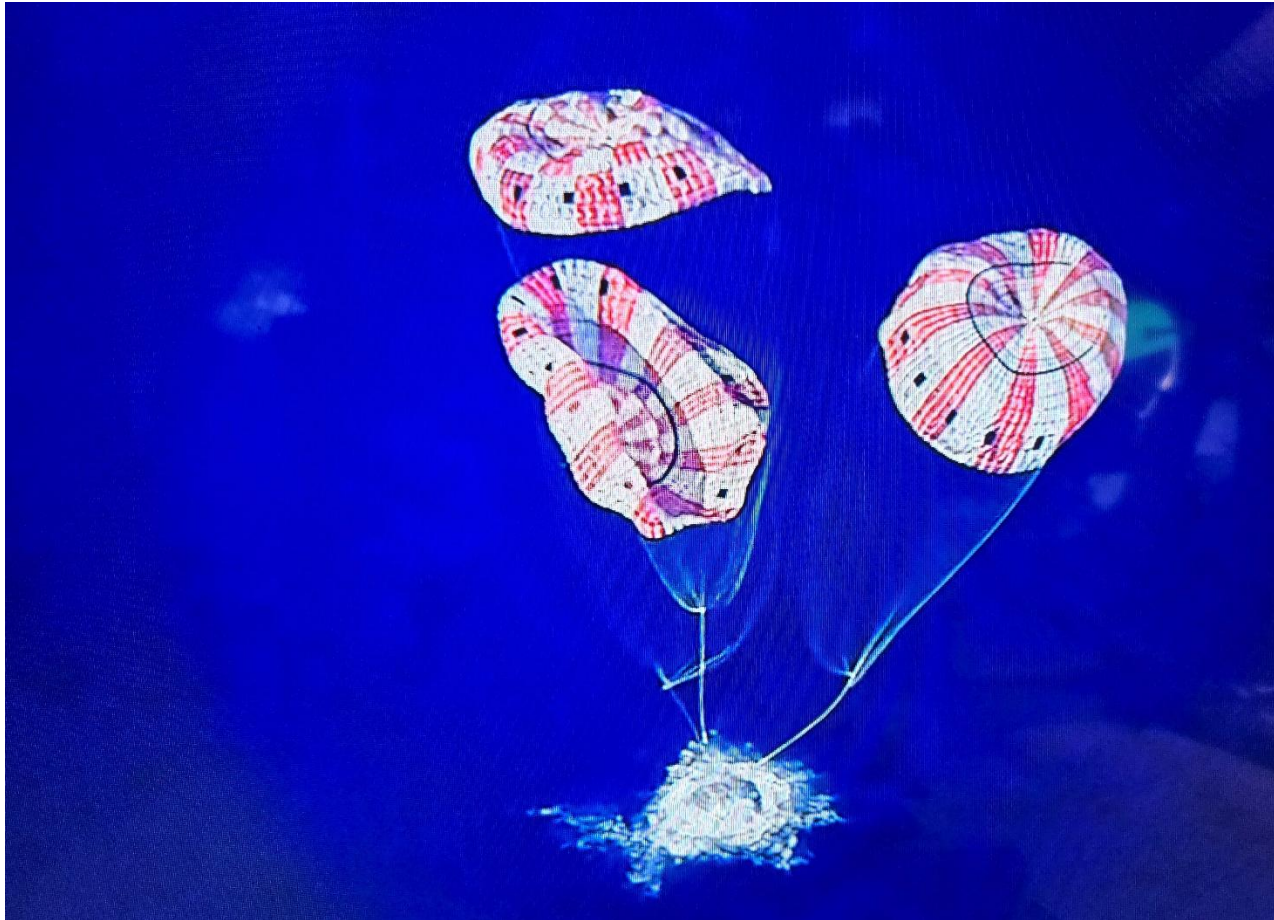
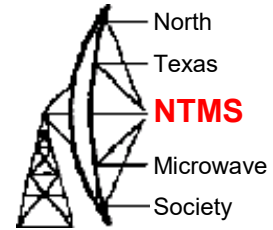


# Successful Artemis II Splashdown!





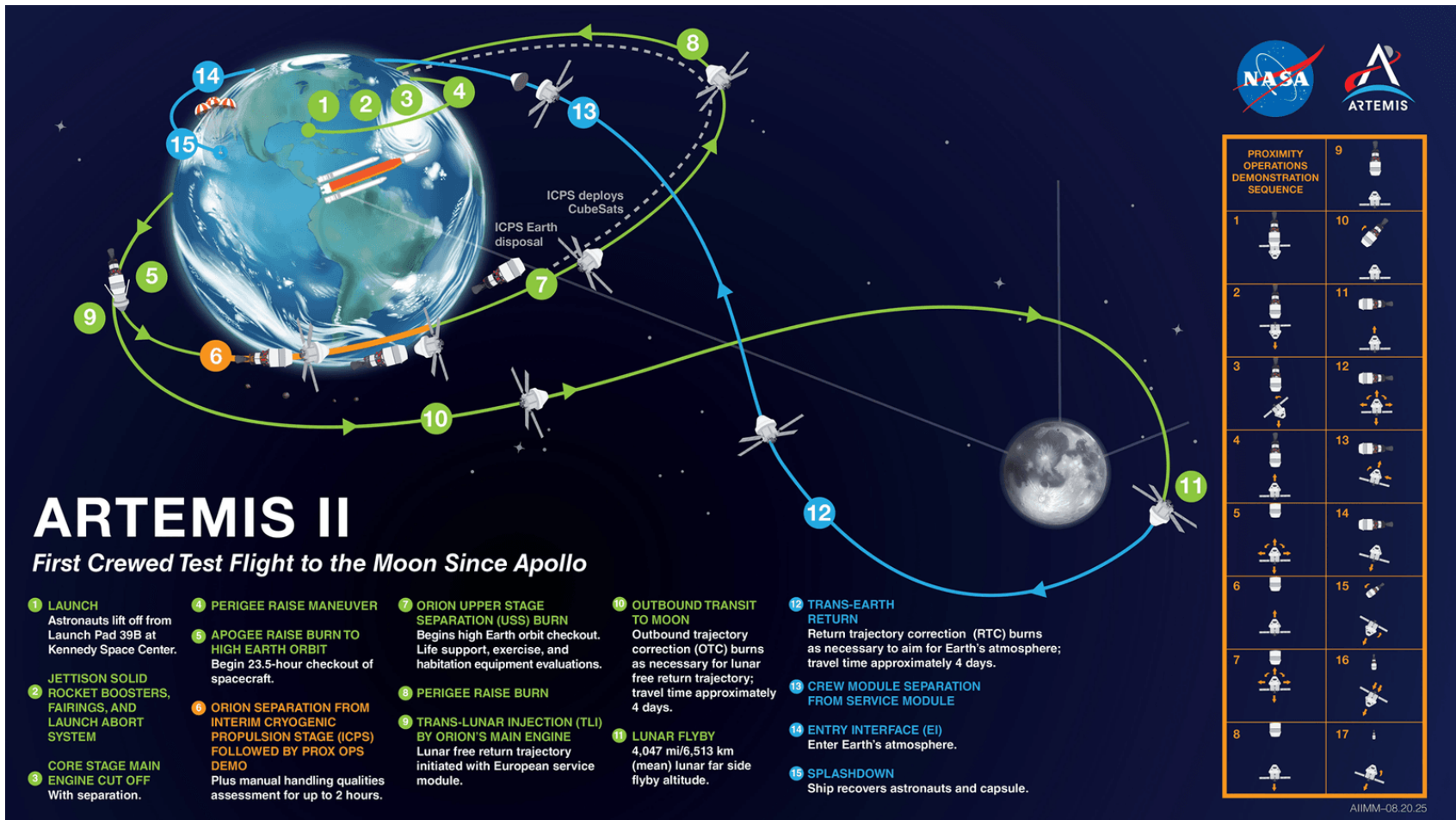
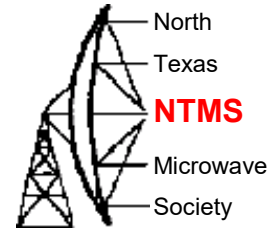
# Artemis II Reception

Al Ward

W5LUA

April 11, 2026

# Artemis II



**1 LAUNCH**  
Astronauts lift off from Launch Pad 39B at Kennedy Space Center.

**2 JETTISON SOLID ROCKET BOOSTERS, FAIRINGS, AND LAUNCH ABORT SYSTEM**

**3 CORE STAGE MAIN ENGINE CUT OFF**  
With separation.

**4 PERIGEE RAISE MANEUVER**

**5 APOGEE RAISE BURN TO HIGH EARTH ORBIT**  
Begin 23.5-hour checkout of spacecraft.

**6 ORION SEPARATION FROM INTERIM CRYOGENIC PROPULSION STAGE (ICPS) FOLLOWED BY PROX OPS DEMO**  
Plus manual handling qualities assessment for up to 2 hours.

**7 ORION UPPER STAGE SEPARATION (USS) BURN**  
Begins high Earth orbit checkout. Life support, exercise, and habitation equipment evaluations.

**8 PERIGEE RAISE BURN**

**9 TRANS-LUNAR INJECTION (TLI) BY ORION'S MAIN ENGINE**  
Lunar free return trajectory initiated with European service module.

**10 OUTBOUND TRANSIT TO MOON**  
Outbound trajectory correction (OTC) burns as necessary for lunar free return trajectory; travel time approximately 4 days.

**11 LUNAR FLYBY**  
4,047 mi/6,513 km (mean) lunar far side flyby altitude.

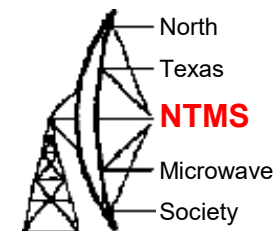
**12 TRANS-EARTH RETURN**  
Return trajectory correction (RTC) burns as necessary to aim for Earth's atmosphere; travel time approximately 4 days.

**13 CREW MODULE SEPARATION FROM SERVICE MODULE**

**14 ENTRY INTERFACE (EI)**  
Enter Earth's atmosphere.

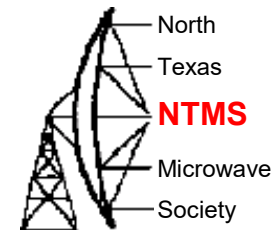
**15 SPLASHDOWN**  
Ship recovers astronauts and capsule.

# Amateurs Tracking Artemis

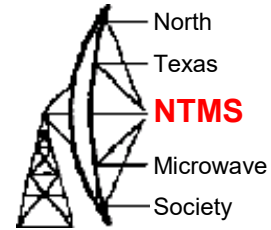


- K0PRT DSES 60 ft (18.2m) dish in Colorado
- N0OY EM18 KS with 28 ft Dish.
- AMSAT DL 20m Bochum Dish
- VE4MA EN19 2.4m
- CT1BYM
- Several others as well.
- I thought I might give it a shot with my 5m dish which was set up for EME on 2304 MHz

# W5LUA 5m Dish

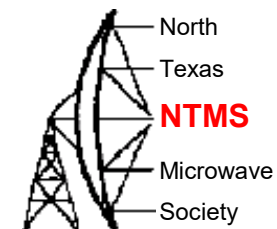


# Previously

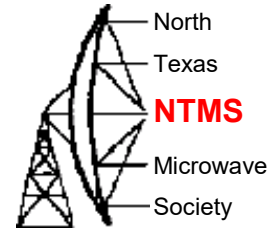


- In early 1998, I had copied the Lunar Prospector on 2273 MHz
- In Nov 2007, I copied the Japanese Lunar Orbiter on 2263 MHz
- So why not give Artemis a shot?

