



YAESU HF RADIO CAT CONTROL DEMO

STEVE OLLMANN - KC5NK

YCAT – Yaesu Computer Assisted Transceiver



Why YCAT?

- Started as a way of learning my FT-891 with limited menus
- Control and Monitor radio over enhanced USB serial interface
- Used to control most common features of the radio
- Provide User defined functionality
- Access to all meters at once
- Program VFO memories
- Simple logbook, exports ADIF format (Even POTA)
- User selectable mapping views (requires vendor Keys for most maps)



YCAT – Origins

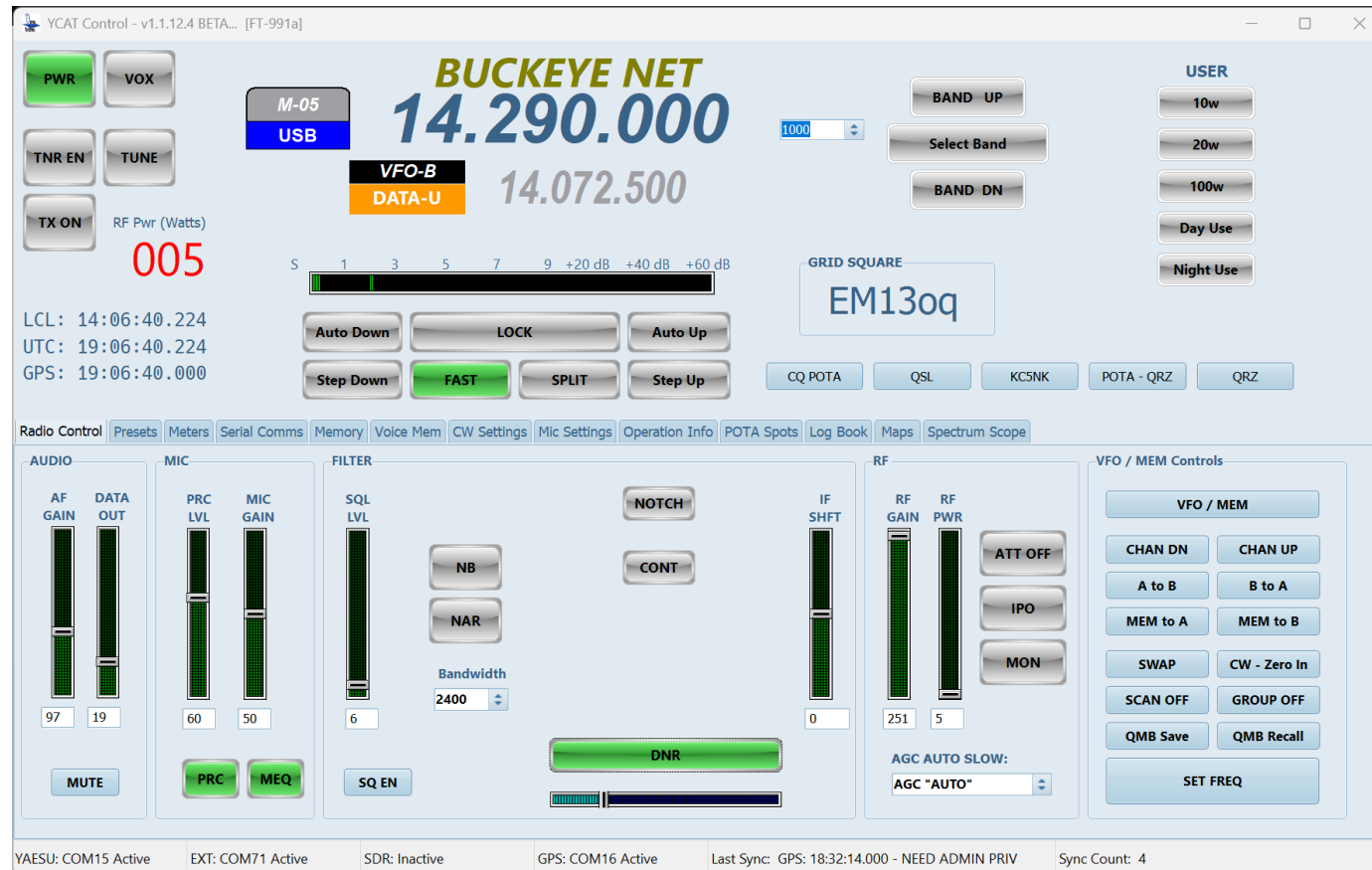
- Bought FT-891 at beginning of Covid for “keeping in touch” with the world
- Noticed it had serial interface (CAT) which is what I do along with GPS
- Dabbled turning rig on and off, then added more features to learn about the FT-891.
- Eventually, it started taking form as a Rig Control application
- Started adding new radios (FT-991a, FT-dx10, FT-710, FT-dx3000, etc.)
- Reluctantly added a QSO logger and added POTA features for drag-n-drop into POTA.app
- Mapping allows me to find my own grid square without GPS and find bearing to DX stations if I needed to point a beam towards them.



What is YCAT?

- Rig Control
- Customizable buttons
- All Meters display (relocatable)
- RIG / GPS / SDR and WSJT-x interfaces
- GPS computes 6-digit grid and PC time
- SDR interface works with RSP-dx, etc.
- VFO Memory read/write and file read/save
- HamDB and QRZ call sign lookup
- Voice Memory record/verify/send
- CW control, memory record/send
- Microphone equalizer settings
- Logger (regular / POTA)
- POTA spot viewing (filtering)
- Mapping with helpful features
- Spectrum Scope management for supported rigs
- Windows 32-bit application

YCAT – Main Operating Screen



YCAT – Operation Info (Default tab)

The screenshot shows the YCAT software interface with the 'Operation Info' tab selected. The interface is divided into three main sections: 'My Information', 'POTA', and 'WSJT-x Search'. The 'My Information' section contains fields for Station Call (KC5NK), Operator Call (KC5NK), Rig (FT-991a), Antenna (AV-6160), My Grid (EM13oq), State (TX), and County (Grayson). The 'POTA' section has a checkbox for 'Activating POTA', and fields for 'Park Number' and 'Park Name'. The 'WSJT-x Search' section has a checkbox for 'Enable Search' and a 'Search Term' field containing 'CQ POTA'. At the bottom, a status bar shows: 'YAESU: COM15 Active', 'EXT: COM71 Active', 'SDR: Inactive', 'GPS: COM16 Active', and 'Last Sync: GPS: 18:32:14.000'.

