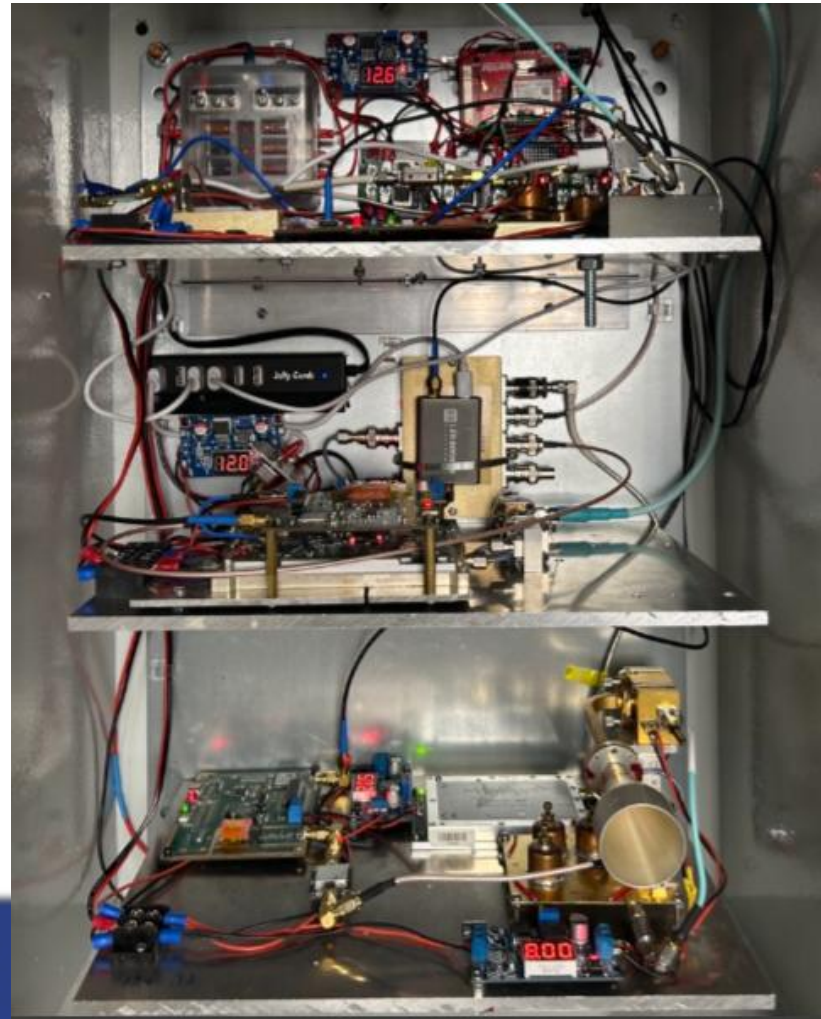
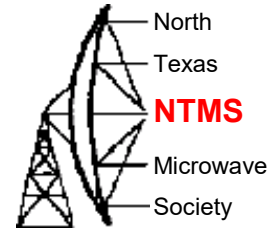