# Communications with Artemis II



- Optical Communications system using LASER
- Deep Space Network managed by JPL using X and Ka bands
- Near Space Network for launch, re-entry, and LEO using X and Ka bands
- S Band Radio – reliable, traditional system for telemetry, voice and data. Used by previous NASA programs.  
Artemis II will use 2216.5 MHz



File Edit View History Bookmarks Tools Help

LIVE REAL TIME SATELLITE TRACKING

www.n2yo.com/?s=68538&live=1

**Track ARTEMIS 2 (INTEGRITY)**

Home Most tracked Just launched Satellites on orbit Alerting tools More stuff Sign in

**ARTEMIS 2 (INTEGRITY)**

NORAD ID:	68538
LOCAL TIME:	17:00:55
UTC:	22:00:55
LATITUDE:	-28.67
LONGITUDE:	85.25
ALTITUDE [km]:	338802.93
ALTITUDE [mi]:	210522.38
SPEED [km/s]:	1.07
SPEED [mi/s]:	0.66
AZIMUTH:	340.1 NNW
ELEVATION:	-85.3
RIGHT ASCENSION:	16h 44m 52s
DECLINATION:	-29° 42' 14"
Local Sidereal Time:	04h 39m 14s

The satellite is in day light

SATELLITE PERIOD: 12221m

[Make A Donation](#)

**Resources**

- [IP2Location IP Geolocation](#)
- [Find your Magnetic Declination](#)
- [Space Station HD Live!](#)
- [Last Minute Stuff!](#)

**Your current location**

Your IP address: 108.253.83.199

Latitude: 33.197626°

Longitude: -96.615056°

Magnetic decl.: 2° 28' E

Local time zone: GMT-5

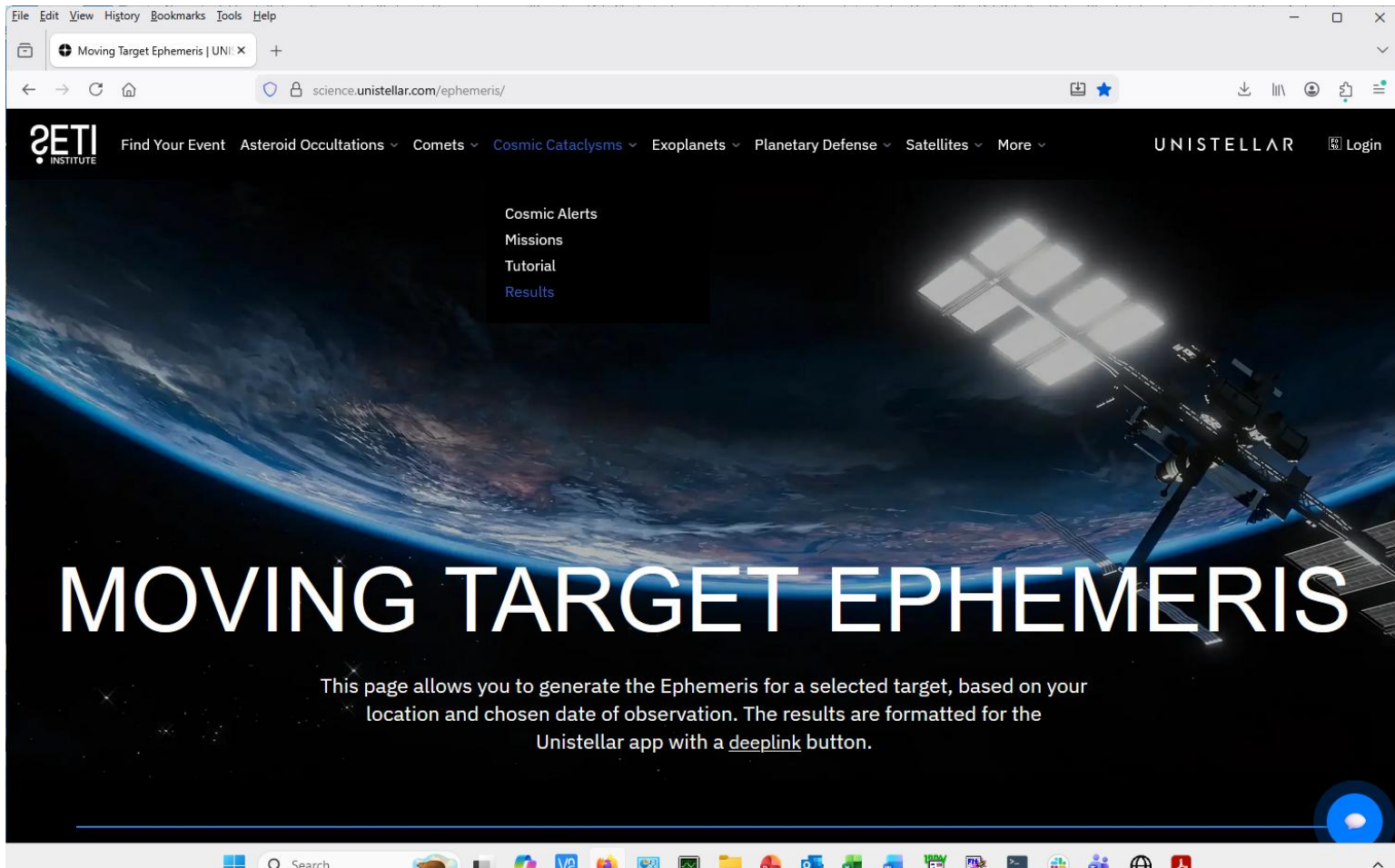
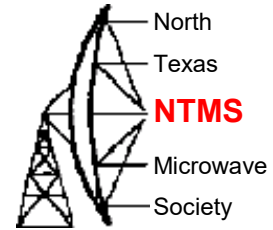
Is this incorrect?

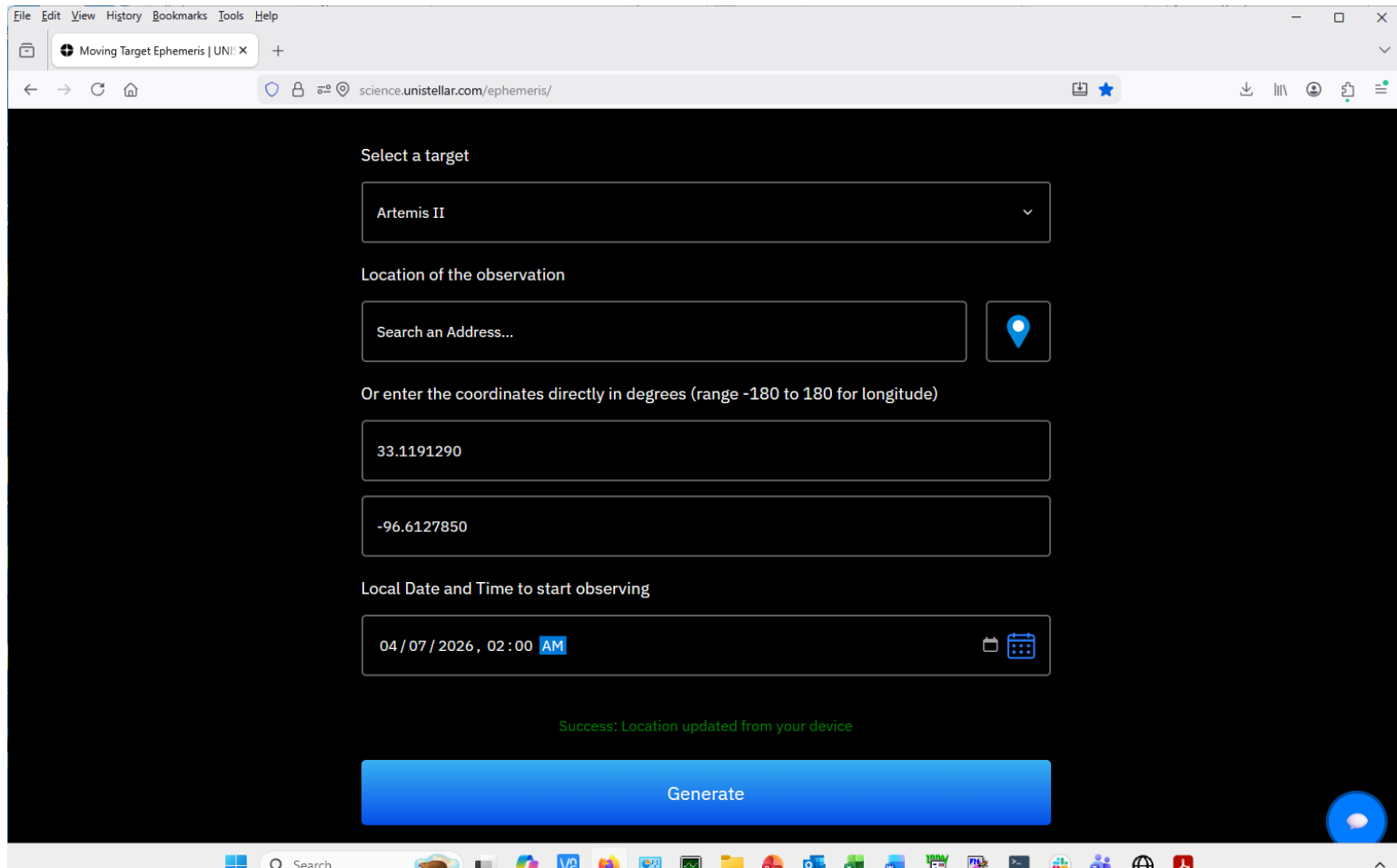
Leaflet | © OpenStreetMap contributors

Draw orbits  Draw footprint  Keep selection centered [Large map](#)

**HOW MANY SATELLITES CAN WE SAFELY FIT IN EARTH ORBIT?** - Experts have been sounding alarm bells for years that Earth orbit is getting a bit too crowded. So how many satellites can we actually launch

<https://science.unistellar.com/ephemeris/>





File Edit View History Bookmarks Tools Help

Moving Target Ephemeris | UNI: X

science.unistellar.com/ephemeris/

Select a target

Artemis II

Location of the observation

Search an Address...