Section	Field	Value
My Information	Station Call	KC5NK
	Operator Call	KC5NK
	Rig	FT-991a
	Antenna	AV-6160
	My Grid	EM13oq
	State	TX
	County	Grayson
POTA	Activating POTA	☐
	Park Number	
	Park Name	
WSJT-x Search	Enable Search	☐
	Search Term	CQ POTA

YAESU: COM15 Active EXT: COM71 Active SDR: Inactive GPS: COM16 Active Last Sync: GPS: 18:32:14.000

- My Information
 - Enter station call sign
 - Rig field should auto configure after radio starts communicating
 - Antenna field is optional
 - My Grid: this field will auto populate with a GPS dongle. Manually enter if no GPS configured.
- POTA
 - Check if activating POTA, enter park number and park name
- WSJT-x Search
 - Check "Enable Search" for audible beep for decoding "Search Term"

YCAT – Serial Comms

- Yaesu CAT Serial
 - Use Enhanced port
- EXT CAT (WSJT-X)
 - Requires virtual serial cable
 - In this case (COM70 / COM71)
- SDR CAT – emulates Kenwood TS480
 - Requires virtual serial cable
 - 2-way communication with SDR Play / SDR Uno
- GPS Serial
 - Sync PC Time with GPS Time (requires YCAT to run as Admin)
 - Shows current Latitude / Longitude and 6-digit Grid Square
- WSJT-X UDP
 - Allows receiving WSJT-X log information for YCAT logger
 - Must match IP and Port number.
 - Supports Multi-Cast

The screenshot shows the 'Serial Comms' tab in the YCAT software interface. It contains several configuration sections:

- Yaesu CAT Port:** Serial Port: COM15, Baud: br38400, Flow Control: checked, RESET button.
- EXT CAT Port:** Serial Port: COM71, Baud: br38400, RESET button.
- SDR CAT Port:** Serial Port: <sel port>, Baud: br4800, RESET button.
- GPS Sync Port:** Serial Port: COM16, Baud: br4800, Sync Intvl: 3600, Sync PC to GPS Time: unchecked, LAT: 33.674583, LON: -96.808754, Grid: EM13oq, RESET button.
- Debug:** Yaesu Serial, GPS Serial, EXT Serial, SDR Serial (all unchecked).
- WSJT-x UDP:** Enable WSJT-x UDP: checked, IP: 127.0.0.1, Port: 13626.

At the bottom right, there are buttons for 'Send', 'CLR Log', and 'Save Log'.



Silicon Labs Dual CP2105 USB to UART Bridge: Enhanced COM Port (COM15)

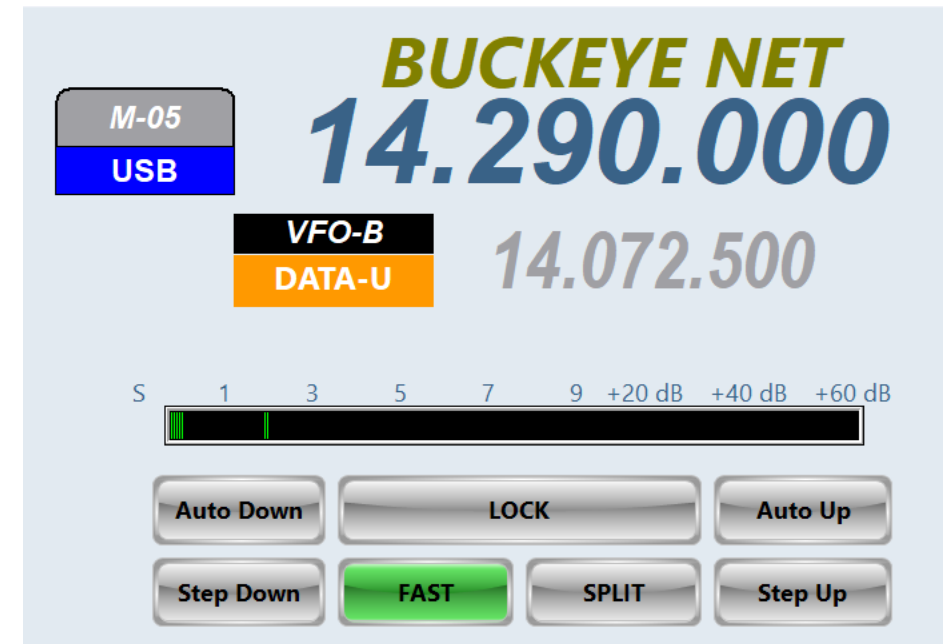
YCAT – Main Screen

- Many indicators are also controls
 - Power – turns radio ON/OFF
 - TNR EN – turns tuner ON/OFF
 - TUNE – initiates a tune cycle
 - TX ON – “keys” and “unkeys” transmitter
- RF Pwr (watts) – TX power setting
- Time settings
 - LCL – shows local time from PC
 - UTC – shows UTC time from PC
 - GPS – shows GPS time (UTC)
 - Requires optional GPS receiver



YCAT – Main Screen

- VFO A Frequency
 - Memory Tag – user defined
 - Mem Channel indicator
- VFO B Frequency
- VFO Controls
 - Auto Down – hold to decrease VFO A
 - Auto Up – hold to increase VFO A
 - LOCK – Locks the VFO
 - Step Down – press to decrement VFO
 - Step Up – press to increment VFO
 - FINE (FAST) – controls VFO steps
 - SPLIT – turns VFO A/B split mode on/off
- S-meter – shows radio S readings (with peak indicator)

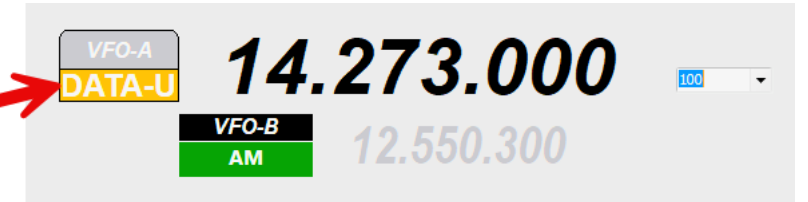


YCAT – Main Screen Modes (Legacy)

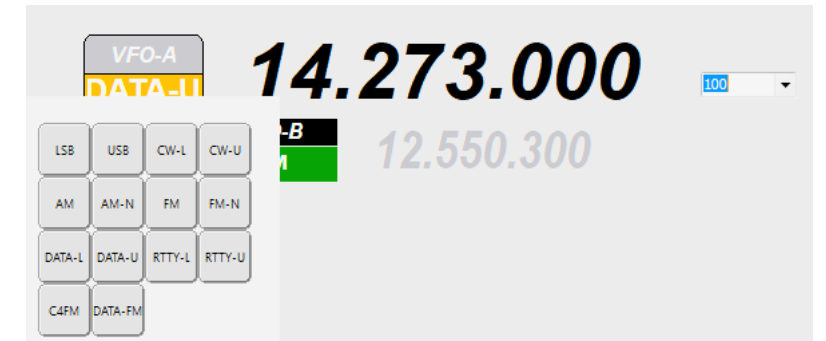
- Mode select
 - SSB
 - CW
 - RTTY
 - DATA
 - AM
 - AM Narrow
 - FM
 - FM Narrow
 - C4FM (FT-991 only)



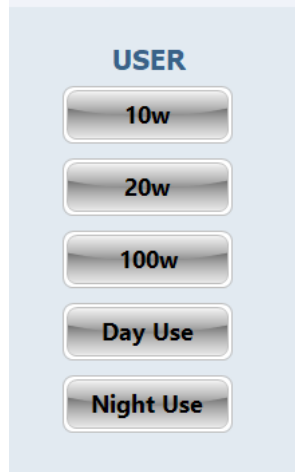
YCAT – Mode Selection (new)