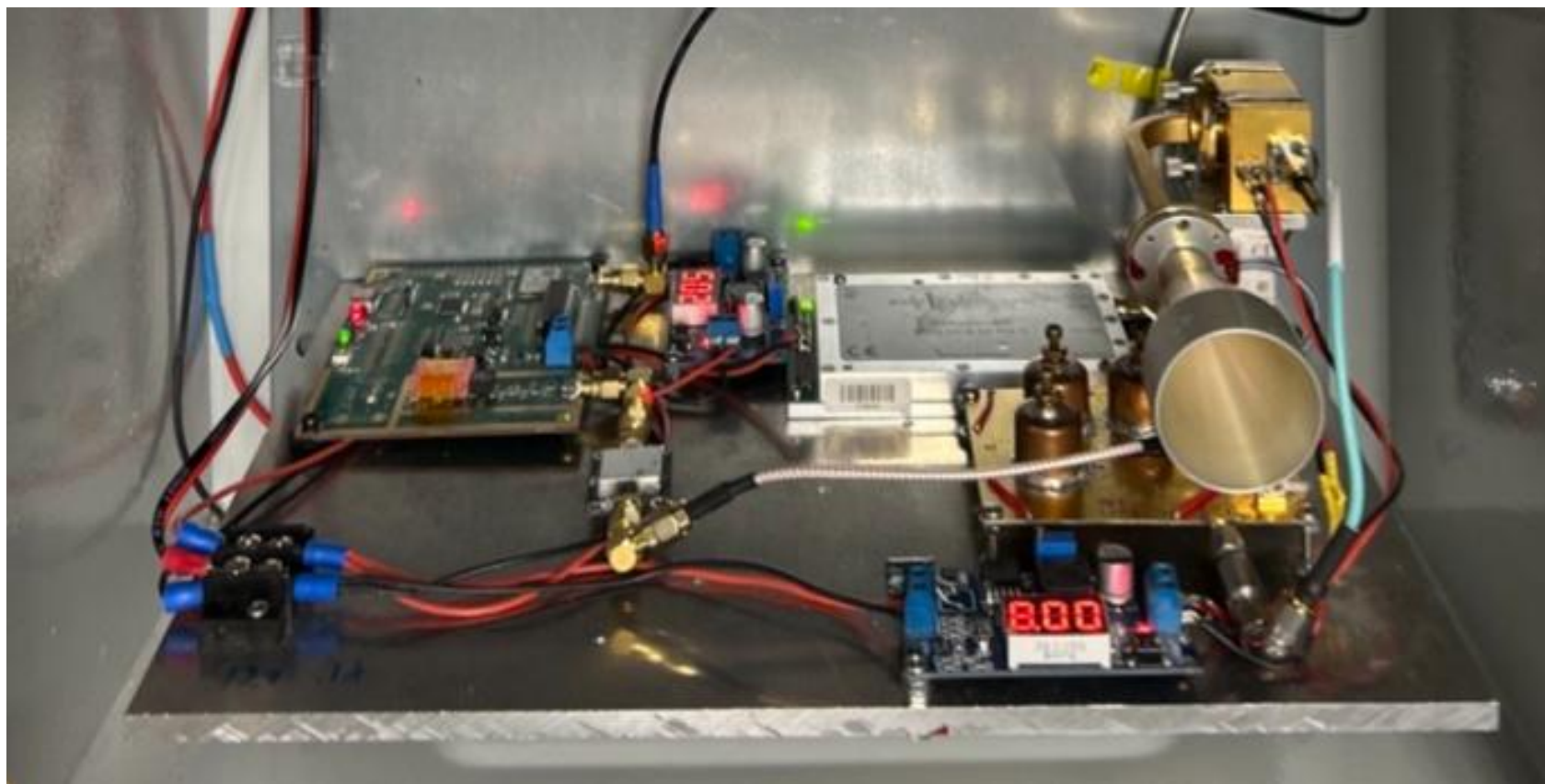
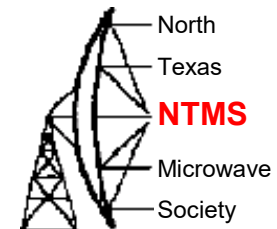
# New standalone 47 GHz beacon for NTMS