Or enter the coordinates directly in degrees (range -180 to 180 for longitude)

33.1191290

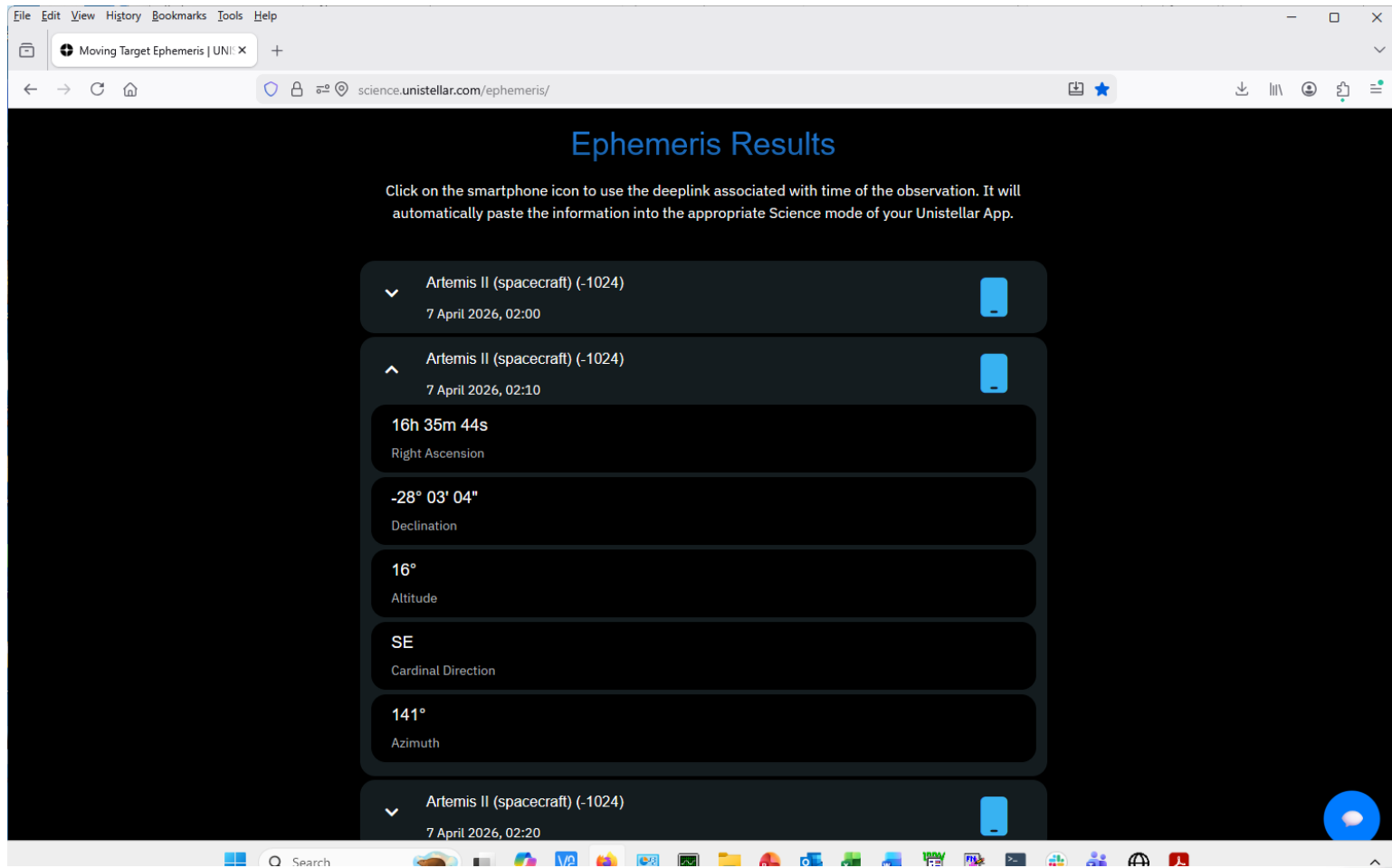
-96.6127850

Local Date and Time to start observing

04 / 07 / 2026 , 02 : 00 AM

Success: Location updated from your device

Generate






File Edit View History Bookmarks Tools Help

Moving Target Ephemeris | UNI: X

science.unistellar.com/ephemeris/

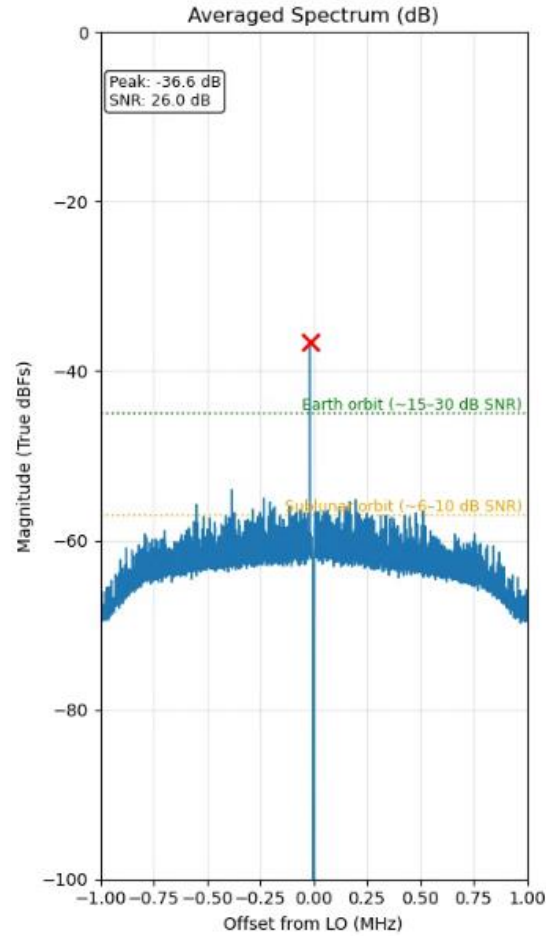
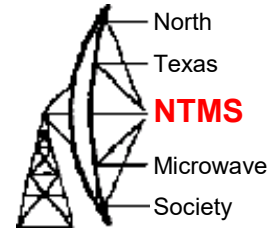
## Ephemeris Results

Click on the smartphone icon to use the deeplink associated with time of the observation. It will automatically paste the information into the appropriate Science mode of your Unistellar App.

▼ Artemis II (spacecraft) (-1024) 7 April 2026, 02:00	
▲ Artemis II (spacecraft) (-1024) 7 April 2026, 02:10	
16h 35m 44s Right Ascension	
-28° 03' 04" Declination	
16° Altitude	
SE Cardinal Direction	
141° Azimuth	
▼ Artemis II (spacecraft) (-1024) 7 April 2026, 02:20	

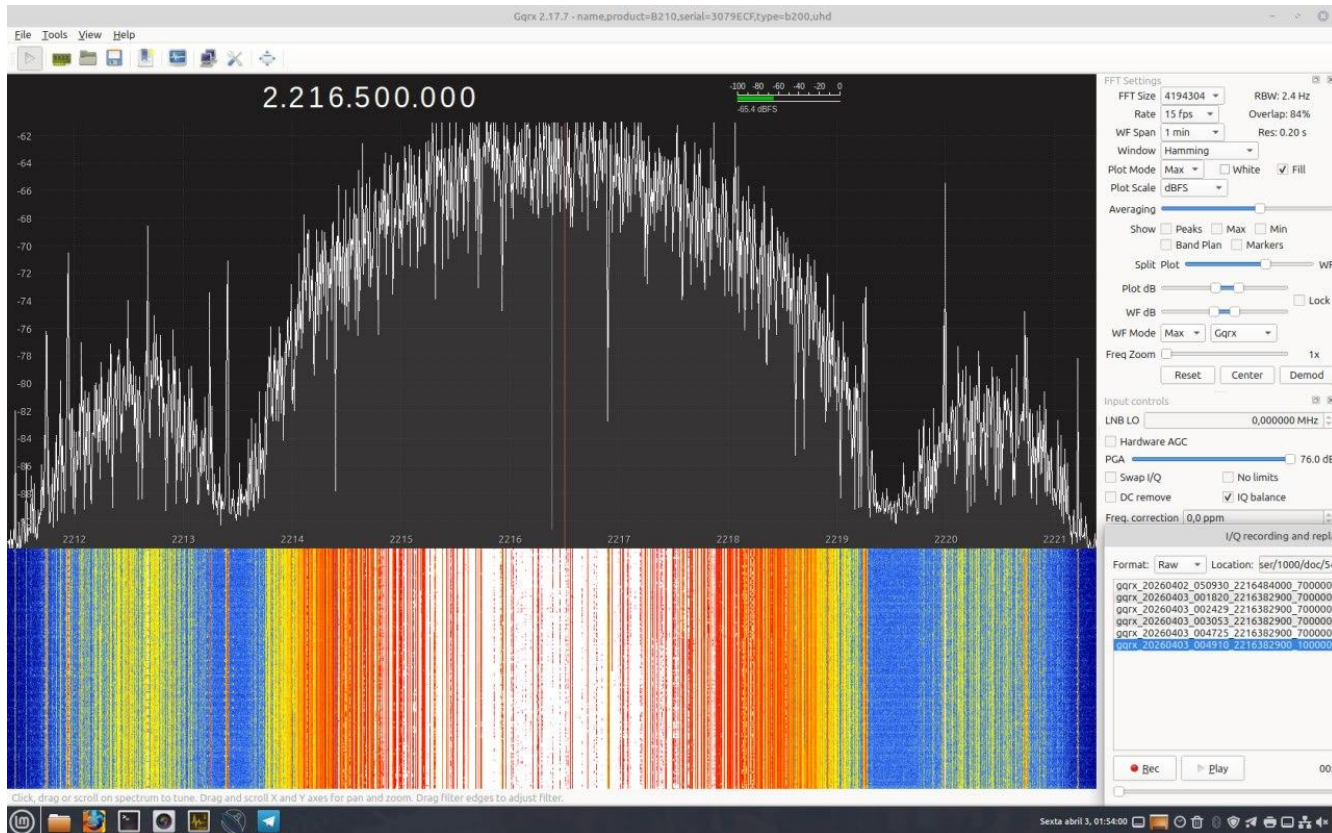
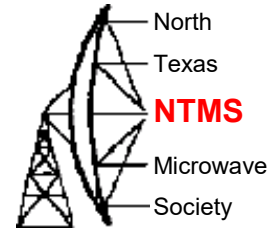
Windows taskbar: Search, File Explorer, Microsoft Edge, etc.

# K0PRT Reception on April 3rd



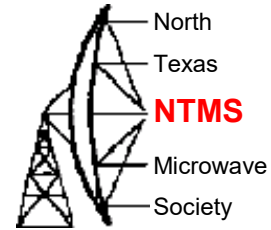
60 ft Dish

# CT1BYM Reception on April 4th



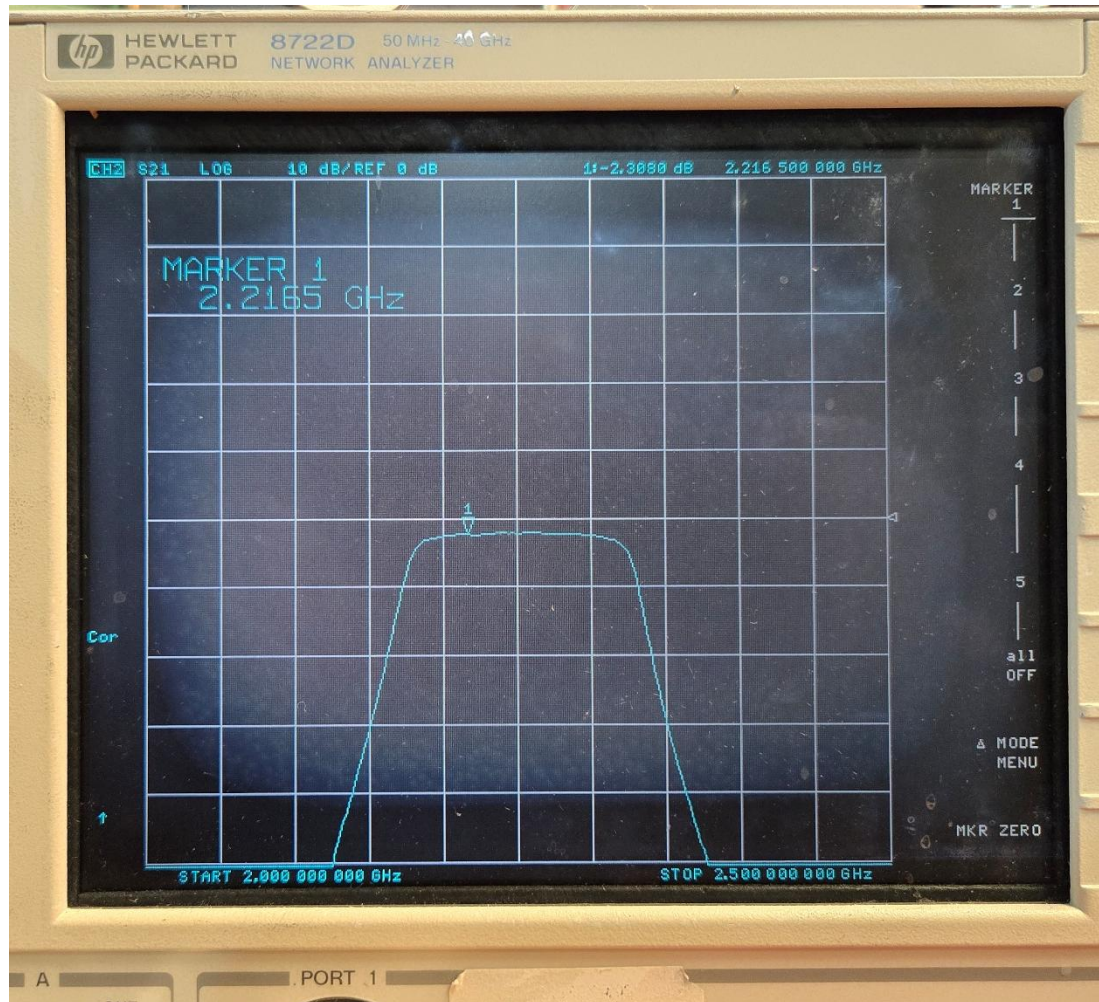
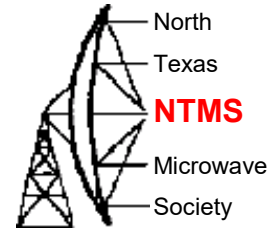
Dish Size  
Unknown

# April 5th



- I realized after the first day of no success that I was reverse polarized w.r.t CP.
- EME operation is RHCP on xmit and LHCP on receive
- I did not care to swap the LNA over to the RHCP port.
- I decided to just disconnect the Klystron in the shack and attach a downconverter capable of reception at 2216.5 MHz.
- I did not have an SDR capable of receiving 2216 MHz so I decided to build a converter so I could copy the primary frequency and down-convert to 10m on my Flex 6600.