- Click mode section under VFO-A to bring up menu
- Select Mode and menu closes automatically
- Similar to FT-710 screen operation
 - Works the same for all rigs

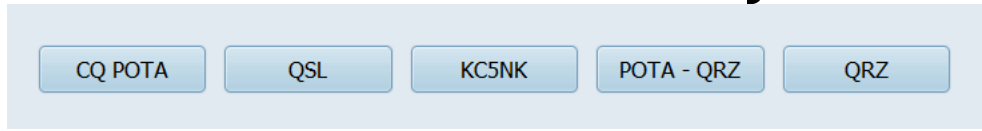


YCAT – User Defined Buttons (CAT COMMANDS)



- Five (5) buttons are available for the user to add their own features.
- Choose whether buttons are visible, what text to display, and the underlying CAT commands
- CAT Commands can be concatenated
- Reference the Yaesu CAT Manual for your rig.
- Configure in PRESETS tab

YCAT – Voice Memory

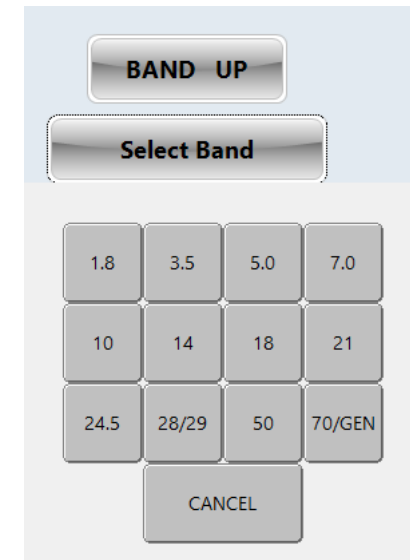
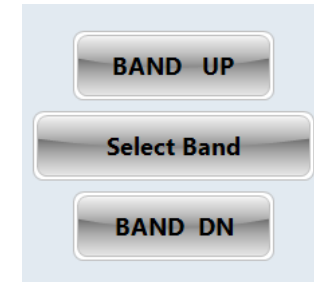


- Buttons have customizable text
- Configured in Voice Mem tab
- Defaults to SEND
- Can Record, Verify, and Send when pressed (Voice Mem Tab)

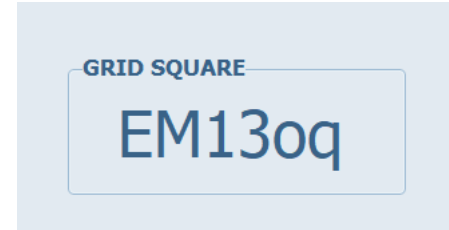
Voice Mem	CW Settings	Mic Settings	Operation Info
Message 1	Message 1 Caption: CQ POTA		
Message 2	Message 2 Caption: QSL		
Message 3	Message 3 Caption: KC5NK		
Message 4	Message 4 Caption: POTA - QRZ		
Message 5	Message 5 Caption: QRZ		

YCAT – Band Selection

- Simple Band Up and Band Down buttons
- Select Band button allows choosing the band to go to:
- Menu stays up until you choose band or cancel

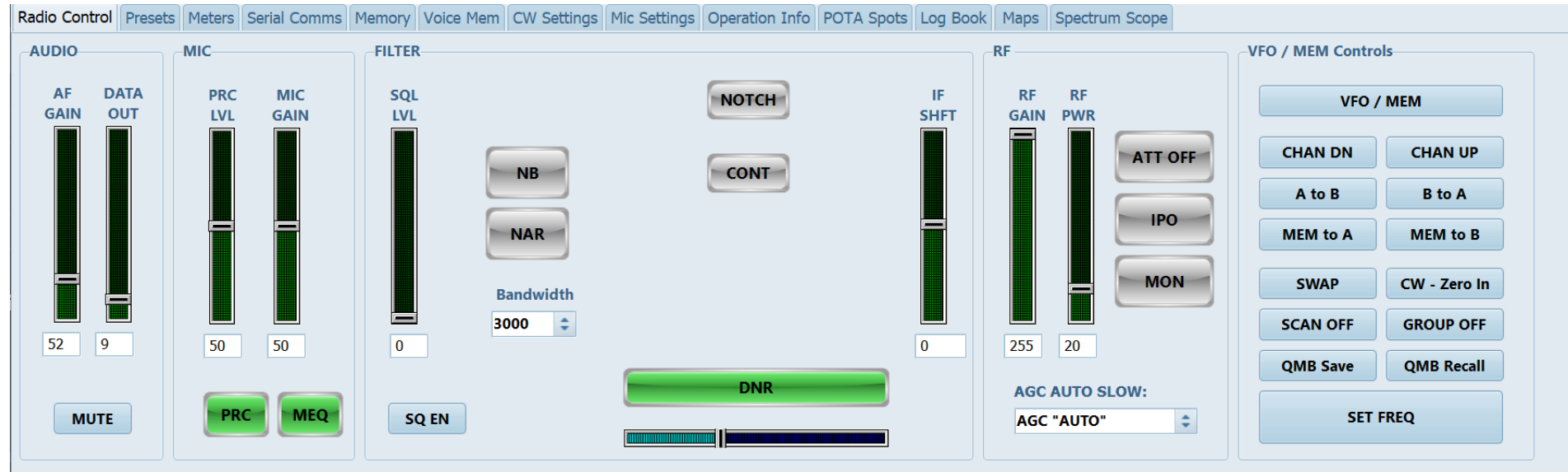


YCAT – Main : Grid Square



- When GPS is connected it automatically computes a 6-digit grid square
- Auto populates Operation Info – Grid Square field
- Syncs radio clock automatically
- Syncs PC clock (YCAT must be run as Admin for write to system clock permission)

YCAT – Radio Control Tab



- Organized Audio to RF from left to right
- VFO / Memory operation on the furthest right-hand side

YCAT – Presets Tab

- TOT – TX Timeout Timer
- User Controls
- Display Settings
- Tuner Settings
- Visual Theme
- Mapping API Key storage.

The screenshot displays the 'Presets' tab in the YCAT software. The interface is organized into several sections:

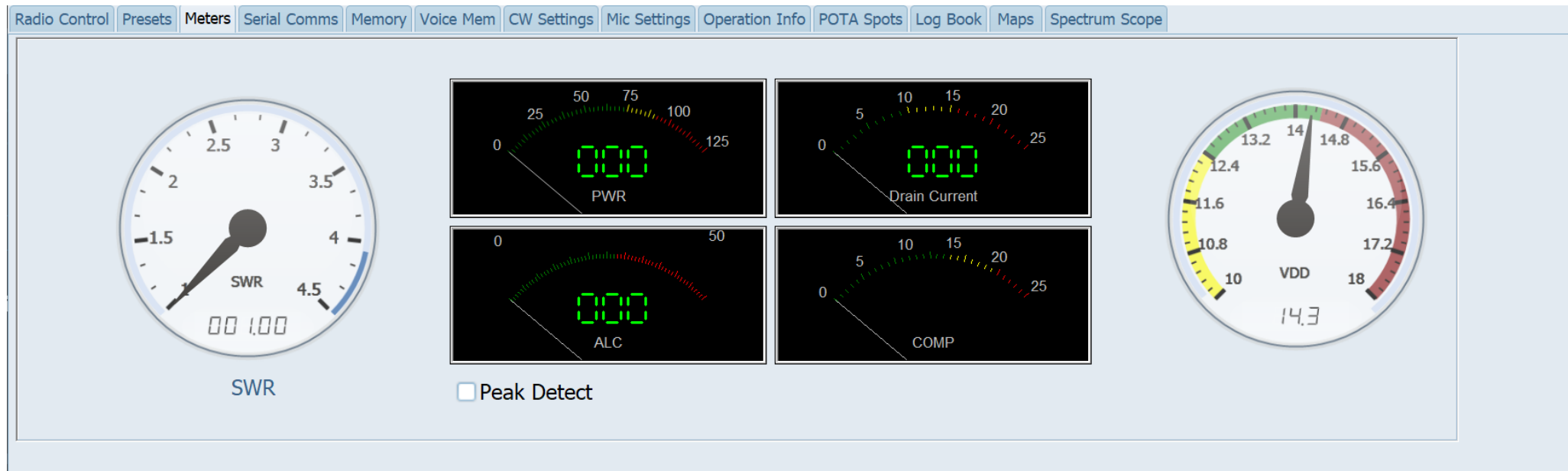
- TOT:** A vertical bar representing the TX Timeout Timer, currently set to 00.
- User Controls:** A section with five rows, each for a different user (USR 1 to USR 5). Each row includes a checkbox to 'Show' the user, a 'Caption' field, and a 'CAT Cmds' field. The captions are: 10w, 20w, 100w, Day Use, and Night Use. The CAT Cmds are: PC010;, PC020;, PC100;, DA08151013;, and DA09150308;.
- Display Settings:** A section with three vertical bars labeled TFT, CONT, and LED. The TFT bar is set to DA000212;.
- Tuner Settings:** A section with a 'Tuner Select' dropdown menu set to '0 - Internal'.
- Visual Theme Select:** A dropdown menu set to 'Sapphire Kamri'.
- Map API's:** A table listing various mapping services and their API keys.

At the bottom of the User Controls section, there is a checkbox labeled 'Distance in Miles' which is checked.

Service	Api Key
Google	AIzaSyB4vDubad4
Here	bFgzTmSH26tMWV
Azure	fnvdCHVNrhrKrEQs
Bing	igg6yjMZ3sfRctOn
TomTom	gceiNpNwJhfuzj2a
Map Box	pk.eyJ1Ijoic29sbG
OpenLayers	
Map Kit	
Leaflet	

YCAT – Meters Tab

- Display all meters at once
- Voltage is real-time, all others are active during transmission.



YCAT – Memory Tab

- Programming for VFO Memory with “TAGS”
- Read/Write with your Rig
- Read/Write with a file

The screenshot displays the YCAT software interface, specifically the Memory Tab. The interface is divided into several sections:

- Memory Table:** A table with columns: CH, VFO A, CLAR, RX EN, TX EN, Mode, MEM, CTCSS, OFFSET, and TAG. It lists six memory channels, with the first one (001) highlighted in orange.
- Memory Controls:** A section with buttons for VFO / MEM, CHAN DN, CHAN UP, Fetch Radio Memory, Load From File, Save To File, and Write All To Radio.
- Memory Channel Editor:** A section for editing a specific memory channel, including fields for MEM CH, VFO A (Hz), Clarifier, MODE, CTCSS, Rptr Offset, User TAG, and checkboxes for Minus Shift, RX Clar EN, and TX Clar EN. A Write MEM Channel button is at the bottom.

CH	VFO A	CLAR	RX EN	TX EN	Mode	MEM	CTCSS	OFFSET	TAG
001	007230000	+0000	0	0	1	1	0	0	WINGNUTS
002	052525000	+0000	0	0	4	1	0	0	50M CALL FQ
003	014300000	+0000	0	0	2	1	0	0	MAR MOB NET
004	007264000	+0000	0	0	1	1	0	0	RV 7PM CST
005	014290000	+0000	0	0	2	1	0	0	BUCKEYE NET
006	014236000	+0000	0	0	2	1	0	0	BATHROBE NET

YCAT – Voice Memory Tab

- Allows user to create voice memory, customize buttons and control record, verify and send behavior for the five (5) voice memories in the Yaesu radio.

The screenshot displays the YCAT software interface, specifically the 'Voice Mem' tab. The interface is organized into a top navigation bar with tabs: 'POTAs', 'Presets', 'Meters', 'Serial Comms', 'Memory', 'Voice Mem', 'CW Settings', 'Mic Settings', 'Operation Info', 'POTA Spots', and 'Log'. The 'Voice Mem' tab is active, showing a 'Voice Memory Operation' section on the left with three radio buttons: 'Record', 'Verify', and 'Send'. The 'Send' button is selected. To the right of this section are five message slots, each with a button and a text input for a caption. The messages are as follows:

Message	Caption
Message 1	CQ POTA
Message 2	QSL
Message 3	KC5NK
Message 4	POTA - QRZ
Message 5	QRZ

YCAT – CW Settings Tab

- Used for configure Yaesu radio CW Memory parameters
- Customize CW memory slots, adjust MON level, Keyer Pitch and Keyer Speed.

The screenshot shows the YCAT CW Settings Tab interface. At the top is a navigation bar with tabs: Radio Control, Presets, Meters, Serial Comms, Memory, Voice Mem, CW Settings (active), Mic Settings, Operation Info, POTA Spots, Log Book, Maps, and Spectrum Scope.

The main interface is divided into several sections:

- Left Panel:** Contains buttons for Kyr settings: Kyr OFF, Kyr NORM, BK-IN OFF, CW - Zero In, CW - Spotting, and MONITOR.
- Top Section:** Includes a KEYPYPER TYPE dropdown menu set to "3 - ELEKEY-B", a Bandwidth dropdown set to "3000", and an APF checkbox.
- Sliders:** Three vertical sliders for MON LVL (0), KYR PITCH (540), and KYR SPD (30).
- Keyer Memory Table:** A table with 5 slots for CW memory. The first slot is highlighted in orange and contains "CQ CQ DE KC5NK K". The other slots contain "DE KC5NK K" and "R 5NN K". Each slot has "Save" and "PLAY" buttons.

Memory (50 chars max)	Save	PLAY
CQ CQ DE KC5NK K	Save	PLAY
	Save	PLAY
	Save	PLAY
DE KC5NK K	Save	PLAY
R 5NN K	Save	PLAY

YCAT – Mic Settings Tab

- Set Mic Equalizer settings for PRC disabled / PRC enabled modes
- Set Transmit bandwidth settings for SSB, AM, and Data

The screenshot shows the 'Mic Settings' tab in the YCAT software. At the top, a navigation bar includes tabs for Radio Control, Presets, Meters, Serial Comms, Memory, Voice Mem, CW Settings, Mic Settings (selected), Operation Info, POTA Spots, Log Book, Maps, and Spectrum Scope. The main content area is titled 'Microphone Equalizer Settings' and contains three sections:

- AMC REL TIME:** A dropdown menu set to 'MID'.
- Parametric Equalizer Settings (PRC Disabled):** A table with three columns: FREQ, LEVEL, and BWTH. It contains three rows for EQ1, EQ2, and EQ3.
- P Parametric Equalizer Settings (PRC Enabled):** A table with three columns: FREQ, LEVEL, and BWTH. It contains three rows for EQ1, EQ2, and EQ3.
- Transmit Bandwidth:** A section with three rows for SSB, AM, and DATA/PSK, each with a 'TX Bandwidth' dropdown menu.

