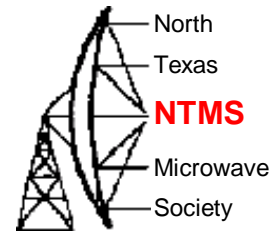W5HN

North
Texas
NTMS
Microwave
Society

Beacon remote control components and design

May 18, 2024

Remote commands

- Power is on all the time to the "listening system" which consists of Hologram network interface via cell signal/internet and the executing program waiting for commands
- BCNON – this command turns on all functions of the beacon (all ON commands are executed)
- BCNOFF – this command turns off all functions of the beacon (all OFF commands are executed). The listener stays on and active.
- STATUS – this command will return the beacon status along with all telemetry data. If the beacon is not running (has previously processed a BCNOFF command) then the response will be: LISTEN is ON
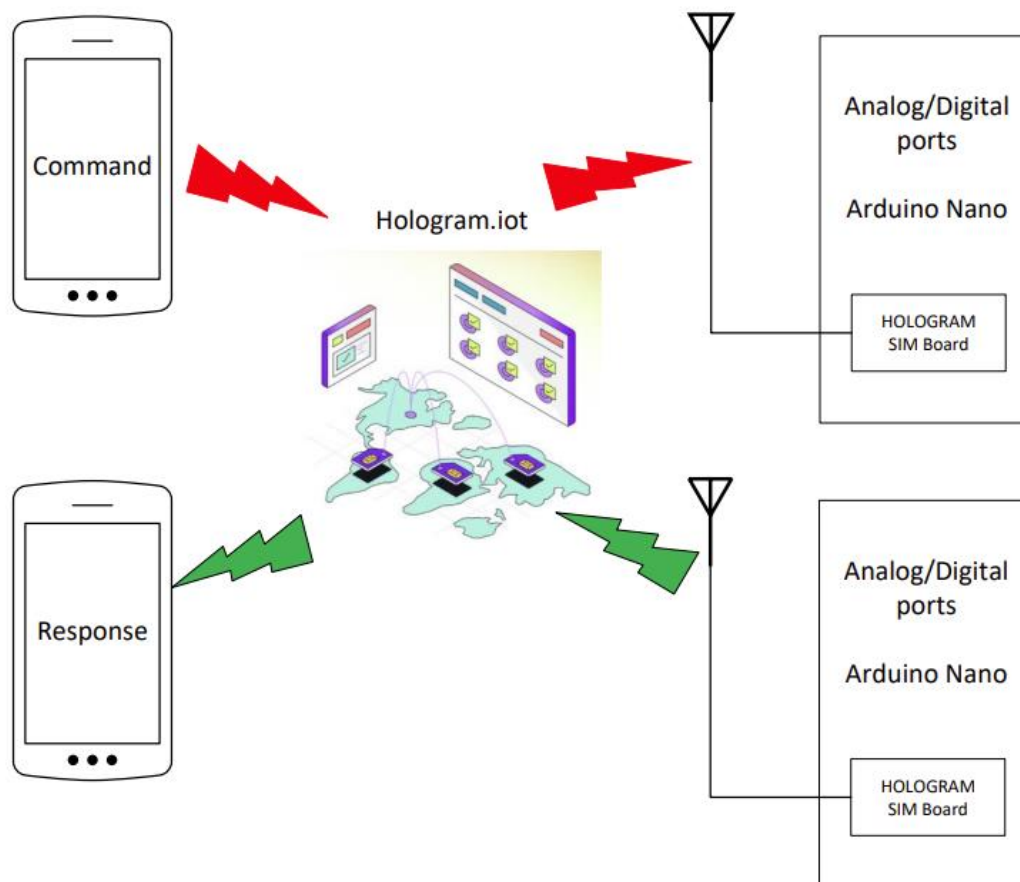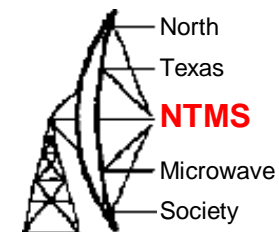
Remote commands
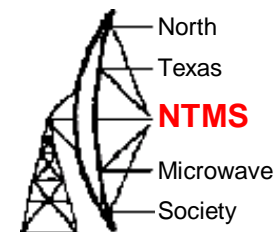
- GPSON/GPSOFF – turns on/off the GPS ref
- LOON/LOOFF – turns on/off the LO
