

[NanoVNA H v1.1.01.dfu](#)

[NanoVNA H4 v1.1.01.dfu](#)

- Added remote display feature
 - Added additional 9 trace types:
 - |Y| module
 - G conductance
 - B susceptance
 - Parallel R
 - Parallel X
 - Serial C
 - Serial L
 - Parallel C
 - Parallel L
 - Added additional 4 admittance marker format and Admittance background
 - G + jB
 - G + L/C
 - Rp + jXp
 - Rp + L/C
 - Remove Smith marker format menu from Marker (now Smith format select in trace format)
 - Reduce trace and marker code size
- Changed trace type menu

[LiteVNA 62 v1.1.01.bin](#)

[LiteVNA 64 v1.1.01.bin](#)

LiteVNA (and all V2, soon i compile it) also get additional traces / markers
Additional fixed power settings apply in CW mode

NanoVNA v1.1.00 fw pack

NanoVNA-H-H4-LiteVNA-V2-V2Plus-V2Plus4

https://groups.io/g/nanovna-users/files/NanoVNA%20v1.1.00%20fw%20pack%20H4_LiteVNA_V2_V2Plus_V2Plus4.zip

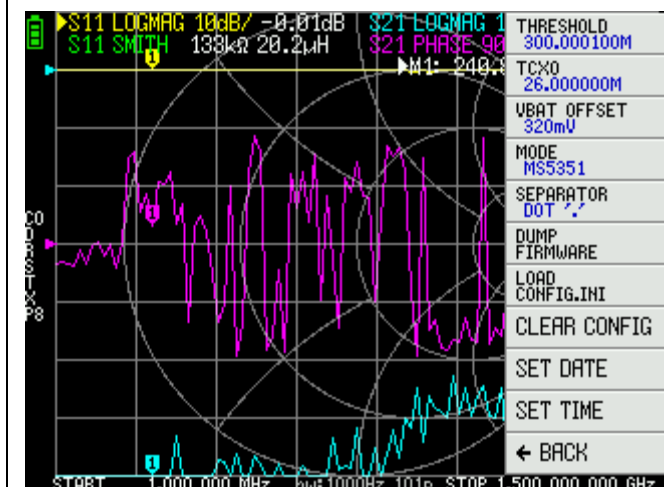
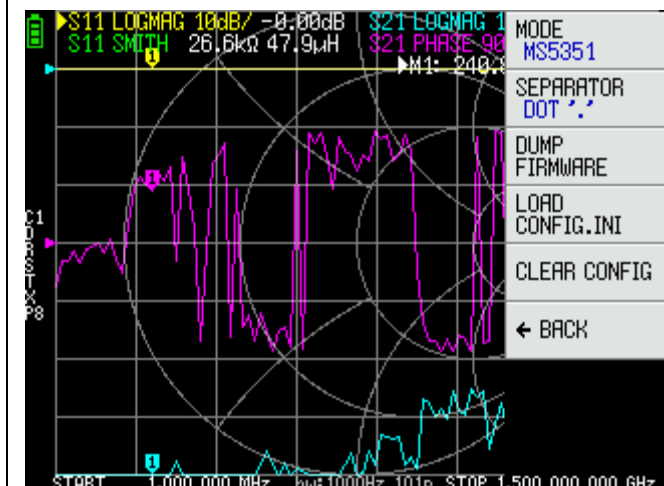
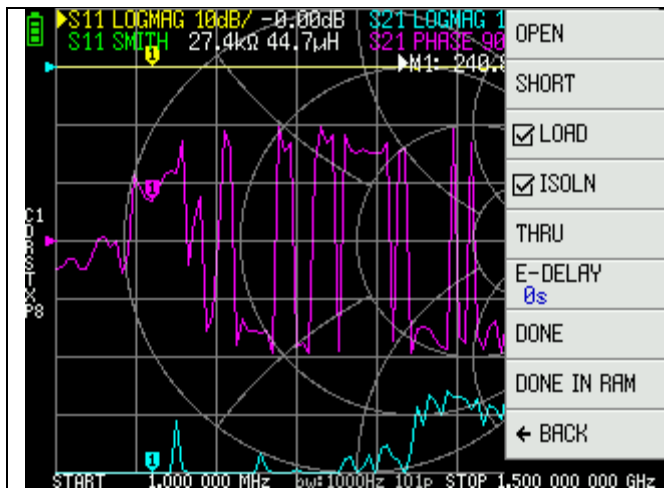
<https://github.com/DiSlord/NanoVNA-D/releases>

Update all device firmware to Update all device firmware to v1.1.00

Changes from v1.0.69:

- New 6x10 font
- New medium size Marker plate for small screen
- Added 5x7 and 6x10 font support, use adapted font size for menus for small screens (H devices and 320x240 V2)
- Added multi color string, use color index 25 (LCD_LINK_COLOR) for set color (default color dark blue: R = 0, G = 0, B = 192)
- 5x7 fonts used in calibration / grid values / frequency / menus

	<ul style="list-style-type: none">- Add Resonance search measure- Lot of cleanup / optimisation <p>UI menu text fixes:</p> <ul style="list-style-type: none">- Show selected Smith value in marker menu- Copy Set E-Delay button to calibration (some users use custom edelay for calibration)- Use one button for marker search min / max, move buttons from MARKER->SEARCH to MARKER menu- Move MARKER->MEASURE menu to main screen menu <p>Only H / H4 / LiteVNA</p> <ul style="list-style-type: none">- Add backup feature, this allow save some settings (freq range / points count / jog step / leveler mode / bandwidth or avg / last used slot) <p>Backup restore settings only for stored on flash slot (not work for RAM calibration data)</p> <p>By default loaded 0 slot (if no backup enabled / on error / no battery)</p> <p>Only LiteVNA</p> <p>Added USART support, now possible connect and control device over it (like on H / H4). You can use any BT / WiFi / USB to TTL dongle. Or control from external CPU.</p> <p>All V2</p> <ul style="list-style-type: none">- Now support 401 measure and calibration points (NOT INTERPOLATED) <p>LiteVNA</p> <ul style="list-style-type: none">- Support up to 1001 points (NOT INTERPOLATED) <p>Only H / H4</p> <ul style="list-style-type: none">- Init i2c bus devices on low speed, change on max speed after (i hope this allow fix problem vs hang on first power on)- 2x increase wait time for SD card (also hope this fix errors on old slow cards)- Added new v3.6 hardware support (maybe a replacement SI5351 on MS5351), see Expert settings <p>!!!! V2Plus4 firmware work only on old V2Plus4 devices, new V2Plus4 devices have different LCD module not supported by this fw. As last V2Plus4 sources (software and hardware info) closed i not support it. !!!</p>
	<p>NanoVNA H v1.1 beta 1.dfu</p> <p>NanoVNA H4 v1.1 beta 1.dfu</p> <p>Update to v1.1 beta 1:</p> <ul style="list-style-type: none">- Init i2c bus devices on low speed, change on max



speed after (i hope this allow fix problem vs hang on first power on)

- 2x increase wait time for SD card (also hope this fix errors on old slow cards)
- Add backup feature, this allow save some settings (freq range / points count / jog step / leveler mode / bandwidth / last used slot)

Backup restore settings only for stored on flash slot (not work for RAM calibration data)

By default loaded 0 slot (if no backup enabled / on error / no battery)

- Small ui changes

- Use LTO compilation option, this allow save some space, but unstable on H devices before, i hope now all ok

Divide Expert settings on 2 screens

Added Remember State (enable/disable backup feature) checkbox (need save config after for apply)

Copy Set E-Delay button to calibration (some users use custom edelay for calibration)

Use one button for marker search min/max

[NanoVNA H v1.1 beta.dfu](#)

[NanoVNA H4 v1.1 beta.dfu](#)

[V2 LiteVNA v1.1 beta fw pack.zip](#)

[V2Plus4 v1.1 beta.bin](#)

