Product Review & Short Takes Columns from *QST* Magazine

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Product Reviews

ICOM IC-2720H Dual-Band FM Transceiver
Alinco DJ-S40T UHF Handheld Transceiver

Short Takes

AALog

ICOM IC-2720H Dual-Band FM Transceiver

Reviewed by Steve Ford, WB8IMY
QST *Editor*

The IC-2720H is the latest entry in a well-populated field of dual-band FM mobile rigs. To stand out among competing transceivers, a radio has to offer features designed to entice Amateur Radio buyers. The IC-2720H does this by combining an interesting lineup of bells and whistles with ease of operation and enough output power (maximum 50 W on 144 MHz; 35 W on 440 MHz) for just about any application.

The IC-2720H also sports an interesting physical design. Lots of mobile transceivers offer detachable front panels, but in the '2720H the front panel is detached *permanently* (although it can be mounted to the main unit with the MB-85 combination bracket, sold separately). The main unit—the "guts" of the IC-2720H—is a compact 5 × 1.5 × 7.5-inch brick outfitted with various connectors. The front panel is about the size of a chocolate bar and is connected to the main unit with an 11-foot separation cable. You can plug the backlit multifunction microphone (a *de facto* controller unto itself) into the front panel or directly into the main unit if you can live without a frequency readout.

The mobile operating advantage of this arrangement is obvious: The IC-2720H can find a home in any conceivable vehicle. Using the '2720H as a base unit is more of a challenge, but who is to say that you couldn't mount the front panel on a desk with the main unit tucked out of sight?

About that Front Panel

The '2720's front-panel LCD displays frequencies for two bands. You can display 144 and 440 MHz, or a different combination such as 144/144 MHz (two frequencies within the same amateur band) or 144 and 127 MHz (working 2-meter FM while listening to the aviation band simultaneously). There are separate sets of controls for tuning, volume and squelch, as well as separate sets of backlit function keys for each band. And unlike some dual-band transceivers, the volume and squelch knobs are *not* concentric; they are completely separate controls. If you've ever cursed the ergonomics of multiband mobile rigs, you know what a blessing this is.

The front-panel buttons have individual labels. In my opinion, this beats the heck out of a row of nondescript buttons with ever-changing "labels" in an LCD display nearby.

Main Unit

There is one SO-239 antenna jack on the rear panel of the main unit. With the built-in diplexer, only one jack is necessary. If you are using separate VHF and UHF antennas, however, you'll need to add an external diplexer. In addition to a dc power pigtail, there are two external speaker jacks. The jack designated SP-1 outputs the audio from both bands. But if you plug another speaker into the adjacent SP-2 jack, the "left-side" audio (from whichever band is on the left side of the LCD display) will appear in the SP-1 speaker and the "right-side" audio will appear in the SP-2 speaker.

On the front side you'll find RJ45 connectors for the microphone and separation cable. There is also a 6-pin mini-DIN data connector for 1200 or 9600-baud packet. Bit-error-rate tests in the ARRL Laboratory indicated adequate packet performance at 9600 baud. See Table 1.

Dual-Band Versatility

As I've mentioned previously, you have the option of configuring the dual-band capability of the '2720H to suit your interest *du jour*. This rig offers wide receive coverage: 118-550 MHz on the "left" band, and 118-174, 375-550 and 810-999 MHz (cellular blocked) on the "right" band.

One combo I enjoyed was setting 440 MHz as the main band so that I could monitor my home Echolink simplex station (see my article "VoIP and Amateur Radio" in the February 2003 issue of *QST*). I then set the sub-band for my favorite 2-meter repeater so that I could flip-flop one or the other as the need arose. One push of a button changes the main/sub-band assignment. You can only transmit from the main band.

This dual-band flexibility also means that you can work the FM repeater satellites such as UoSAT-OSCAR 14 and AMRAD-OSCAR-27. More about this later.

Memories and Scanning

The IC-2720H offers 212 memory channels. You can program the repeater offsets in each channel as well as 50 subaudible tones (67-254.1 Hz) for repeater systems that require them and DTMF transmit memories for autopatch access and other functions. You can also split the memory channels into 10 banks designated A-J. This is convenient when you want to group memories for repeaters in specific cities, for example.

