

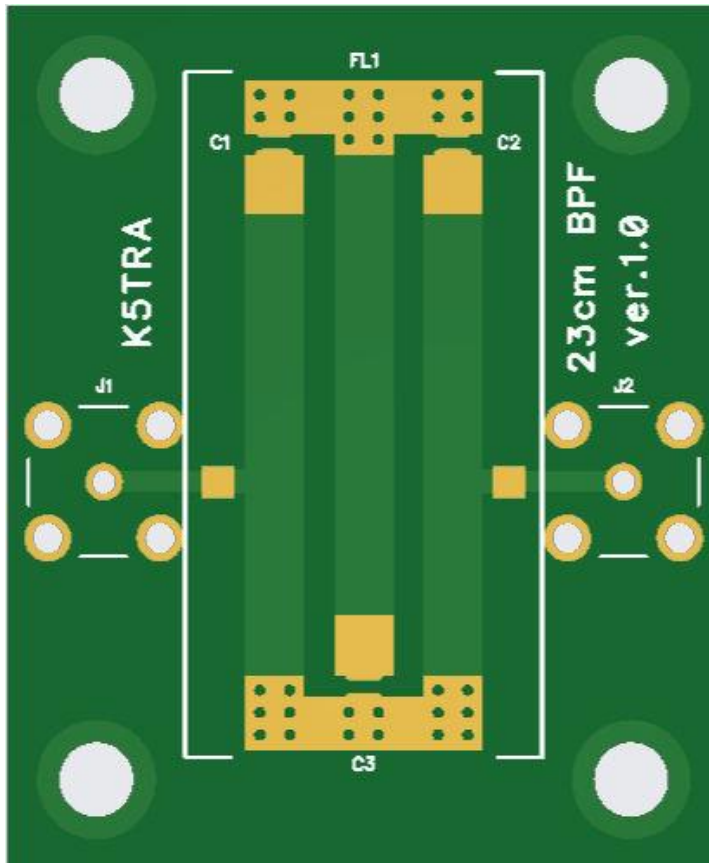
FILTER and DRIVER BOARD

TEST RESULTS

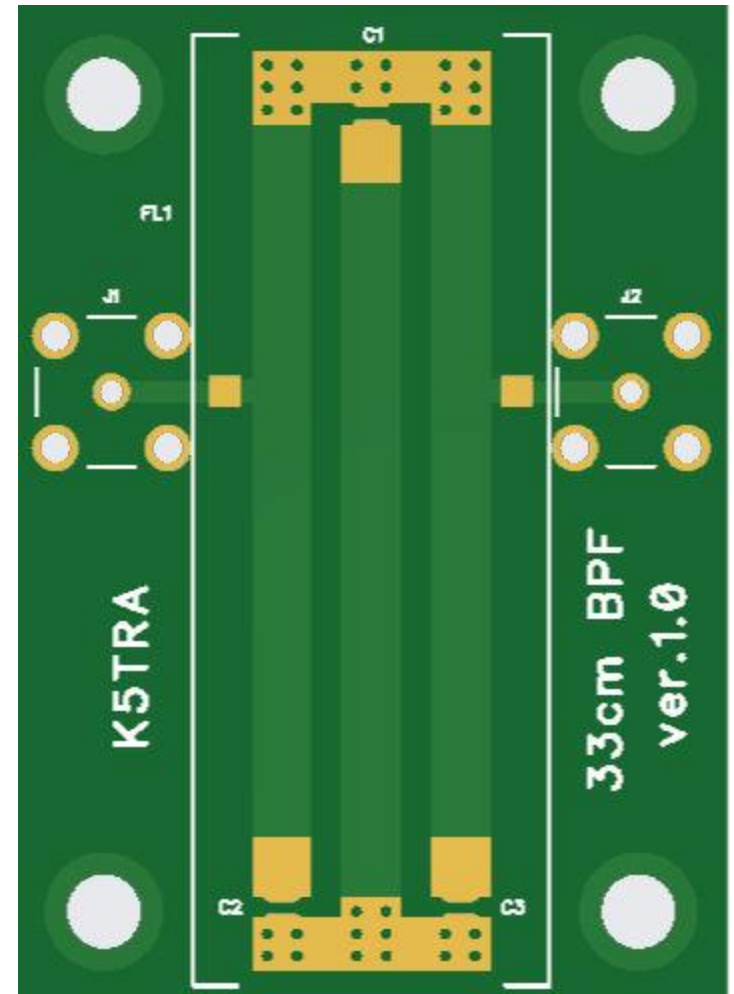
OVERVIEW

- Test results on 23cm and 33cm BPF and driver boards
- New 3 resonator interdigital filters on 0.40" FR4:
 - **1296 MHz:** -1.65 dB insertion loss and stop band as designed
 - **902 MHz:** -1.89 dB insertion loss and stop band as designed
- Two stage driver amplifiers:
 - **1296 MHz:** +24.4 dB gain and +23 dBm linear output
 - **902 MHz:** +27.1 dB gain and +23.5 dBm linear output
 - Swept response shape set by integrated input filter