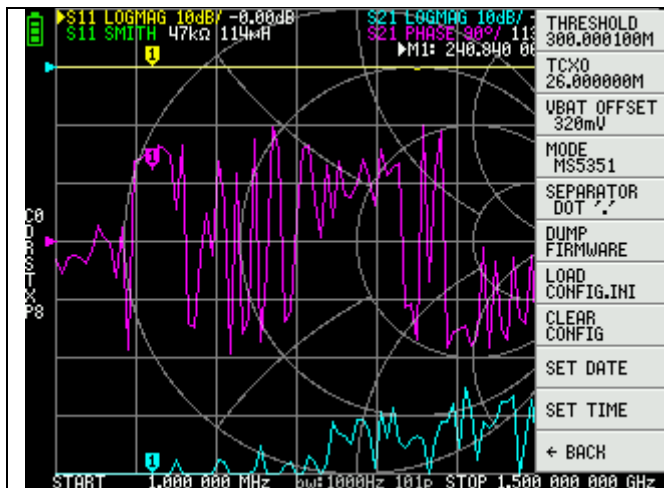
New v1.1 beta release for H/H4:

- New 6x10 font
- Added 5x7 and 6x10 font support, use adapted font size for menus for small screens (H devices)
- Added multi color string, use color index 25 (LCD_LINK_COLOR) for set color (default color dark blue: R = 0, G = 0, B = 192)
- 5x7 fonts used in calibration / grid values / menus
- Small UI menu text fixes
- Show selected Smith value in marker menu
- Small fixes

[NanoVNA H v1.0.71 prerelease.dfu](#)

[NanoVNA H4 v1.0.71 prerelease.dfu](#)

Update to v1.0.71 pre release (next use v1.1 release)



version):

- Added DATE/TIME input
 - Added MS5351 support on H v3.6 board
 - Added Enter button imaxe (replace x1) for SCALE/REF/DATE/TIME input
- See CONFIG->EXPERT SETTINGS

Date input keyboard (need in YYMMDD format)

Time input keyboard (need in HHMMSS format)

When using the DFU File Manager to convert **bin to dfu**, you MUST add an offset:

- 1 - Start DFU File Manager
- 2 - Click Multi BIN
- 3 - Select the bin file
- 4 - Enter an offset of **08000000** (include all zeros shown) in the address field.
- 3 - Click the Add To List>> button
- 6 - Click OK
- 7 - Click Generate
- 8 - Enter the new filename to save the DFU image to
- 9 - Click OK
- 10 - DONE!!

Tnx Larry (<https://groups.io/g/nanovna-users/wiki#Updating-To-New-Firmware>)

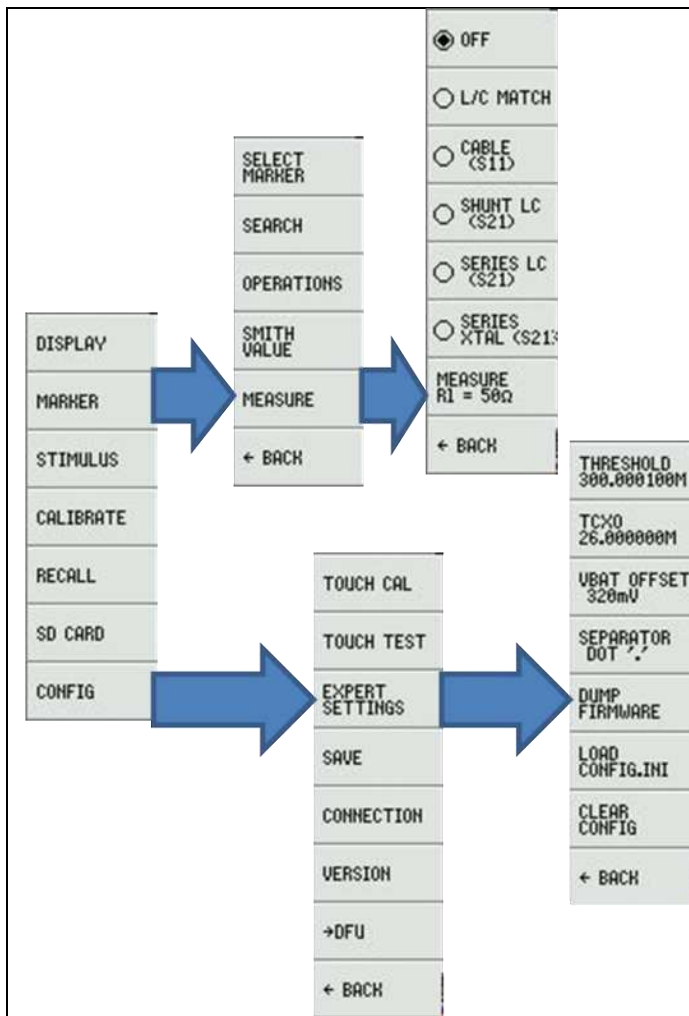
[NanoVNA H v1.0.70.bin](#)

[NanoVNA H4 v1.0.70.bin](#)

Update touch calibration procedure, now:

Need touch this point (mark as *), not use screen corner, this allow more correct calibrate

- Restore dump console command (allow get raw ADC data)
- "dump 0" get reflect raw data
- "dump 1" get reference raw data
- Fix saved bmp header, now bmp file open in all software
- Now correct reset USB connection on software reset
- Cleanup



[NanoVNA v1.0.69 fw pack.zip](#)

NanoVNA H - H4 - V2 - V2Plus - V2Plus4 v1.0.69

Update V2 code, more try for made it some as possible as for V1 (need more work in plot module)

Port all last features to V2 (Port Z renorm, measure cable/xtal/lc, sd card features)

Now V2/V2Plus can measure XTAL vs some limits (need use minimum x5 avg), special XTAL mode enable for V2 if selected XTAL or LC measure mode V2Plus4 can't measure XTAL so this option disabled on it.

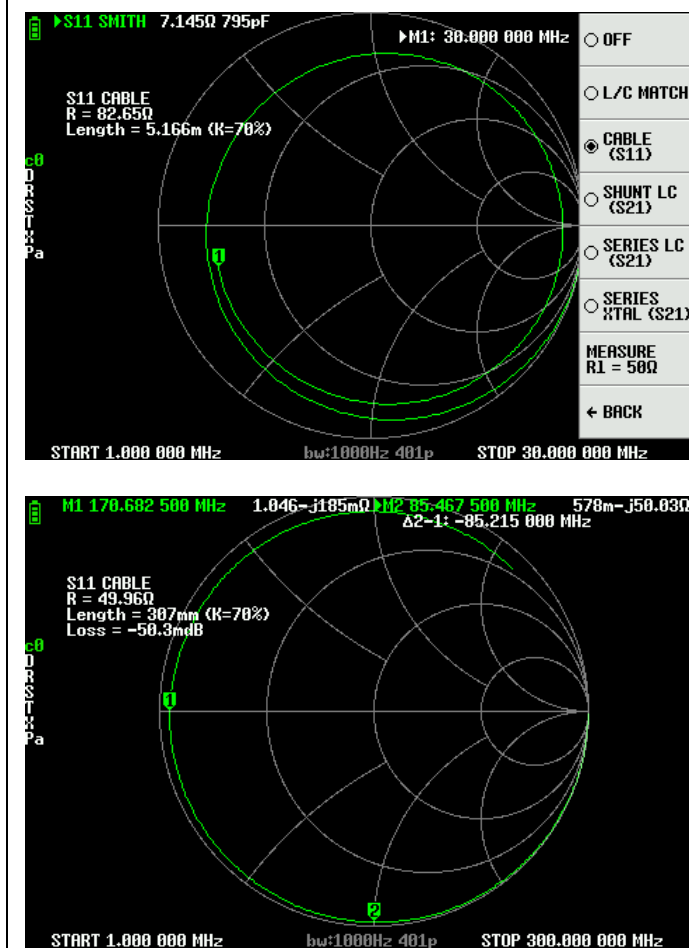
All V2 firmware build for No FPU platform

