Vector Network Analyzer

- Vector – phase and amplitude, complex impedance, resistance, capacitance, inductance
- Network – one or two port circuit systems
- Analyzer – comprehensive measurement and test suites
- I sold these for $10,000-$50,000 in the 80's

HP (Agilent) 3577A Vector Network Analyzer, 5Hz -200MHz, refurb tested good

2 viewed per hour ★★★★☆ 2 product ratings

Condition: **Seller refurbished**

"*Late-model HP 3577A VNA , refurbished, tested good and in very good condition.*"

Price: **US $1,095.00**
$46 for 24 months ˄

Buy It Now

Add to cart

♡ Add to Watchlist

Ships from United States

Shipping: **$92.49** Standard Shipping | See details
Item location: Santa Fe, New Mexico, United States
Ships to: United States See exclusions

NanoVNA

- The open source NanoVNA project by @edy555 and ttrftech has been around since 2016, but only recently have Chinese sellers begun mass producing the unit
- Bought one for $28 from Walmart.com!
- Reviewed favorably same month in both QST and QEX!
- Tremendous community support and great software – Windows, Mac, Android
- Top of my list of recommended ham test equipment, replace most antenna analyzers
- Surprisingly excellent manual

New “f” version
4.3 inch display
Nice and much easier touch control,
but NanoVNA Saver program gives whatever size display you want and infinitely more control – One of the best softwares I have encountered

AURSINC Vector Network Analyzer 50KHz-1.5GHz HF VHF UHF Antenna Analyzer Measuring S Parameters, Voltage Standing Wave Ratio, Phase, Delay, Smith Chart with 4 Inch LCD Display 1950mAh 4.2 Version

by AURSINC

10 ratings

Price: $119.99 prime & FREE Returns

- This Nano VNA is a DIY product that provides perfect vector network measurement capabilities, tiny and handheld, stand-alone with 4-inch LCD display, portable with 1950mAh battery powered or USB powered
- The improved frequency algorithm can use the odd harmonic extension of si5351 to support the measurement frequency up to 1.5GHz. The 50K-300MHz frequency range of the si5351 direct output provides better than 70dB dynamic, The extended 300M-900MHz band provides better than 60dB of dynamics, and the 900M-1.5GHz band is better than 40dB of dynamics
- The default firmware main function is used for antenna performance measurement. The TX/RX method can measure the complete S11 and S21 parameters. If you need to obtain S12 and S22, you need to manually replace the transceiver port wiring
- Using PC software NanoVNASaver, it can connect to a NanoVNA and extracts the data for display on a computer, and for saving to Touchstone files. We can export Touchstone (snp) files for various radio design and simulation software through PC software
- The metal shield is designed to reduce the external interference and improve the measurement accuracy

Walkaround

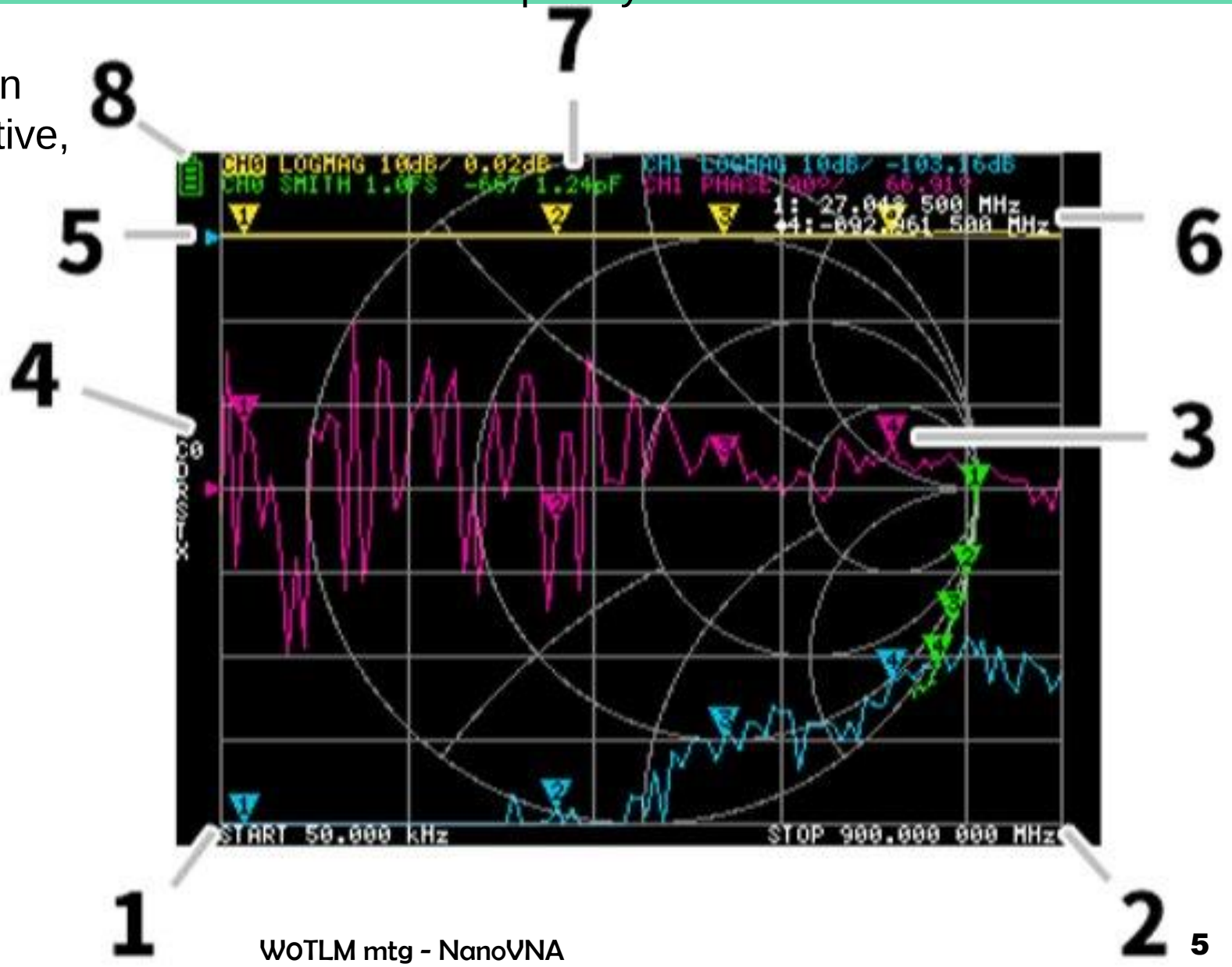
- USB-C
- Multifunction switch – Press, roll right or left
- Touch screen – can work with my big fingers, but recommend stylus
- 101 sample points – limits narrowband analysis, BUT, software supports multiple 101 point “segments!

- 2 SMA female ports
- Snm - power from port m to port n
- S11 - power from port 1 (CH0) to port 1 – reflected power
- S21 – power from port 1 to port 2 (CH1)