# Band Pass Filter



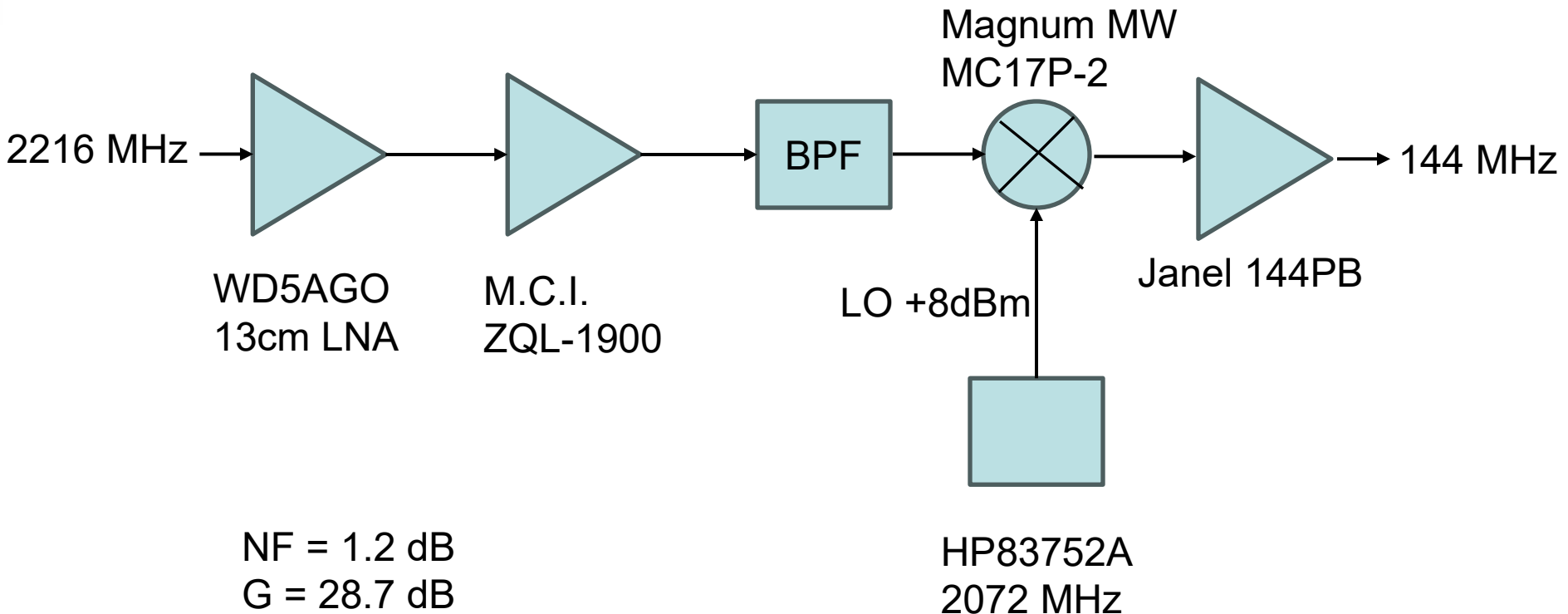
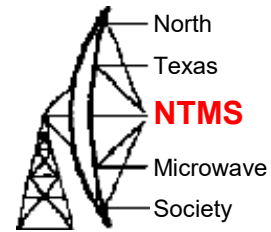
K+L Microwave  
8B120-2250/U100-0/0

Filter covers approximately  
2180 MHz to 2320 MHz

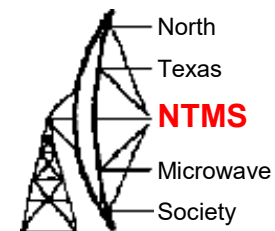
Provides adequate image  
rejection at 1928 MHz and  
>50 dB of LO rejection at  
2072 MHz

Thanks Kent WA5VJB for  
providing the filter

# Simple 2216 MHz Receive Converter

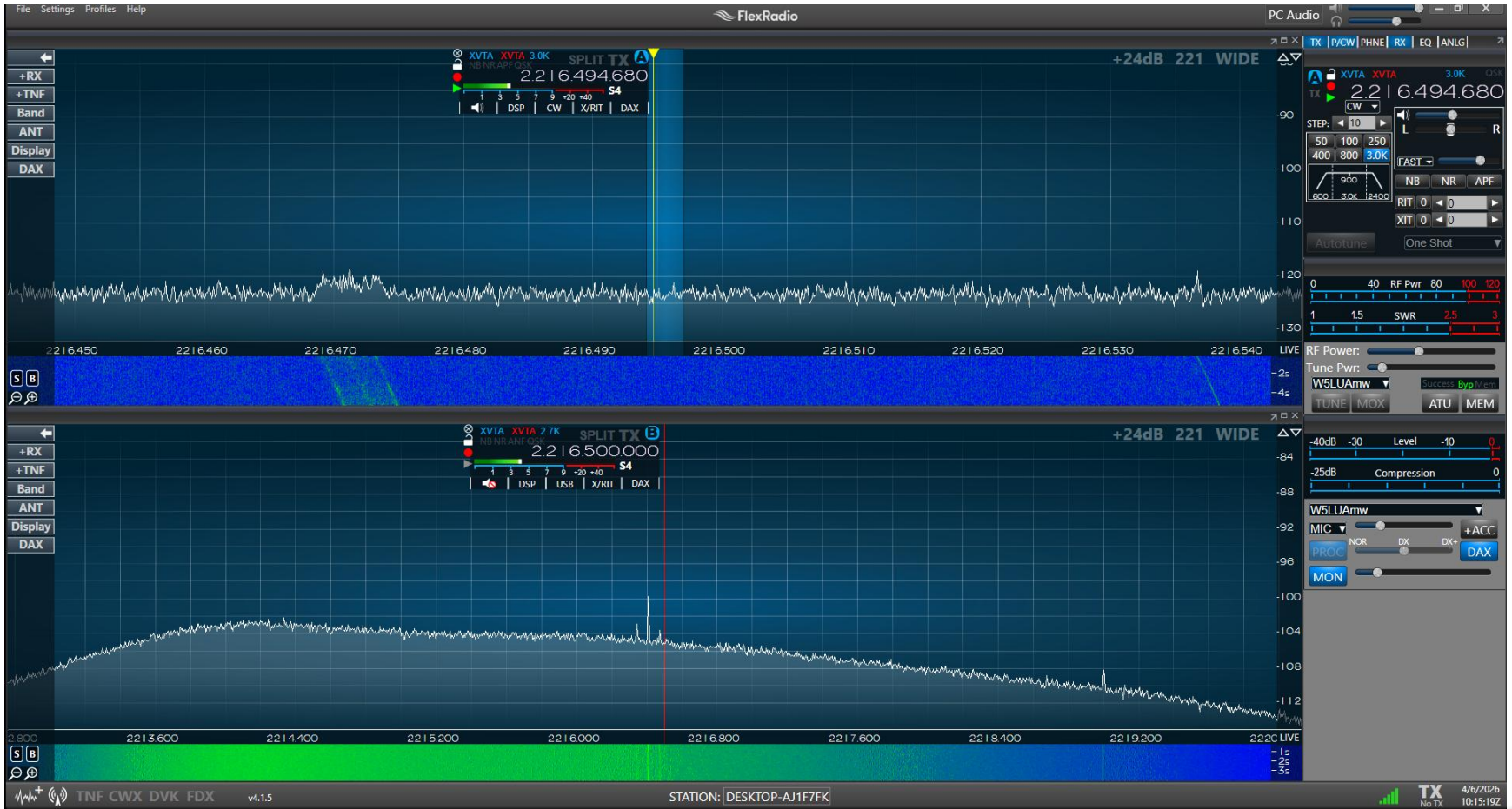
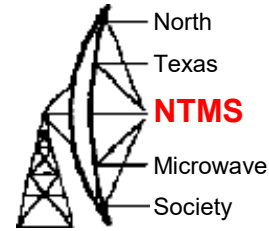


# April 6

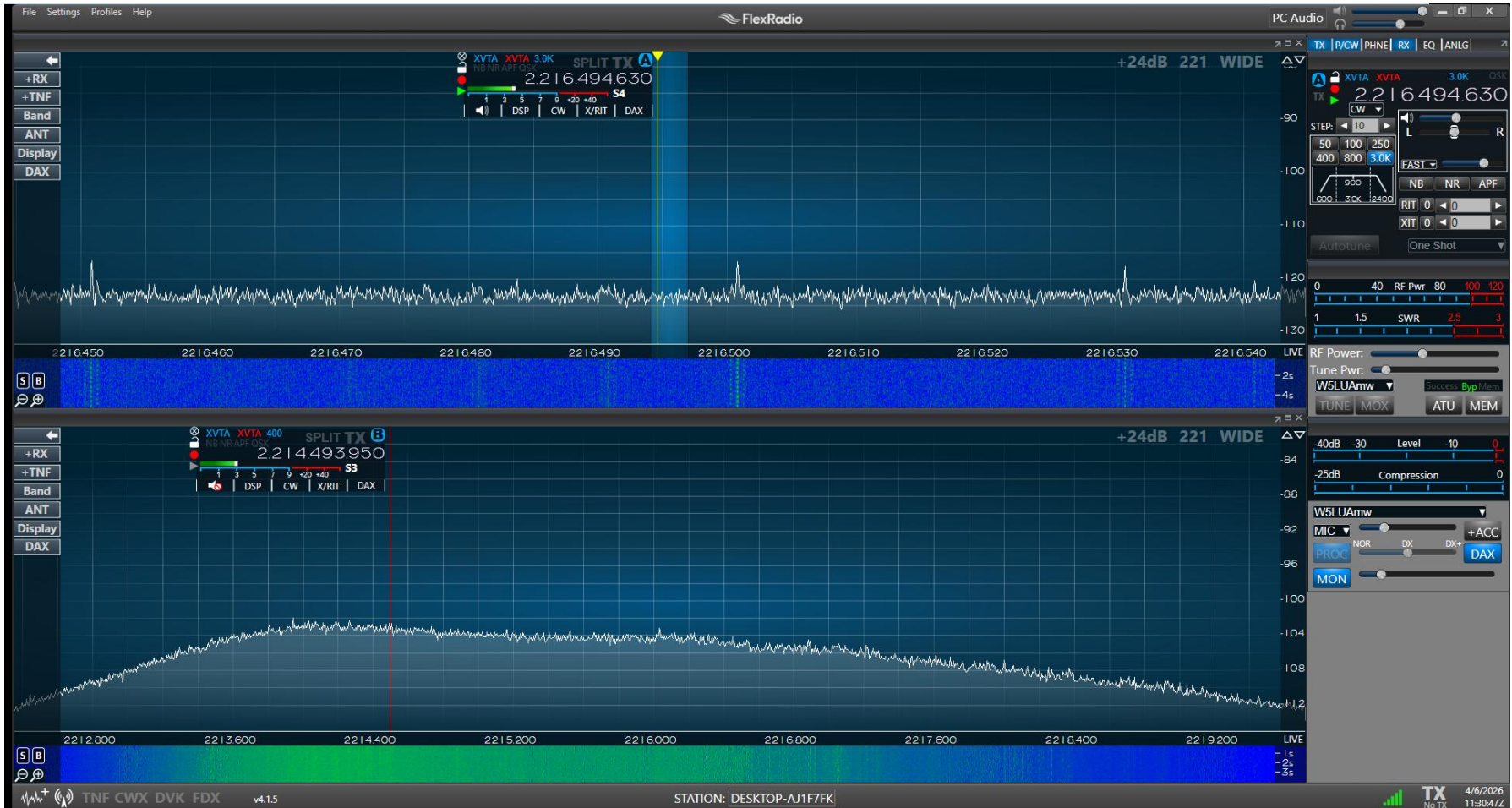
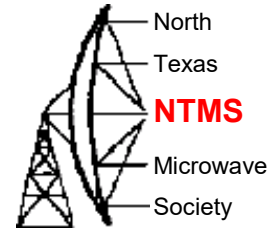