H/H4 added dump firmware to SD card expert option (save as xxx.bin file)

ps.: V2 also support SD card (i use Hugen test board), i can build firmware vs it support for test, but need made hardware mod (soldier SD card slot)

[NanoVNA-CH0-S11-cable-measure.pdf](#)

[Technique-for-measuring-quartz.pdf](#)



[NanoVNA v1.0.68](#)

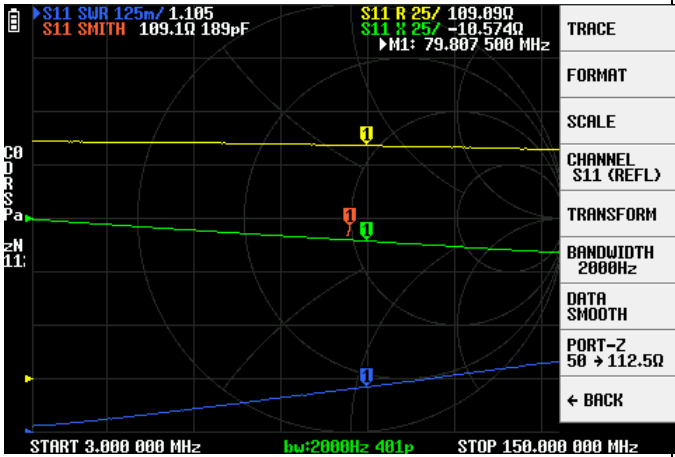
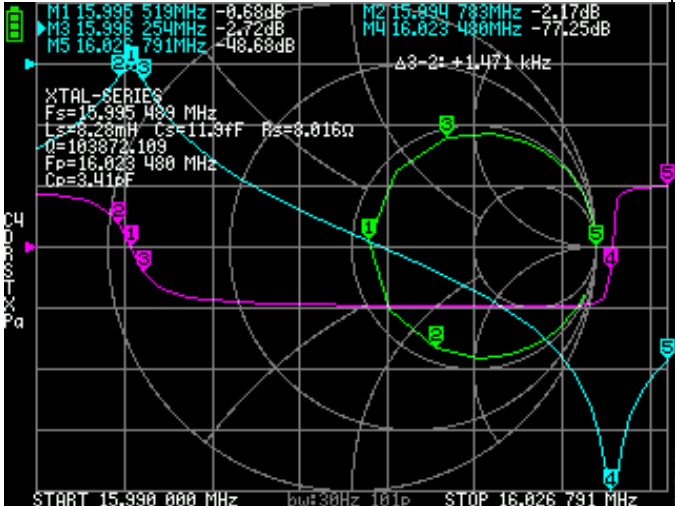

- Added measurement module (MARKER-> MEASURE)

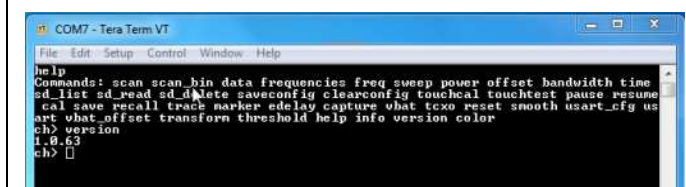
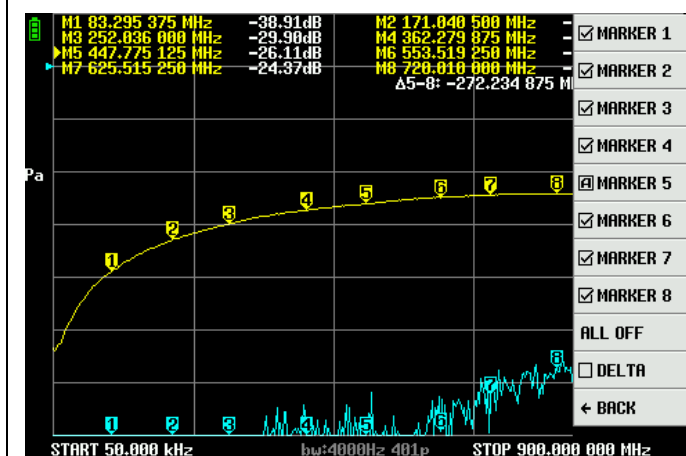
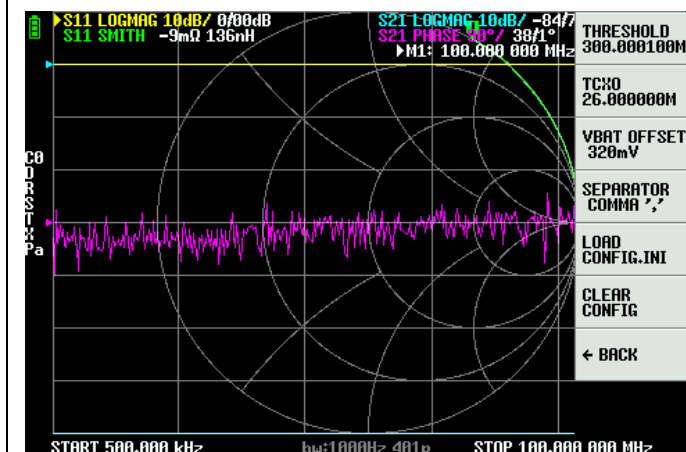
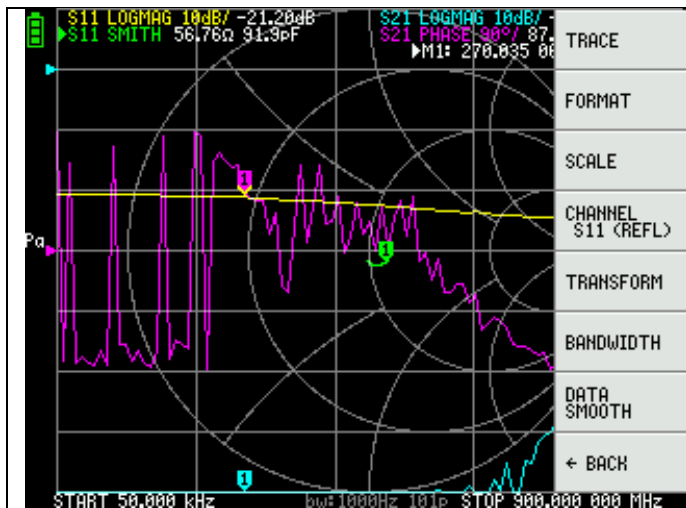
It allows you to automatically measure the parameters of quartz or LC filters (connect in series between ports, or how shunt ports are connected and DUT to ground). The measuring range is the center of the resonance and the resonance itself should be clearly visible on the screen.

- Added a module for measuring cables, the initial frequency - minimum, final - must be such that the cable length is more than 1/4 of the wavelength, automatically measures the length, characteristic impedance, loss at the point of the active marker.

The measuring range is chosen so that the Smith is rotated clockwise 180 degrees, the most important point for this measurement is at marker 1. The shorter the cable, the higher the maximum frequency.

