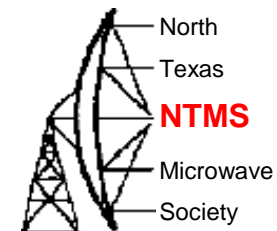
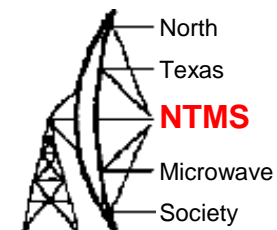


Welcome to The North Texas Microwave Society April 2nd ,2022



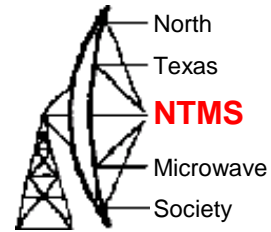
- Noon to 12:30 PM – Bull Session & Introductions
- 12:30 PM - Meeting Starts
- Welcome
- Technical Program
 - 122 GHz Distance Update from North Texas – Jim KM5PO
 - Universal Filter / Attenuator PCB – Kent WA5VJB
 - 3400 / 10368 MHz Beacon Update – Al W5LUA & Wes WA5TKU
- “Show and Tell” by members
- Spring Operating Event
- Other items & Business Meeting

Future NTMS Meetings

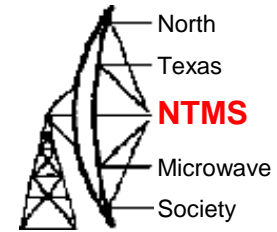


- NTMS generally meets on the first Saturday of most months.
- For now, the near term meetings will be via Zoom. In person meeting place being investigated for future.
- The next meeting will be May 7.
- Regarding the June meeting....according to Steve Lott KG5VK, North Texas Section Manager, HamCom has ceased operations. Steve notes that on June 11, there is a DFW Ham Expo Hamfest ,www.dfwham.com ,to be held at the Music City Mall at 2401 S. Stemmons Fwy, Lewisville.

Technical Program



- 122 GHz Distance Update from North Texas – Jim KM5PO
- Universal Filter / Attenuator PCB – Kent WA5VJB
- 3400 / 10368 MHz Beacon Update – Al W5LUA & Wes WA5TKU



NTMS Beacons W5HN/B EM13kf

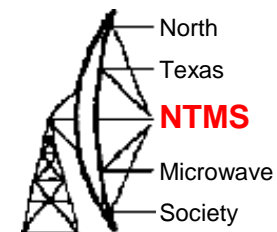
AI W5LUA

Wes WA5TKU

Greg AA5C

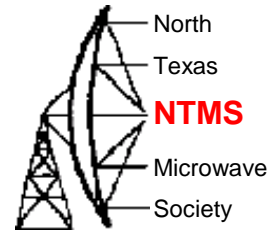
April 2, 2022

Beacon Business



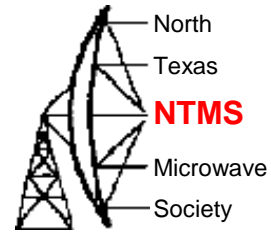
- At the last meeting, a motion was made, discussed, modified and approved to purchase 2 ZL PLLs, one for 3400 MHz and one for 10368 MHz
- A motion was also made and approved to purchase an ethernet controller used for switching off individual beacons.
- The total approved was approximately \$400.

Beacon Business



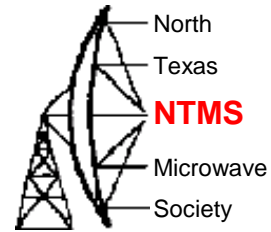
- Both ZL PLLs are out of stock and waiting on parts. Alternative solutions will be discussed in a next couple of slides
- The 8 way ethernet controller had issues and has been returned and an alternative is in the works. This is being worked on by Greg AA5C and Wes WA5TKU. Wes will update us.