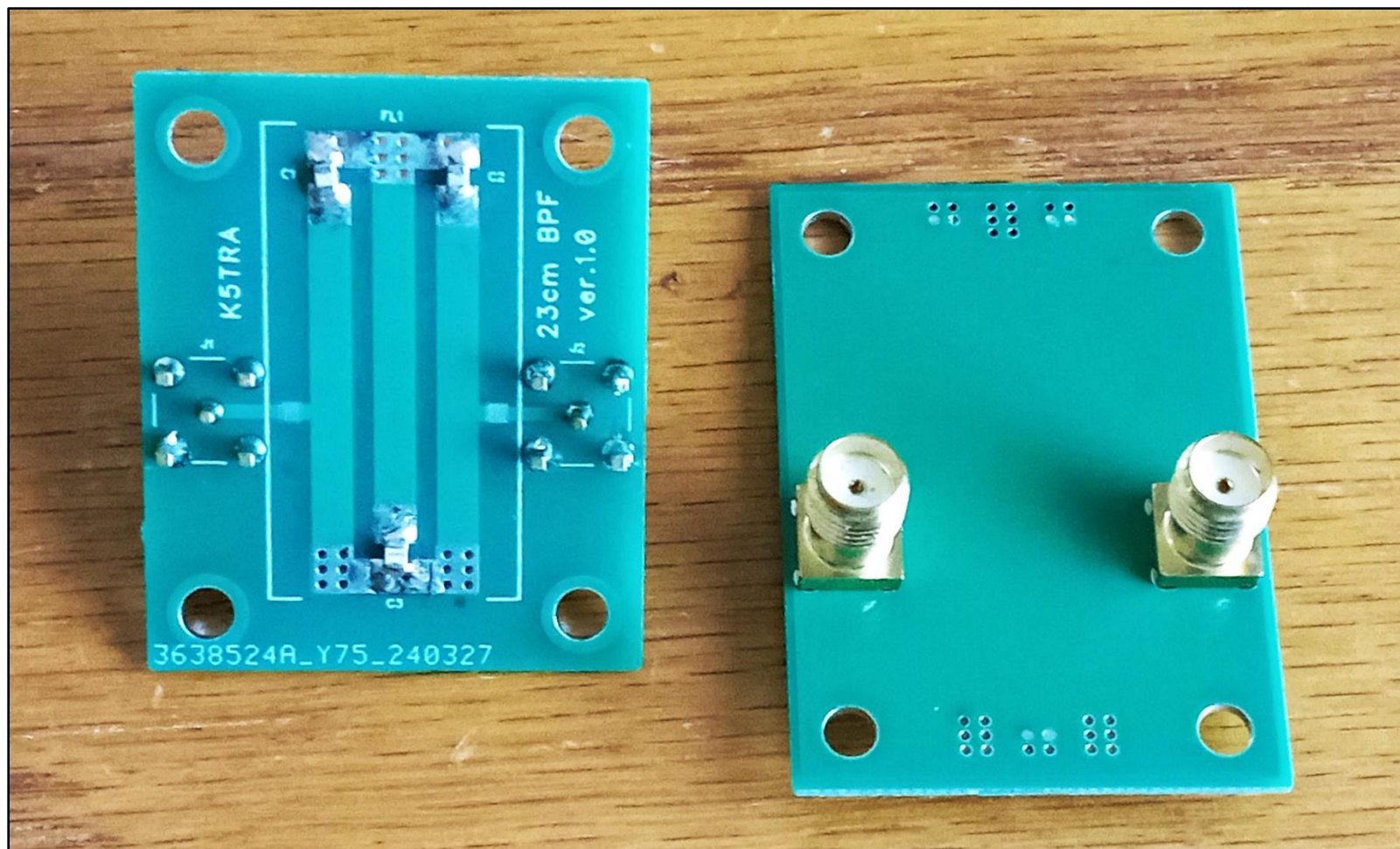
THREE RESONATOR INTERDIGITAL BPF



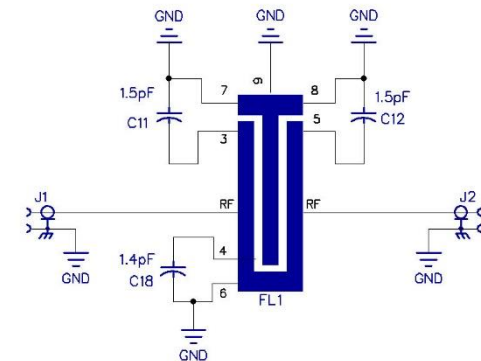
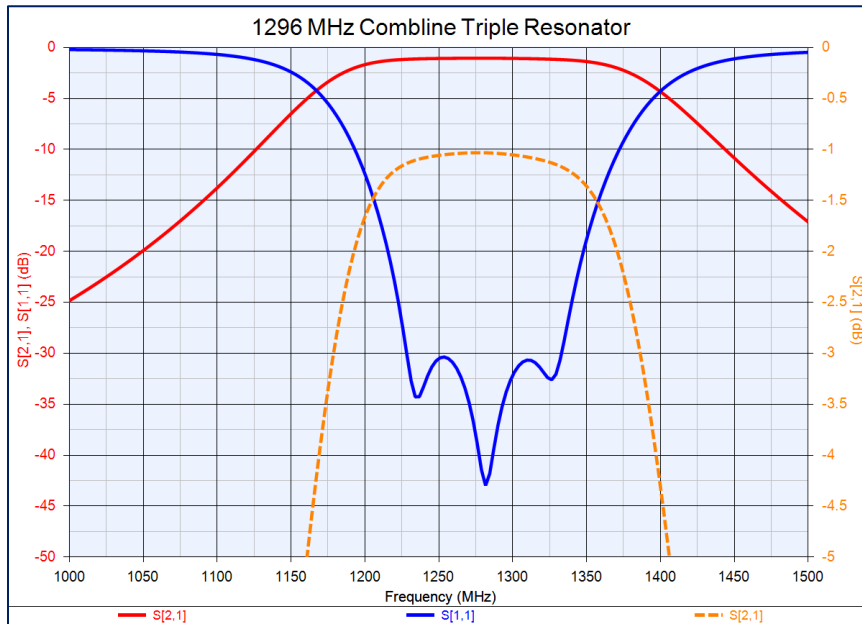
- Two prototype filters: 902 and 1296 MHz
- Three resonator: better selectivity, a bit more insertion loss
- 1.2" x 1.45" and 1.2" x 1.675"