- QUADON/QUADOFF – turns on/off the Quadrupler
- PAON/PAOFF – turns on/off the PA
- VARON/VAROFF – turns on/off the variable-configurable regulatorLM317 channel (one extra source of 1-12v DC power)
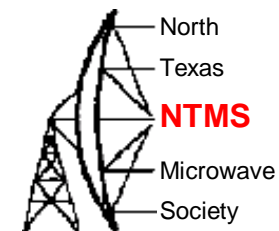
Remote commands
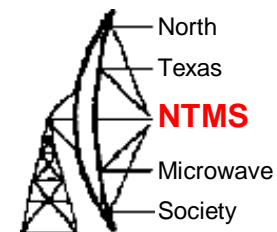
- STATUS – the normal response of telemetry data when the beacon is running is (nominal values):
    - LISTEN is ON
    - PA nominal output = 5
    - QUAD temp = 30 C
    - LO lock = true
    - GPS sat lock = true
    - Ambient temp = 28 C
    - Ambient hum = 65 %
    - 5v GPS cur = 180 ma
    - 6v QUAD cur = 195 ma
    - Var Reg cur = 0 ma
    - 12v LO cur = 75 ma
    - 12v PA LO cur = 1025 ma
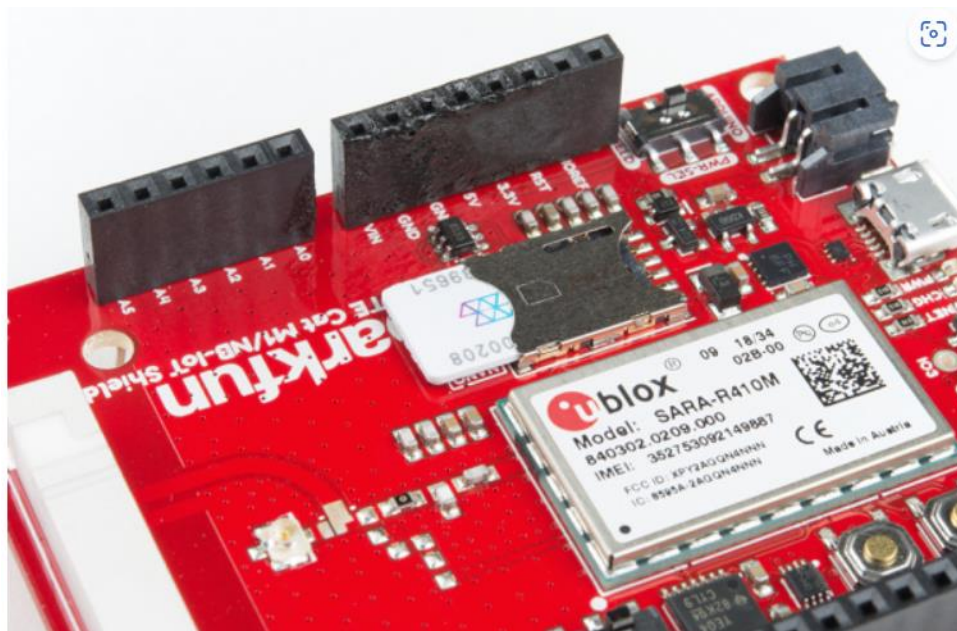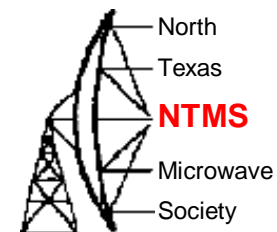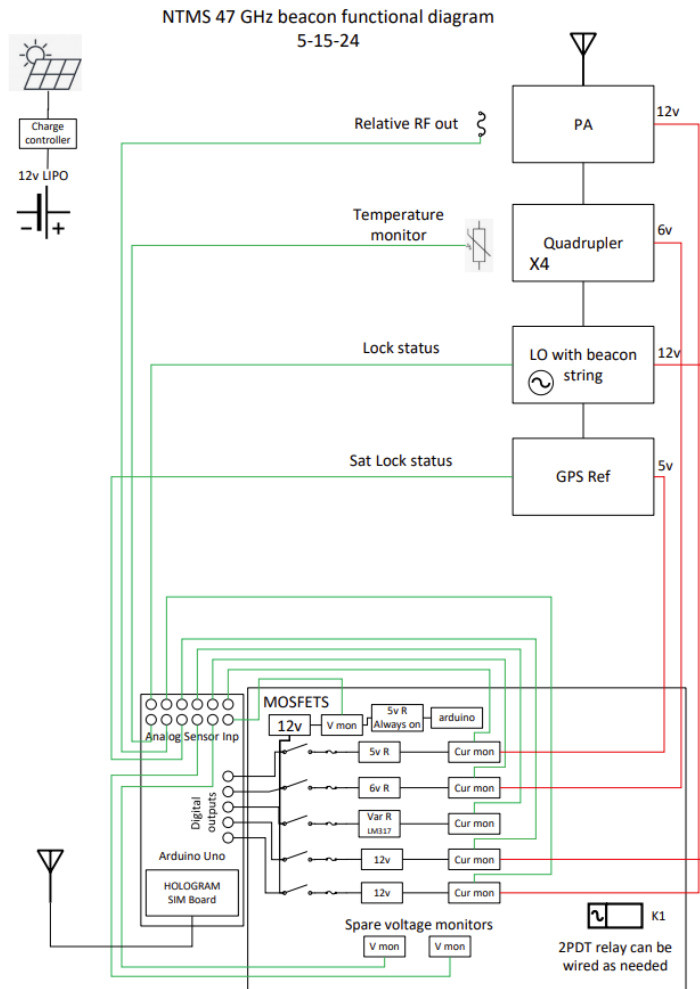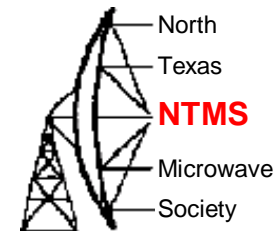   - 12v mains = 12.9 v
    - Extra volts mon = nn.n v
    - Extra volts mon = nn.n v