Programming the IC-2720H is straightforward. If you can program a handheld's memories, you can program the '2720H. The user manual offers clear instructions with a strong emphasis on

Bottom Line

Dual-band operation and wide-range receive combine to make the compact IC-2720H an attractive mobile transceiver

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Table 1
ICOM IC-2720, serial number 01024

Manufacturer's Claimed Specifications	Measured in the ARRL Lab
Frequency coverage: Receive, 118-550, 810-1000 MHz (cell blocked); transmit, 144-148, 430-450 MHz.	Receive and transmit, as specified.
Power requirement: Receive, 1.58 A (max audio); transmit, 12 A (high power).	Receive, 0.76 A; transmit, 9.1 A. Tested at 13.8 V.
Modes of operation: FM, AM (receive only).	As specified.
Receiver	**Receiver Dynamic Testing**
AM Sensitivity, 10 dB S/N: 118-160 MHz, 0.45 μV; 220-260 MHz, 0.79 μV; 260-350 MHz, 5.6 μV; 350-375 MHz, 1.0 μV; 375-400 MHz, 0.63 μV.	AM, 10 dB S+N/N: 120 MHz, 0.59 μV.
FM sensitivity, 12 dB SINAD: *left band,* 118-160 MHz, 0.18 μV; 160-180, 220-260, 350-375 MHz, 500-550 MHz, 0.32 μV; 180-220, MHz, 3.5 μV; 260-350 MHz, 3.2 μV; 375-430, 450-500 MHz, 0.22 μV; 430-450 MHz, 0.18 μV; *right band,* 118-160 MHz, 0.18 μV; 160-174 MHz, 0.2 μV; 375-430, 450-550 MHz, 0.22 μV; 430-450 MHz, 0.18 μV; 810- 880 MHz, 0.45 μV; 880-1000 MHz, 1.0 μV.	For 12 dB SINAD, 144 MHz, 0.14 μV; 222 MHz, 0.2 μV; 430 MHz, 0.16 μV; 902 MHz, 0.86 μV.
FM adjacent channel rejection: Not specified.	20 kHz channel spacing: 146 MHz, 68 dB; 440 MHz, 62 dB.
FM two-tone, third-order IMD dynamic range: Not specified.	20 kHz channel spacing: 146 MHz, 61 dB; 440 MHz, 62 dB*; 10 MHz channel spacing: 146 MHz, 78 dB; 440 MHz, 73 dB.
FM two-tone, second-order IMD dynamic range: Not specified.	71 dB.
S-meter sensitivity: Not specified.	S9 indication: 146 MHz, 2.0 μV; 440 MHz, 2.3 μV.
Squelch sensitivity: < 0.13 μV.	At threshold: 146 MHz, 440 MHz, 0.09 μV.
Receiver audio output: 2.4 W at 10% THD into 8 Ω.	2.9 W at 10% THD into 8 Ω.
Spurious and image rejection: 60 dB.	First IF rejection[1], 146 MHz, 123 dB; 440 MHz, 132 dB; Image rejection[1], 146 MHz, 99 dB; 440 MHz, 68 dB.
Transmitter	**Transmitter Dynamic Testing**
Power output (H/M/L), 144 MHz: 50/15/5 W; 430 MHz, 35/15/5 W.	146 MHz, 53/15.3/4.4 W; 440 MHz, 35/14.6/5.2 W.
Spurious-signal and harmonic suppression: 60 dB.	VHF, 70 dB; UHF, 67 dB. Meets FCC requirements for spectral purity.
Transmit-receive turn-around time (PTT release to 50% audio output): Not specified.	S9 signal, 146, 440 MHz, 175 ms.
Receive-transmit turn-around time (tx delay): Not specified.	146, 440 MHz, 60 ms.
Bit-error rate (BER), 9600-baud: Not specified.	146 MHz: Receiver—BER at 12 dB SINAD, 5.0×10^{-4}; BER at 16 dB SINAD, $<1.0\times10^{-5}$; BER at –50 dBm, $<1.0\times10^{-5}$; transmitter—BER at 12 dB SINAD, 4.4×10^{-3}; BER at 12 dB SINAD + 30 dB, 1.0×10^{-3}. 440 MHz: Receiver—BER at 12 dB SINAD, 1.0×10^{-4}; BER at 16 dB SINAD, $<1.0\times10^{-5}$; BER at –50 dBm, $<1.0\times10^{-5}$; transmitter—BER at 12 dB SINAD, 9.2×10^{-4}; BER at 12 dB SINAD + 30 dB, 2.0×10^{-4}.
Size (height, width, depth): main unit, 1.6×5.5×7.4 inches; weight, 2.8 pounds; remote head, 2×5.5×1 inches; weight, 5.3 ounces.	