New Approach with digiLO



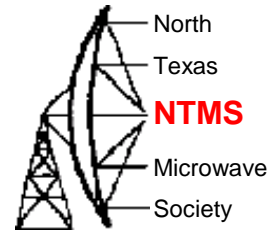
- Replace the basic crystal oscillator with a digiLO. The digiLO has an external 10 MHz reference input but will rely on its own internal 10 MHz reference in the absence of an external reference.
- The beacon will have to change from FSK to on-off keying. This can be accomplished with an external pin diode switch or by turning on and off driver stages. The goal would be to have at least 30 dB of power level difference between on and off.
- Pick end frequencies as close as possible to 380 kHz up from the bottom of the weak signal band.

New Approach with ADF-4351



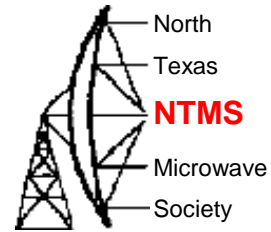
- Replace the basic crystal oscillator with an ADF-4351. The ADF-4351 has an internal 10 MHz reference but can be manually connected to an external 10 MHz reference but requires a modification of the etch.
- The advantage of the ADF-4351 is that it can be programmed to add a beacon message. This would eliminate the need for an external pin diode switch. This approach has been used by AA5C in our 432 MHz beacon with no apparent keying issues.
- Pick end frequencies as close as possible to 380 kHz up from the bottom of the weak signal band.

Frequency Scheme



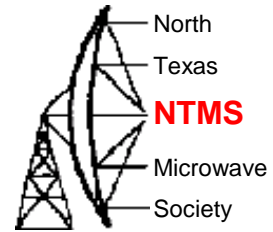
- 9 cm – Osc and 3 X3 multipliers
 $125.94 \text{ MHz} \times 27 = 3400.380 \text{ MHz}$
- 6 cm – Osc and X3 and 4 X2 multipliers
 $120.008 \text{ MHz} \times 48 = 5760.384 \text{ MHz}$
- 3 cm – Osc and X3 and 5 X2 multipliers
 $108.004 \text{ MHz} \times 96 = 10368.384 \text{ MHz}$
- We will have to look at spurs and phase noise on the bench.

Cost



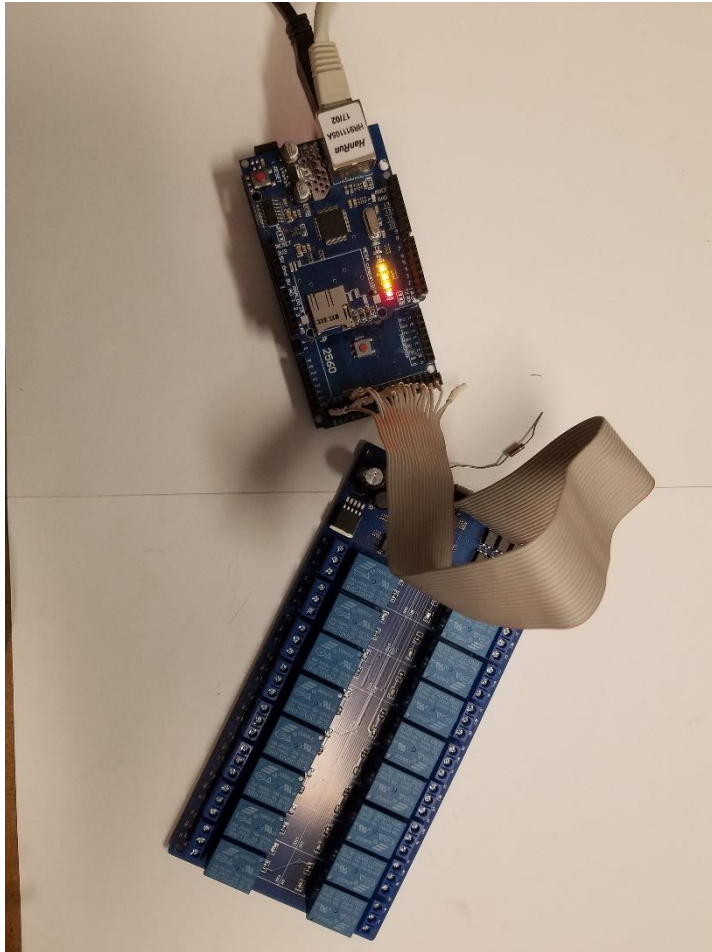
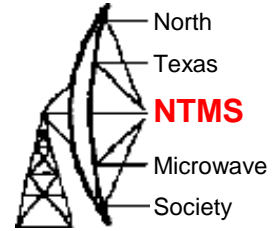
- digiLO \$139 plus pin diode switch
- ADF-4351 & Arduino Uno ~\$40
- AA5C and I decided to try the ADF-4351 approach with the 3400 MHz unit. We hope to update the membership at the next meeting.