Communications

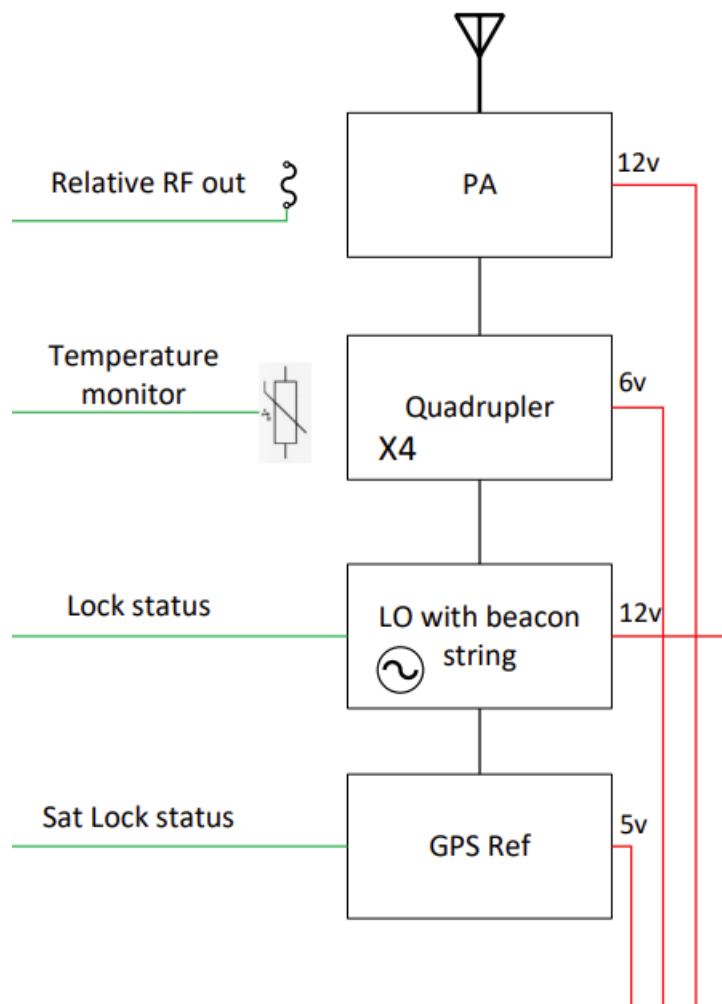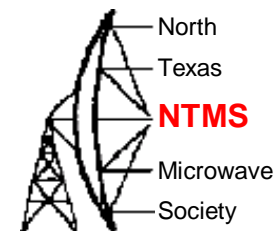# Communications

