type video
start-frequency frequency
rf-output normal
power-adjust number
qam-profile qam-profile number

```



Note For video provisioning, the carriers must be of type “video” in the controller integrated-cable configuration.

Verify the configuration of the RF Channel

To verify the RF channel configuration, use the Show controller integrated-cable rf-chan command as shown in the example below:

```

Router#show controllers integrated-Cable 9/0/7 rf-channel 0-10
Load for five secs: 6%/0%; one minute: 5%; five minutes: 5%
Chan State Admin Frequency Type Annex Mod srate Interleaver dcid power output
0 UP UP 100000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
1 UP UP 106000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
2 UP UP 112000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
3 UP UP 118000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
4 UP UP 124000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
5 UP UP 130000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
6 UP UP 136000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
7 UP UP 142000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
8 UP UP 148000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
9 UP UP 154000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL
10 UP UP 160000000 VIDEO A 256 5361 I12-J17 - 34.0 NORMAL

```

Configuration Examples

This section provides configuration examples for the QAM video carrier.

Video QAM Carriers

The following is a sample for the Video QAM carrier configuration:

```
Router#enable
Router(config)#cable downstream qam-profile 4
Router(config-qam-prof)#annex A 6MHz
Router(config-qam-prof)#modulation 256
Router(config-qam-prof)#interleaver-depth I32-J4
Router(config-qam-prof)#symbol-rate 5361
Router(config-qam-prof)#spectrum-inversion off
Router(config-qam-prof)#description default-annex-a-256-qam
Router(config-qam-prof)#exit
Router(config)#controller Integrated-Cable 3/0/0
Router(config-controller)#max-carrier 128
Router(config-controller)#base-channel-power 34
Router(config-controller)#freq-profile 0
Router(config-controller)#rf-chan 0 95
Router(config-rf-chan)#type video
Router(config-rf-chan)#frequency 93000000
Router(config-rf-chan)#rf-output NORMAL
Router(config-rf-chan)#power-adjust 0
Router(config-rf-chan)#docsis-channel-id 1
Router(config-rf-chan)#qam-profile 1
```

Feature Information for QAM Video Carriers

Table 1: Feature Information for QAM Video Carriers

Feature Name	Releases	Feature Information
QAM Video Carriers	Cisco IOS XE Everest 16.6.1	This feature was integrated on the Cisco cBR Series Converged Broadband Routers.
Annex A Variable Channel Width	Cisco IOS XE Everest 16.6.1	This feature was integrated on the Cisco cBR Series Converged Broadband Routers.

How to Configure the Video QAM Carriers

Configuring the Video QAM Profile

To configure the video QAM profile, complete the following procedure:

```
configure terminal
cable downstream qam-profile id
```

```

annex {A freq_spacing|B|C}
modulation value
interleaver-depth value
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spectrum-inversion {on|off}
description line

```

The frequency spacing of 6MHz, 7MHz and 8 MHz can be selected or annex A. In this case, the QAM profile can only be applied to a video channel.

Spectral inversion happens as a result of mixing processes in RF or IF electronics. Spectrum inversion allows for the adaptation of older equipment with the new plant. The mixing of I and Q are used to create a quadrant profile. For some settops, the inversion of the quadrant profile is needed where the axis are flipped such that I represents the X and Q represents the Y-axis. Most modern equipment can detect and resolve the inversion split.

Configuring the Video QAM Carriers

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type video
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rf-output normal
power-adjust number
qam-profile qam-profile number

```



Note For video provisioning, the carriers must be of type “video” in the controller integrated-cable configuration.

Verify the configuration of the RF Channel

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Router(config-qam-prof)#symbol-rate 5361
Router(config-qam-prof)#spectrum-inversion off
Router(config-qam-prof)#description default-annex-a-256-qam
Router(config-qam-prof)#exit
Router(config)#controller Integrated-Cable 3/0/0
Router(config-controller)#max-carrier 128
Router(config-controller)#base-channel-power 34
Router(config-controller)#freq-profile 0
Router(config-controller)#rf-chan 0 95
Router(config-rf-chan)#type video
Router(config-rf-chan)#frequency 93000000
Router(config-rf-chan)#rf-output NORMAL
Router(config-rf-chan)#power-adjust 0
Router(config-rf-chan)#docsis-channel-id 1
Router(config-rf-chan)#qam-profile 1
```

Feature Information for QAM Video Carriers

Table 2: Feature Information for QAM Video Carriers

Feature Name	Releases	Feature Information
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