

## ***005: Set Receiver and DTMF Decoder Conditions***

This command lets you specify whether a user must have PL (CTCSS) to key up your repeater or whether it can be keyed with just carrier, among many other options. By selecting a “mode” from the table below, you can tell the controller what conditions must be met for a receiver to be considered active, that is to make it key connected transmitters. Each mode is described in detail on the following page.

This command also lets you specify the conditions the controller requires to be met for DTMF tones to be processed. Normally they are the same as the conditions for activating the receiver, but you can set them to be different. You can, for example, allow access to your repeater with just carrier, but require PL to enter any commands (enter “005p13”). Or you can require PL to access the repeater but provide a PL override command that can be entered with only carrier (enter “005p31”). The controller will mute DTMF digits (if you have that option enabled, see command 007) regardless of the conditions you have set to execute commands.

<005> p	Recall settings
<005> p y	Set receiver’s access mode
<005> p y z	Set receiver’s and DTMF decoder’s access modes

### **Parameters:**

- 005 is the default command name.
- ‘p’ is the port number (1..8)
- ‘y’ is the receiver's access mode
- ‘z’ is the DTMF decoder’s access mode. If not specified and the receiver's access mode is not zero, it will automatically be set the same as the receiver’s access mode. To set 'z' to zero, all three digits of "p y z" must be entered.

### **Defaults:**

- Receiver defaults to mode 1 on all ports.
- The DTMF decoders default to mode 1 on all ports except port 1, where it is "always active".  
That should be changed once the COR polarity for port 1 is set up by entering "005 111".
- If a port is connected to an RLC-ICM, use Mode 1.

## Mode Definitions:

Mode	Definition
0	No Access
1	COR Access
2	PL Access
3	COR and PL Access
4	COR or PL Access
5	Always Active

## Description of Modes:

- Mode 0: The receiver is effectively disabled; even if the carrier and/or PL is received, the controller will ignore that receiver and will not key connected transmitters. If you are going to do this, you need to have another way to enter commands to re-enable DTMF access (reverse patch, serial port, another radio port, scheduler...).
- Mode 1: The controller will respond to the COR signal, allowing access with carrier. The PL signal is ignored.
- Mode 2: The controller will respond to the PL signal. The COR signal is totally ignored. This mode may cause very long squelch tails since PL decoders are generally slow to recognize when the PL tone goes away (see mode 3).
- Mode 3: Both COR and PL must be active at the same time for the controller to respond to the receiver. Repeaters that require PL usually use this mode because it eliminates the long squelch tails often heard when using mode 2. Typically, when someone keys a repeater with PL, the receiver's COR signal will go active first. The controller will ignore it for the moment. Perhaps 100 milliseconds later (the actual time varies) the PL decoder will recognize the subaudible tone and will activate the PL signal going to the controller. At that point the controller will see that the COR and PL are both active and will key up any connected transmitters (subject to the keyup delay filter and other factors). As long as both the COR and PL signals are active, the controller will consider that receiver to be active. When that person unkeys, the receiver's squelch circuit will recognize the loss of carrier very quickly (some squelch circuits are faster than others - ask about the RLC-MOT) and deactivate the COR signal. The controller will see the change in the COR signal and mute the audio right away, so you get a short squelch tail. The PL decoder will eventually figure out that the subaudible tone went away and deactivate the PL signal, perhaps 200 milliseconds later. The delay in sensing the loss of PL won't matter because the audio is already muted (unlike mode 2).
- Mode 4: Either COR or PL will cause the controller to respond to the receiver. This mode is useful if you want to allow access to a repeater without PL, but you have to set the squelch relatively tight to keep noise from keying the repeater. As long as your signal to the repeater is relatively strong, you can transmit without PL and you will get short squelch tails just like in mode 1. If you are too far away and can't get a strong enough signal to the repeater to open the squelch, you can transmit a PL tone. If your signal is strong enough for the PL decoder at the repeater to work, you will be able to talk on the repeater, even if you can't open the squelch (similar to mode 2). Note that for this mode to work, the receiver must not mute the audio going to the controller when the

squelch is closed (you must use unsquelched audio). When using this mode, you should transmit PL to the repeater only when necessary, as whenever you use PL, you will get long squelch tails.

Mode 5: The controller considers the receiver to be active all of the time, regardless of the COR and PL signals. This mode is useful for working with HF radios, with or without all-mode squelch. If the HF radio doesn't have squelch, or if it does but it is set too tight and the signal keeps dropping out, you can select this mode to tell the controller to treat it like it is always active while you are using it. You may want to change the access mode to mode 0 when you are not using it, to keep it from timing out.

**Example:**

You want to change the receiver and DTMF mode to COR and PL (mode 3) on port 2. Note that you don't need to specify the DTMF mode if it is the same as the receiver mode:

```
<005> 2 3 <unkey> or <005> 2 3 3
```

Voice Response: "Two CAP CAP" (CAP is for COR and PL)

**Example:**

You want to allow carrier access to a repeater on port 1, but you want to require PL to enter DTMF commands.

```
<005> 1 1 3
```

Response: Voice Response "One CAP COR"

## ***006: Set or Recall Receiver Priorities (monitor mute)***

This command allows audio from a receiver to be automatically muted whenever audio from another receiver is heard. This can be used to mute a weather radio, for example, when someone keys the repeater. The weather radio will remain muted as long as the repeater receiver is active and for a few seconds afterward (this time can be changed). This is sometimes known as “monitor mute” because it is often used when monitoring another repeater system, weather radio, space shuttle audio, etc.

For each transmitter, you can specify the “priority” of each receiver. If two receivers of the same priority are active (keyed up) at the same time, their audio will be mixed (the way the controller always worked in firmware versions V1.80 and earlier). If they have different priority settings, the audio from the lower priority receiver will be muted.

<006> T	Recall settings for TX "T"
<006> T RP	Set priority for one RX
<006> T RP RP	Set priority for two RX
<006> T RP RP...RP	Set priority for multiple RX

### **Parameters:**

- 006 is the default command name.
- 'T' is the TX number (1..8)
- 'R' is the RX number (1..8)
- 'P' is the priority (default priority for all receivers is 4, allowed values are 0..7)

### **Examples:**

You have a repeater on port 1 and a weather radio on port 2. You want to mute the weather radio if any other receiver can be heard on transmitter 1. If all of the other receivers are still set to their default priority level (4), we just need to set the priority for RX 2 to something less than 4. We will set it to zero in this example.

```
<006> 1 2 0 D or unkey or <Enter>
```

### **Notes:**

Timers (51..56) control how long lower priority receivers stay muted after higher priority receivers become inactive.