Screen

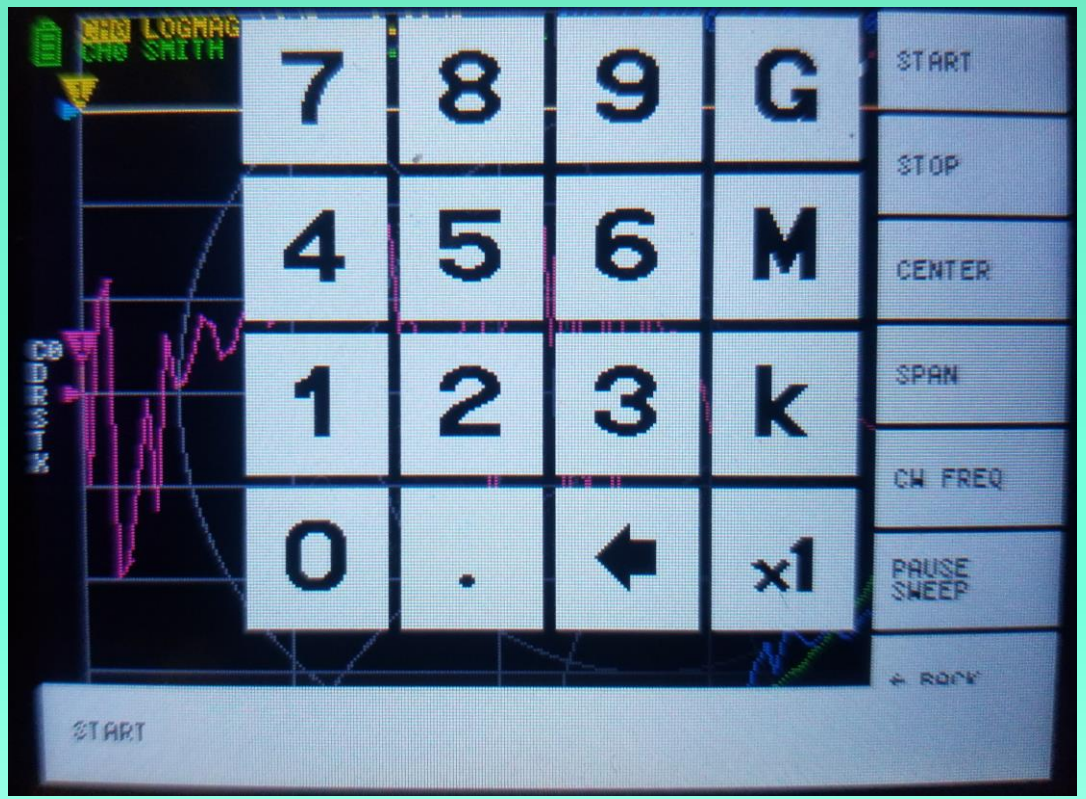
Busy, but very readable and informative

1 - Start frequency
2 - Stop frequency
3 - Markers - very powerful - number at same frequency on all traces
4 - Calibration status
5 - Reference position
6 - Marker status, active, previous active
7 - Trace status – CH (0, 1) selected inverse, Format, Scale, Current value
8 – Battery status

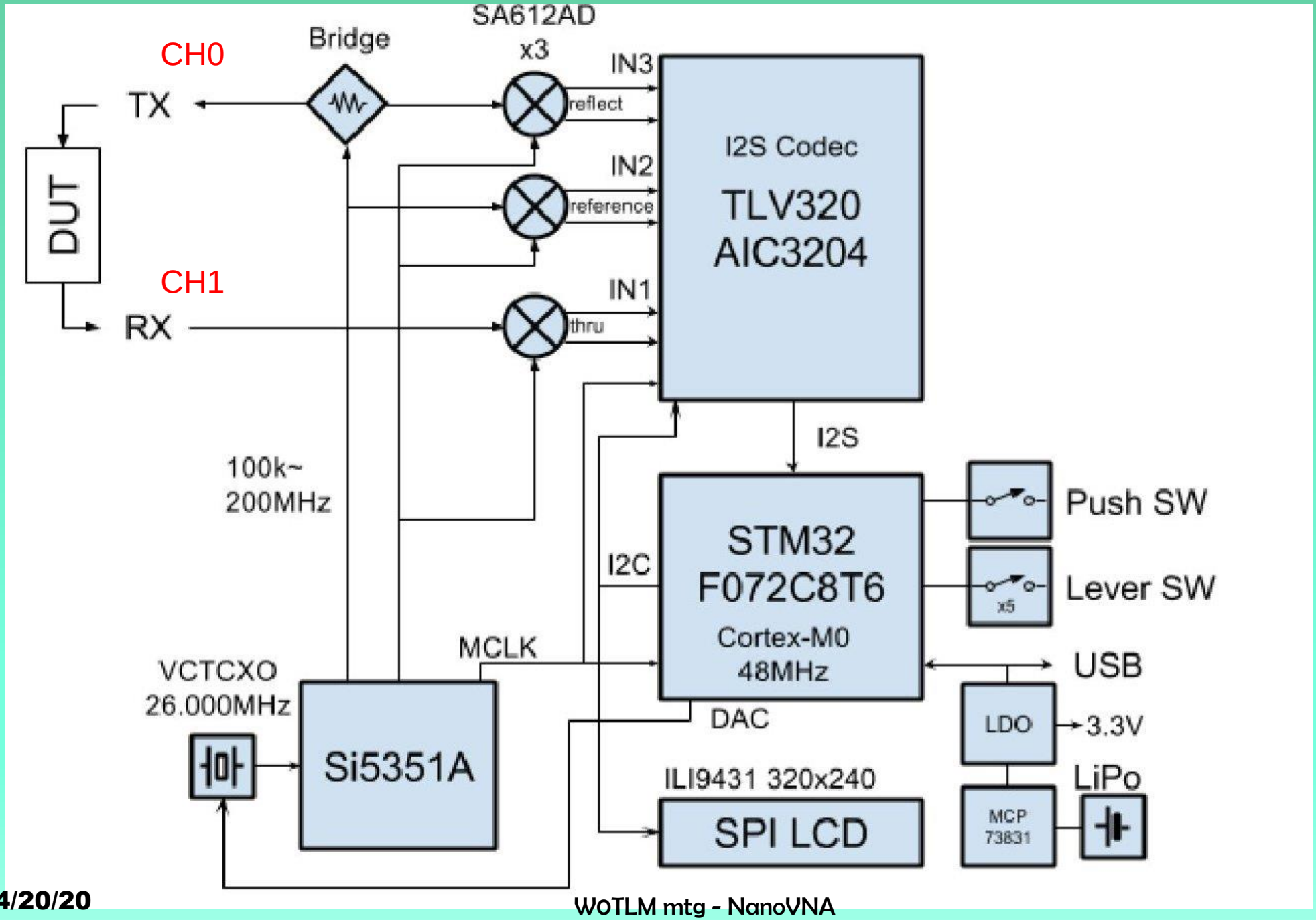


Quick look at user interface – better than expected

- Touch open area or push control to popup menu
- Touch menu item or roll control to select
- Touch number pad