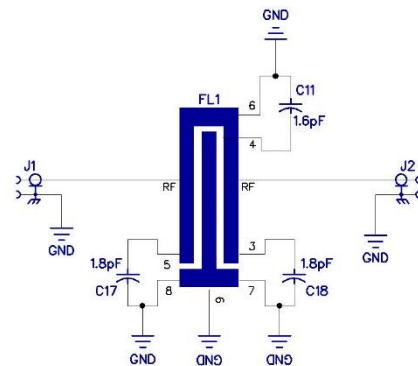
THREE RESONATOR INTERDIGITAL BPF



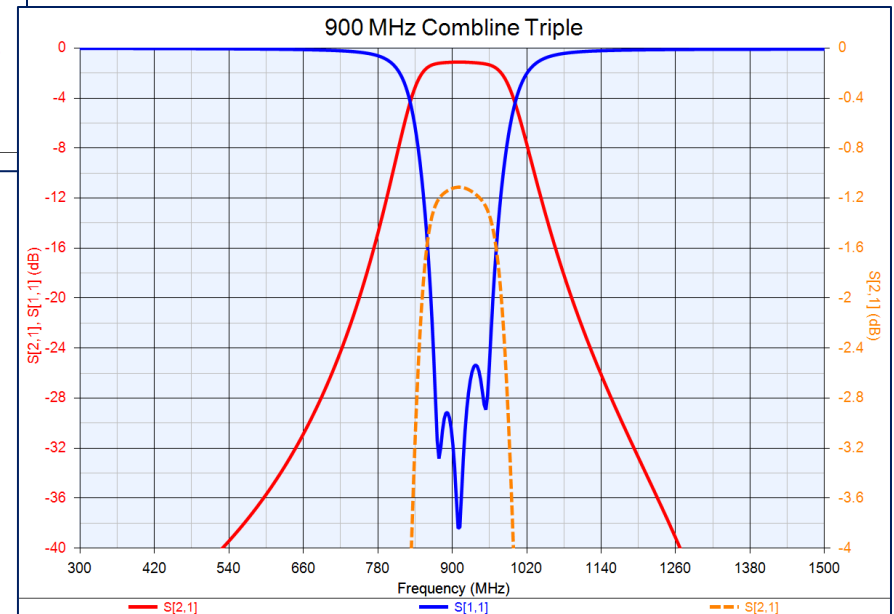