Ethernet Controller Update



- Work done by both Greg AA5C and Wes WA5TKU
- Report by Wes

AA5C Beacon Controller

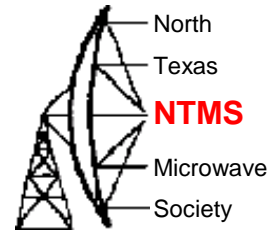


Arduino Mega 2560 &
Arduino Ethernet Shield

16 Relay Board
SPDT 10 Amp Contacts

- Any “Show and Tell” from members?

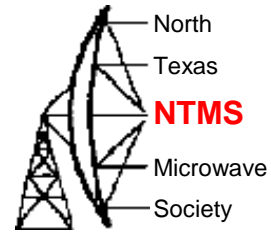
Meeting Room Possibilities



- Boys Club meeting room / chapel at the opposite end of the St. Barnabas Church in Richardson – They have chairs and some tables.
- Richardson Public Library has no meeting room space
- Another possibility exists in Plano. Dave McCoy found some “program rooms” available at most of their branch locations. Cost is \$25/Hour. We will check these out.

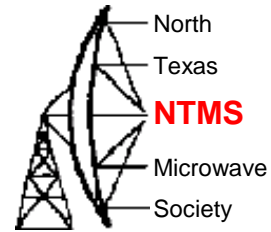


Spring 5.7/10/24 GHz Event



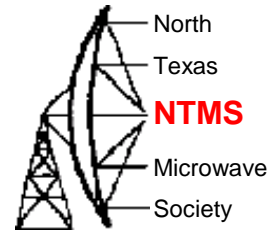
- April 16/17 – times are informal
Rover/Portable stations determine times
- Good time to check out equipment
- Check out new rover spots
- Coordinate on Slack, Cell phone and 144.260 MHz
- If anyone needs an invite to NTMS Slack, please let Brad WQ5S know.
- Questions or comments?

NTMS Weekly Gatherings on the Radio



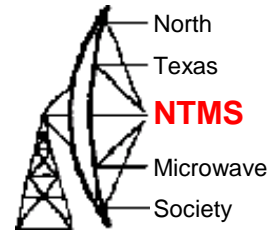
- Sunday 8PM 144.260 MHz USB NET run by Ross K5ZSJ from the Carrollton area
- Monday 7:00 PM 144.174 MHz FT-8
- Tuesday 7:00 PM 222.174 MHz FT-8
- Wednesday 7:00 PM 432.174 MHz FT-8
- Higher frequencies on request

NTMS Lunch



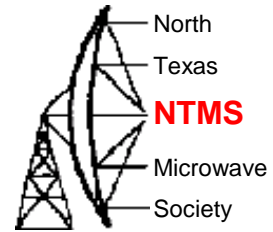
- When: Tuesday 11:30AM
- Where: Texas Smokehouse Bar-B-Que
800 E. Arapaho Rd #101
Richardson, TX
972-699-1521

Dues



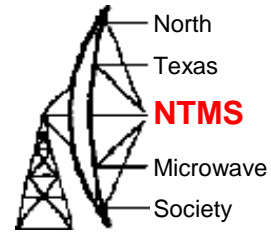
- Please support the NTMS with your \$12 annual dues. Information on paying dues at www.ntms.org

Business Meeting



- Old Business
- New Business
- Any other topics to be discussed?

Thanks for Attending



- See you next month on May 7th

Barry VE4MA – Using Solar Readings to analyze system performance

Russell K5RUS – Dual Polarity Power Supply PCB and its applications

- Don't forget activity days
- Motion to adjourn?