

CatTouch v2.4727th August 2024

- **Bar**
 - Added CMP bar to show compression - useful for SSB TX.
- **SWR**
 - SWR test relies on certain variables being updated from the transceiver prior to running the test. This is done in the MTR screen. Added a check to make sure transceiver power variable has been updated prior to running test. This fixes the issue of FTdx101MP power returning to 111W (thanks Paul MM7EXK).
- Fixed type casting errors in freqDisplay() method.

CatTouch v2.4610th July 2024

- **MTR**
 - Fixed bug in FT991/A VFO Hz frequency (thanks PA5WIL).
- **SWR**
 - Bug where after SWR test, FTdx101MP power level returns to 5W or 111W & not 200W like originally set (thanks MM7EXK). Not fixed yet.

CatTouch v2.4519th May 2024

- **Bar**
 - I did not like the inaccurate bars. Transceiver meters report 0 to 255. To illustrate inaccuracy for 11 bar segments:
 - **Bar 1:** 0 to ~22
 - **Bar 2:** ~23 to ~45
 - **Bar 3:** ~46 to ~68
 - **Bar 4:** ~69 to ~91
 - **Bar 5:** ~92 to ~114
 - **Bar 6:** ~115 to ~137
 - **Bar 7:** ~138 to ~160
 - **Bar 8:** ~161 to ~183
 - **Bar 9:** ~184 to ~206
 - **Bar 10:** ~207 to ~229
 - **Bar 11:** ~230 to 255
 - The updated partial bar illumination makes for a more accurate visual representation of the actual value. EG for a value of 155, instead of lighting up 7 full bars (over-representation), it now lights up 6 full bars & the 7th bar to 56.6%, which more accurately represents the value. This is a 33.3% improvement in meter accuracy.
- Further coding optimization to bar meter & meter class; Introduced compiler .globals.h & stripped unnecessary linker code.

CatTouch v2.449th May 2024

- Added notice to startup screen **“If colors are inverted goto CFG & press TFT or IPS”**
- Modified dots on touch calibration screen so calibration points could still be seen if colors inverted
- **JPG**
 - Reworked & optimized, images must still be JPG format and have .JPG file extension
 - To stop slideshow, turn off CatTouch or remove SD Card
 - Tries to scale images – scale factor supported 8:1, 4:1, 2:1 or 1:1
 - Native screen size is 480x320 (or scaled 3840x2560, 1920x1280 or 960x460)

- Keep image file size as small as possible
- Also tries to correctly orient image
- Noted a limitation in supporting long file names so keep file names short
- Huge images will probably fail if CatTouch limited RAM runs out. It will either hang or reboot
- Once all JPG's have been displayed in the root folder, CatTouch will restart
- Sometimes SD Card wont be recognized when CatTouch restarts. Remove and reinsert it

- **CFG**

- Added **JPG Dly:** - the delay (in seconds) between each JPG slide
- Delay starts from the time the image has completely loaded

CatTouch v2.43**30th April 2024**

- Internal – not released
- Reworked & refactored firmware update procedure. Now detects file called “CatTouch.prld” (same file as CatTouch.fw) but with the .prld extension, the file is not renamed for production purposes.

CatTouch v2.42**23rd April 2024**

- **MIC, SPK, MTR, BAR**

- Changed lowest frequency display to 10Hz for FT991/A.
- All other models remain at 1Hz
- Added band UP & Down arrows & bar background to frequency display
 - Press left arrow to change down a band
 - Press right arrow to change up a band
 - Press in middle of frequency will flash white then redraw frequency
..in preparation for direct frequency entry pop-up at a later date
- Need to play around with CAT command timing & touch de-bounce. Noticed sometimes rig/s will jump 2 (or more) bands. Sometimes seems to hang. Always comes right after a short time so releasing this version for feedback.

CatTouch v2.41**20^h April 2024**

- **CFG**

- Added TFT / IPS button
- Pressing the TFT / IPS button changes configuration, restarts CatTouch & changes screen startup code so colors are correct
- IPS screens to start shipping from mid May 2024

CatTouch v2.40

- Internal version, not released
- Updated libraries & start up code for new IPS displays.
- Need to change startup code for IPS displays as they show inverted colors with existing code.
- **CLK**
 - Added moon phase & % illumination

CatTouch v2.39**4th April 2024**

- **CFG**

- Added **Start up screen:**
- Press button to cycle through each option
- Options are: **WiFi > MIC > SPK > MTR > CLK > BAR**

- Unified title bars for CFG, WiFi & CLK; optimized initialization for each.