THREE RESONATOR BPF ANALYSIS



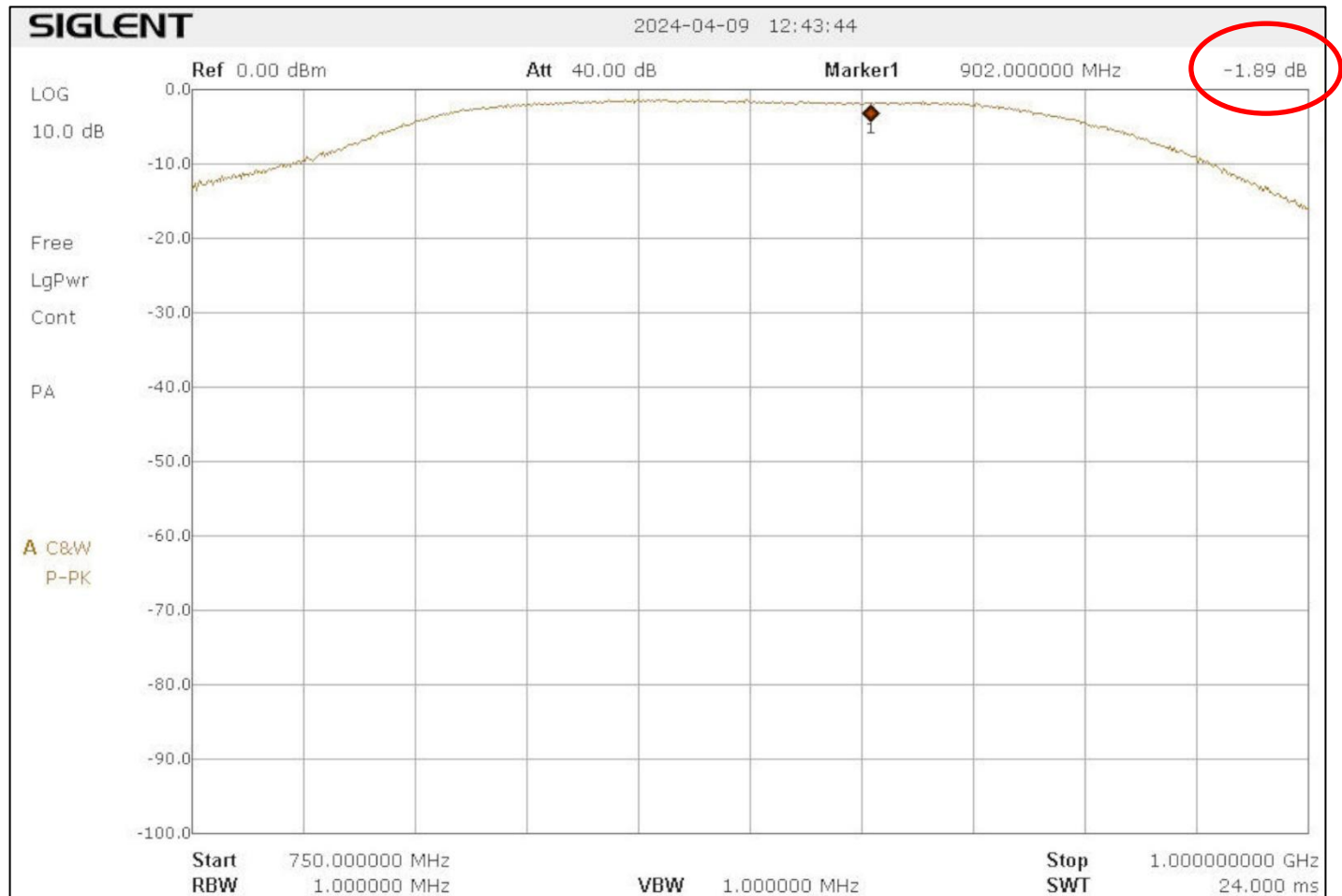
23cm BPF - v.1.0



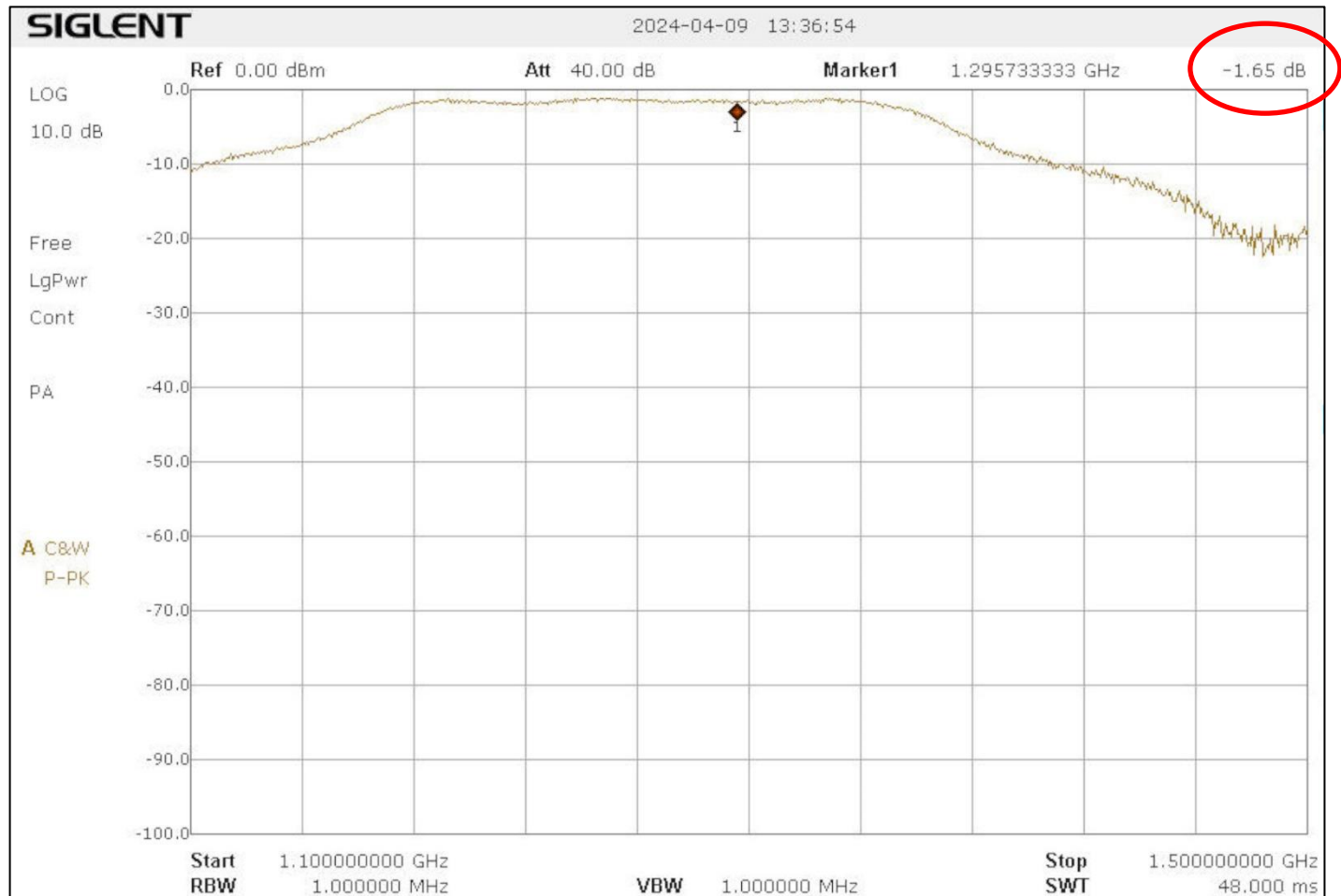