- Added module for normalization of impedance (DISPLAY-> PORT Z 50 -> XX), allows you to see what the DUT would be if the device had the same impedance as it. Works for two ports, which means filters can be measured as well. This will allow you to measure 75 ohm systems, or even higher-impedance

	<p>filters (there are limitations, the higher the impedance, the lower the dynamic range). Calibrate as usual to 50 ohms, no matching adapters are needed.</p>
 <p>The screenshot shows the NanoVNA v1.0.67 interface. At the top, it displays 'S11 SWR 125m/ 1.105' and 'S11 SMITH 109.1Ω 189pF'. Below this, it shows 'S11 R 25/ 109.09Ω' and 'S11 X 25/ -10.574Ω'. The main display is a Smith Chart with a green trace. On the right, there is a menu with options: TRACE, FORMAT, SCALE, CHANNEL S11 (REFL), TRANSFORM, BANDWIDTH 2000Hz, DATA SMOOTH, PORT-Z 50 → 112.5Ω, and a BACK button. At the bottom, it shows 'START 3.000 000 MHz', 'bw:2000Hz 401p', and 'STOP 150.000 000 MHz'.</p>	<p>NanoVNA v1.0.67 normalization.rar</p> <p>We give the recalculation of functional under the impedance of the load, the device calibrated in the usual way to 50 ohm, but the measurement, everything differs from 50 ohm loads can be recalculated, there is a menu for this.</p> <p>Display-> port z 50 -> xx ohm</p> <p>Enter 75 Ohm and Nano recalculate that this load looks like this impedance (re-calculation occurs for two ports and gives a measuring device including filters, but the impedance of the filter input and output must be)</p> <p>Added:</p> <ul style="list-style-type: none"> - Save screenshot button (quick save on bandwidth text also enabled) - Fixed scan command for old soft (if soft need disabled calibration) - Added flag for scan disable edelay setting
 <p>The screenshot shows the NanoVNA H v1.0.66 interface. It displays multiple markers on a Smith Chart. Markers M1, M2, M3, and M4 are shown with their respective frequencies and S11 values. For example, M1 is at 15.995 519MHz with -0.68dB. The main display shows a green trace. On the left, there is a menu with options: XTAL-SERIES, Fs=15.995 489 MHz, Ls=8.28mH Cs=11.9fF Rs=8.016Ω, Q=103872.109, Fp=16.023 480 MHz, Cp=3.416F. At the bottom, it shows 'START 15.990 000 MHz', 'bw:300Hz 101p', and 'STOP 16.026 791 MHz'.</p>	<p>NanoVNA H v1.0.66.dfu</p> <p>NanoVNA H4 v1.0.66.dfu</p> <p>Use dynamic calibration data calculations</p> <ul style="list-style-type: none"> - Change calibration logic (now more easy control calibration data) - Add menu for IF offset select (if used dynamic IF table) - Reduce output power on < 100MHz - Add measure module (allow made some calculations on measured data) - Move LC Math function to MARKER->MEASURE menu - Add some LC and XTAL measure options <p>For more info see Crystal Motional Parameters.pdf</p>
	<p>NanoVNA-H.v1.0.64.dfu</p> <p>NanoVNA-H4.v1.0.64.dfu</p> <p> DiSlord released this on May 31</p> <p>Fix lever work</p>
	<p>NanoVNA-H.v1.0.63.dfu</p>



NanoVNA-H4.v1.0.63.dfu

Added expert config menu

- Added harmonic threshold input
- Added TCXO frequency input (allow precision frequency calibration)
- Added Vbat offset input
- Added expert option SEPARATOR (can be dot or comma, used for digit output to console, some CPU soft not work correctly vs default dot (1.56 example) if system locale use comma (need send 1,56))
- Added load config.ini from SD card (possible write custom script for run/restore)
- Added clear config

More Fast sweep (up to 770 points/sec)

More fast and smooth update

Added SD card access console commands (sd_read, sd_list, sd_delete)

Allow fast change scale/ref fy click on left screen side

Rename CH0 to S11, and CH1 to S21

Added up to 8 markers support

Added more serial speed option (up to 3M, on this speed can work WiFi modules)

Added custom recall buttons (possible see start/stop freq or empty slot)

Added smooth option Display->Data smooth (Smooth mode need use carefully!!!)

- Smooth now have 2 mode
Arith avg - made arifmetic average
Geom avg - made geometry average
- max value in device x6 (x8 available from console)

Added show grid value option (DISPLAY->SCALE->SHOW GRID VALUES)

Added dotted grid option (DISPLAY->SCALE->DOT GRID)

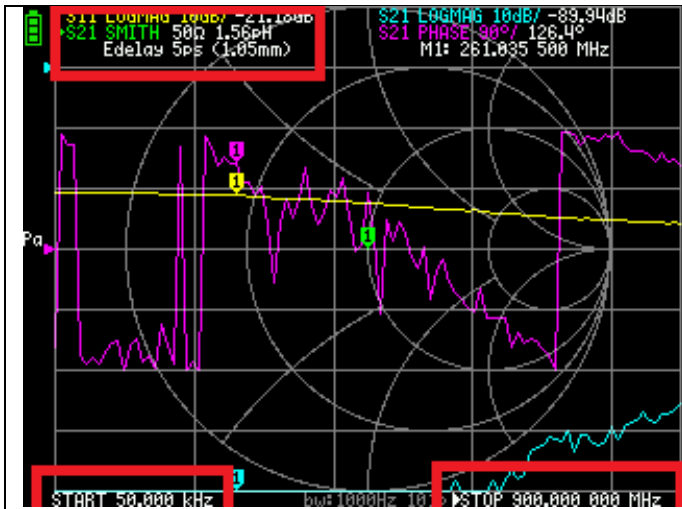
A lot of small bug fixes, code size optimization

NanoVNA-H v1.0.61.dfu

NanoVNA-H4 v1.0.61.dfu

Fixes some SD card issue (corrupt SPI data transfer, but **need card inserted before power on**)

- Refactoring LCD code, added lcd_printf function, now more easy print text formatted data (allow save



some space, and more easy work vs text)

- Rename CH0 to S11, and CH1 to S21

- Remove Channel submenu, now channel switch on button click, also change Channel button text
Pause button now change PAUSE/RESUME SWEEP text

- SWEEP POINTS menu move to STIMULUS (now possible little more buttons in menus) Refactoring keyboard code, remove double variable usage (allow save some space)

- Added quick frequency/edelay input, now **first click select, second click call value input (double click in this red area for select and input):**

[NanoVNA H v1.0.59.dfu](#)

[NanoVNA H4 v1.0.59.dfu](#)

- Added variable menu button size support (now button size adaptate from menu count)
- Added custom button label support
- Use 10us timer resolution (this allow more better measure time, and more litttle faster made sweep)
- Adaptate sweep delay times to 1us resolution
- Move center/span or start/stop mode flag to properties (this allow save mode vs calibration)
- Replace some trace type menus

UI changes allow add this features

- Added up to 8 markers support (also possible see modified marker glyph and adaptated size menu)

Added custom recall buttons (possible see start/stop freq or empty slot)

Added more serial speed option (up to 3M, on this speed can work WiFi modules)

NanoVNA-H 4

2019-2021 Copyright ©DiSlord (based on @edy555 source)
Licensed under GPL. See: <https://github.com/DiSlord/NanoVNA-D>
Version: 1.0.58 Ip:401, IF:12k, ADC:384k, Lcd:480x320
Build Time: May 10 2021 - 17:35:16
Kernel: 4.0.0
Compiler: GCC 9.2.1 20191025 (release) [ARM/arm-9-branch revision 2775991]
Architecture: ARMv7E-M Core Variant: Cortex-M4F
Port Info: Advanced kernel mode
Platform: STM32F303xC Analog & DSP
XTAIL = 26.000 060 MHz

Time: 2021/05/10 17:35:43 (LSE)
Batt: 4.218V

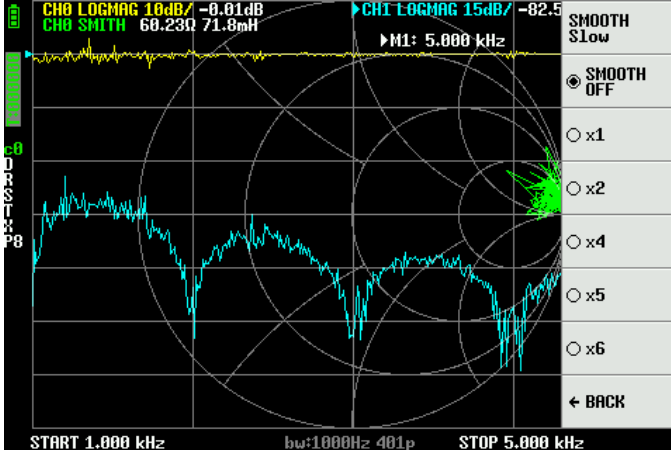
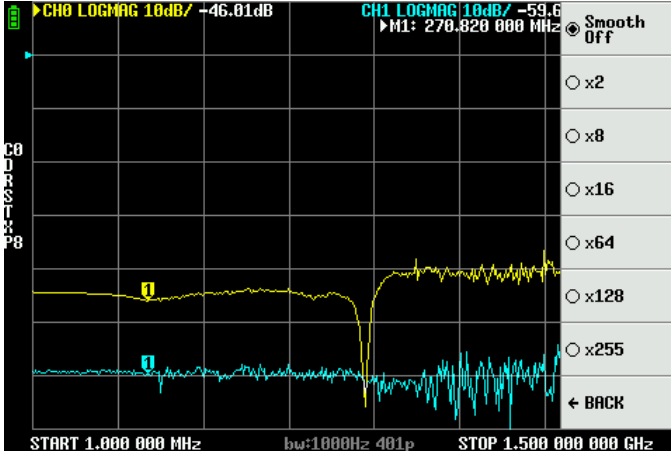
[NanoVNA v1.0.58.rar](#)