North
Texas
NTMS
Microwave
Society

Communications

Communications

Communications

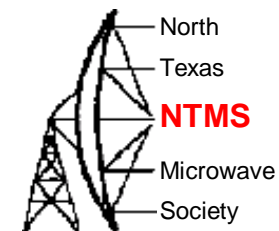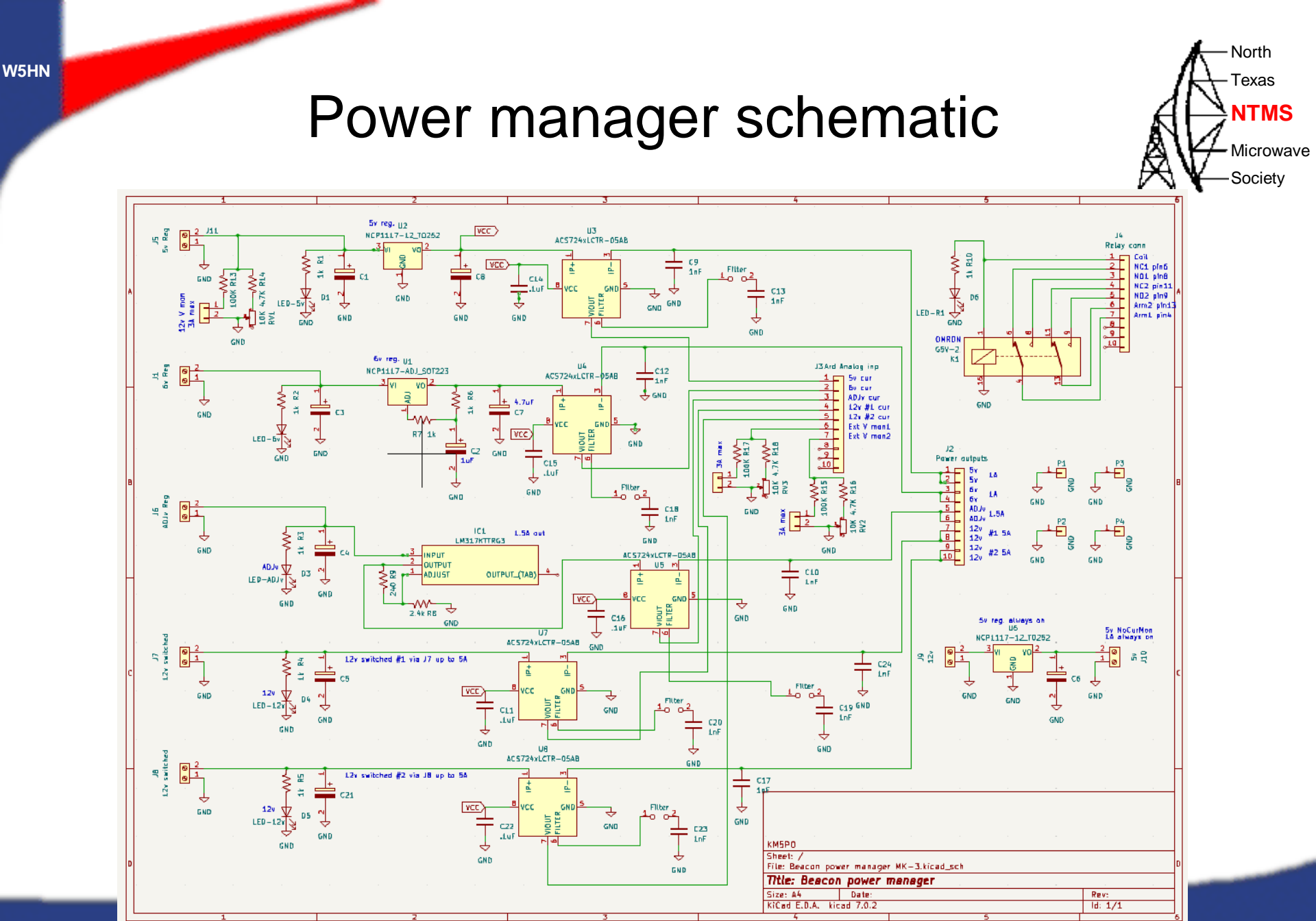# Beacon functional diagram