33cm BPF - v.1.0



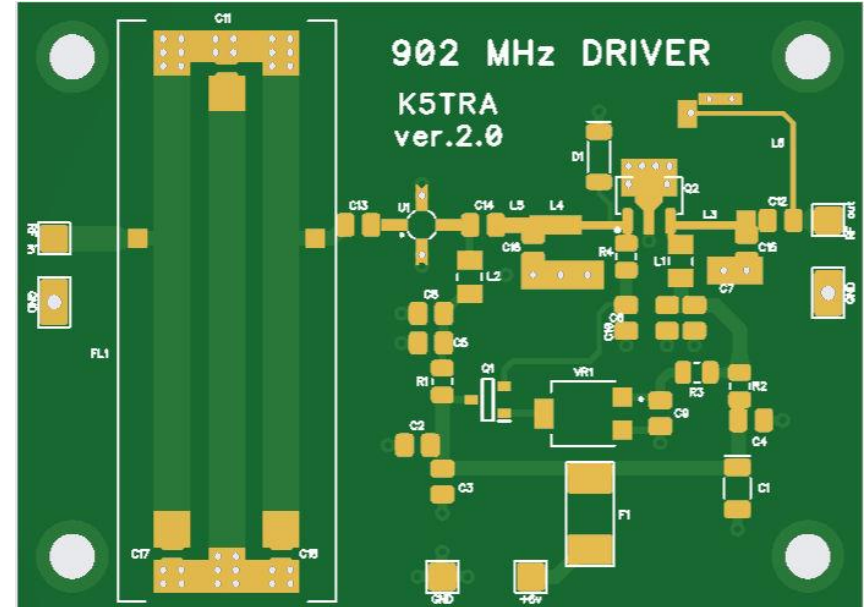
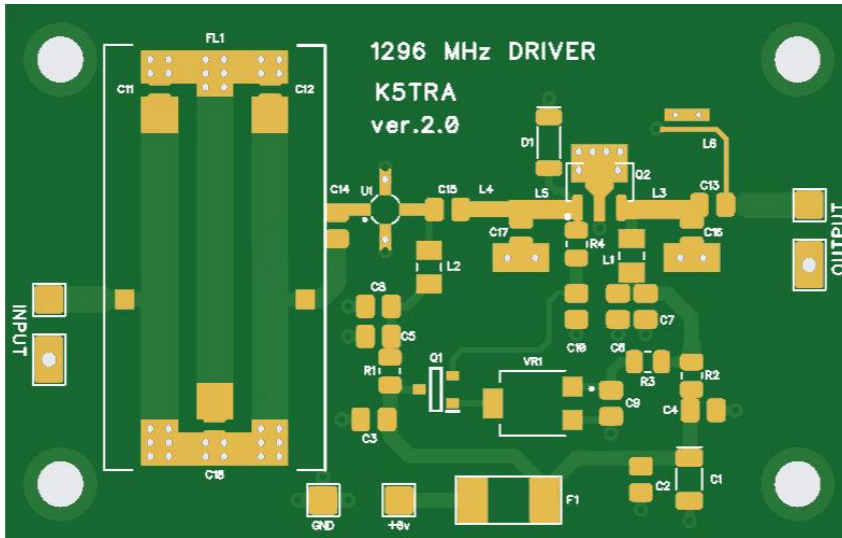
PASSBAND MEASUREMENTS