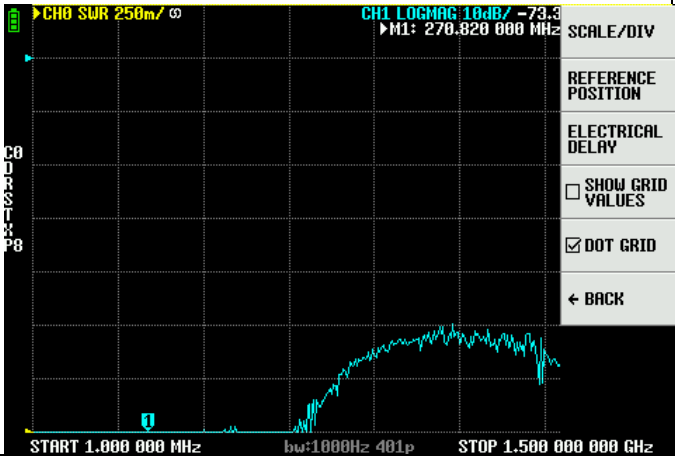
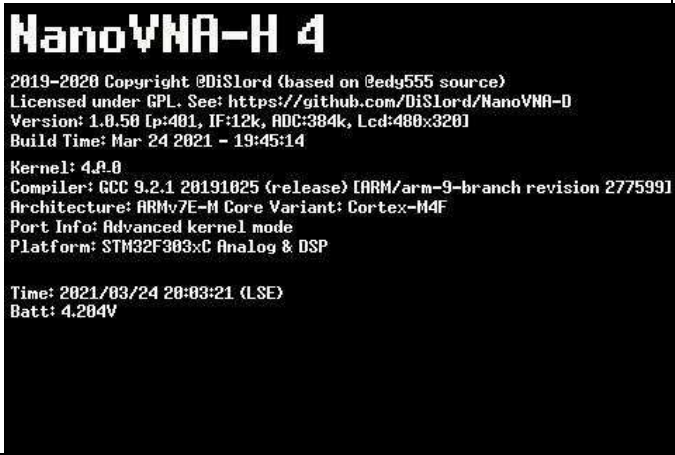
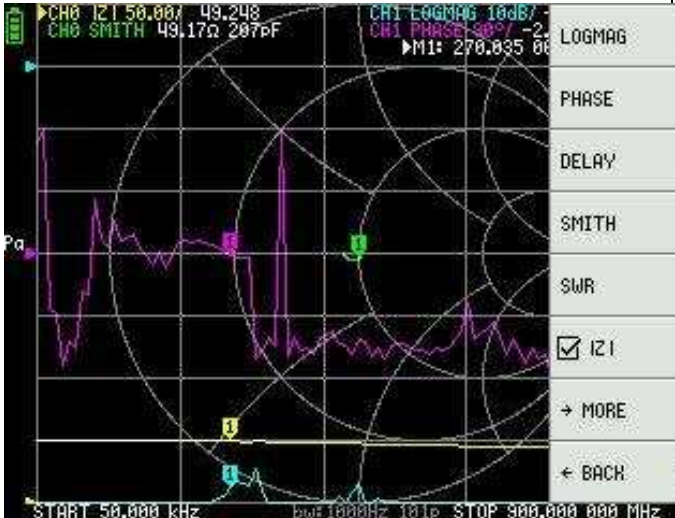
Update to v1.0.58

- now possible set real XTAIL frequency for NanoVNA
Console command, value input in Hz

