

## **Additional High side Pcom conversion notes**

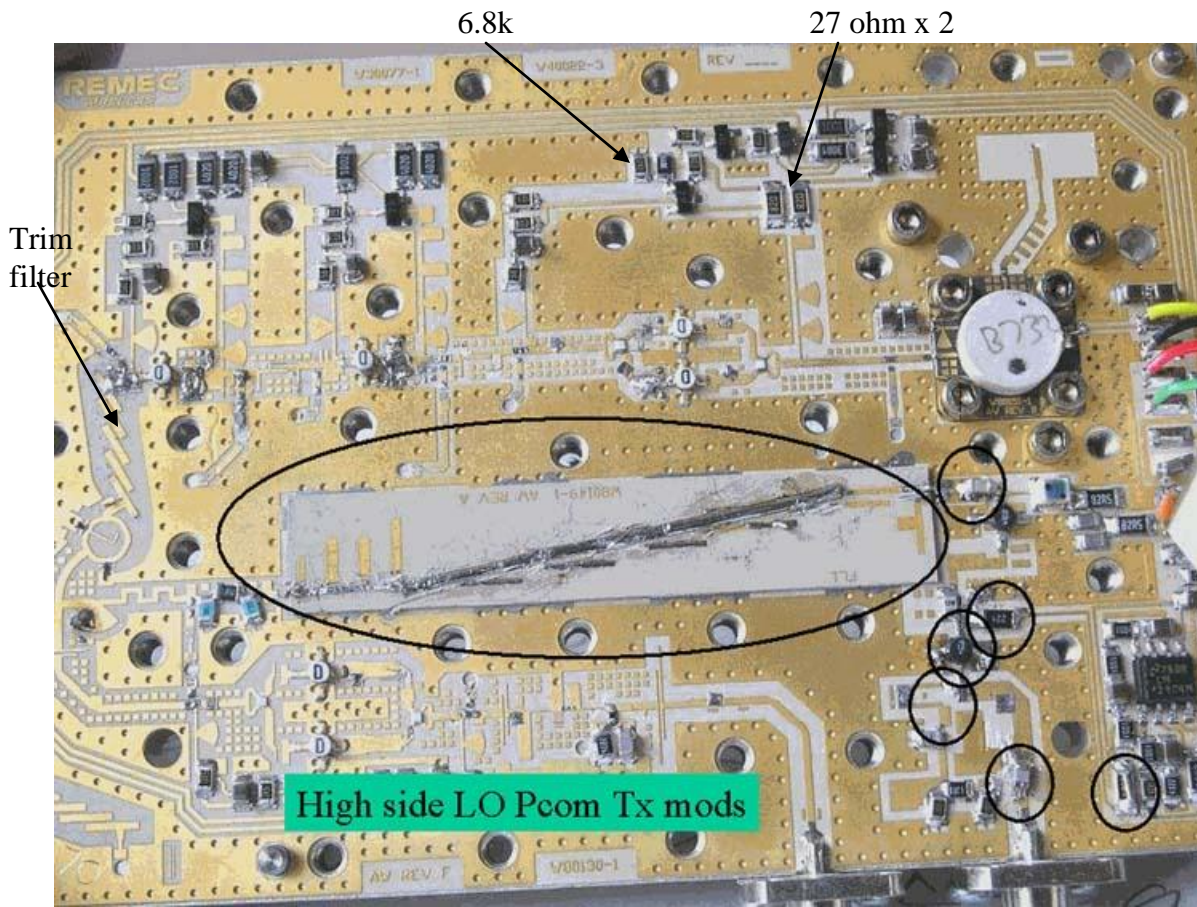
The following lists several mods that are not in the original SDMG description of the conversion.

### **Transmitter module:**

The parallel coupled LO filter following the mixer should be shortened to move up in frequency. Each coupled section should be reduced by 6 mils to 79 mils long. This is done by removing 3 mils from the end of each resonator with a sharp knife. (I use a surgeon's scalpel) A microscope is required for this task.

Change the power stage bias to 4 volts at 70 mA for best power. The active bias is maintained by changing the base resistor shown to 6.8k and the 82 ohm drain resistors to 27 ohms each. (see figure) The original driver stage bias settings are fine at 3.5v at 42 mA each.

Tune the driver/PA stages from the LO filter to the output for maximum power at 24192 MHz with 2208 MHz input at about -20 dBm. LO power is 60 mW. This is best done with a 1 mm<sup>2</sup> Cu tab stuck to the end of a toothpick with a bit of flux. When a spot is found that increases output, solder down the tab at that spot. Continue with additional stubs in the same fashion. There will be spots that the stub reduces power; the printed circuit should be cut back in those areas. My unit was labeled Prototype so tuning is probably different than a production unit. The final result was 4 tabs added and 2 spots cut back on my unit. The output power achieved was 110 mW at 1 dBc and 140 mW saturated.



**Receiver Module:**

There is a parallel coupled filter in this module similar to the one in the transmitter. Each resonator should be trimmed to 79 mils long as in the transmitter. Near the RF input transistor there is a large stub soldered to the input line and laying flat. This should be bent up about 20 degrees for best noise figure. The modified module has a noise figure of less than 3 dB.

**General:**

Every place an ERA-3 mmic is recommended, I used a bias inductor in addition to the resistor to maximize gain and power output from the devices. This especially made a difference in the multiplier output power.

W6QIW