Note: Unless otherwise noted, all dynamic range measurements are taken at the ARRL Lab standard spacing of 20 kHz.
*Measurement was noise-limited at the value indicated.
[1]Worst case for left and right bands.

manipulating the multifunction microphone.

There are several types of scanning options available, plus four scan-resume conditions to choose from. With the broad receive coverage, this makes the '2720H a more-than-competent scanner. I should note that the '2720H can also scan for subaudible CTCSS tones. That's handy when you need to figure out which CTCSS frequency a repeater system is using. There is also DTCS decoding and encoding for paging applications with the "pocket beep" function to give you an audible and visual indication of an incoming call.

More Bells and Whistles

There are more clever goodies in the IC-2720H that bear mentioning. You can change the display color from amber to green (I preferred the default amber). Brightness is variable, too. The '2720H defaults to the AM mode when you tune into the aviation band, but you can also select the AM mode manually for the odd AM signal you may encounter elsewhere.

The IC-2720H includes the weather-alert feature found in other recent ICOM models. When you enable this function, the

radio will scan through the 162-MHz NOAA Weatheradio broadcasts every five seconds. If a station transmits a weather alert tone, an "alert" message will appear on the display. This feature works well except for the fact that it causes an audio dropout at 5-second intervals on the frequency you are monitoring. That's a small price to pay for the ability to stay on top of weather alerts, especially if you live in an area where they occur frequently.

With the cloning function you can swap memories with another IC-2720H or—and this was the feature I liked—load data into the '2720H's memories from your PC. You'll need the optional CS-2720 software and OPC-478 cable to do this.

Operating Impressions

If you don't intend to install the main unit nearby, you'll probably have to attach external speakers to adequately hear the IC-2720H. You can rely on the speaker ensconced in the main unit, but you'll enjoy greater fidelity (and intelligibility) with external speakers. In my installation I put the '2720H under the driver's side seat and found that the audio from the main unit couldn't quite overcome the ambient road noise.

Figure 1—Close-up view of the IC-2720H's microphone, a control panel in itself. Users who, for some reason, really don't need a display may plug the microphone directly into the main unit, bypassing the stand-alone control panel.

An external speaker cured the problem in short order.

The main chassis has a flow-through cooling design with a sizeable fan. I noticed that the fan was extremely quiet.

The multifunction microphone is a clever feature, but it took me a while to master. It was just as easy to reach out and adjust the front-panel controls. To each his own—depending on the constraints of the installation, of course.

Signal reports received while using the IC-2720H were consistently good. The transmit audio has plenty of punch and the RF output is more than sufficient for both close-in and fringe locations.

The dual-band aspect of the IC-2720H makes it a joy to use for more than just terrestrial conversations. While driving to work one morning in December, I heard the UoSAT-OSCAR 14 satellite downlink on 435.070 MHz. I switched the main band to 2 meters and dialed up 145.975 MHz, the UO-14 uplink frequency. With just 15 W to a dual-band mobile antenna, I easily worked K8WYT in Iowa, along with several other stations. I continued to listen to a full-quieting signal from the satellite for nearly 10 minutes. That's pretty darn good for a mobile radio!

Manufacturer: ICOM America, 2380-116th Ave NE, Bellevue, WA 98004; tel 425-454-8155; fax 425-454-1509; **www.icomamerica.com**. Suggested list price: $479.99. IC-CS-2720 software: $45. IC-OPC-478 programming cable: $45.