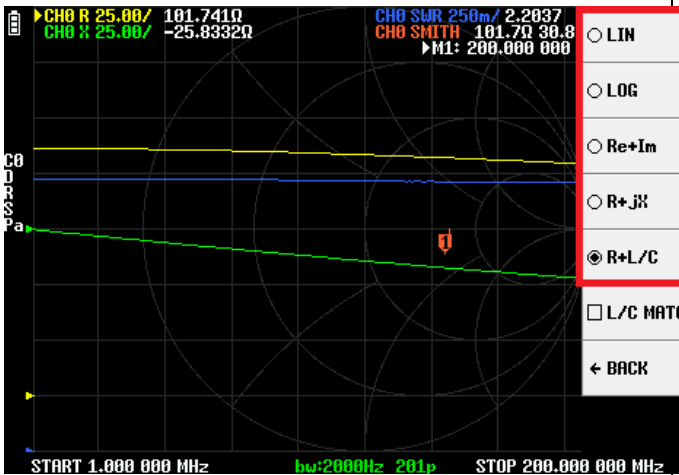
>xtail 26000000

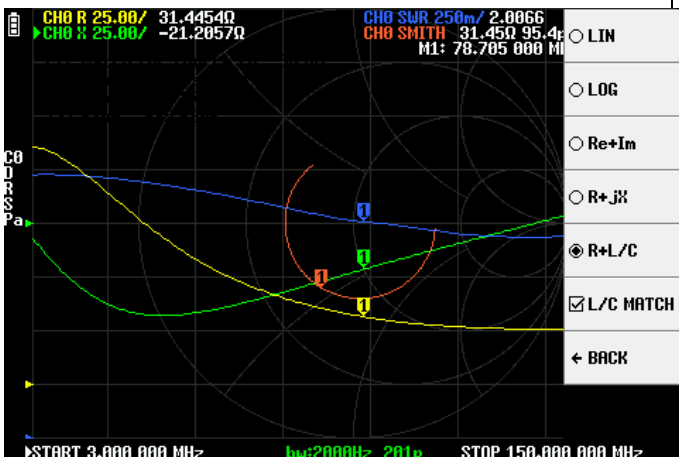
Input range 23MHz - 29MHz

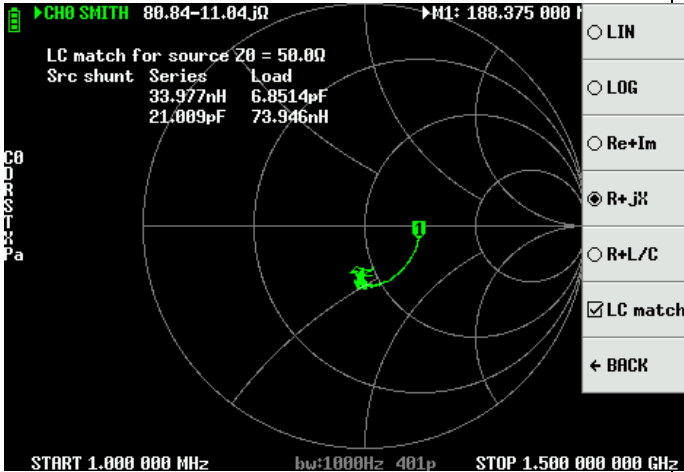
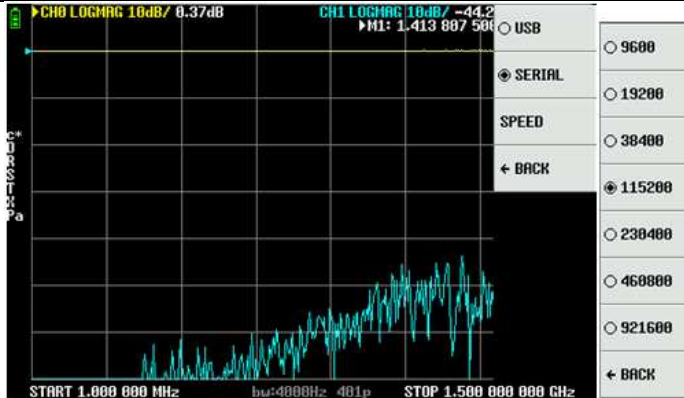
	<p>NanoVNA H4 v1.0.57.dfu</p> <p>Changes v1.0.57:</p> <ul style="list-style-type: none"> - Set si5351 exchange speed on i2c bus to 900k - use smith marker show as 50 + j30Om (before value show as 50 + 30jOm) - update fatFS to last revision R0.14b - less code size <p>This (and also some prev optimisations) allow update timings for H4 (only H4, CPU for H can't work more fast)</p> <p>Now full span speed in NanoVNA-App 1 - 1500MHz in 4k Bw, made 570 points/sec (before 440 points/sec)</p> <p>In 1-100MHz range speed more faster ~670 points/sec (before also ~440 points/sec)</p>
	<p>NanoVNA H v1.0.56.dfu</p> <p>NanoVNA H4 v1.0.56.dfu</p> <ul style="list-style-type: none"> - redefine some math function in nanoVNA data calculations <p>This allow save a lot of size (~2.5k), get more faster code (2-6x faster)</p>
	<p>NanoVNA H4 v1.0.55.dfu</p> <ul style="list-style-type: none"> - Smooth now have 2 modes (slow and fast) see Display->Data smooth->Smooth fast/slow - max value in device x6 (x8 available from console) <p>Fast - made arifmetic average Slow - made geometry average</p> <p>Smooth mode need use carefully</p>
	<p>NanoVNA H v1.0.54.dfu</p> <p>NanoVNA H4 v1.0.54.dfu</p> <ul style="list-style-type: none"> - added smooth option - some code optimization <p>Difference in smooth vs last test fw:</p> <ul style="list-style-type: none"> - not calculated first and last point (this give less amplitude and phase error on big smooth factor) <p>Smooth limits:</p> <ul style="list-style-type: none"> - this feature not give big improvement on small points count - also on small points count big smooth factor reduce amplitude (it come from processing in complex plane, need process it in amplitude/phase but for this device not

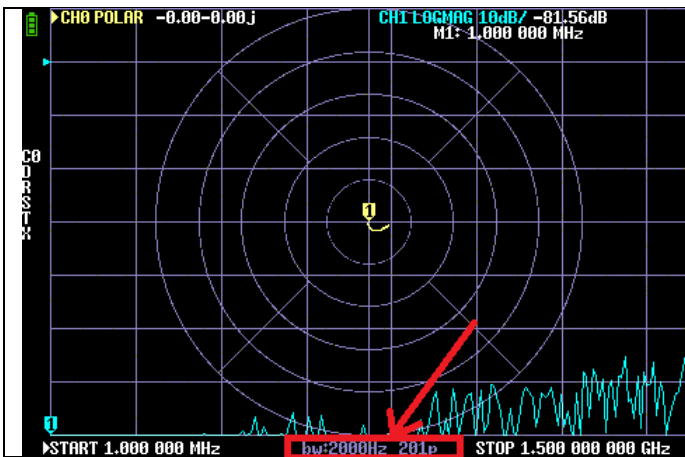
	<p>have resources)</p> <p>NanoVNA v1.0.53.rar</p> <ul style="list-style-type: none"> - Added show grid value option (DISPLAY->SCALE->SHOW GRID VALUES) - Added dotted grid option (DISPLAY->SCALE->DOT GRID) <p>Setting stored in config</p>
	<p>NanoVNA v1.0.52.rar</p> <p>Need rebuild calibration tables vs apply this. Apply edelay for all device measures (include calibration and external data) You can change edelay for every step, just set edelay. go to calibration made measure, go back, set new edelay ... go calibration made new measure ... at end need press done</p>
	<p>NanoVNA-H v1.0.51.dfu NanoVNA-H4 v1.0.51.dfu</p> <p>Now little less limits, some commands allowed in user UI mode (scan, scan_bin command not possible) NanoVNA continue answer on ~all console commands while process UI In some cases possible small screenshot artefacts (screenshot can start on display update in UI) possible prevent this, but this slowdown LCD work (not want do this).</p>
	<p>NanoVNA v1.0.49.rar NanoVNA-H-1.0.49-map.rar</p> <p>Update to NanoVNA v1.0.49:</p> <ul style="list-style-type: none"> - code size optimizations - More code unification for H/H4 (now possible use 4 inch display for H or 2.8 display for H4 if need for example) - Add Z trace type - Use less gain and disable align in 300-600MHz range (should increase dynamic) - Math calculation optimization (logmag processing ~2x faster) - More faster prepare and draw traces (in some cases up to 3x faster, for example on long lines draw) - Rewrite Transform Domain math to more fast processing on H (up to 2x faster) on no FPU usage

	<ul style="list-style-type: none"> - More fast LCD data read (for screenshots) for small screen - Fix calibration state show (not lost last X state) - Now on calibration measure show O (Open collected data) S (Short collected data) t (Thru collected data). After press done data recalculated to D,R,S,T,X (as before) - Fix marker state on reload - Now possible enable up to 6 markers - Add radio button for min/max marker search (mode also stored in config) - Now possible change Scale/Ref/Trace type on sweep pause and screen redraw for new settings - Add 'A' icon for active marker in menu
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	<p>NanoVNA v1.0.45.rar</p> <p>Fix some issues, less code size</p> <p>Changes:</p> <ul style="list-style-type: none"> * Add warning if power settings in calibration not same as current (red power string) * Disable marker track after marker start drag * Fix LC Match text update on screen * Fix marker frequency update in memory (return correct marker info from console command) * Fix measure in 450-460MHz * Disable AIC channel cache * Code size fixes * Increase 1 point measure wait time (hope this solve calibrate issue) * Fix graphic update on trace/channel change (work also in pause sweep) * Calibrate on 100Hz bw (30Hz bw before) <ul style="list-style-type: none"> - More compact flash code - Update power setting on pause sweep also
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	<p>NanoVNA H v1.0.40.dfu</p> <p>NanoVNA H4 v1.0.40.dfu</p> <p>Change list from last v1.0.39:</p> <ul style="list-style-type: none"> * big code optimisation (allow save ~1k) * add palette color for LC match text (LCD_LC_MATCH_COLOR 19) * cache channel in sweep (possibly fix issue on calibration in one trace mode) * fix LSE startup time (disable not tick time check, need more research in it) * increase USART IRQ priority (prevent data lost on high speed exchange) * disable calibration apply show after any calibration collect data run * for sin/cos calculation use extended FFT table (allow save additional 4.5k flash), this also fix hang if enter
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	<p>big edelay value</p> <p>Marker fix:</p> <ul style="list-style-type: none"> - search closest marker for drag - correct select previous on add/remove marker (fix problem then marker removed and mode can change to one marker show) - fix some 'marker' console command errors
	<p>NanoVNA v1.0.39.rar</p> <p>Current firmware use variable point count and 256 FFT for H or 512 FFT for H4</p>
 <p>The screenshot shows the NanoVNA v1.0.38 interface. The main display is a Smith Chart with a green trace. Text at the top left indicates 'CH0 SMITH 80.84-11.04jΩ'. Below it, 'LC match for source Z0 = 50.0Ω' is shown with a table of parameters: Src shunt, Series, Load, 33.977nH, 6.8514pF, 21.009pF, 73.946nH. A menu on the right includes options like LIN, LOG, Re+Im, R+JX, R+L/C, LC match, and BACK. The bottom status bar shows frequency range: START 1.000 000 MHz, bw:1000Hz 401p, STOP 1.500 000 000 GHz.</p>	<p>NanoVNA.v1.0.38.zip</p> <p>First release my firmware modification for NanoVNA, NanoVNA-H, NanoVNA-H4</p> <p>Features:</p> <ul style="list-style-type: none"> • Allow Serial connect and control • Variable points count (up to 401 for H4) • Custom color themes • Fast data exchange vs CPU (use binary mode) • Low noise measure on high speed ADC mode (192k for H and 384k for H4) • Added L/C match calculation <p>Support SD card save screenshots, s1p or s2p files</p>
 <p>The screenshot shows the NanoVNA v1.0.33 interface. The main display is a LogMag plot with a green trace. Text at the top left indicates 'CH0 LOGMAG 10dB/ 0.37dB'. A menu on the right includes options like USB, SERIAL, SPEED, and BACK. The bottom status bar shows frequency range: START 1.000 000 MHz, bw:4000Hz 401p, STOP 1.500 000 000 GHz.</p>	<p>NanoVNA v1.0.33.rar</p> <p>Firmware for H and H4 v1.0.33. For personal use, without any sources. Added serial connection mode. This allows you to connect NanoVNA via Bluetooth (HC-05 or some modules) or USB to TTL or WiFi to TTL (like ESP8285 DT-06 WIFI к TTL) module to CPU.</p>
	<p>NanoVNA v1.0.30.rar</p> <p>Firmware for H and H4 v1.0.30 For personal use. No sources provided. Added custom color themes. Now allow change any color used in NanoVNA by 'color' command. Custom colors theme</p>
	<p>NanoVNA v1.0.28.rar</p> <p>Firmware for H and H4 v1.0.28 For personal use, no any sources Last fixes: Auto detect LSI or LSE mode. Fix power command</p>
	<p>NanoVNA_0.9.3.4 -H and -H4 [SD card /w RTC]</p> <p>added Q factor format trace (See FORMAT->MORE->Q FACTOR)</p> <p>Now AntScope2 can detect NanoVNA</p> <p>Small changes for time command (terminal prg): time [y m d h min sec] 0-99</p>