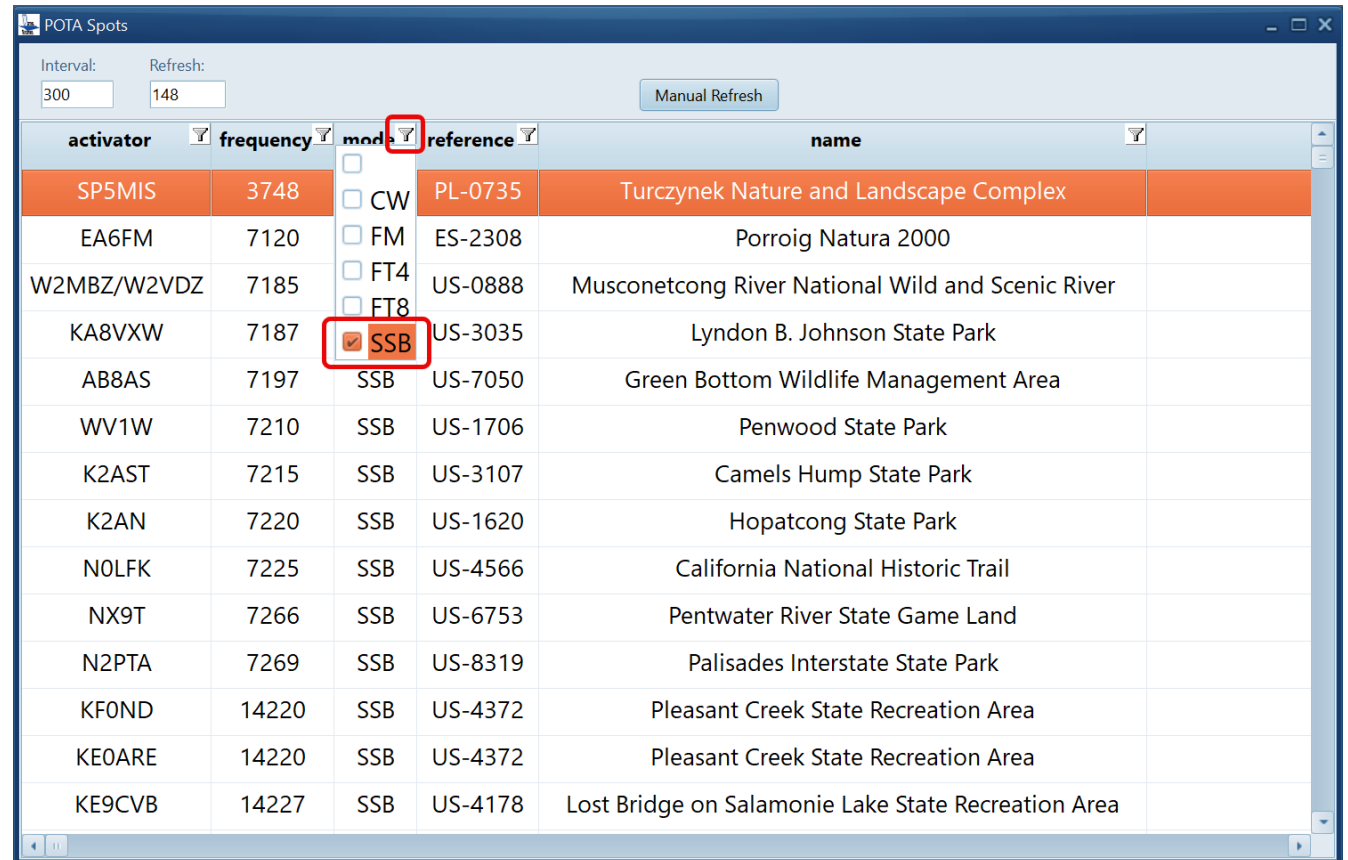
	FREQ:	LEVEL:	BWTH:
EQ1:	200 Hz	-09	05
EQ2:	900 Hz	-03	05
EQ3:	2200 Hz	+06	05

	FREQ:	LEVEL:	BWTH:
EQ1:	200 Hz	-15	08
EQ2:	900 Hz	+10	02
EQ3:	2400 Hz	+10	10

	TX Bandwidth
SSB:	0 - 50 - 3050
AM:	0 - 50 - 3050
DATA/PSK:	0 - 50 - 3050

YCAT – POTA Spots Tab

- Requires internet connection
- Press “Show POTA Spots” button
- POTA spots spreadsheet pops up
- Filter by Mode is most helpful
 - Auto populates in Log Book tab



The screenshot shows the 'POTA Spots' application window. At the top, there are input fields for 'Interval' (300) and 'Refresh' (148), along with a 'Manual Refresh' button. Below these is a table with the following columns: 'activator', 'frequency', 'mode', 'reference', and 'name'. The 'mode' column has a dropdown menu open, showing options: CW, FM, FT4, FT8, and SSB. The 'SSB' option is selected and highlighted with a red box. The table contains several rows of POTA spots, including 'SP5MIS' at 3748, 'EA6FM' at 7120, 'W2MBZ/W2VDZ' at 7185, 'KA8VXW' at 7187, 'AB8AS' at 7197, 'WV1W' at 7210, 'K2AST' at 7215, 'K2AN' at 7220, 'N0LFK' at 7225, 'NX9T' at 7266, 'N2PTA' at 7269, 'KF0ND' at 14220, 'KE0ARE' at 14220, and 'KE9CVB' at 14227. The 'reference' column contains values like 'PL-0735', 'ES-2308', 'US-0888', 'US-3035', 'US-7050', 'US-1706', 'US-3107', 'US-1620', 'US-4566', 'US-6753', 'US-8319', 'US-4372', and 'US-4178'. The 'name' column contains various location names like 'Turczynek Nature and Landscape Complex', 'Porroig Natura 2000', 'Musconetcong River National Wild and Scenic River', 'Lyndon B. Johnson State Park', 'Green Bottom Wildlife Management Area', 'Penwood State Park', 'Camels Hump State Park', 'Hopatcong State Park', 'California National Historic Trail', 'Pentwater River State Game Land', 'Palisades Interstate State Park', 'Pleasant Creek State Recreation Area', and 'Lost Bridge on Salamonie Lake State Recreation Area'.