CatTouch v2.38**1stst April 2024**

- **BAR**
 - fixed clock updating & mode button (thanks F4DYK)
 - still need to detect what screen user has left CatTouch on (MTR or BAR), save this to config so it starts up on correct screen next power up

CatTouch v2.37**31st March 2024**

- **BAR**
 - Created new bar display (suggested by Robert HF2R & Pinto IK8TMV)

CatTouch v2.36**19th March 2024**

- Internal version, not released
- **SPK**
 - Added Volume, Squelch & monitor levels.
 - Tried adding AESS level & CF for FT-710 but could not get Yaesu AESS CAT commands to work with latest FT-710 firmware (main V01-12)
- Enabled monitor button when in DIG mode (thanks NG9W)

CatTouch v2.35**18th March 2024**

- Changed startup graphic to galaxy
- **SPK**
 - Fixed HCUT being stuck at 6dB (thanks NG9W)

CatTouch v2.34**11th February 2024**

- **MIC**
 - Corrected reversed Bell curve - Q factor (bandwidth)
 - Stopped erratic “PRC” being drawn on chart
 - Enabled MEQ button for FM (PROC is not valid for FM)
 - Added “PRMTRC”, “P PRMTRC”, “MEQ ON”, “MEQ OFF” to clarify what is being displayed
 - Changed program flow to reflect what is displayed when MEQ or PROC is on/off on transceiver.

CatTouch v2.33**23rd January 2024**

- Widened touch screen range check for latest displays
- **CFG** - Added ability to offset display backlight brightness.
 - Adjustable backlight brightness only works for latest PCB v9 or greater
 - PCB earlier than this require a modification. Refer v2.19 firmware notes
 - With CatTouch is in MTR screen, adjust transceiver brightness to the desired level. Wait up to 1 minute for CatTouch to register the change. Then select CFG and adjust brightness by pressing +/- until it reaches the level you want. Click SAVE to store the change.

CatTouch v2.32**30th December 2023**

- **MTR** – Fixed 200W range for FTdx101MP
- Widened touch screen range check to cater for latest displays

CatTouch v2.31 – internal, not released**CatTouch v2.30****20th November 2023**

- **MTR** – fixed TNR button not working with FT-710.

- For all models, the tuner button top right of SWR meter now displays:
 - **TNR** in OFF state when off (white text, no border or background)
 - **TNR** in ON state when on (white text, green background & border)
 - **TNG** when transceiver is tuning
 - if tuning not valid (FT991 in V/U mode), button shows TNR in disabled state (grayed out)
- **MTR** – reworked how PROC level is displayed in upper right of CMP meter.

CatTouch v2.29 – internal, not released

CatTouch v2.28

24th October 2023

- **MTR** – modified TNR button in SWR meter to activate internal tuner
 - The tuner button on CatTouch can display:
 - **OFF** – transceiver tuner is OFF
 - **TNR** - transceiver tuner is ON
 - **TNG** - transceiver is tuning
 - Press OFF on CatTouch to turn transceiver internal tuner on
 - Press TNR on CatTouch to make transceiver start tuning
 - Press TNG on CatTouch to stop tuning
 - Use the transceiver to turn the internal tuner off

CatTouch v2.28

17th October 2023

- **MTR** – added memory number to VFO/MEM/MT flag

CatTouch v2.27

22nd September 2023

- Adjusted low brightness level so screen slightly brighter on lowest transceiver brightness setting.
Refer firmware v2.19 notes for the required HW modification to enable backlight control on CatTouch PCB's earlier than v8.
- CatTouch starts up at maximum brightness. Then it can only be changed by changing the brightness on the transceiver and CatTouch must be set to MTR screen when doing this. Some transceivers have multiple settings for brightness. CatTouch sets its brightness from the CAT command DA; which is generally the transceiver TFT / Display brightness.

CatTouch v2.26

22nd August 2023

- **MIC**
 - Current levels are displayed for MIC (Microphone Gain), PRC (processor Level) & AMC (Automatic Microphone Gain Control) in lower RH corner of microphone equalizer chart.
 - MIC, PRC & AMC is now saved & loaded with equalizer settings.
 - AMC only shows and works with transceivers that have AMC ie, not applicable for FT991/A
- Changed the way touch works on both parametric screens, MIC & SPK. Its now more of a tap where you want to go as opposed to a drag. Its still a bit of a pain but seems more reliable.

CatTouch v2.25 – internal, not released

CatTouch v2.24

3rd August 2023

- **MTR** – Fixed S Meter activity bar - plotting in a very dark gray. Now using light gray which provides much better contrast across all brightness levels.

CatTouch v2.23

27th July 2023

- **SWR** – Fixed 'Reading xxx' overwriting itself on SWR screen.
- **SWR** – Occasionally FT-991a would not correctly restore mode after SWR test. Increased delay after SWR CAT commands sent resolved issue.

CatTouch v2.22**26th July 2023**

- **SWR** – If SWR selected when rig in a MEM mode, it would turn off any split in that memory. So now if you select SWR while in MEM, it forces transceiver into VFO A at the currently tuned frequency & removes any split. When test complete, transceiver will remain in VFO A. User will need to manually select memory again.
- **General Performance Note** - A key issue with Yaesu RS232 connected CAT is it does not support automatic updating. This means to get data from the transceiver you must continually ask it to send each bit of information required, all the time (in case operator has changed something). Yaesu USB connected CAT however supports automatic updating so CAT traffic only occurs when the operator makes a change on the transceiver. CatTouch is taxing the capacity of the Yaesu CAT system which is why I have had to slow some requests down. In general, everything starts happening in the Meter screen and can take several minutes before CatTouch & transceiver are in sync. This is why CatTouch will restart if you try to access the CLK screen just after you power it on.