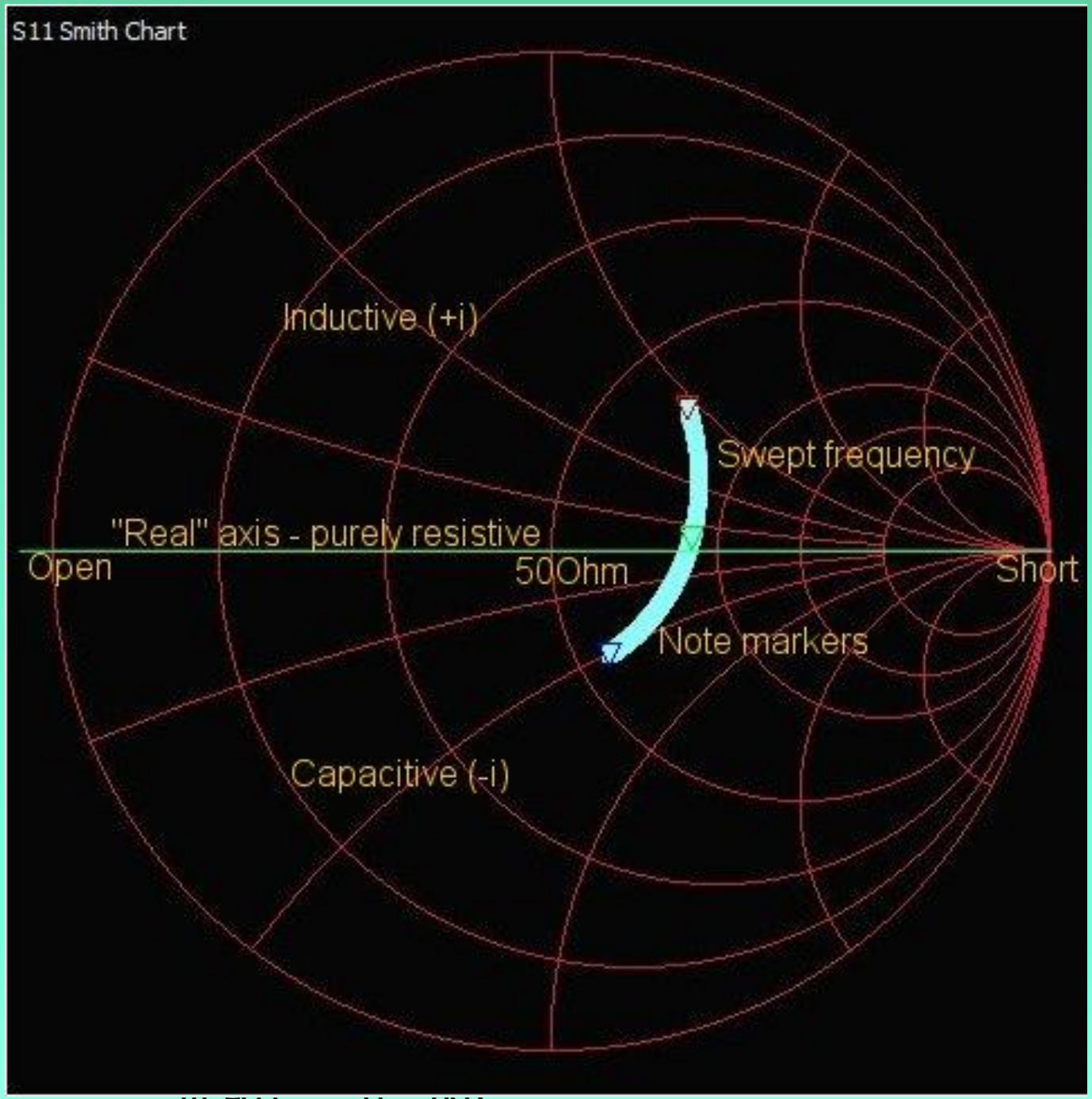
NanoVNA Block Diagram



Calibration – a little tedious, but important

I have made my own
Female calibrators

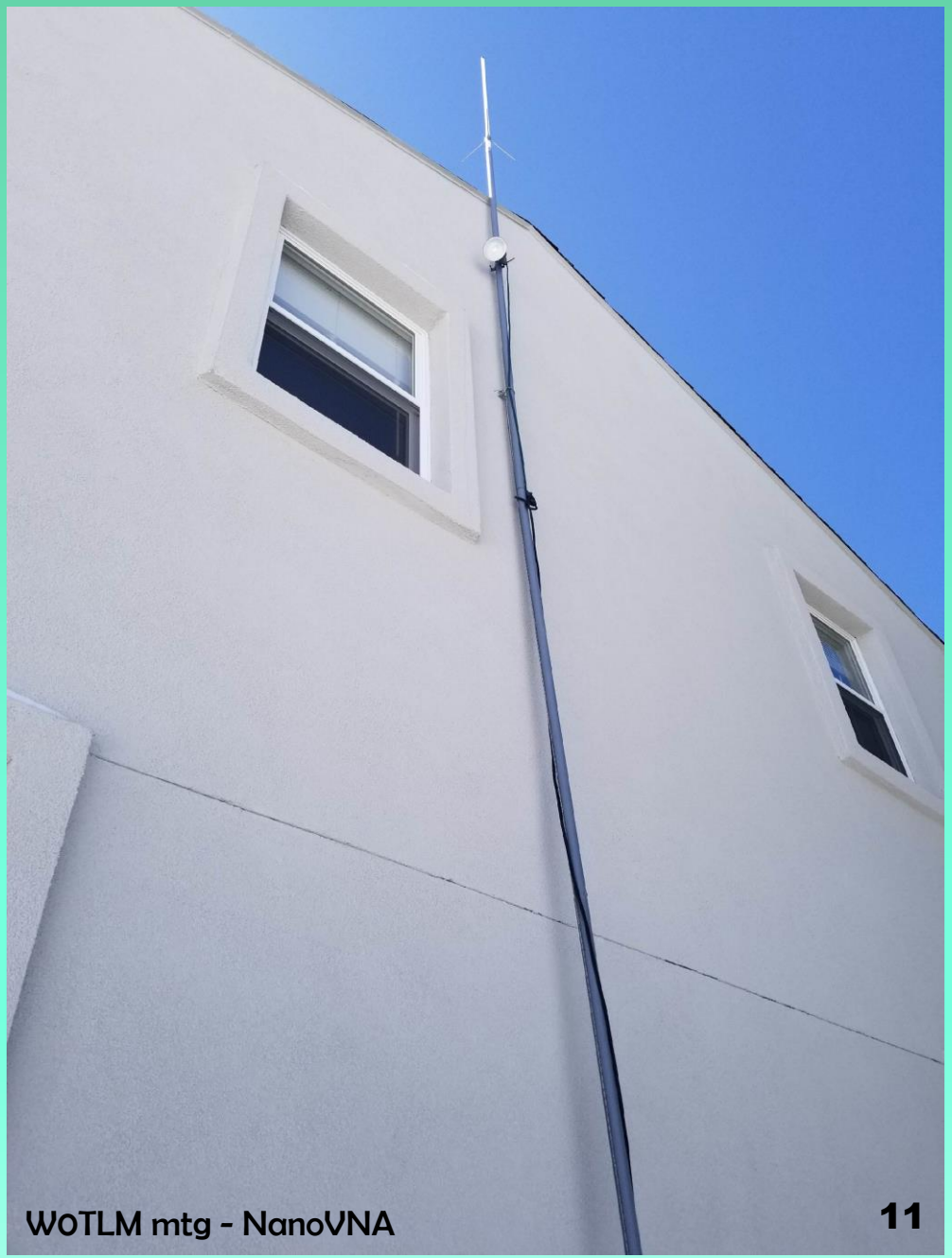
Smith Chart – “Don’t Panic”