activator	frequency	mode	reference	name
SP5MIS	3748	CW	PL-0735	Turczynek Nature and Landscape Complex
EA6FM	7120	FM	ES-2308	Porroig Natura 2000
W2MBZ/W2VDZ	7185	FT4	US-0888	Musconetcong River National Wild and Scenic River
KA8VXW	7187	FT8	US-3035	Lyndon B. Johnson State Park
AB8AS	7197	SSB	US-7050	Green Bottom Wildlife Management Area
WV1W	7210	SSB	US-1706	Penwood State Park
K2AST	7215	SSB	US-3107	Camels Hump State Park
K2AN	7220	SSB	US-1620	Hopatcong State Park
N0LFK	7225	SSB	US-4566	California National Historic Trail
NX9T	7266	SSB	US-6753	Pentwater River State Game Land
N2PTA	7269	SSB	US-8319	Palisades Interstate State Park
KF0ND	14220	SSB	US-4372	Pleasant Creek State Recreation Area
KE0ARE	14220	SSB	US-4372	Pleasant Creek State Recreation Area
KE9CVB	14227	SSB	US-4178	Lost Bridge on Salamonie Lake State Recreation Area

YCAT – Logging from POTA Spots

- Clicking on a row in POTA Spots grid will auto populate Log Book

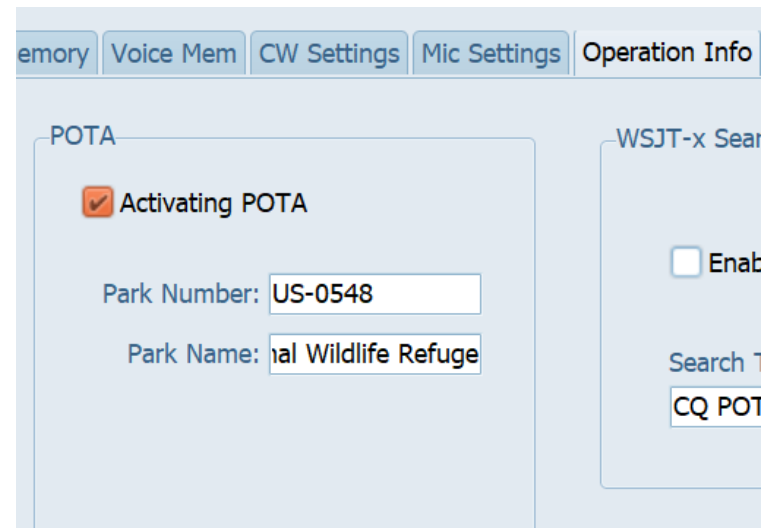
The screenshot displays the YCAT Control software interface. The main window shows a spectrum scope on the left and a control panel on the right. The control panel includes fields for frequency (14.227.000), mode (USB), and power (10W). Below these are buttons for 'Auto Down', 'LOCK', 'Auto Up', 'Step Down', 'FINE', 'SPLIT', and 'Step Up'. The 'GRID SQUARE' field is set to 'EM13oq'. The 'STATION' field is set to 'W1Eku'. The 'SENT' field is set to '59' and the 'RCVD' field is set to '59'. The 'GRID' field is set to 'EL87se'. The 'COMMENTS' field is empty. The 'Logged' field is set to '1'. The 'Auto Log' button is highlighted with a green box. A red arrow points from the 'Auto Log' button to the 'STATION' field.

The 'POTA Spots' grid is visible at the bottom of the window. It contains a table with columns: activator, frequency, mode, reference, name, and locationDesc. The table lists several POTA spots, with 'W1Eku' highlighted in orange.

activator	frequency	mode	reference	name	locationDesc
N5BO	14273	SSB	US-12346	Allenton Access State Conservation Area	US-MO
W1Eku	14227	SSB	US-1909	Oscar Scherer State Park	US-FL
J69Z	14245	SSB	LC-0023	Ignatius York Felicien Park	LC-GI
N2IGW	14253	SSB	US-8063	North-South Lake State Recreation Area	US-NY
NC2H	14256	SSB	US-2982	Warriors' Path State Park	US-TN
AC3AV	14256	SSB	US-2982	Warriors' Path State Park	US-TN
KN9E	14293	SSB	US-1024	Silver Springs State Park	US-IL

YCAT – POTA Logbook Setup

- Manually enter your park information in POTA section of OPERATION INFO tab



The screenshot shows the YCAT software interface with the 'Operation Info' tab selected. The 'POTA' section is active, displaying a checkbox for 'Activating POTA' which is checked. Below this, there are input fields for 'Park Number' (containing 'US-0548') and 'Park Name' (containing 'al Wildlife Refuge'). To the right, there is a 'WSJT-x Search' section with an 'Enable' checkbox and a 'Search' button. Below the search button, there is a text box containing 'CQ POT'.

emory Voice Mem CW Settings Mic Settings Operation Info

POTA

☒ Activating POTA

Park Number: US-0548

Park Name: al Wildlife Refuge

WSJT-x Search

☐ Enable

Search

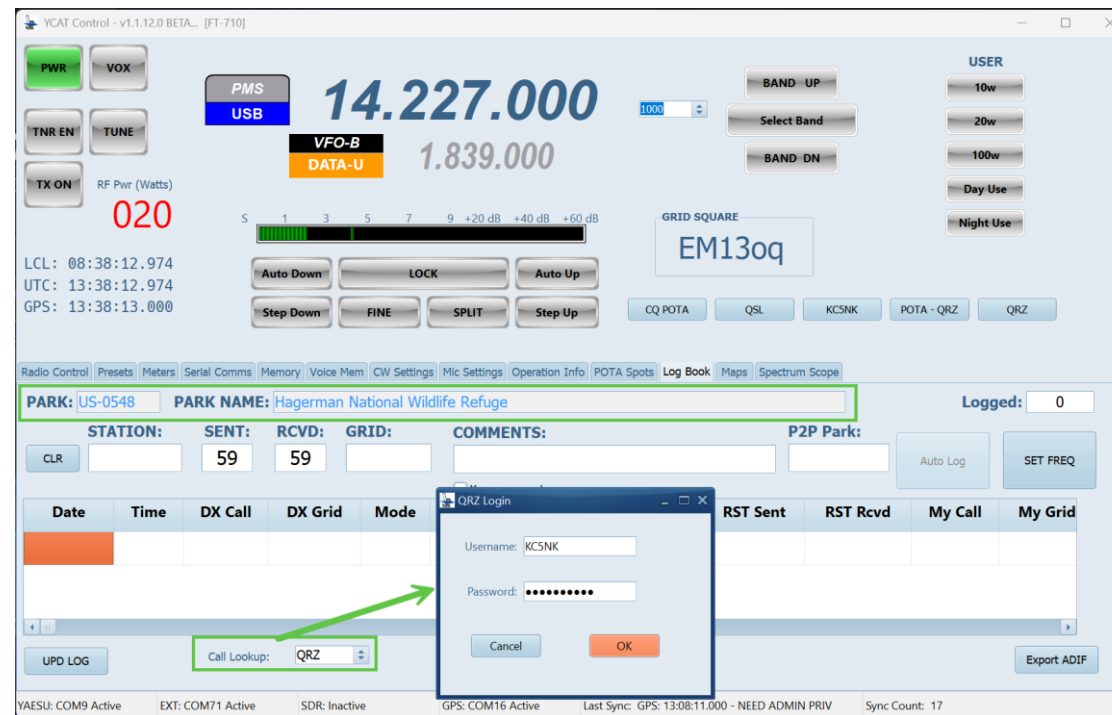
CQ POT



YCAT – POTA Logbook Setup, continued

- Switch to Log Book tab
- Call sign lookup choices are: None, HamDB, and QRZ
- Notice addition of visual cues for park information
- Enter call sign, if Call Lookup is enabled, a popup will show DX call information