PASSBAND MEASUREMENTS

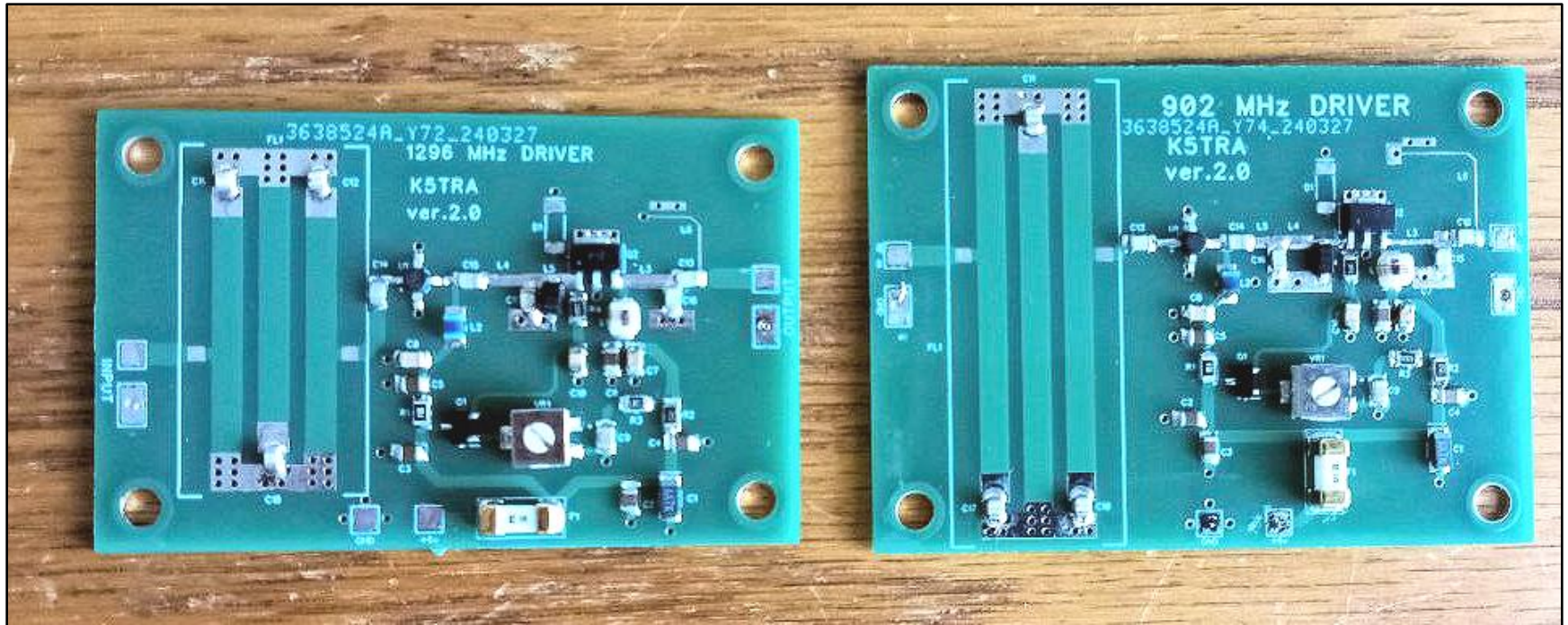


DRIVER AMPLIFIERS

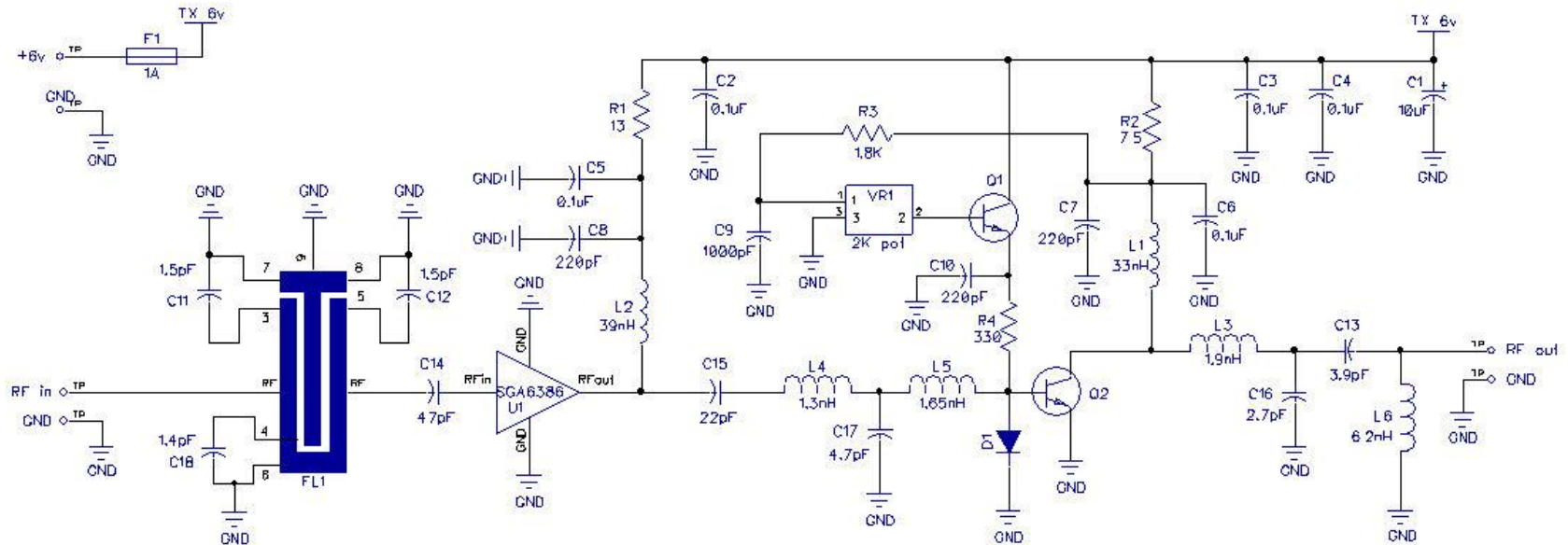


- 2-stage driver amplifiers
- New 3-resonator interdigital filters
- **23cm:**
 - Design: +25 dB gain, 23 dBm output
 - Measured: +24.4 dB gain, 23 dBm output
- **33cm:**
 - Design: +26 dB gain, 23.5 dBm output
 - Measured: +27.1 dB gain, 23.5 dBm output
- $V_{cc} = +6v$
- 2.3" x 1.45" and 2.3" x 1.675"