**KM5PO – April 11, 2026**

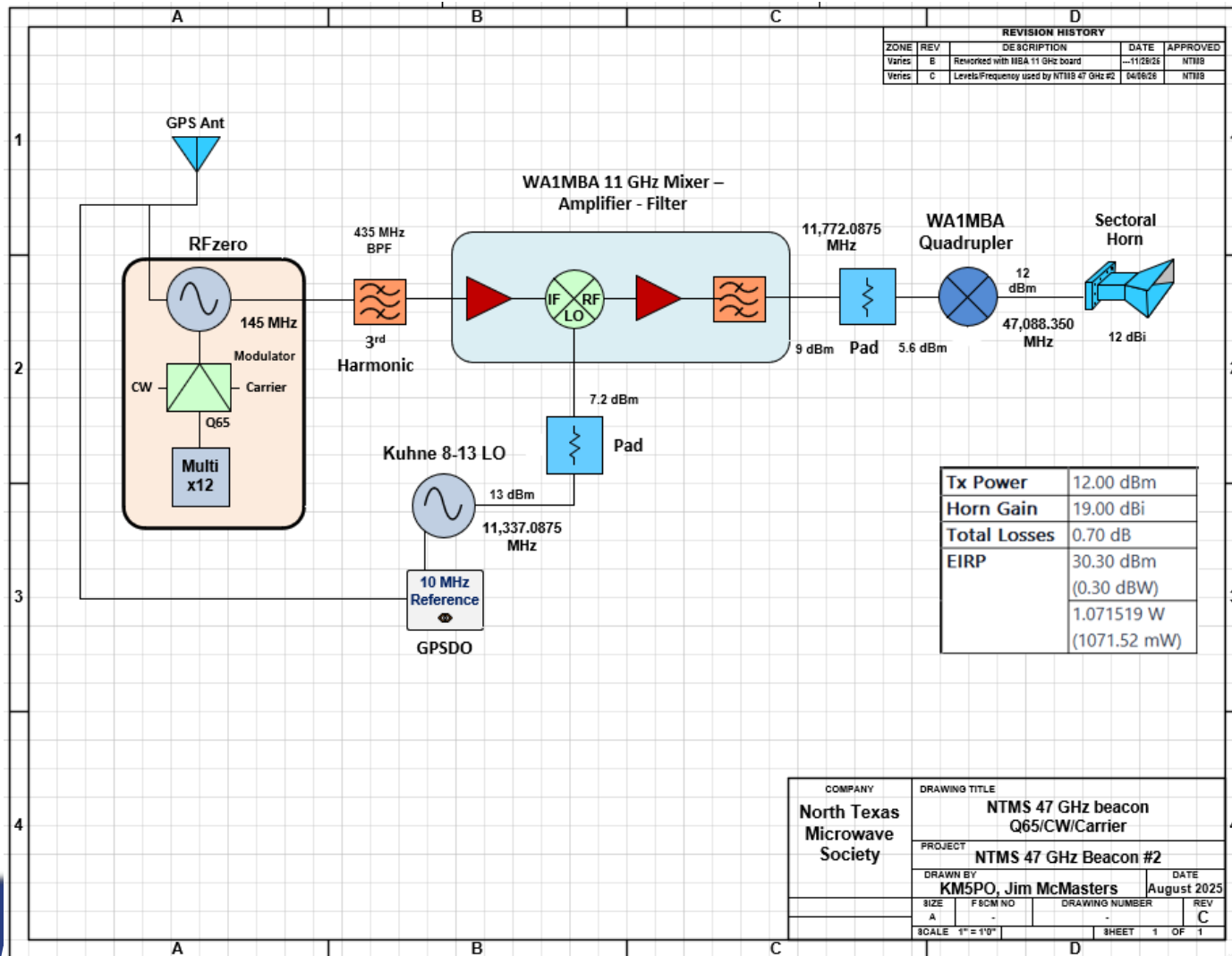
# Build design based on NTMS tri-band 47 GHz