YCAT – POTA Logging w/callsign lookup



YCAT – POTA Logging

YCAT Control - v1.1.12.0 BETA... [FT-710]

PWR VOX
TNR EN TUNE
TX ON RF Pwr (Watts)
020
LCL: 08:42:32.970
UTC: 13:42:32.970
GPS: 13:42:33.000

USER
10w
20w
100w
Day Use
Night Use

QRZ - Call Sign Lookup

Call Sign: KM6LMP Grid: EM13sh
First Name: Lance Last Name: Chapman
Address: PO BOX 953
City: Anna State: TX ZIP: 75409
Country: United States

CLOSE

PARK: US-0548 PARK Call: KM6LMP Azimuth: 143.4 Dist: 32 mi Logged: 0

STATION: SENT: RCVD: GRID: COMMENTS: P2P Park:
CLR KM6LMP 59 59 Auto Log SET FREQ

Keep comment

Date	Time	DX Call	DX Grid	Mode	S-Mode	Band	Frequency	RST Sent	RST Rcvd	My Call	My Grid

UPD LOG Call Lookup: QRZ Export ADIF

YAESU: COM9 Active EXT: COM71 Active SDR: Inactive GPS: COM16 Active Last Sync: GPS: 13:08:11.000 - NEED ADMIN PRIV Sync Count: 17

YCAT Control - v1.1.12.0 BETA... [FT-710]

PWR VOX
TNR EN TUNE
TX ON RF Pwr (Watts)
020
LCL: 08:44:52.960
UTC: 13:44:52.960
GPS: 13:44:53.000

PMS USB
14.227.000
VFO-B DATA-U 1.839.000
BAND UP Select Band BAND DN
Auto Down LOCK Auto Up
Step Down FINE SPLIT Step Up

GRID SQUARE
EM13oq
CQ POTA QSL KC5NK POTA-QRZ QRZ

PARK: US-0548 PARK NAME: Hagerman National Wildlife Refuge Logged: 1

STATION: SENT: RCVD: GRID: COMMENTS: P2P Park:
CLR 59 59 Auto Log SET FREQ

Keep comment

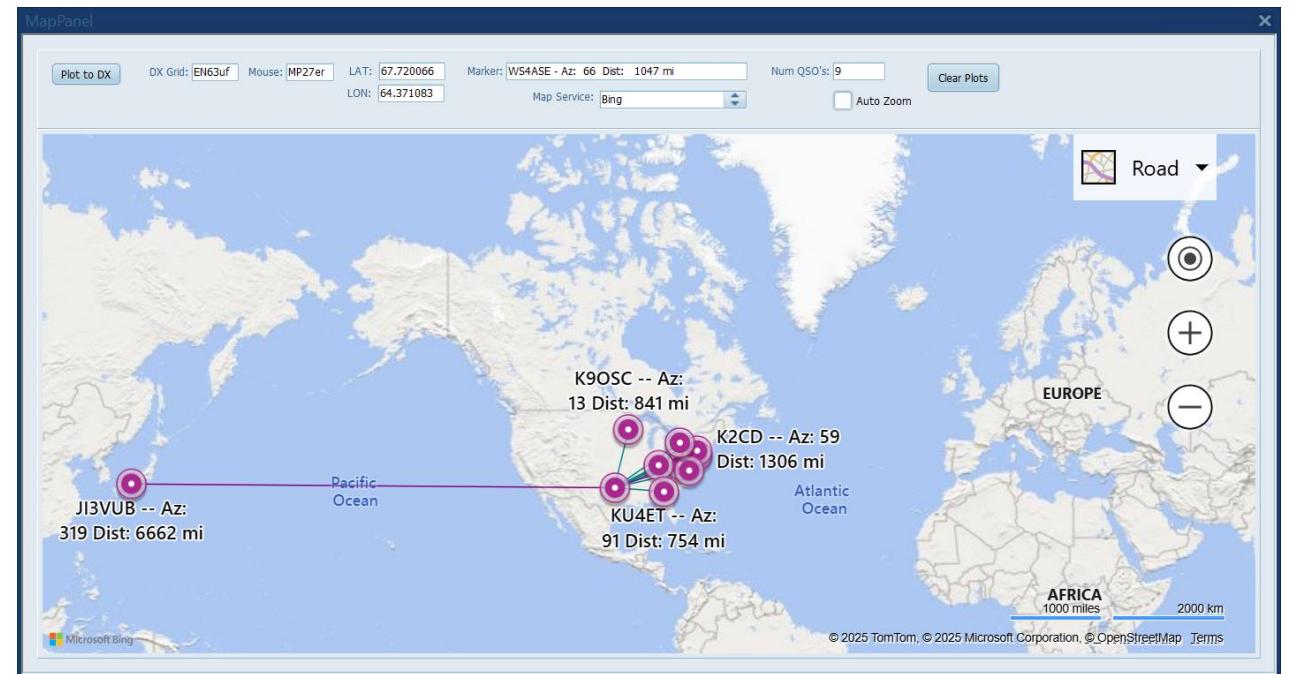
Date	Time	DX Call	DX Grid	Mode	S-Mode	Band	Frequency	RST Sent	RST Rcvd	My Call	My Grid	TX Pwr	Comments	D
20250513	134425	KM6LMP	EM13SH	SSB	USB	20M	14.227000	59	59	KC5NK	EM13oq	20W		

UPD LOG Call Lookup: QRZ Export ADIF

YAESU: COM9 Active EXT: COM71 Active SDR: Inactive GPS: COM16 Active Last Sync: GPS: 13:08:11.000 - NEED ADMIN PRIV Sync Count: 17

