

# RF Tuner Control Reference

The RF Tuner (RF\_TUNER) class includes controls for common features of devices having RF tuner.

In this context, RF tuner is radio receiver circuit between antenna and demodulator. It receives radio frequency (RF) from the antenna and converts that received signal to lower intermediate frequency (IF) or baseband frequency (BB). Tuners that could do baseband output are often called Zero-IF tuners. Older tuners were typically simple PLL tuners inside a metal box, while newer ones are highly integrated chips without a metal box "silicon tuners". These controls are mostly applicable for new feature rich silicon tuners, just because older tuners does not have much adjustable features.

For more information about RF tuners see [Tuner \(radio\)](#) and [RF front end](#) from Wikipedia.

## RF\_TUNER Control IDs

V4L2\_CID\_RF\_TUNER\_CLASS (class)

The RF\_TUNER class descriptor. Calling `ref:VIDIOC_QUERYCTRL` for this control will return a description of this control class.

**System Message: ERROR/3 (D:\onboarding-resources\sample-onboarding-resources\linux-master\Documentation\userspace-api\media\v4l\[linux-master][Documentation][userspace-api][media][v4l]ext-ctrls-rf-tuner.rst, line 34); [backlink](#)**

Unknown interpreted text role "ref".

V4L2\_CID\_RF\_TUNER\_BANDWIDTH\_AUTO (boolean)

Enables/disables tuner radio channel bandwidth configuration. In automatic mode bandwidth configuration is performed by the driver.

V4L2\_CID\_RF\_TUNER\_BANDWIDTH (integer)

Filter(s) on tuner signal path are used to filter signal according to receiving party needs. Driver configures filters to fulfill desired bandwidth requirement. Used when V4L2\_CID\_RF\_TUNER\_BANDWIDTH\_AUTO is not set. Unit is in Hz. The range and step are driver-specific.

V4L2\_CID\_RF\_TUNER\_LNA\_GAIN\_AUTO (boolean)

Enables/disables LNA automatic gain control (AGC)

V4L2\_CID\_RF\_TUNER\_MIXER\_GAIN\_AUTO (boolean)

Enables/disables mixer automatic gain control (AGC)

V4L2\_CID\_RF\_TUNER\_IF\_GAIN\_AUTO (boolean)

Enables/disables IF automatic gain control (AGC)

V4L2\_CID\_RF\_TUNER\_RF\_GAIN (integer)

The RF amplifier is the very first amplifier on the receiver signal path, just right after the antenna input. The difference between the LNA gain and the RF gain in this document is that the LNA gain is integrated in the tuner chip while the RF gain is a separate chip. There may be both RF and LNA gain controls in the same device. The range and step are driver-specific.

V4L2\_CID\_RF\_TUNER\_LNA\_GAIN (integer)

LNA (low noise amplifier) gain is first gain stage on the RF tuner signal path. It is located very close to tuner antenna input. Used when V4L2\_CID\_RF\_TUNER\_LNA\_GAIN\_AUTO is not set. See V4L2\_CID\_RF\_TUNER\_RF\_GAIN to understand how RF gain and LNA gain differs from the each others. The range and step are driver-specific.

V4L2\_CID\_RF\_TUNER\_MIXER\_GAIN (integer)

Mixer gain is second gain stage on the RF tuner signal path. It is located inside mixer block, where RF signal is down-converted by the mixer. Used when V4L2\_CID\_RF\_TUNER\_MIXER\_GAIN\_AUTO is not set. The range and step are driver-specific.

V4L2\_CID\_RF\_TUNER\_IF\_GAIN (integer)

IF gain is last gain stage on the RF tuner signal path. It is located on output of RF tuner. It controls signal level of intermediate frequency output or baseband output. Used when V4L2\_CID\_RF\_TUNER\_IF\_GAIN\_AUTO is not set. The range and step are driver-specific.

V4L2\_CID\_RF\_TUNER\_PLL\_LOCK (boolean)

Is synthesizer PLL locked? RF tuner is receiving given frequency when that control is set. This is a read-only control.