- Morning of the day Artemis II circled around the moon.
- I saw a CW signal just before it disappeared at 08:22 z. N0OY confirmed time
- I tracked Artemis II for the next few hours with varying success

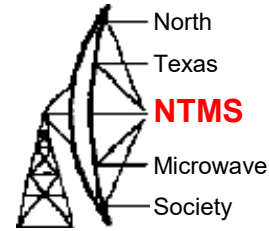
# April 6, 10:15z



# April 6, 11:30z

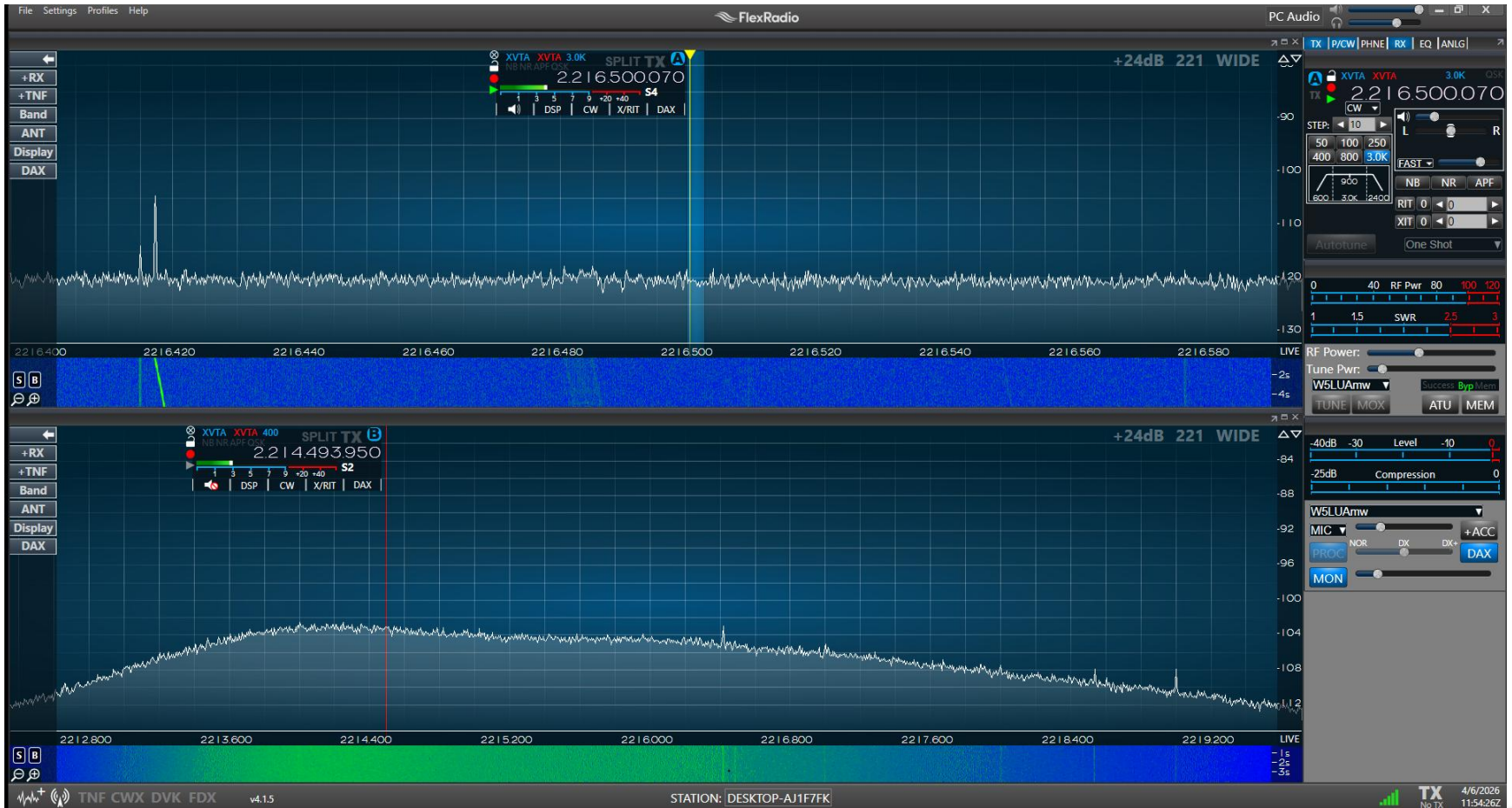
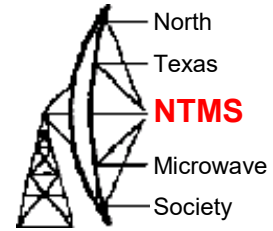


# April 6, 11:34z

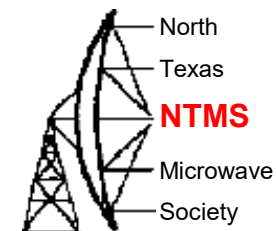


The screenshot displays the FlexRadio software interface. The top window shows a waterfall plot for a 3.0K signal at 2216494.630 MHz, with a power level of +24dB. The bottom window shows a waterfall plot for a 400 signal at 2214493.950 MHz, also at +24dB. The interface includes various control panels on the right for TX, RX, and EQ, as well as a status bar at the bottom indicating the station as DESKTOP-AJ1F7FK.

# April 6, 11:54z

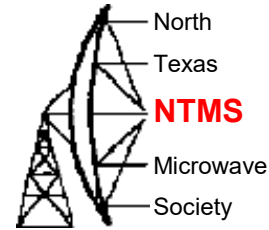


# April 7th

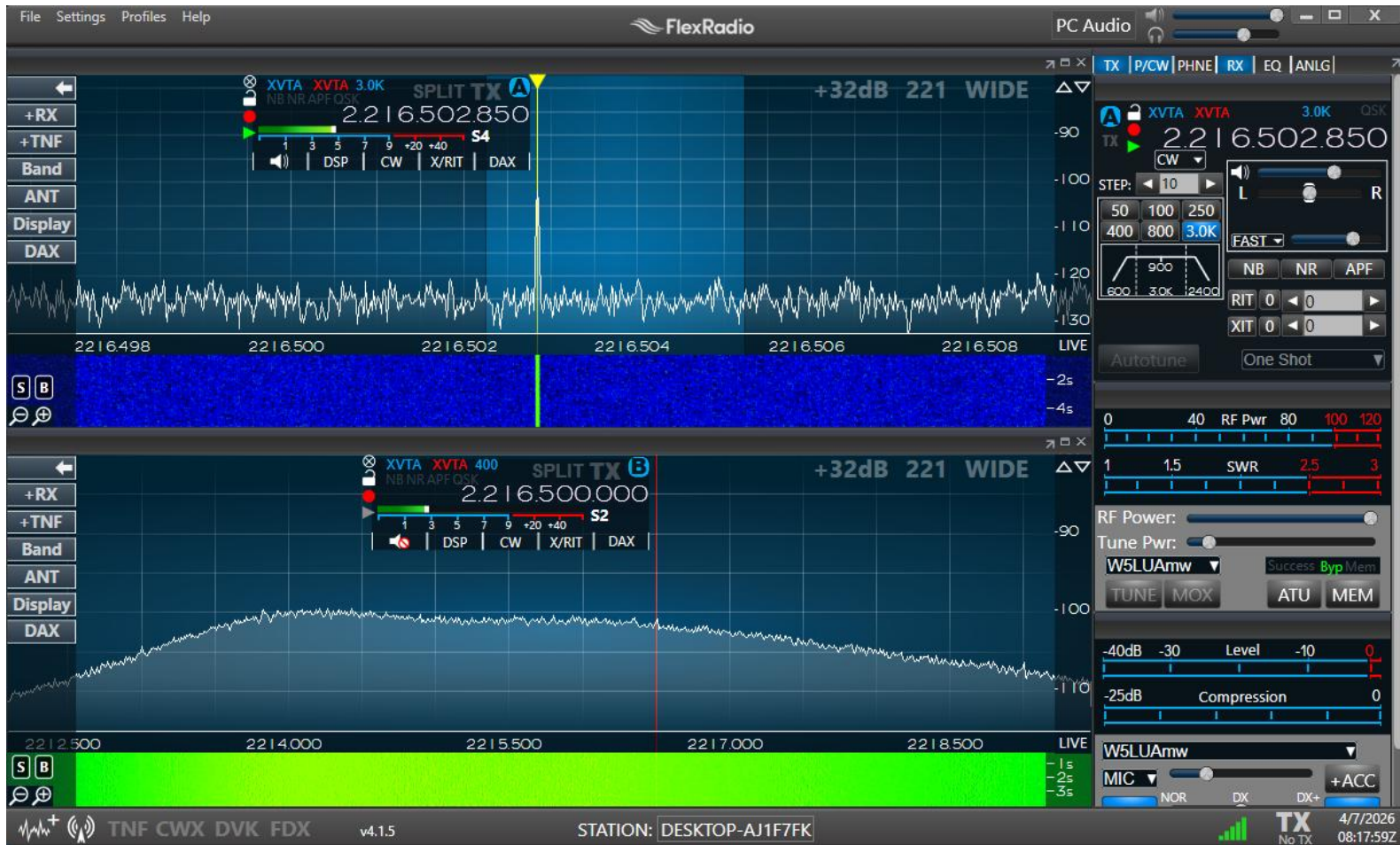
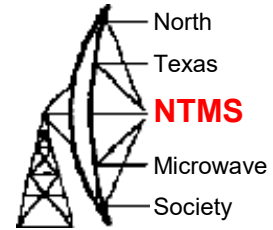


- Artemis II travelling back towards earth
- Doppler is now positive
- Distance approximately 200,000 miles
- Slides show the primary beacon signal at 2216.5 MHz plus doppler and various other artifacts.