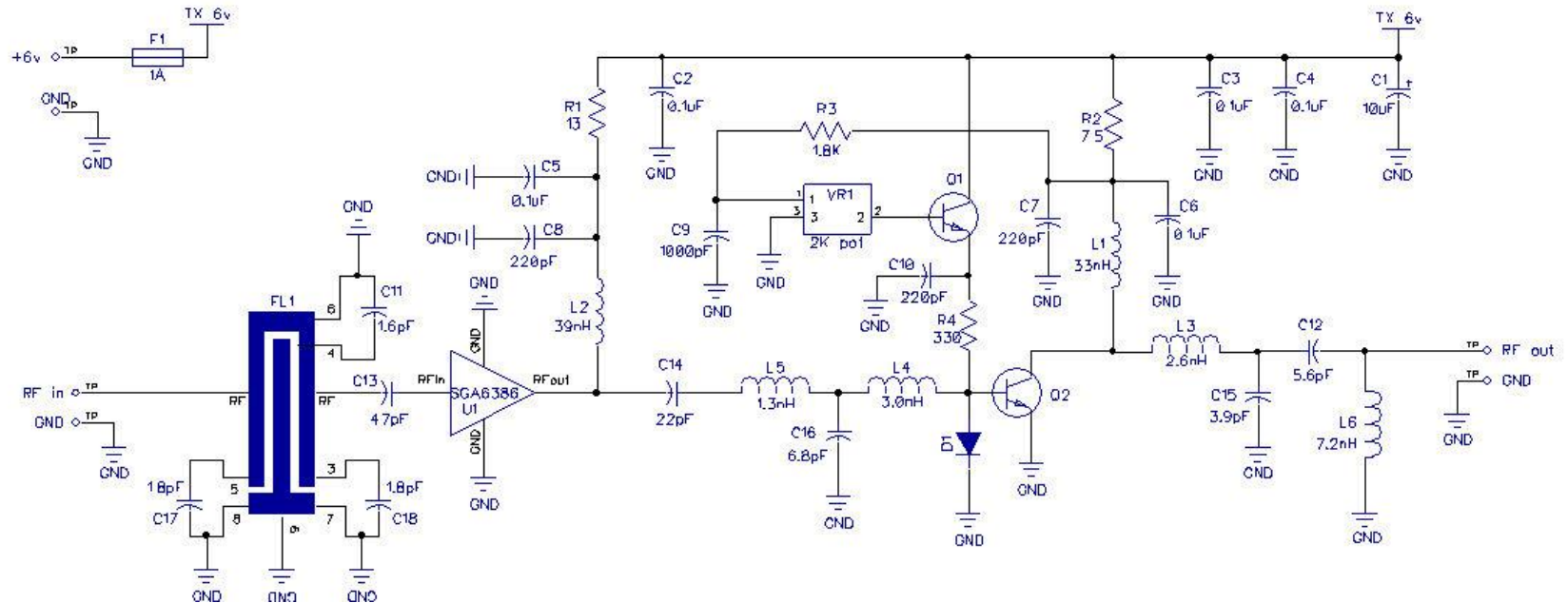
DRIVER AMPLIFIERS



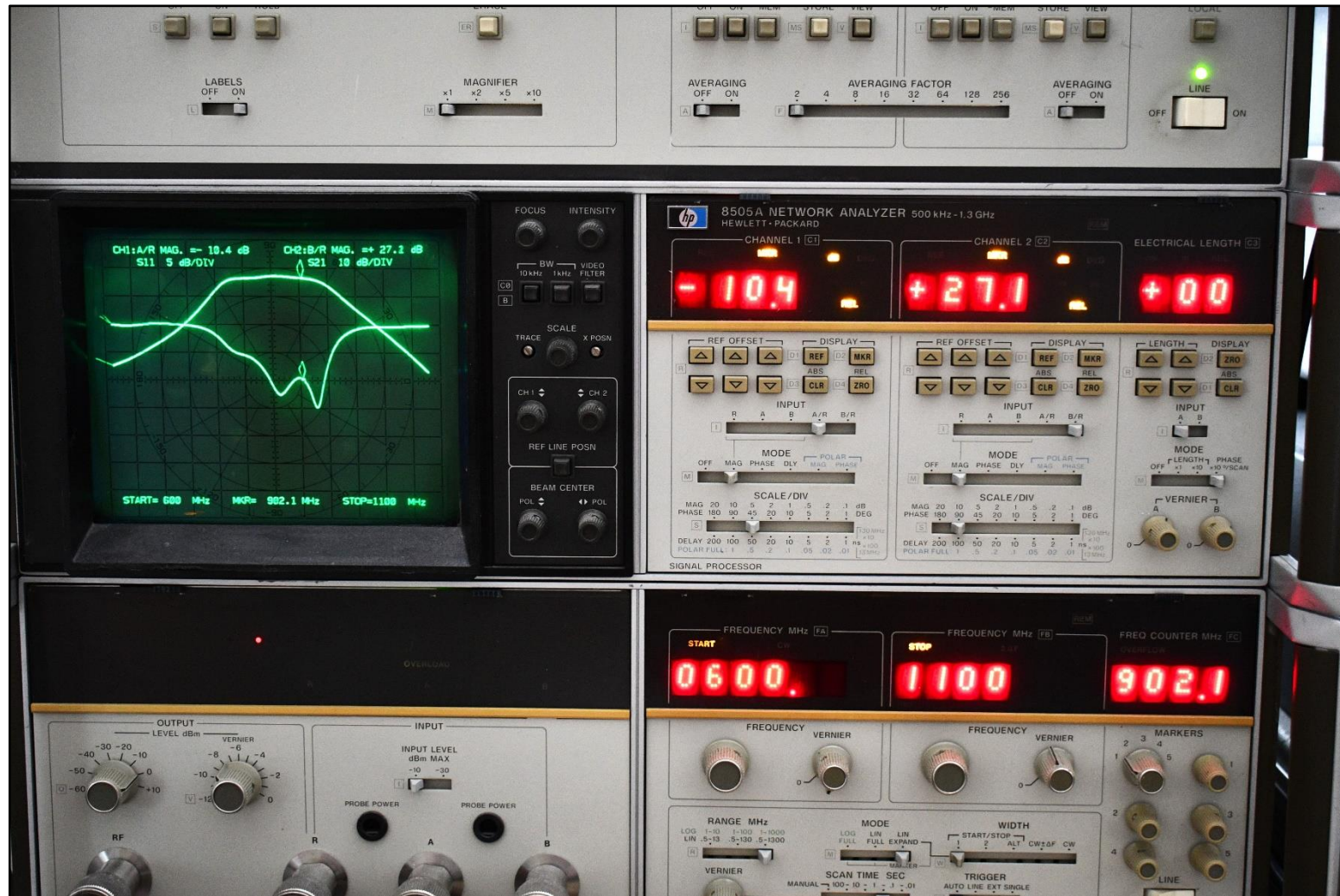
1296 MHz DRIVER SCHEMATIC



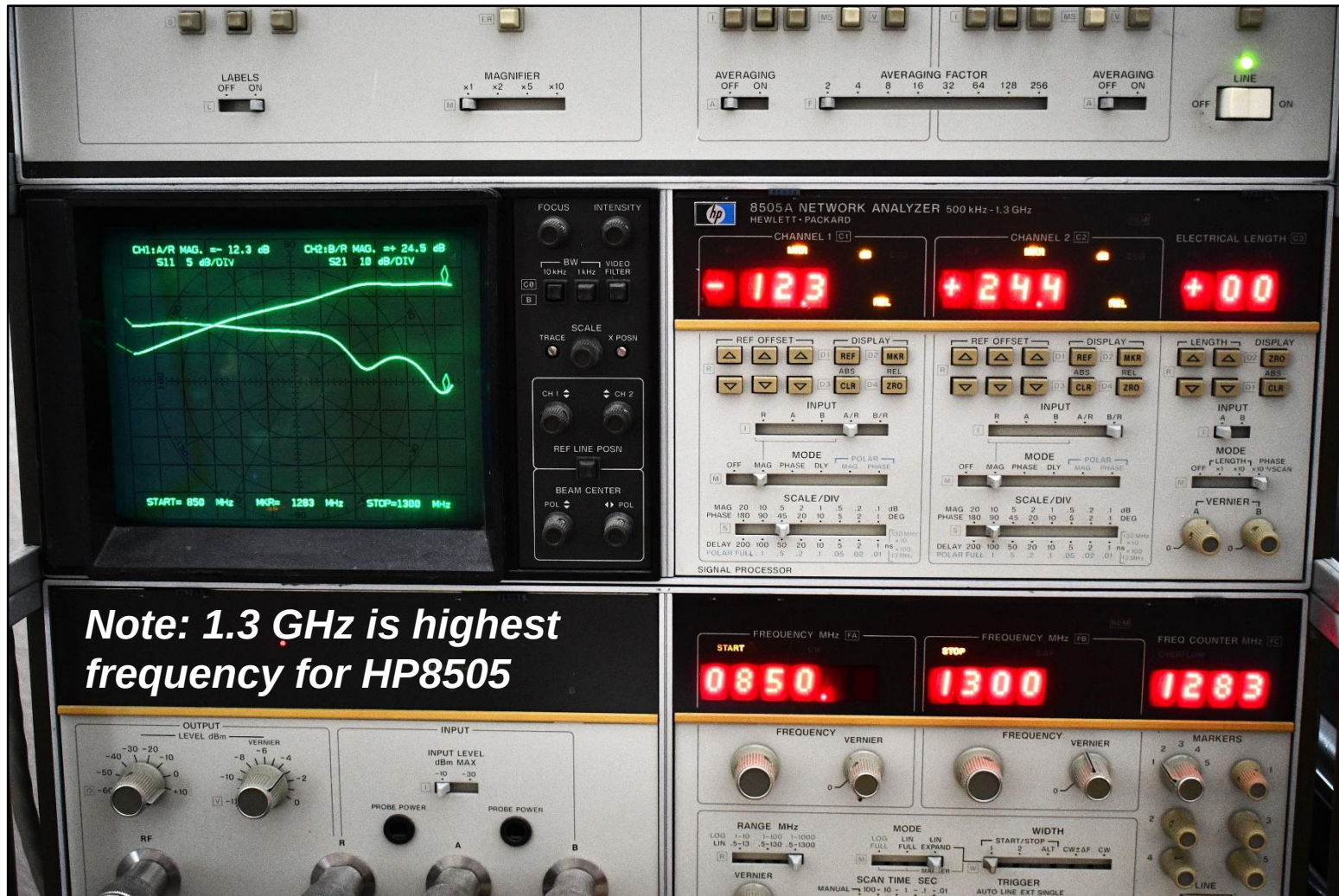
902 MHz DRIVER SCHEMATIC



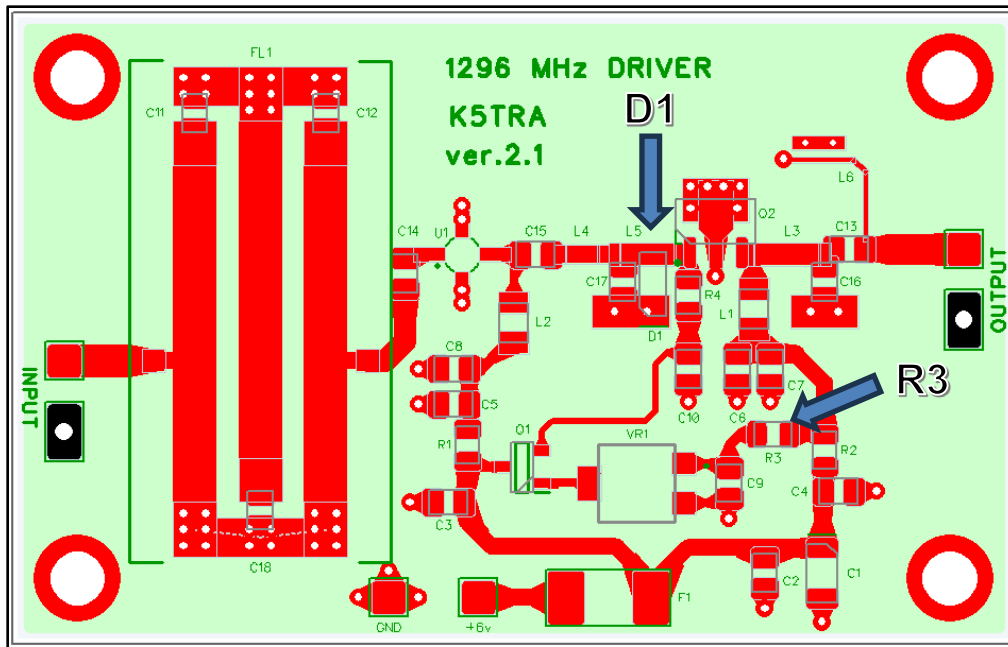
902 MHz DRIVER MEASUREMENT



1296 MHz DRIVER MEASUREMENT



LESSONS LEARNED



- R3 changed from 1.8K to 1.0K to provide more bias adjustment range

- Diode D1 placement near base of Q2 for stability
- This is the same placement as in the RMG transverters
- Updated layouts, shown here, are ver.2.1