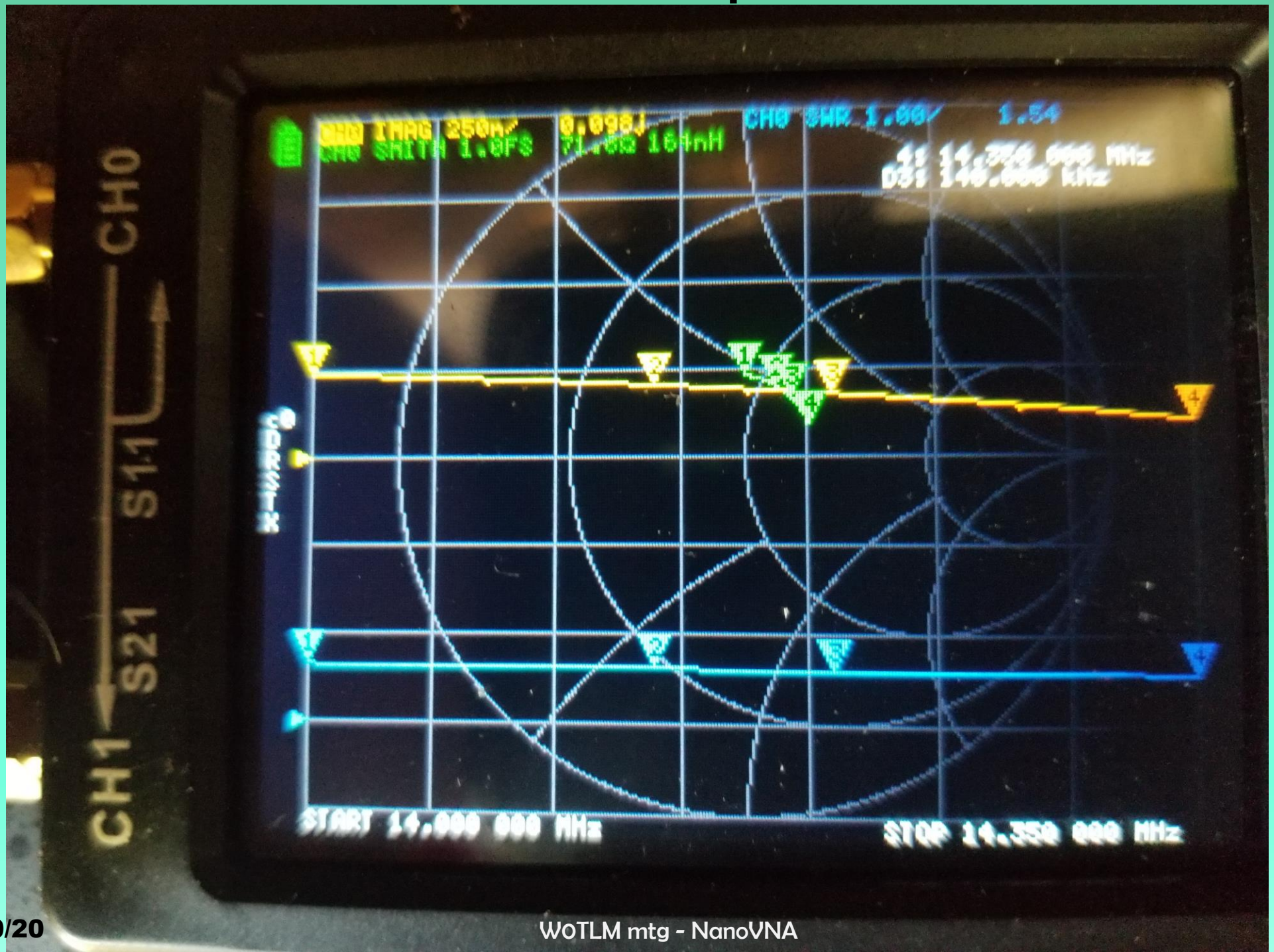
“Daytime” operating station

HF 30ft whip on 65ft tower
“storm” level – 25ft
100ft LMR-400

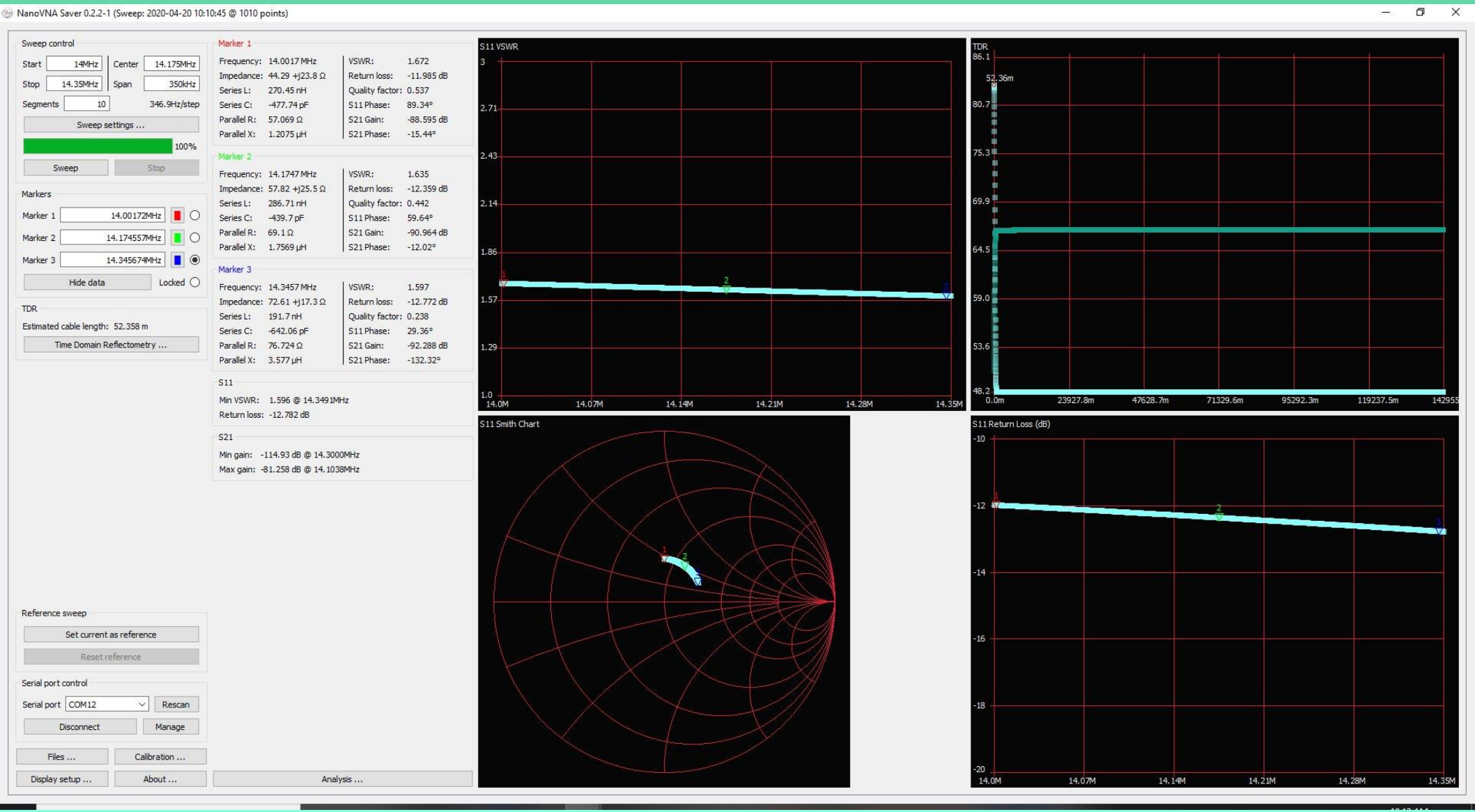
V/UHF
“Layover” pole mount
50ft LMR-400



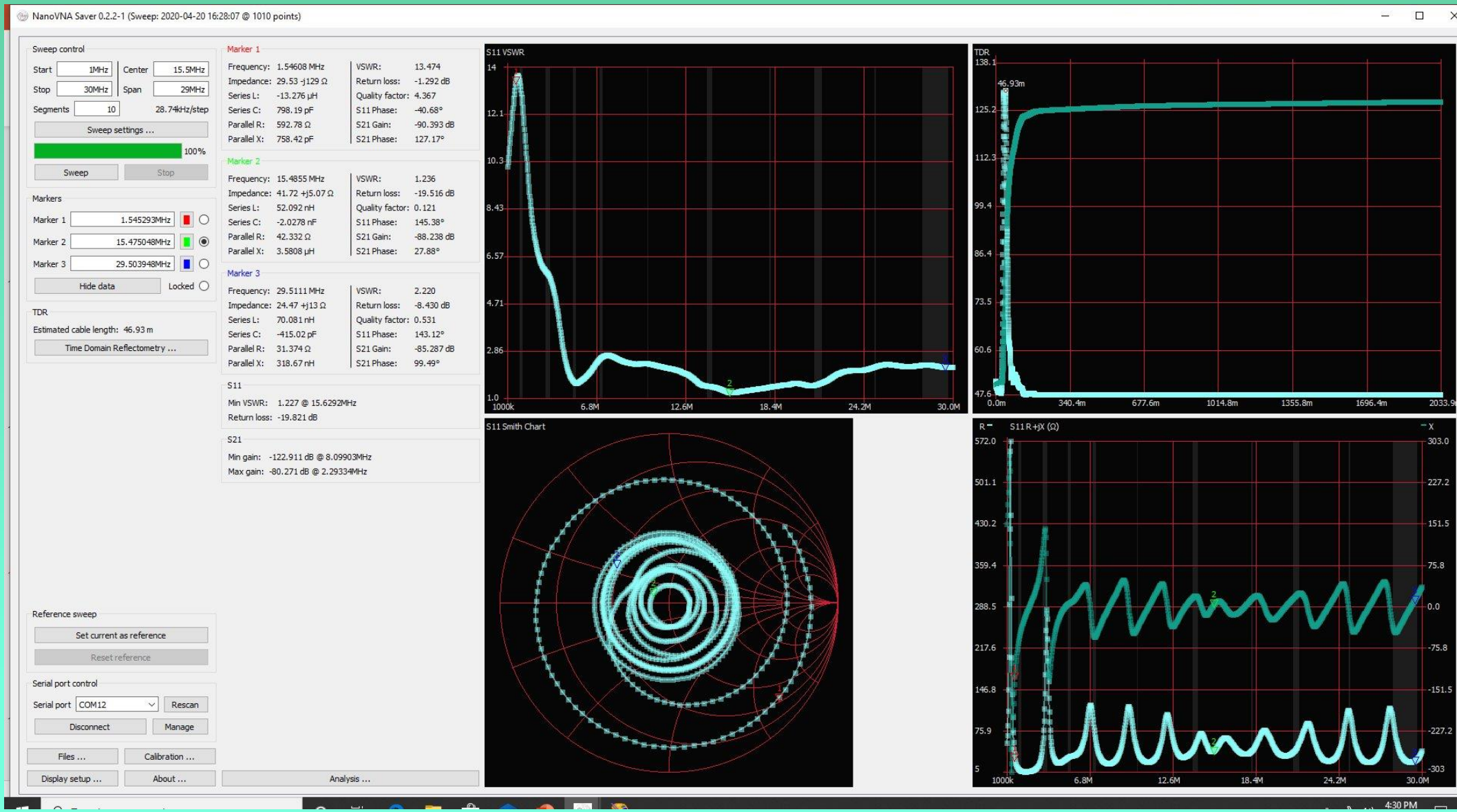
20m – 30ft whip on tower



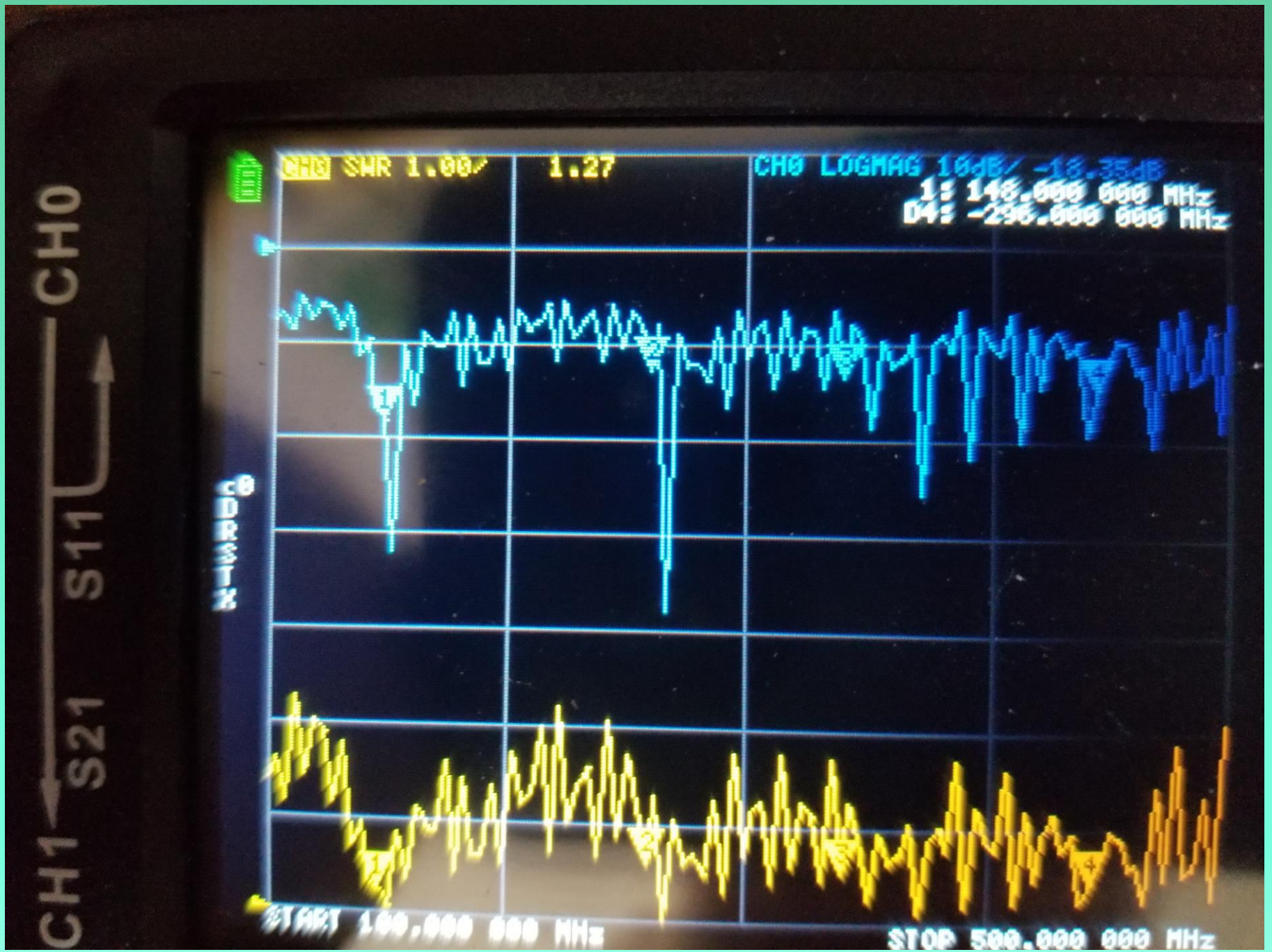
20m 30ft Whip



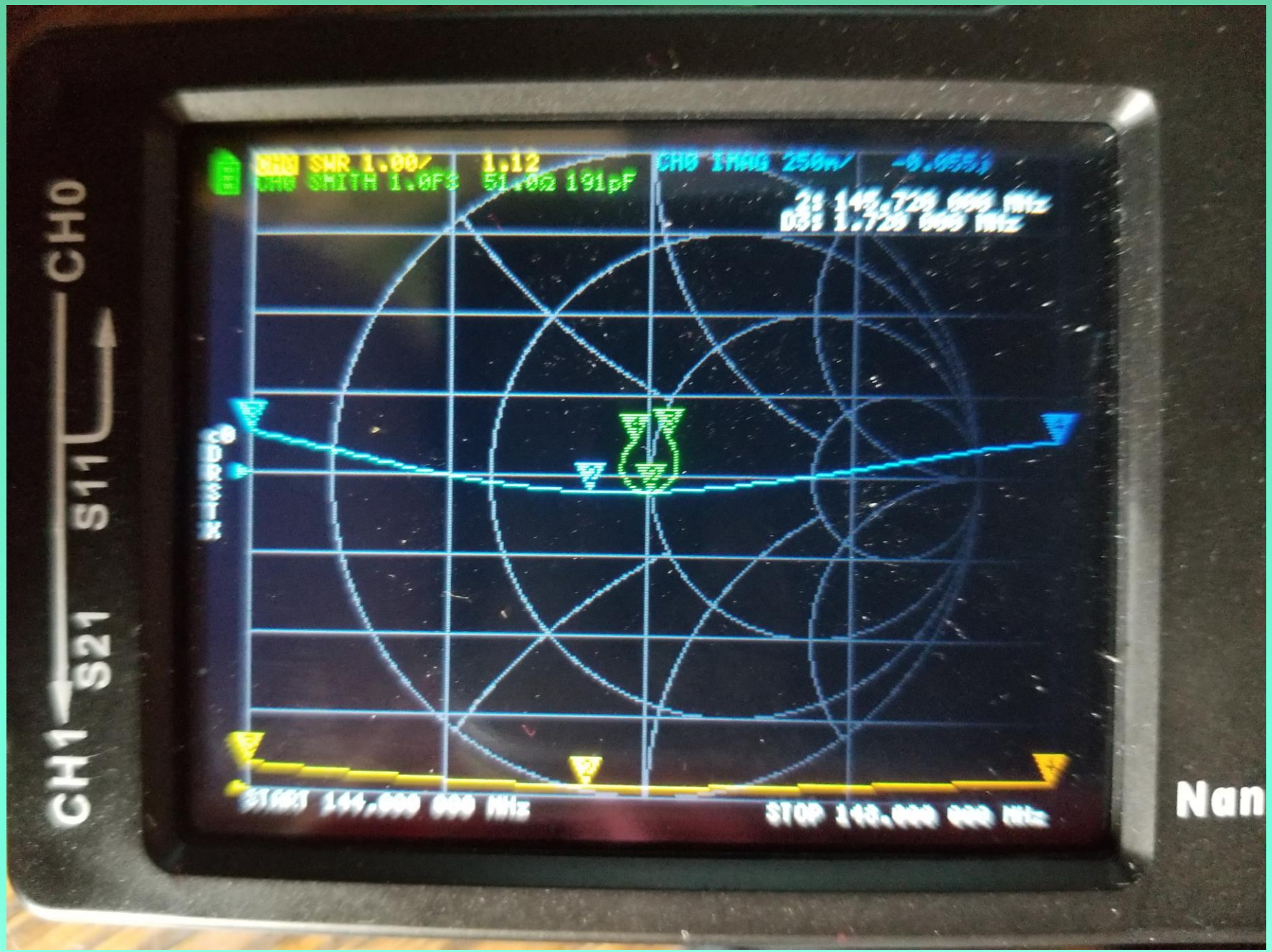