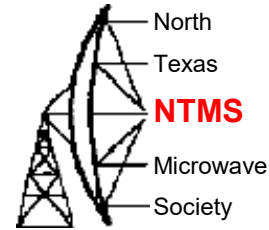
# April 7, 08:13z



# April 7 08:17z

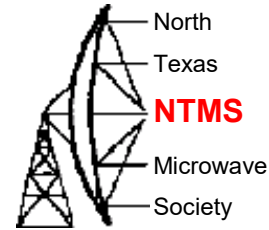


# April 7 08:20z



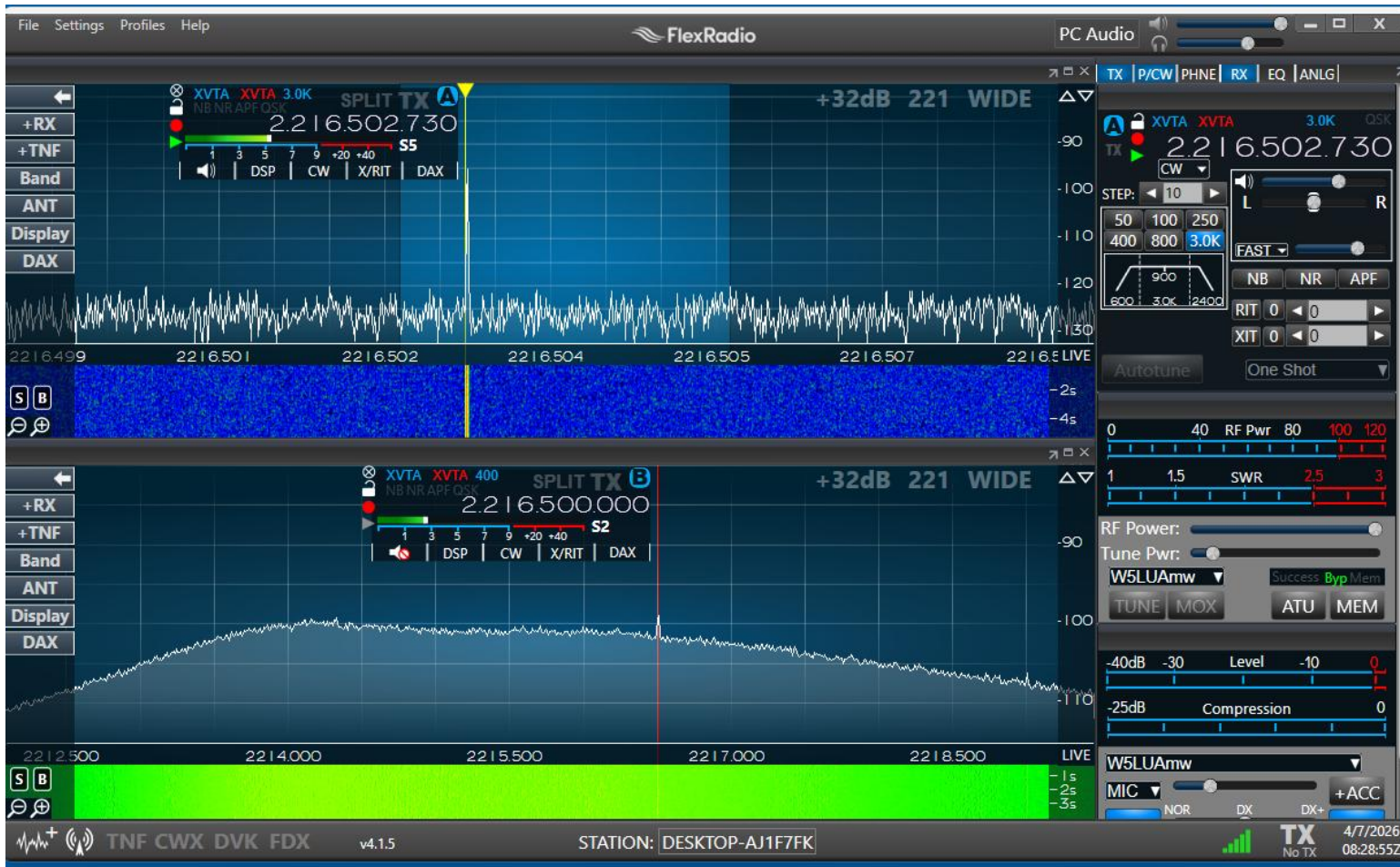
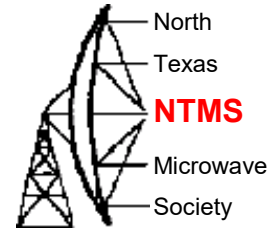
The image displays the FlexRadio software interface. The top window shows a frequency monitor for a signal at 2216.502820 MHz, labeled "S4". The bottom window shows a frequency monitor for a signal at 2216.500000 MHz, labeled "S2". Both monitors show a spectrum plot with a sharp peak at the indicated frequency. The right side of the interface contains a control panel with various settings: TX mode, frequency, step size (3.0K), power level (900), and modulation type (CW). It also includes a power meter showing RF Power and SWR, and a compression control. The bottom status bar indicates the station is "DESKTOP-AJ1F7FK" and the time is "4/7/2026 08:20:04Z".

# April 7 08:21z

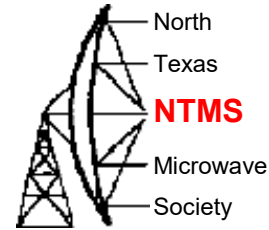


The image displays the FlexRadio software interface. The top window shows a frequency monitor for a signal at 2216.502820 MHz, identified as "SPLIT TX" with a power level of +32dB and a bandwidth of 221 WIDE. The bottom window shows a frequency monitor for a signal at 2216.500000 MHz, also identified as "SPLIT TX" with a power level of +32dB and a bandwidth of 221 WIDE. The right side of the interface contains a control panel with various settings, including a frequency display of 2.216.502820, a mode selector set to "CW", and a power level of 3.0K. The bottom status bar shows the station name "DESKTOP-AJ1F7FK" and the date/time "4/7/2026 08:21:25Z".

# April 7 08:28z



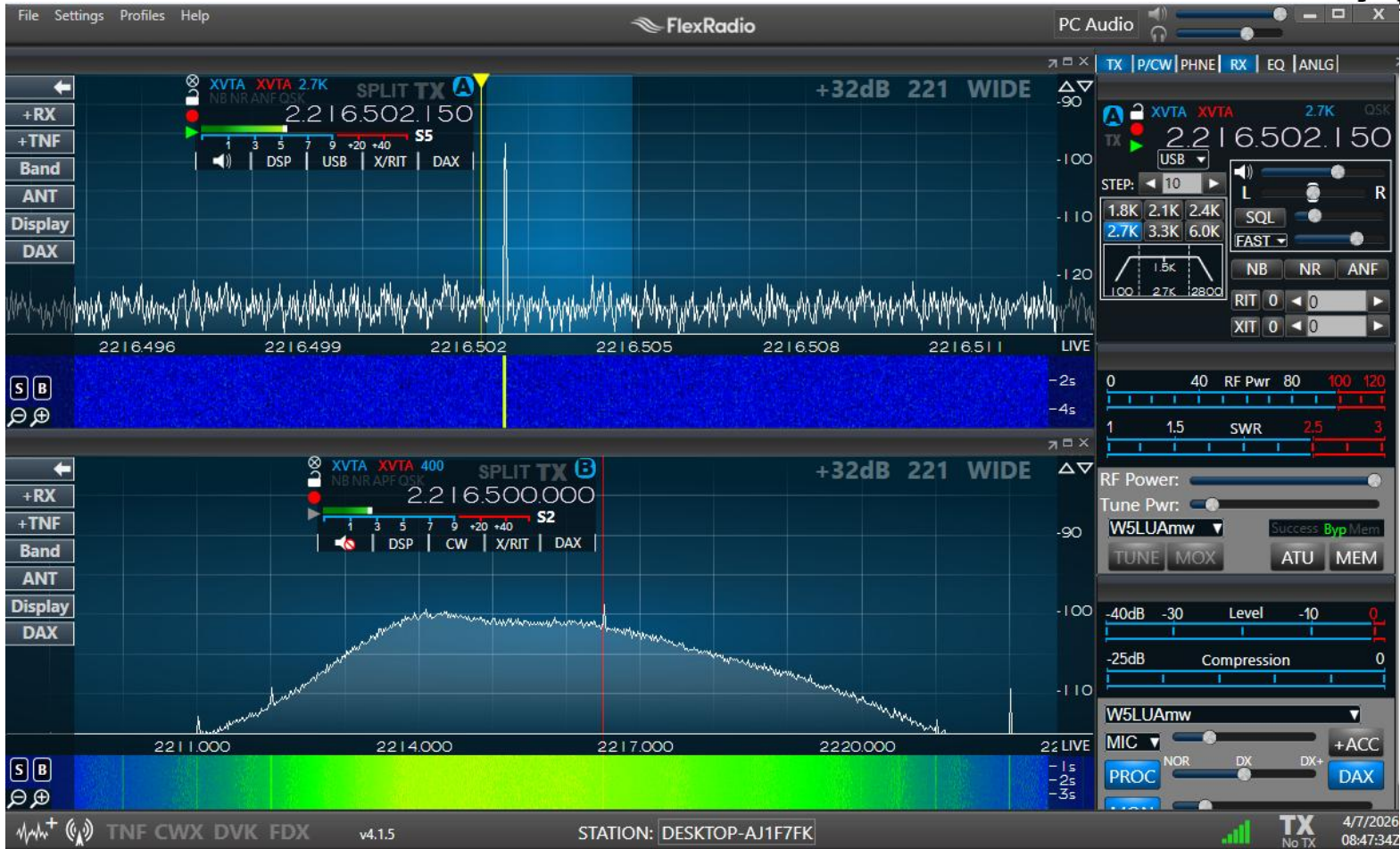
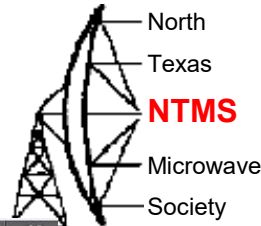
# April 7 08:40z



The screenshot displays the FlexRadio software interface with the following components:

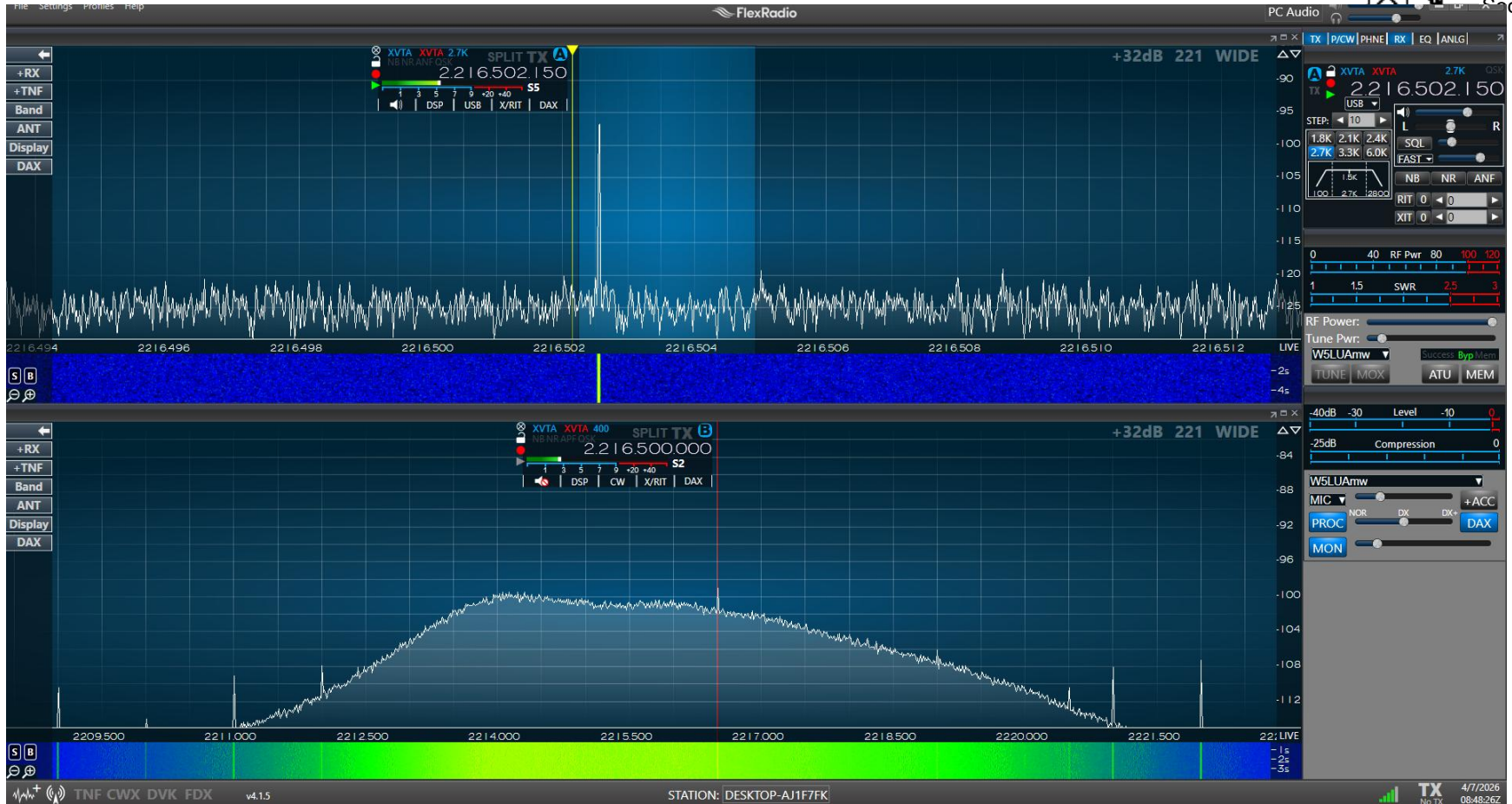
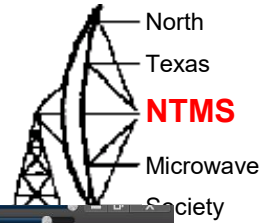
- Top Panel:** Shows two split TX channels. Channel A is labeled "SPLIT TX A" with a frequency of 2.216.502.640 and a power level of +32dB. Channel B is labeled "SPLIT TX B" with a frequency of 2.216.500.000 and a power level of +32dB. Both channels are set to a 221 kHz bandwidth.
- Waveform and Spectrum:** The top channel shows a waveform and a spectrum plot. The bottom channel shows a spectrum plot with a green background.
- Right Panel:** Contains various control settings including:
  - TX Mode: USB
  - SQL (Signal-to-Noise Ratio) control
  - Filters: NB, NR, ANF
  - RIT (Receive Increment Tuning) and XIT (Transmit Increment Tuning) controls
  - RF Power: 0 to 120
  - Tune Pwr: W5LUAmw
  - Level and Compression sliders
  - MIC (Microphone) controls: PROC, DX, DX+, +ACC, DAX
- Bottom Panel:** Shows system status including "STATION: DESKTOP-AJ1F7FK", "v4.1.5", and "TX No TX 4/7/2026 08:40:34Z".

# April 7 08:47z



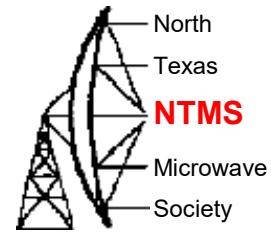
The signals at the edge of the broadband plot are spurs in the IF

# April 7 08:48z



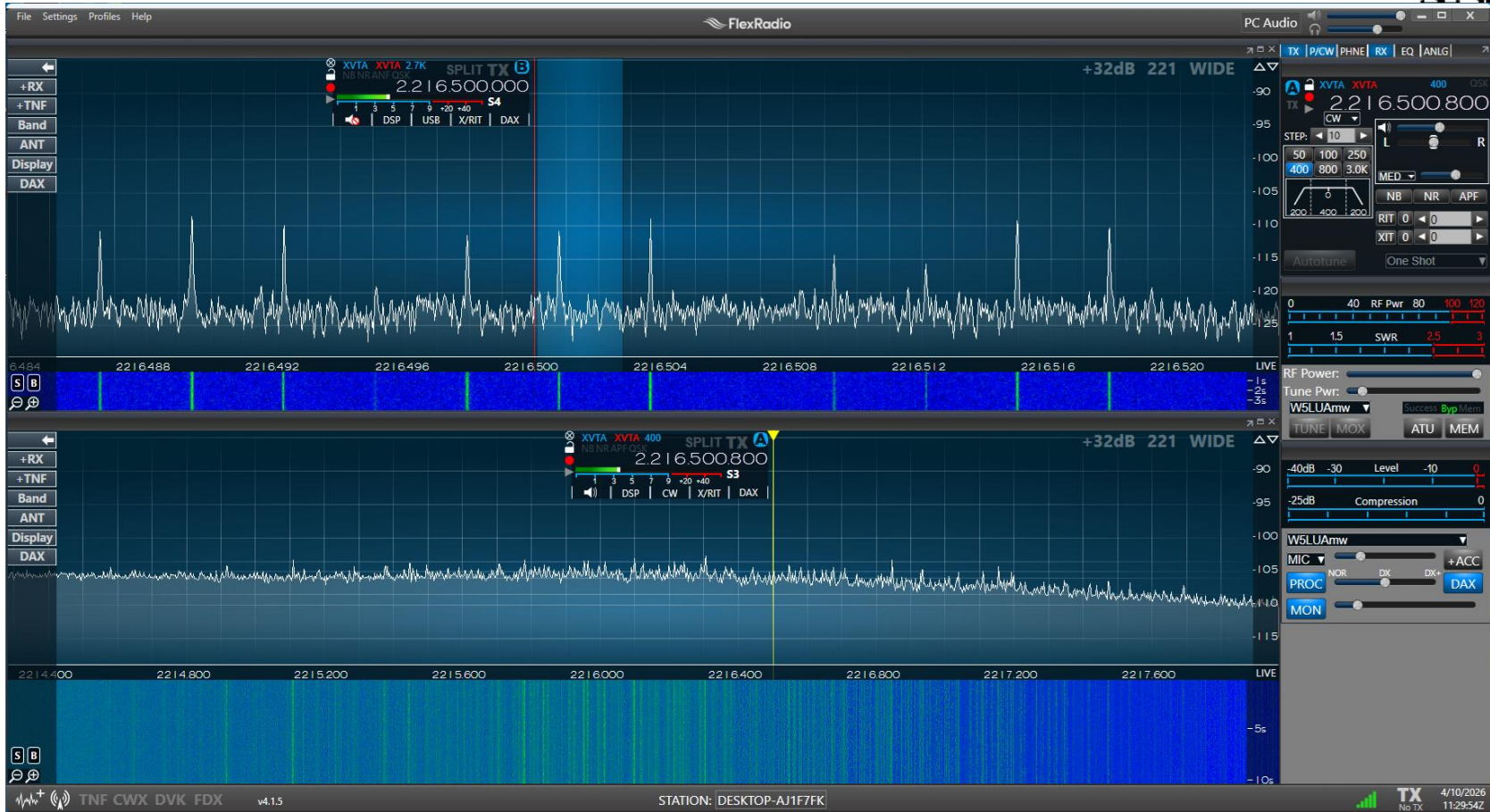
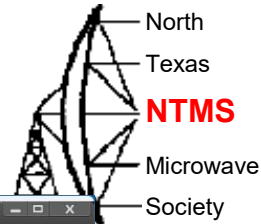
The signals at the edge of the broadband plot are spurs in the IF

# April 7, 09:01z



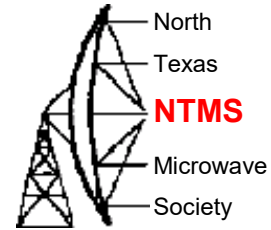
- The carrier disappeared again!
- Most likely switched to a communications or data handling mode
- I never did see the  $\sin(x)/x$  pattern that other amateurs reported shortly after launch

# One last look, April 10, 11:29z



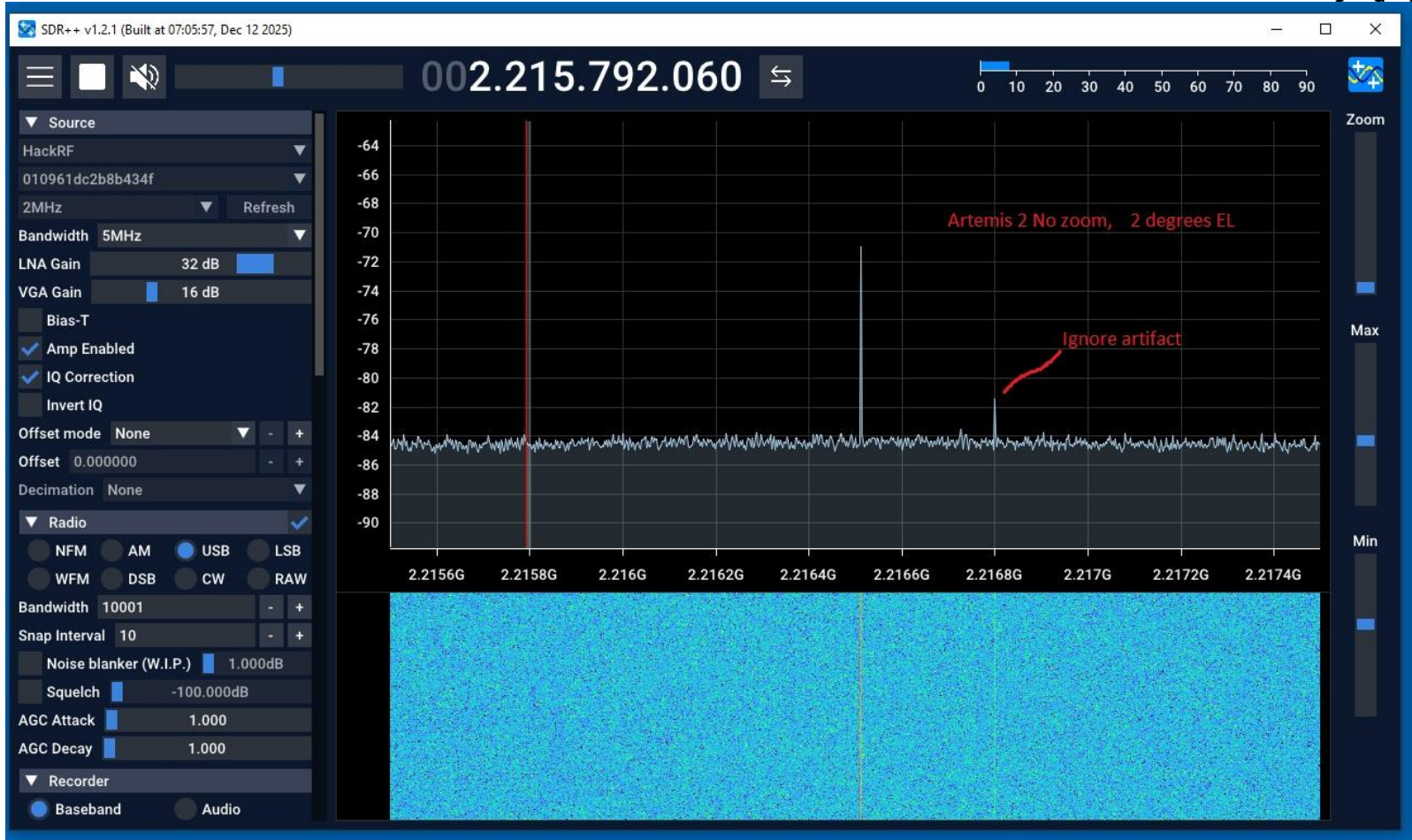
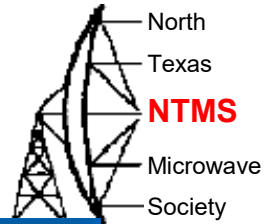
Distance considerably closer at 80,589 miles  
Noticeable broad peak at 2216.5 MHz