NTMS 47 GHz beacon functional diagram
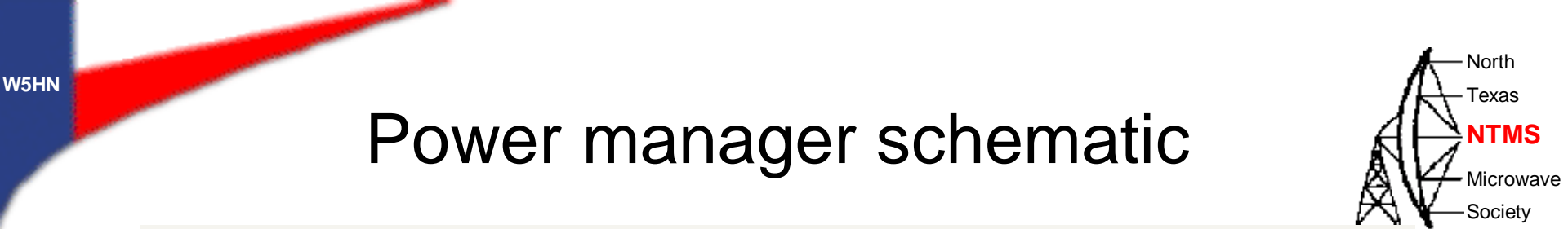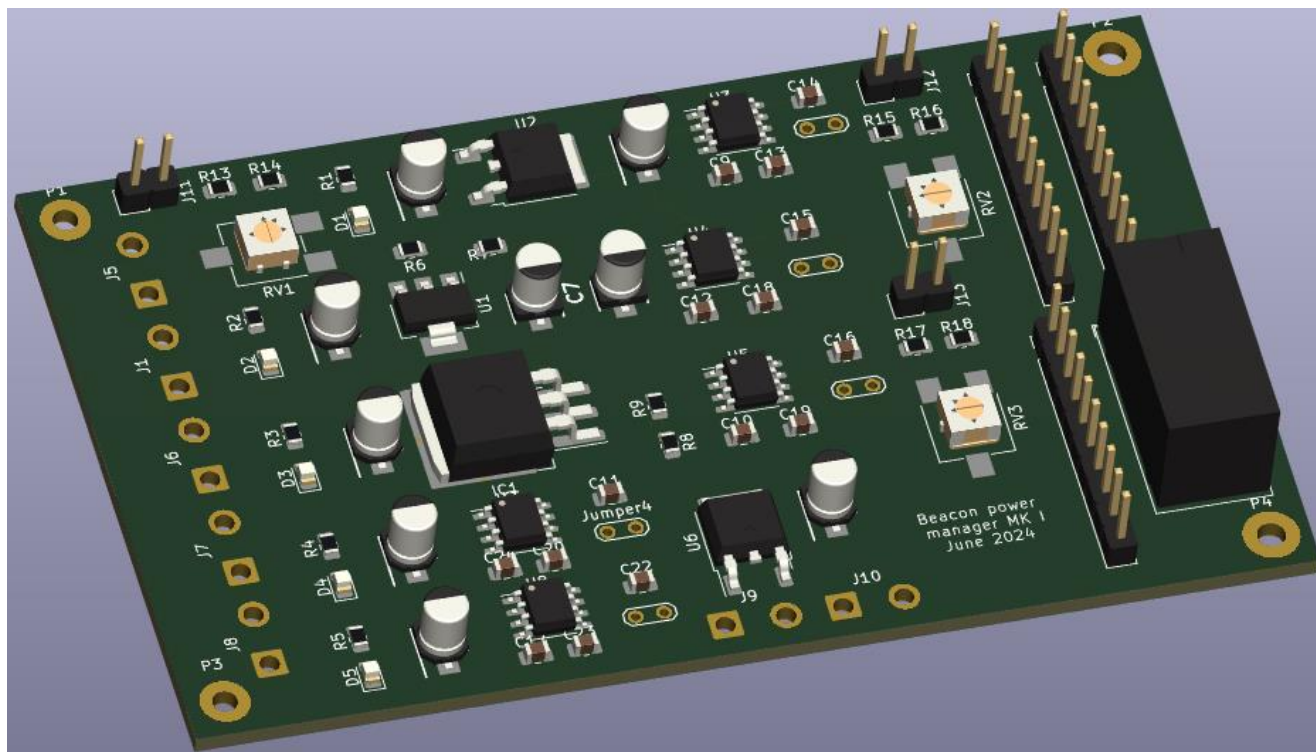