CatTouch v2.21**20th July 2023**

- **SWR** – fixed coding issue causing only 160m band to be selected

CatTouch v2.20**19th July 2023**

- **CLK** – added missing font so digital time is shown again on CLK screen

CatTouch v2.19**19th July 2023**

- **CLK** - fixed seconds to update correctly
- **SWR** – now detects if a repeater offset has been set. If it has, it is turned off before testing SWR and restored when complete
- **Future Hardware Change** – added code to support PWM backlight control in next PCB run. To modify existing hardware:
 - cut track from VSS to BL pin on display
 - connect 2k2 resistor from pad D3 on ESP8266 to pad BL on display
 - with this modification, CatTouch backlight level is now set from transceiver DIMMER setting (TFT Display Brightness Level)
 - without this hardware modification, backlight will remain at maximum brightness, regardless of transceiver setting

CatTouch v2.17 & v2.18

Internal testing only. No public release

CatTouch v2.16 Firmware Release Notes**10th May 2023**

- **SWR**
 - Reworked SWR loop to prevent corruption data in swr.csv file (thanks KF5WGB)
 - Optimized SWR history loop
 - Added file line count to show CatTouch is working when reading large history files

CatTouch v2.15 Firmware Release Notes**9th May 2023**

- **SWR**
 - swr.csv file updated to include transceiver name. File format now:
Band,F(kHz),SWR(0~255),YYYY-MM-DD,HHMM,RIG
20m,14000000,98,2023-05-08,01:38,FT991A
 - If SWR history cannot be found for current band OR no SD card inserted & current SWR not requested, now shows “No SWR history found!” rather than not showing anything
 - Fixed a bug in restoring modulation modes greater than 9 (i.e. A ~ F)

- Added missing '4m' to band array causing 2m & 70cm name issues on chart & in file (thanks KF5WGB)
- Added check to ensure date has loaded in MTR screen before allowing SWR test. This ensures all internal data is loaded for accurate SWR display and history file save (thanks KF5WGB)
- Added IARU Region 1, 2 & 3 band data so SWR tests correct frequency based on what region is set in CFG screen. Bands are:

	160m	80m	60m	40m	30m	20m	17m	15m	12m	11m	10m	6m	4m	2m	70cm
Region 1 Start:	1.810	3.500	5.351	7.000	10.100	14.000	18.068	21.000	24.890	25.615	28.000	50.000	70.000	144.000	430.000
Stop:	2.000	3.880	5.366	7.200	10.150	14.350	18.168	21.450	24.990	27.999	29.700	54.000	70.500	146.000	440.000
Region 2 Start:	1.800	3.500	5.351	7.000	10.100	14.000	18.068	21.000	24.890	25.615	28.000	50.000	70.000	144.000	420.000
Stop:	2.000	4.000	5.366	7.300	10.150	14.350	18.168	21.450	24.990	27.999	29.700	54.000	70.500	148.000	450.000
Region 3 Start:	1.810	3.500	5.250	7.000	10.100	14.000	18.068	21.000	24.890	25.615	28.000	50.000	70.000	144.000	430.000
Stop:	2.000	3.900	5.450	7.300	10.150	14.350	18.168	21.450	24.990	27.999	29.700	54.000	70.500	148.000	440.000

- This is region & not country data - some will not be correct (i.e some regions/countries don't have 60m, 11m, 4m, Etc)
- It is the data CatTouch uses to check & work out SWR steps - there is no MARS / OPEN option
- Not all compatible transceivers support all bands
- If your transceiver does not support a band or frequency, it will report a high SWR when CatTouch tries to transmit
- It is up to the operator to make sure you only transmit within your license limitations

• OTHER

– More work on Calibration screen to now tighten it back up. With v2.14, reports indicated calibration passed but bottom buttons would not work, or only worked if touched at the very top edges. This is because button touch coordinates were outside what CatTouch was informed was a valid touch area. So put your glasses back on, we're back to stricter touch calibration.

CatTouch screen uses a resistive touch panel and requires an appropriate stylus.
This was purposely selected to prevent accidental changes to any connected transceiver.

- **CFG** – added IARU region for SWR testing – default is 2
- **MTR** – disabled ATT, BW, IPO & TNR for FT991/A when above 60MHz
- **JPG** – no changes
- **CLK** – no changes
- **SPK** – no changes
- **MIC** – no changes
- **WiFi** – no changes

Thank you for supporting CatTouch. If you have any comments please feel free to send me an email.

73 de Chris ZL1CVD
zl1cvd@gmail.com