When Internal RTC please use LSI version, when installed External **32.768 kHz quartz** use LSE (Time tick while power off).

For made **screenshot need tap on BW text** at bottom
For save s1p or s2p file in MENU->SD Card-> SAVE
See this post for more information

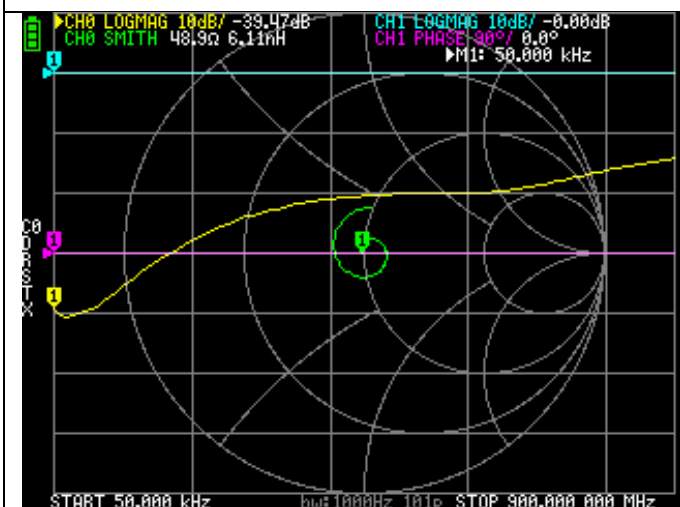
<https://groups.io/g/nanovna-users/message/14447>



[NanoVNA-H 0.9.3.3 beta SD Card LSE.dfu](#)

The 32.768 kHz Quartz must be soldered between pin3 and pin4 of the STM32F072 so that the operation of the RTC is tied to quartz accuracy. The firmware allows power to be supplied to pin1 vbat via D2 diode when the device is turned off. The display shows the date and time in the version window in the menu.

https://groups.io/g/nanovna-users/attachment/14214/0/IMG_20200607_223253.jpg



[NanoVNA-H 0.9.3.3 beta SD Card.dfu](#)

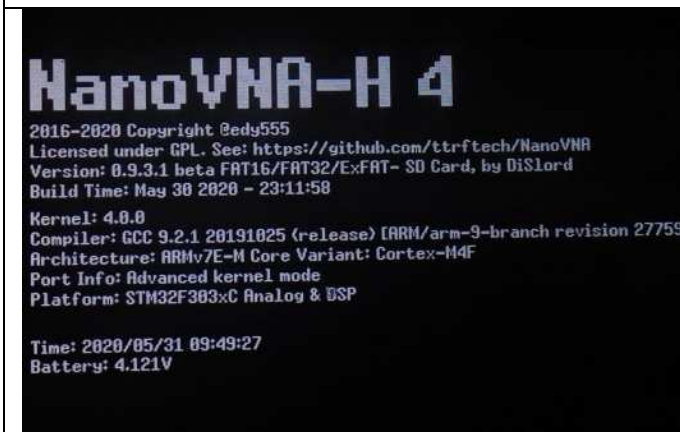
SD Card slot on old PCB can see in this post, if solder it and install this firmware now possible store screenshots and S1P or S2P files on it.

Some limits. Only FAT12/FAT16/FAT32 support (exFAT not supported). RTC clock not run while power off (hardware limits, need install external quartz and add software support).

Only short filenames.

Most limits comes from small flash size in H version CPU.

<https://groups.io/g/nanovna-users/message/14154>

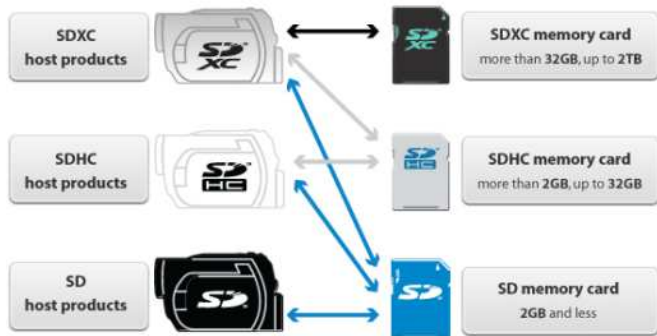


[NanoVNA H4 v0.9.3.2 beta - SD Card LSE Clock.dfu](#)

LSE version if you **install 32.768 kHz quartz** on PC14 and PC15 pin (Time tick while power off)

[NanoVNA H4 v0.9.3.2 beta - SD Card LSI Clock.dfu](#)

LSI version - for not installed 32.768 kHz quartz (Time not tick while power off) RTC used for detect last file save and names



[NanoVNA H4 v0.9.2 beta - SD Card.dfu](#)

Add support ExFAT filesystem and check work on my SD card

Samsung EVO Plus 128Gb HD XL

All worked, support ExFat need additional 4kB flash and can't be supported on NanoVNA-H (if add card slot in it)

But on H4 still more flash space (only ~89kB + 64kB for calibration save used from 256kB)

On Samsung EVO Plus 128Gb HD XL read speed ~300kB/sec write ~190kB/s

[NanoVNA H4 v0.9.1 beta - SD Card.dfu](#)

Work around errors in SD card support:

Cleanup my SD card support code

Implement read/write data CRC16 check

Implement command CRC7 check

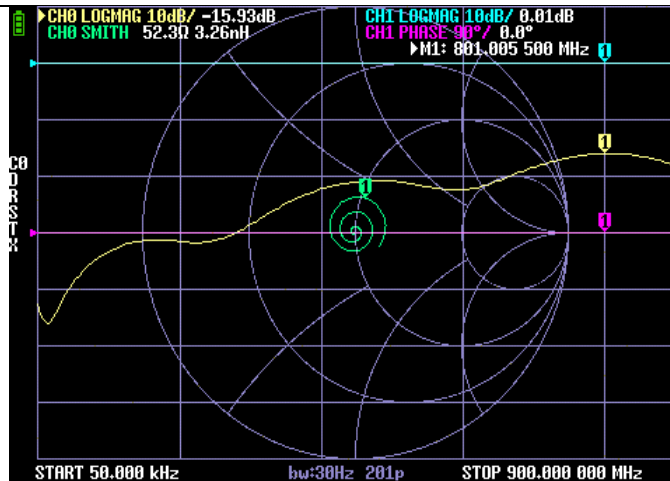
Fix SPI bus problems

Enable support short and long filenames

SD cards work

SD HC cards work

SD XL cards should work if format to Fat32, but need test, possible I enable exFat support