# Summary



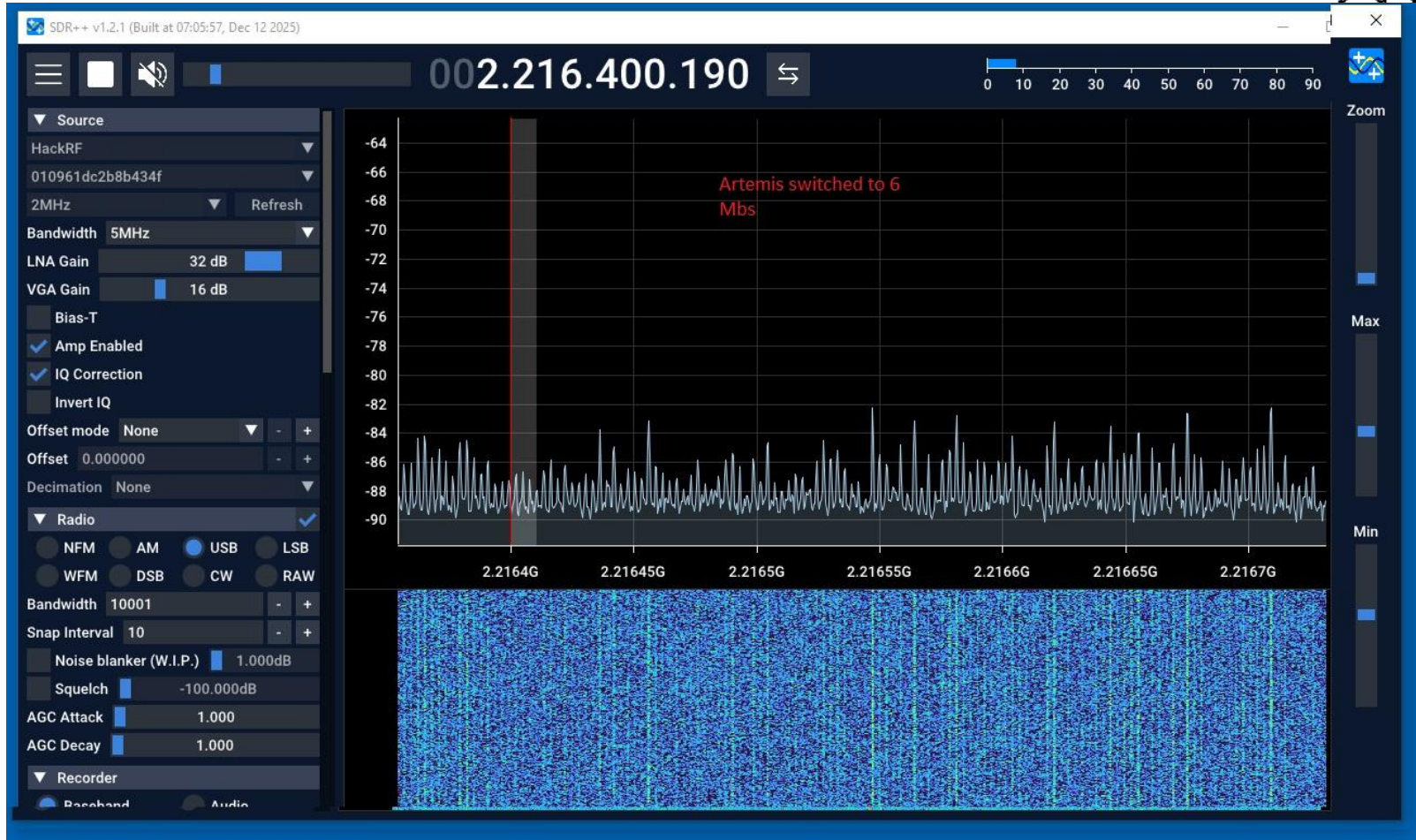
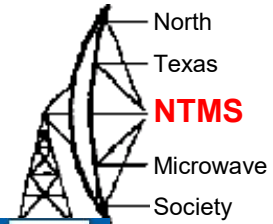
- My NF is 1.2 dB with 1.9 dB coax equals effective noise figure of 3.1 dB
- My 5 meter dish theoretically has a gain of 39 dBi
- Considering that the best signal strength was nearly 30 dB over the noise implies that a 20 dBi antenna could have seen the signal at about 10 dB over the noise. Plus.. if I had a .5 dB NF LNA directly at the antenna would have added several dB to the signal strength.
- Time to plan ahead for next time.

# N00Y April 10, 07:30z



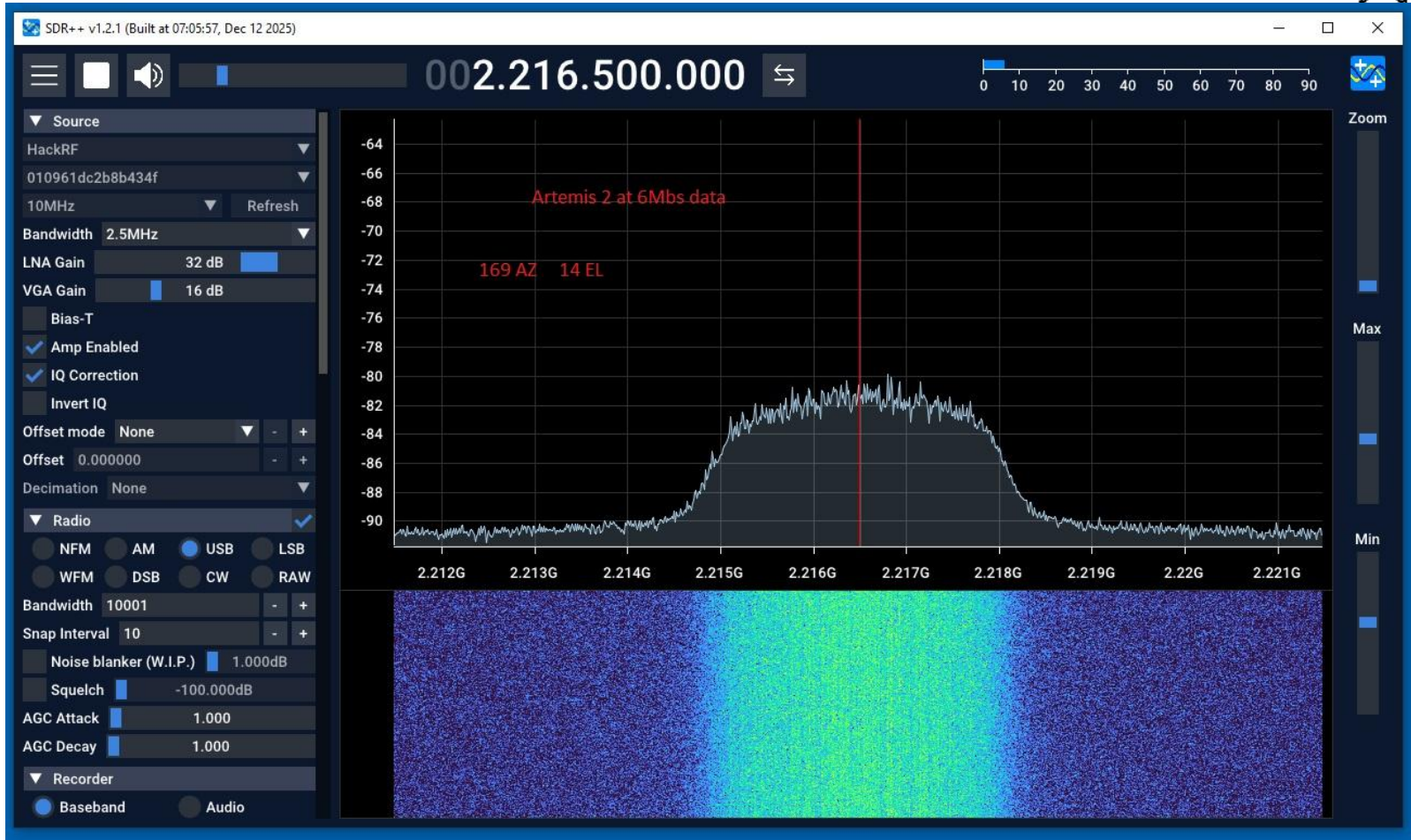
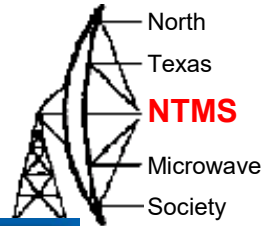
Picture supplied by N00Y

# N0OY April 10, 09:45z



Picture supplied by N0OY

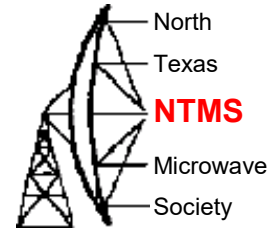
# N00Y April 10, 10:00z



Picture supplied by N00Y

6mbps Data Stream

# Amateur DSN



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groups.io/g/Amateur-DSN

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**Amateur Deep Space Network**

Amateur-DSN Amateur-DSN@groups.io

This is a group for discussion concerning the technical aspects of building DSN receivers and converters for the 2.2GHz, 8.4GHz and 32GHz bands. All aspects including observations of probes, technical information on LNA's, receivers and demodulation can be discussed, as well as related items such as software processing. Reports of detected signals from DSN space-craft are most welcome! If you have any questions on the topic please ask! (This is a Yahoogroups fallback btw)

Group Information

- [www.uhf-satcom.com](http://www.uhf-satcom.com)
- 788 Members
- 2,652 Topics , Last Post: Apr 10
- Started on 12/20/05
- [RSS Feed](#)

Group Email Addresses

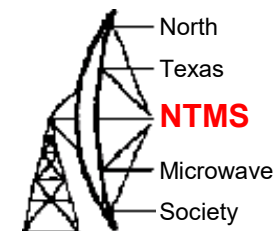
Post: [Amateur-DSN@groups.io](mailto:Amateur-DSN@groups.io)  
 Subscribe: [Amateur-DSN+subscribe@groups.io](mailto:Amateur-DSN+subscribe@groups.io)  
 Unsubscribe: [Amateur-DSN+unsubscribe@groups.io](mailto:Amateur-DSN+unsubscribe@groups.io)  
 Group Owner: [Amateur-DSN+owner@groups.io](mailto:Amateur-DSN+owner@groups.io)  
 Help: [Amateur-DSN+help@groups.io](mailto:Amateur-DSN+help@groups.io)

Group Settings

- All members can post to the group.
- Posts to this group do not require approval from the moderators.
- Posts from new users require approval from the moderators.

Messages More

# What's Next?



- Pete Sias N0OY offered to speak on his team's efforts at a future NTMS meeting
- It was fun to just copy and hear the beacon signal.
- Decided it is time to invest in an SDR like the Hack RF One that provides the flat bandwidth to be able to decode wider bandwidth signals
- Consider recording IQ signals to allow decoding
- Looking forward to the next event!
- Questions?