beacon



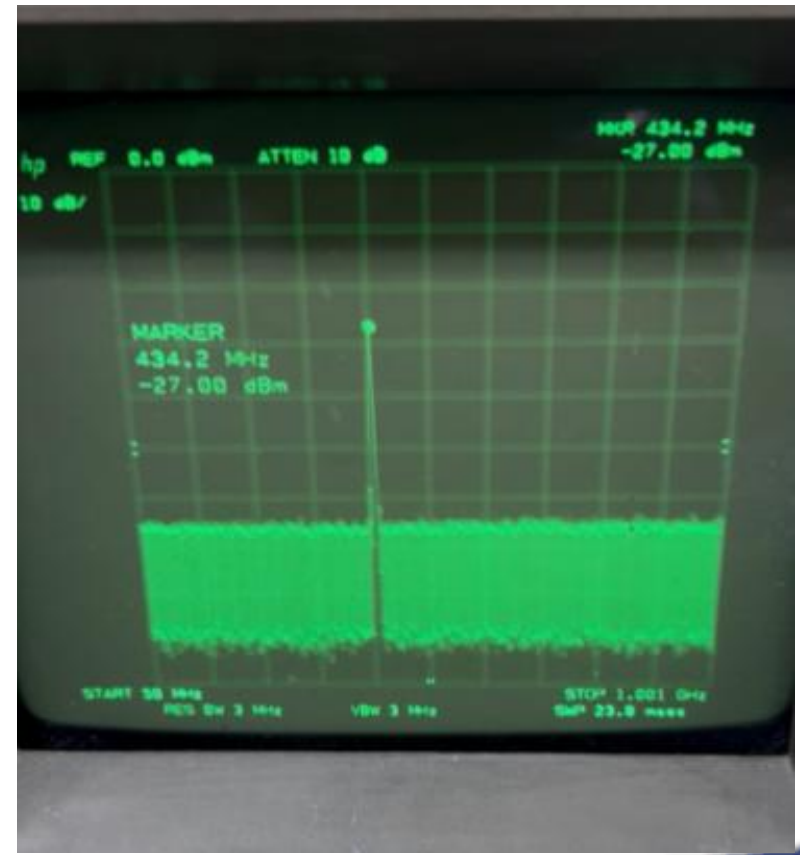
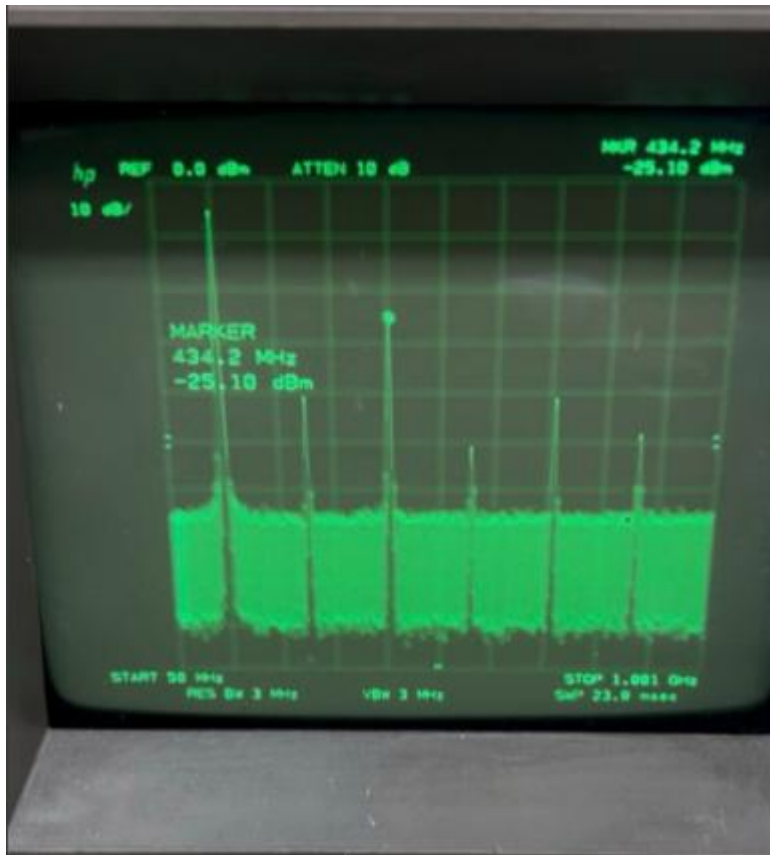
# 47 GHz built on 8 x 10" deck