[NanoVNA H4 v0.9.0 alfa - SD Card.dfu](#)

Used microCard slot pins:

2 - SD_CS

3 - SPI_MOSI

4 - VDD

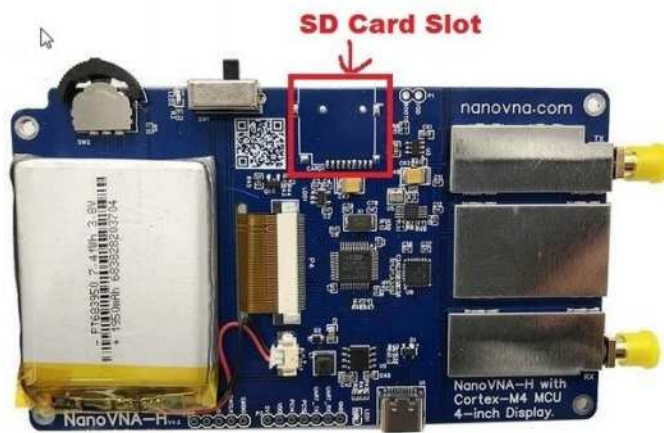
5 - SPI_SCLK

6 - GND

7 - SPI_MISO

some slot variants: XUNPU TF-115K and THD THD2528-11SD-GF

read more <https://groups.io/g/nanovna-users/message/13743>



[NanoVNA-H4 v0.8.4.7.dfu](#)

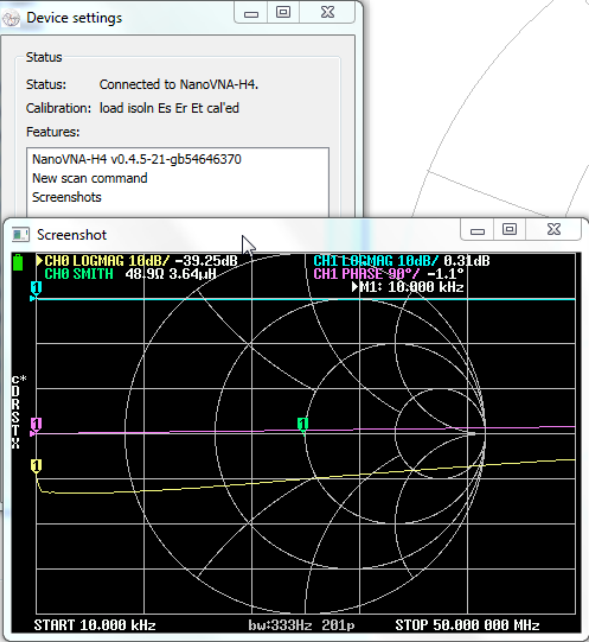

Next H4 update:

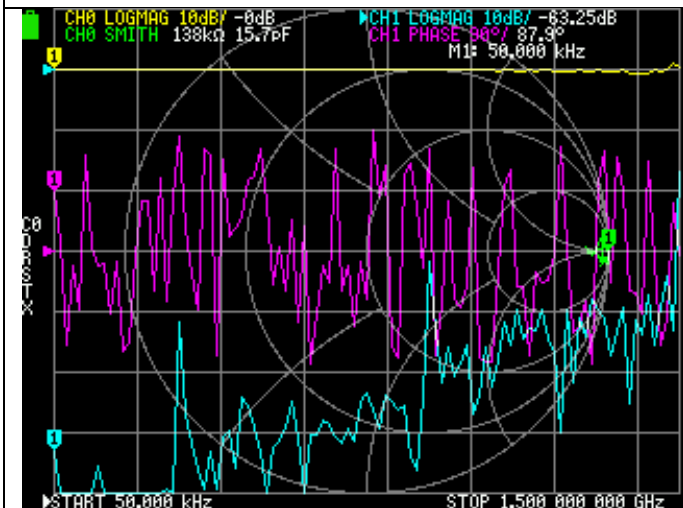
Cleanup ADC code (used for touch screen and battery measure).

Reduce touch press check from 1kHz to 20Hz and set touch press ADC time to 1 tick (it allow little more reduce measure noise), for vbat, touch X and Y measure use bigger ADC time.

Add Brightness setting to config menu.

Now for set Brightness need select Config->Brightness and use leveler button Left or Right for adjust it. On done press leveler button Down for set. For save value

	<p>need use Config->Save.</p> <p>Fix calibration reset error added in last patch, now this should work correct</p>
	<p>NanoVNA-H4 v0.8.4.6_96kHz_ADC_800Hz_sweep_points.dfu</p> <p>Change: IF to 12kHz Disable AIC3204 internal PLL clock, use direct MCLK as CODEC_CLKIN from si5351 More faster calibrate (measure only calibrated CH) allow reduce default bandwidth on calibrate to 30Hz Gain selected to get the lowest noise level for AIC3204 in some harmonic range</p>
 <p>The screenshot shows the 'Device settings' window with status 'Connected to NanoVNA-H4', calibration 'load isoln Es Er Et cal'd', and features for NanoVNA-H4 v0.4.5-21-gb54646370. Below it is a 'Screenshot' window displaying a Smith chart plot with two channels: CH0 LOGMAG 10dB/-39.25dB and CH1 LOGMAG 10dB/0.31dB. The plot shows a green curve and a yellow curve. The status bar indicates 'START 10.000 kHz', 'bw:333Hz 201p', and 'STOP 50.000 000 MHz'.</p>	<p>Hardware.py</p> <p>The DiSlord Hardware.py fix, which I tested with two tools, works well. With 2.8" and 4" screens - I used nanoVNA-Saver version 0.2.2. I just copied Hardware.py to the NanoVNASaver directory, which is available in the C:/nanovna-saver folder. After installing Python 3.7.4, you can start it with the nanovna-saver.py command. link info: https://groups.io/g/nanovna-users/message/13096</p>
 <p>The screenshot shows the NanoVNA-Saver interface with a Smith chart plot. The plot displays a green curve and a yellow curve. The status bar indicates 'START 50.000 kHz' and 'STOP 200.000 000 MHz'. The right side of the interface has a menu with options: POLAR, LINEAR, REAL, IMAG, RESISTANCE, REACTANCE, Q FACTOR, and BACK. The Q FACTOR option is currently selected.</p>	<p>0.8.0-20200620</p> <p>edy555 released</p> <ul style="list-style-type: none"> • Add format Quality Factor • Fix label R+Xj to R+jX • Add bandwidth command • some fixes
	<p>0.7.1-20200321</p> <p>edy555 released</p> <ul style="list-style-type: none"> • Contributions from @DiSlord <ul style="list-style-type: none"> ◦ shrink flash size ◦ fasten sweep ◦ added color command • added lever operation for the electrical delay



fixed code style

[0.7.0-20200223](#)



[edy555](#) released

- Merged incredible contribution from [@DiSlord](#)
 - font face becomes smart, clear and having variable width
 - update trace color to have good contrast
 - update battery indicator
 - changed marker icon
 - changed focus sign of the lever mode
 - replaced number formatting scheme
 - remove the shell from chibios
 - remove some unused command (info, thread)
 - shrink the size of flash and SRAM
 - cleaned a large amount of the codes
- Lever operation updated
 - disable lever mode change by frequency change
 - clicking lower edge of the left and right changes lever mode to adjust the frequency of the stimulus
 - dragging marker or clicking upper side makes lever mode to adjust the frequency of markers