



## APPLICATION NOTE: Increasing K2 Receive Gain

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The K2's receive gain and audio output should be completely adequate for nearly all operators, assuming the receiver is working properly. But some operators like more gain for various reasons. This application note will explain how best to achieve this.

NOTE: We do not recommend putting in a preamp ahead of the LM380 AF amp on the control board, as this can easily drive the K2's internal speaker into distortion at low signal levels, even with AGC on. However, if you do decide to add a preamp, the connections for R18 and R19 on the control board are the place to do it. These connections intended for insertion of the K2's Audio Filter option, which will itself have a small amount of audio gain (1 to 2 dB).

The following methods can be used to increase K2 receiver gain by as much as 10 dB. Each of these techniques can have an impact on the K2's strong-signal handling performance, so you should only attempt them if overall receiver gain is your main concern.

1. If the AGC circuit is limiting the receiver's output even on very low-level signals, you can change the resting AGC threshold. First, switch to a band that has VERY low atmospheric noise (and no indication on the S-meter). Then turn the AGC OFF (by holding the PRE/ATT and AGC buttons together). If the noise is significantly louder when AGC is OFF, the K2 may be turning on the AGC too quickly. The threshold can be changed by making R1 on the control board smaller. Try putting in a pot at R1 and see where you need to set it to get the AGC threshold you prefer. The value should not be reduced by more than about 30%. If you choose a new resistor, you'll have to reset CAL S HI and CAL S LO to recalibrate the S-meter, and the numbers for S HI and S LO will be very different from the defaults. Values of R1 that are too small may result in an inability to set up the S-meter correctly.
2. The gain of the RF preamp, Q21, can be increased. Try changing R76 to 3.3 to 5.6 ohms rather than 10 ohms. This will increase the preamp gain by 3 or 4 dB and improve the noise figure by 0.5 to 1 dB. However, it will also decrease the intercept point by the same amount and alter the input/output impedance a bit. Of course this has no effect on receiver performance when the preamp is turned off.
3. The -5 dB attenuator pad at the output of the post-mixer amp can be modified. For example, to reduce the attenuation to 2 dB, use 1.2 K at R88 and R90, and 33 ohms at R89. This will increase overall receive gain by 3 dB. Receive performance in the presence of strong signals will



be slightly degraded, and the crystal filter will no longer be quite as well isolated from the post-mixer amp. Again, don't do this unless additional receive gain is your priority.