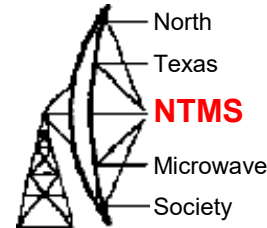


# RF Topology

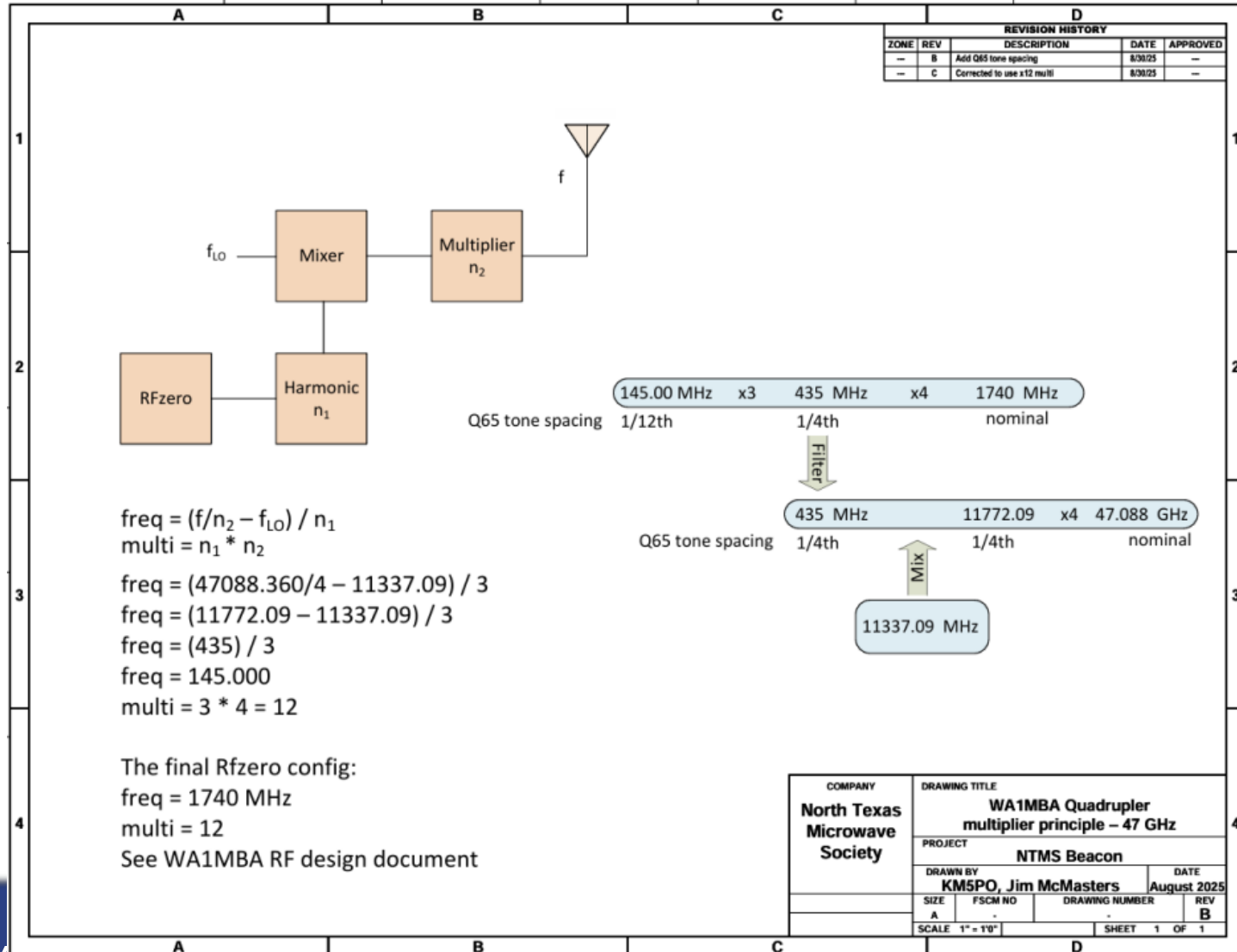


# 435 MHz BPF effect





# Signal/Tone Spacing



# Rfzero configuration

```
Software
=====
RFzero library :: Beacon Q65 + CW + carrier :: v.1.9.0

Configuration
=====
T1: 0: transformer*, 1: combiner, 2: none           : 0
Display: 0: none, 1: 16x2, 2: 20x4*, ...           : 1
PCF8574 I2C addr: 0, 0x20 to 0x27, 0x38 to 0x3F : 00
Warm up before transmitting: 0* to 255 s          : 0
Curr. level: 0: 2 mA, 1: 4 mA, 2: 6 mA, 3: 8 mA* : 3

Wait for valid GPS before TX: 0: no*, 1: yes       : 1
Echo GPS data to USB 0: off*, 1: on, 2: all        : 0

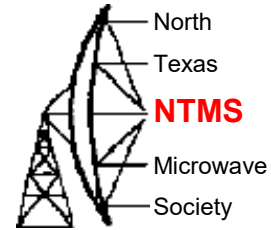
Nominal beacon frequency in Hz                     : 1740000000
Frequency multiplication: 1 to 255, 1*             : 12
Calibration interval: 1 to 255, 5*                : 5
Keying style: 0: OOK, 1: FSK*                     : 0
CW speed: 1 to 255 ms, 100 ms* = 12 WPM/60 LPM    : 100
Call, max 15 characters                             : W5LUA/B
Locator, max AA00AA00                              : EM13QC68
MGM, max 13 characters in Q65                      : W5LUA/B
Q65 mode: 0: 15A*, 1: 15B, 2: 15C, 3: 15D, ...   : 12

*: default value
```

# Arduino code

```
// Wait for GPS to be valid?  
if (gpswait)  
{  
  while (!gps.isValid())  
    yield();  
  
  delay(259);  
  
  gps.getLocator(locator, 6);  
  locator[6]=0;  
  
  strcpy(mgmMessage, call);  
  strcat(mgmMessage, " ");  
  strcat(mgmMessage, locator);  
  mgmMessage[13]=0;  
  
  // SerialUSB.println(locator);  
  //SerialUSB.println(mgmMessage);  
  
  Modes.setupQ65(q65mode, mgmMessage);  
}  
  
// Center the PLL  
Modes.setTone(INDEX_CW_KEY_DOWN, true);
```

# DB6NT frequency setting



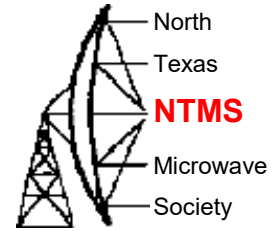
- 11337.087.500 (+ 435.000 MHz from IF x 4 = 47088.350 MHz)

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Communications (Received = Yellow, Transmitted = Green):

```
V  
N  
V  
2.1.1  
GFR011  
A  
MFR337  
A  
kFR087  
A  
kFR087  
A  
HFR500  
A  
SFR  
A
```

# Ready to deploy!



# Questions?