30ft Whip – 1 to 30 MHz



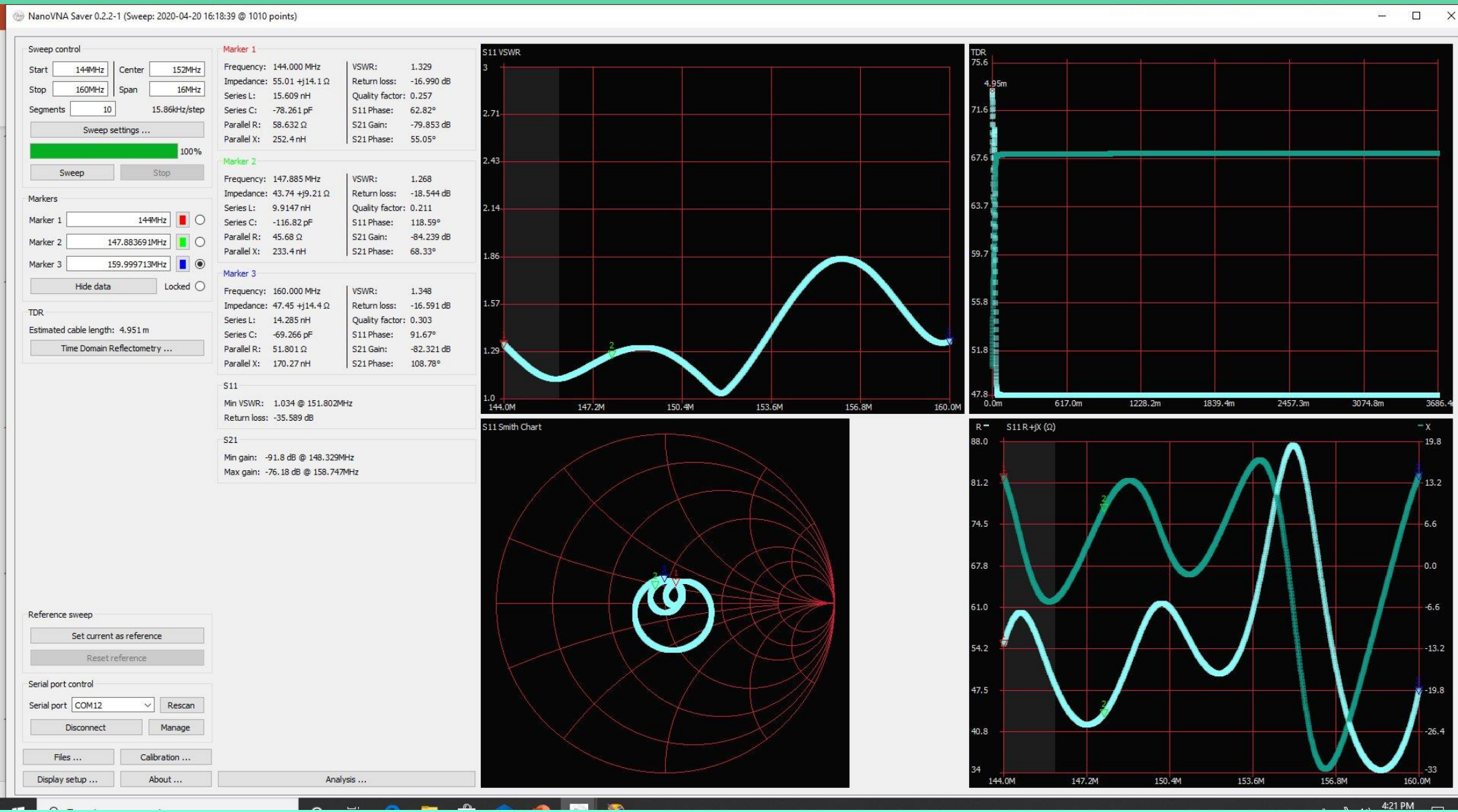
Dual band base station 100-500MHz



Dual band base station 2m



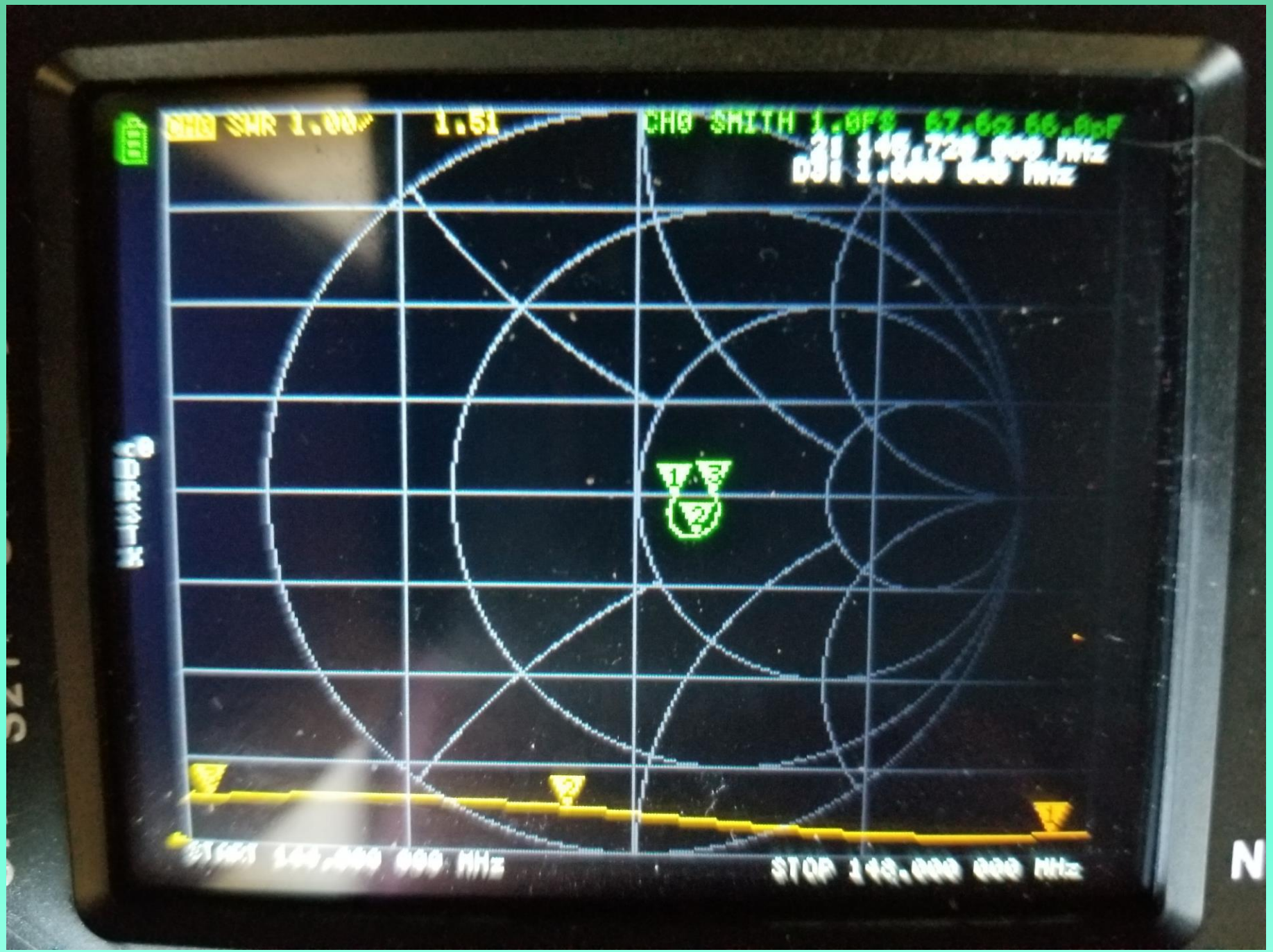
Dual band base station 2m



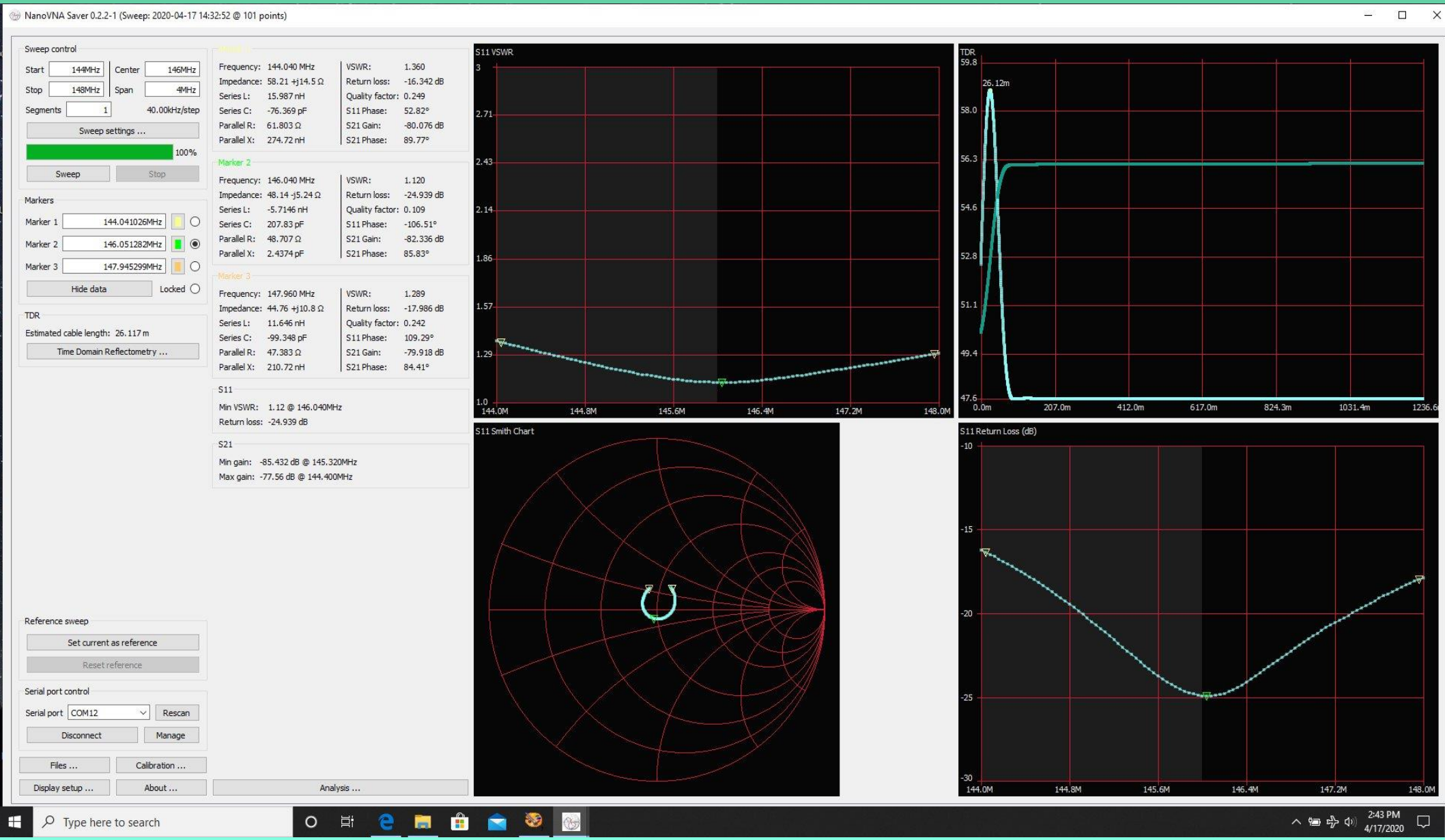
“Nighttime” Station – electronics bench

“Nighttime” Station 80m Off Center Fed dipole & Quadband

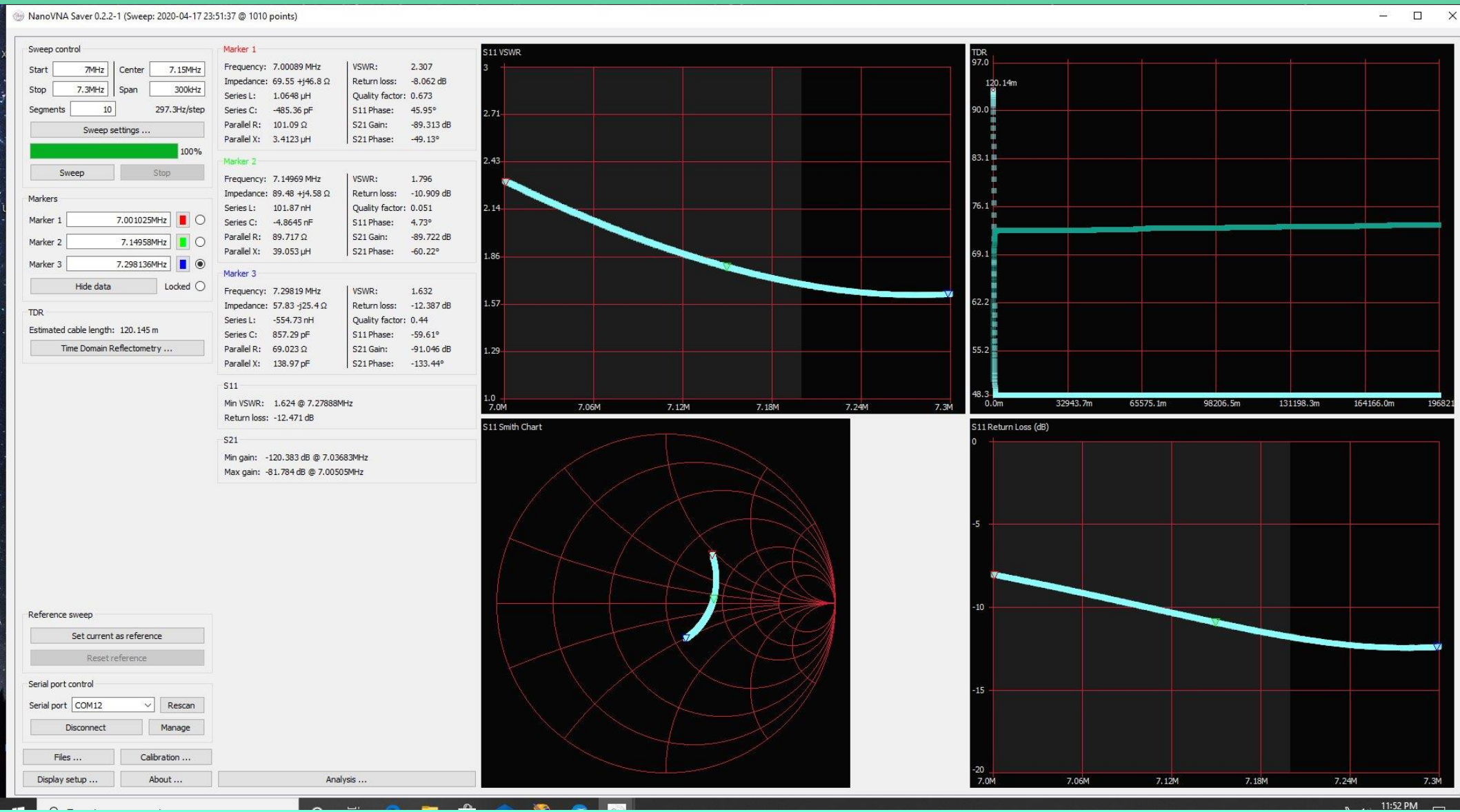
Quadband Antenna – 2m band