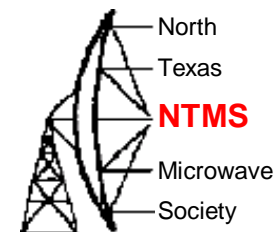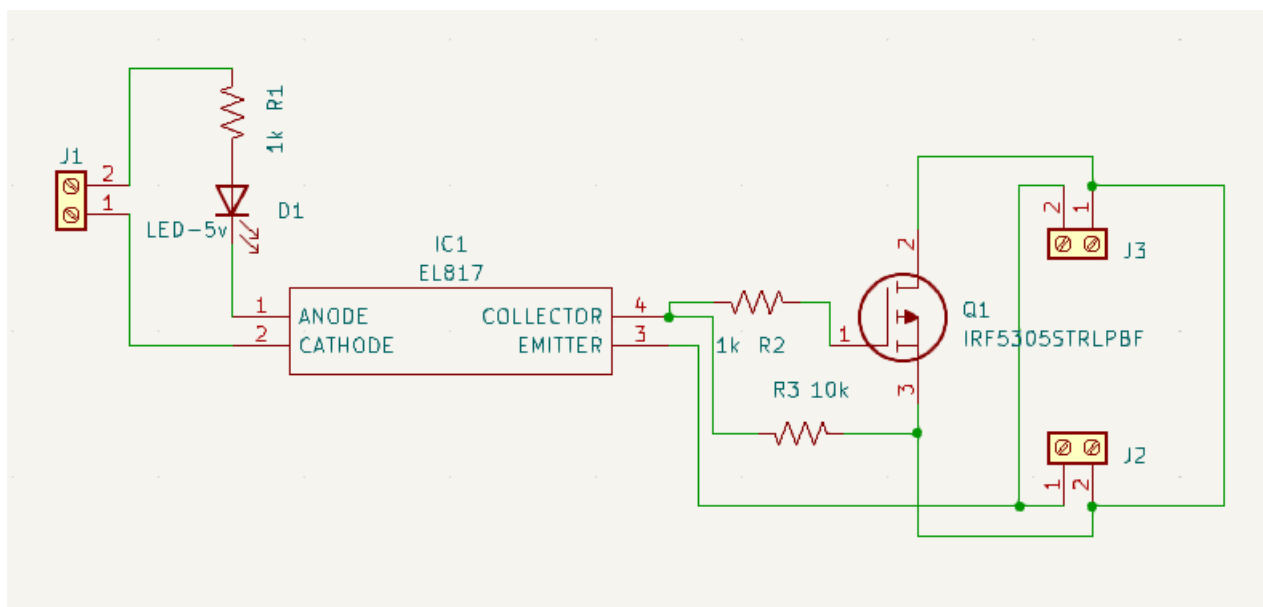5-15-24