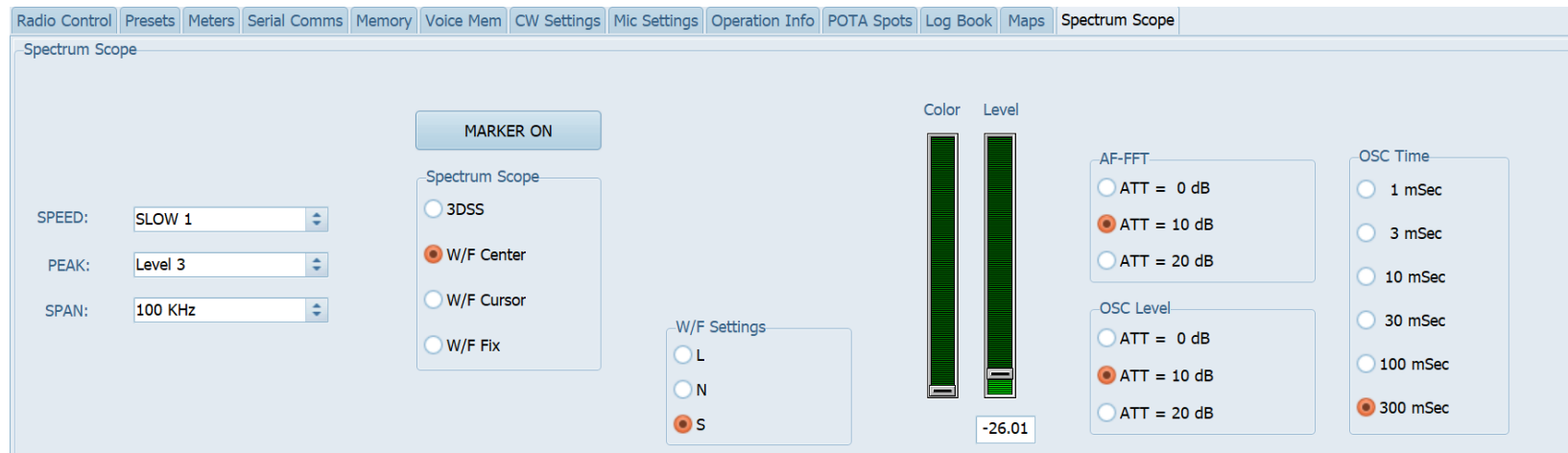
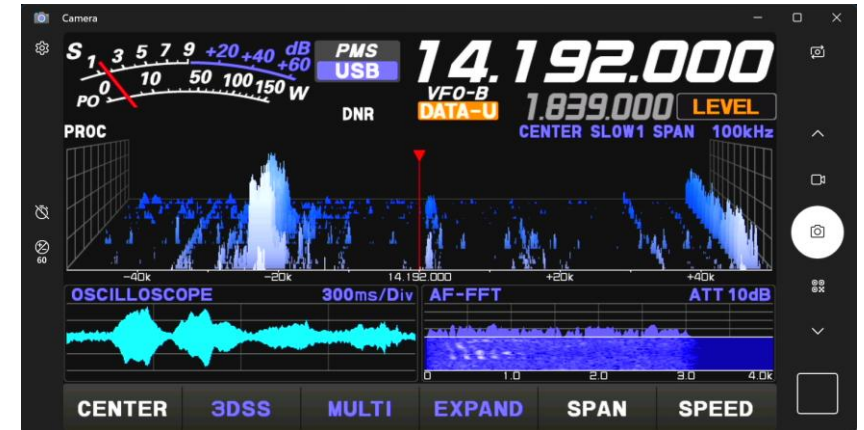
YCAT – Contact Mapping

- View contacts on Maps tab
- Maps tab can be undocked
- Relocatable / resizable
- Free mapping – OpenLayers
- Can choose other with API Key from mapping vendor



YCAT – Spectrum Scope

- Limited to FT-710 and FT-dx10 radios
- Allows controlling rig display from YCAT
- Helpful if using DVI-D to USB Video Capture device



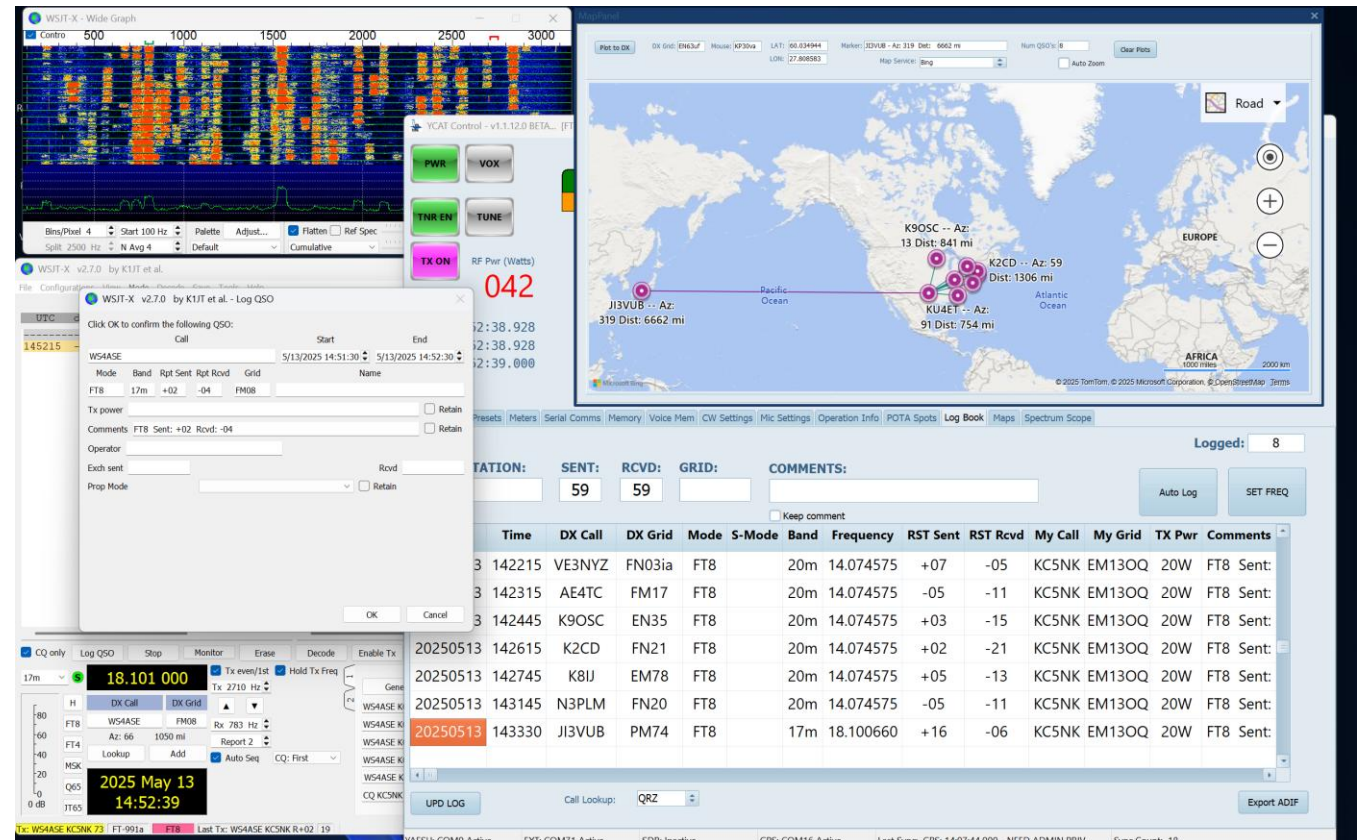
YCAT – Example of PMS

- Example of Extra class operator transmitting on band edge for Advanced class
- When setting rig for Preferred Memory it keeps you within the limits you set.
- I tried tuning to QSO but my lower limit is 14.175 MHz



YCAT - FT8 Operation

- Laptop display with WSJT-x, YCAT mapping / Logbook
- Requires a virtual serial cable between WSJT-x and YCAT's EXT Serial interface.



YCAT – Questions / answer

OPEN FOR Q/A