Quad band 2m band

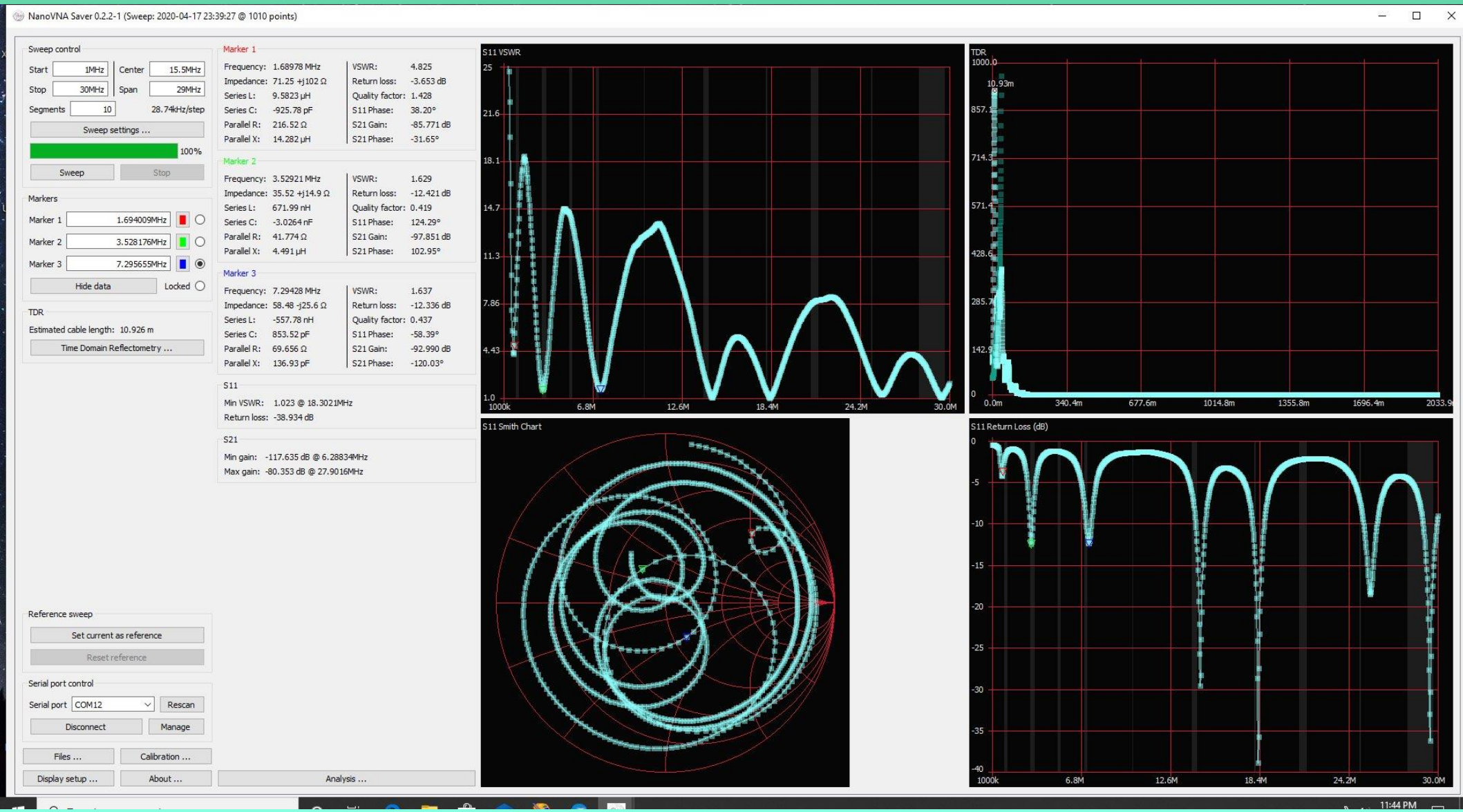


Off center fed dipole – 40m band



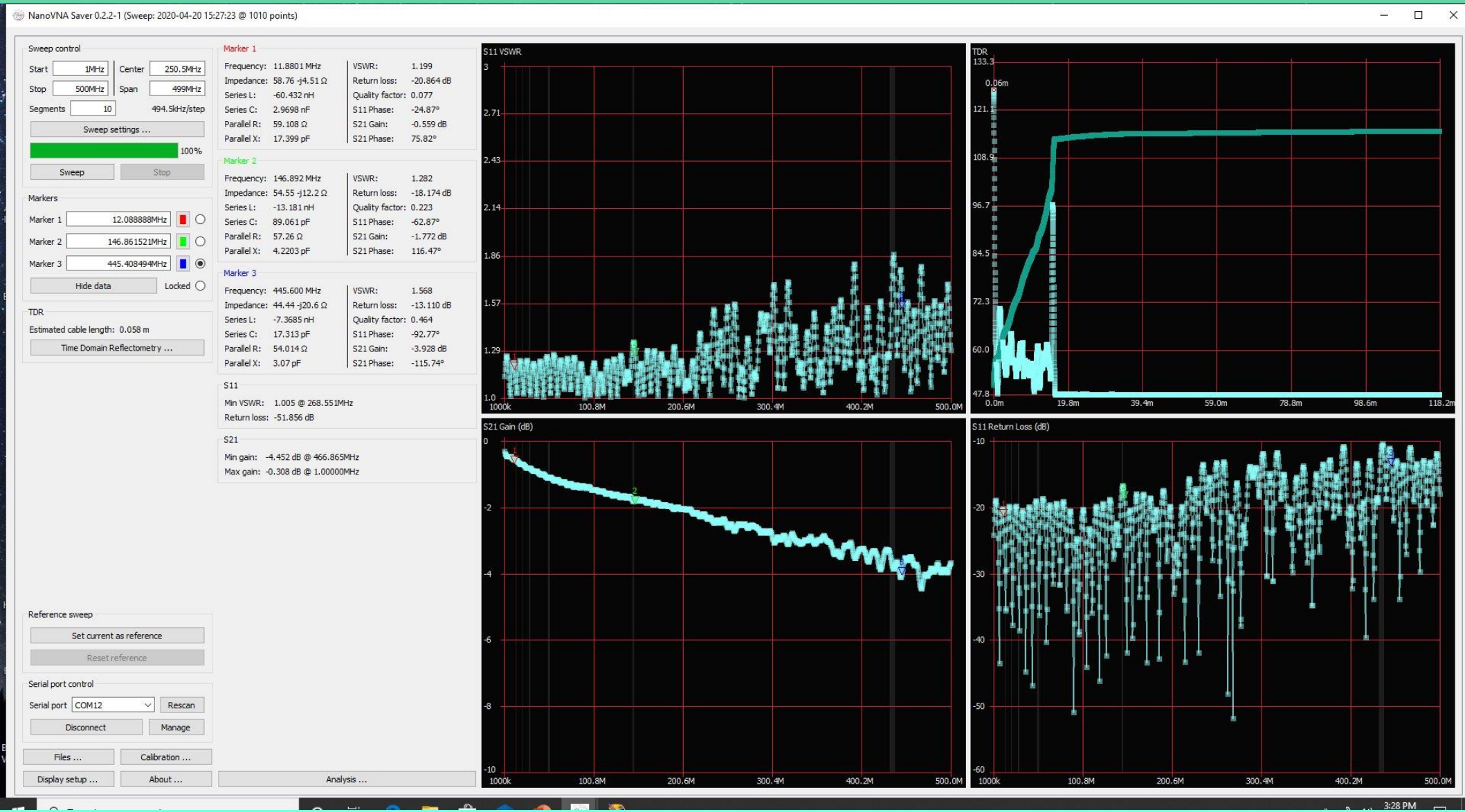
HF 80m Off Center Fed Dipole, 1 TO 30MHz

Note: One objection to nanoVNA is fixed 100 samples – with software segments can multiply this by any number – here 10 segments, 1000 pts

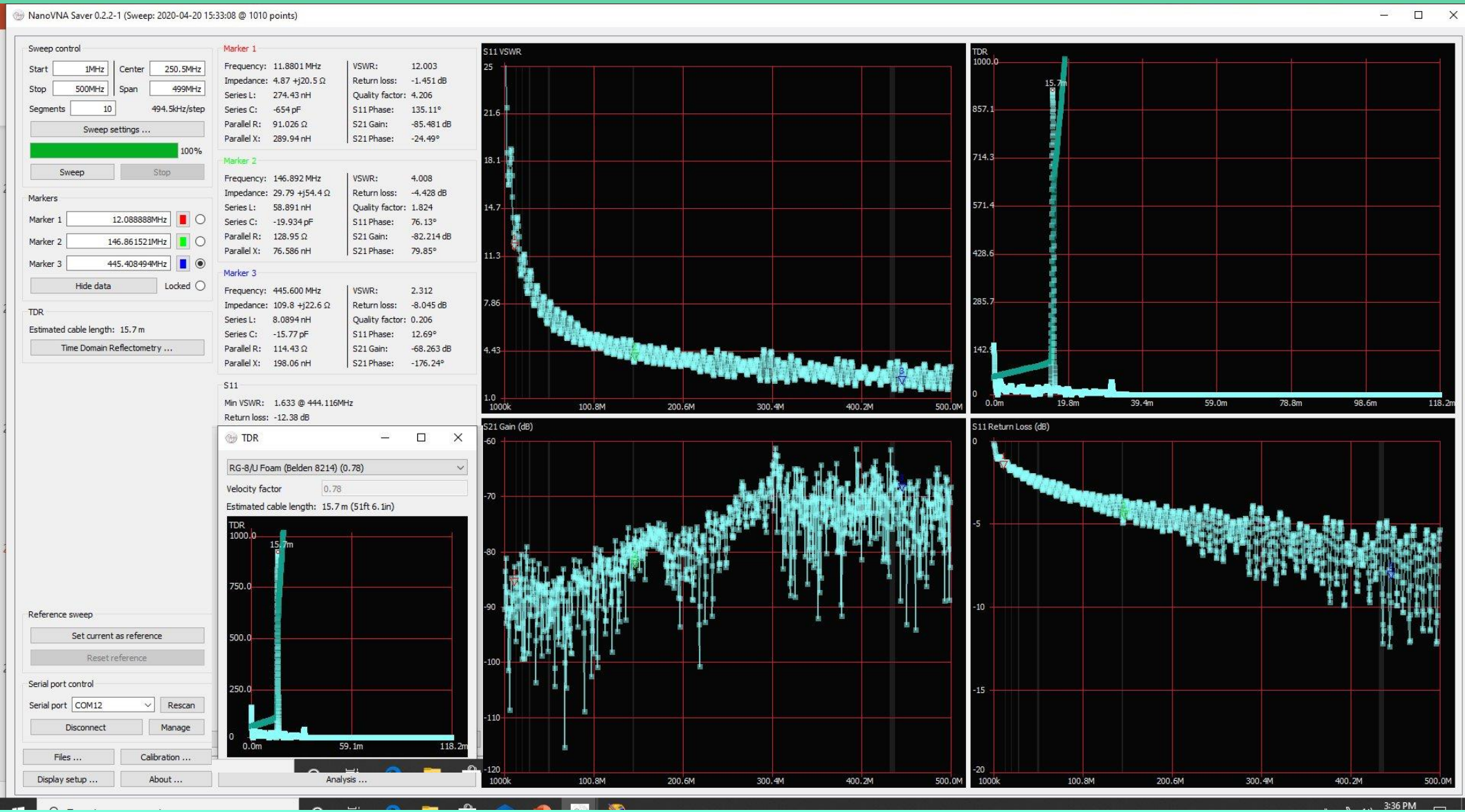


2 port – Cable testing

2 port – Cable testing



Cable Testing – 1 port (open far end), TDR



NanoVNA takeaways

- Amazing instrument! Especially with the “NanoVNA Saver” program.
- NanoVNA and a multimeter meets 95% of ham testing needs. I have at least a half dozen antenna analyzers and SWR meters – this replaces them all.
- Eminently justifiable if just used as SWR and cable tester, but so much more.
- When buying, check the reviews! – many different makers, some very good, some not so much. Pay a little more and get full case, calibrators, cables – much cheaper with unit than bought separately.
- Adapters – you will need a few to many – SMA male to SO239, PL259 (“UHF” male and female), SMA male to BNC, cables, etc, etc..
- User interface is quite useable, but takes some getting used to – get a stylus!