RF section

Power management
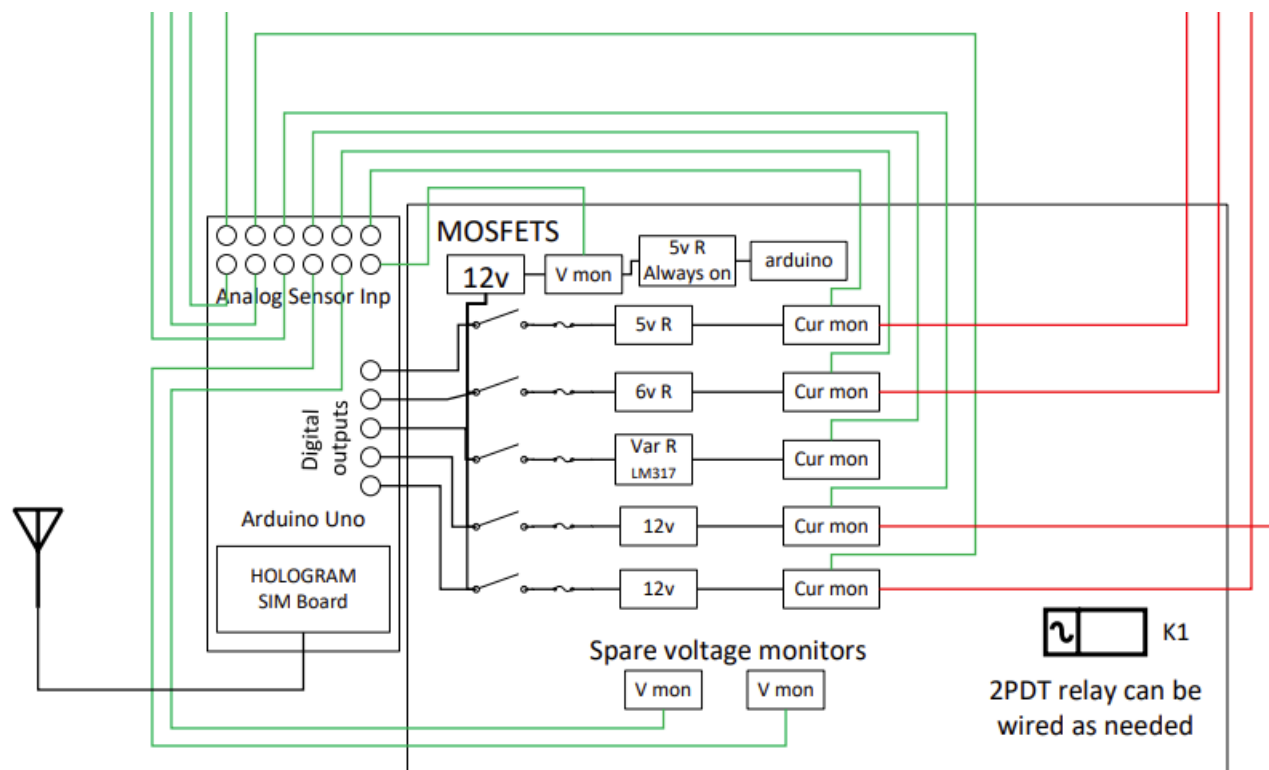
Power manager schematic

Power manager board

Opto-isolated MOSFET drivers

Questions?

North
Texas
NTMS
Microwave
Society