Alinco DJ-S40T UHF Handheld Transceiver

Reviewed by Mike Tracy, KC1SX
ARRL Laboratory Engineer

I've often debated getting a handheld that covers 440 MHz, but I kept putting it off for a long time. Still, being able to talk to other folks on the band when I am traveling has a lot of appeal. So a small 440 MHz transceiver that is easy on the checkbook appeared to be a good choice as a second handheld.

While not the smallest rig ever offered, the Alinco DJ-S40T is still quite compact—the body of the rig is about 4 inches tall by 2 inches wide, and a bit over an inch deep, smaller than some current cell phones (Alinco dubs the rig "pager sized"). Given the small size and light weight of the unit (6.6 oz with 3 AA batteries *and* the belt clip; the rig alone weighs a mere 3.4 oz), this is definitely a shirt-pocket portable!

The rig's appearance is very sleek. The front of the unit has four small, round control buttons, a respectably sized LCD display, and two speaker ports (on either side of the display). The tiny pinhole near the bottom is for the built-in microphone. The top of the rig has a single knob to control volume (which also functions as a button to turn the rig on and off), speaker and microphone jacks (with separate gray rubber covers), and the SMA antenna jack (gold-plated, a nice touch). On the right side of the rig, there are the PTT and MONI buttons, with a single rubber cover. The MONI button is also marked KL to indicate its second function as a control lock. The left side features only the external dc jack.

In spite of the simple appearance, Alinco still managed to include the most commonly used features (and a few uncommon ones). Standard features are CTCSS encode and decode (38 of the 39 tones in the EIA standard set are provided; 69.3 Hz is not included) plus tone scan; memories aplenty (99 regular, plus call and "alarm" channels), memory and VFO scanning and an S-meter/power output indicator.

Bottom Line

The Alinco DJ-S40T offers a lot of value for the money, lacking perhaps just a few small refinements.

What really sets this rig apart from other small, "budget" handhelds is that it offers a respectable 1 W output, giving the rig a more useful range than the milliwatters. I was able to reach several repeaters that were a few towns away. Of course, the signals weren't always full quieting, but I still received reports of good audio even when I wasn't fully into the machine.

The owner's manual is well organized, making most functions easy to look up. This came in handy sometimes, as the way some functions are enabled was not always completely intuitive. A few of the less-used functions are not fully described in the manual, but it is otherwise complete.

The orange FUNC SET button has three purposes. A brief push turns on the F icon, which allows you to select the second

Table 2
Alinco DJ-S40T, serial number M000529

Manufacturer's Claimed Specifications	Measured in the ARRL Lab
Frequency coverage: Receive, 410-470 MHz, transmit, 430-450 MHz.	Receive, 400-480 MHz;[1] transmit, as specified.
Power requirements: 4.5-16 V dc; receive, 0.15 A; transmit, 0.6 A (max, high power).	Receive, 0.15 A (max volume, no signal); transmit, 0.5 A, tested at 13.8 V.
Size (height, width, depth): 4x2.2x1.2; weight, 3.4 ounces.	
Receiver	**Receiver Dynamic Testing**
Sensitivity: 12 dB SINAD, 0.2 µV.	12 dB SINAD, 0.14 µV.
Two-tone, third-order IMD dynamic range: Not specified.	20 kHz offset from 440 MHz, 57 dB,* 10 MHz offset from 440 MHz, 66 dB.
Adjacent-channel rejection: Not specified.	20 kHz offset from 440 MHz, 56 dB.
Spurious response: Not specified.	IF rejection, 110 dB; image rejection, 58 dB.
Squelch sensitivity: Not specified.	At threshold, 0.13 µV.
Audio output: 200 mW at 10% THD into 8 Ω.	320 mW at 10% THD into 8 Ω.
Transmitter	**Transmitter Dynamic Testing**
Power output: 1 W high, 0.15 W low.	Batteries: 0.82/0.18 W; external dc, 1.3/0.19 W.
Spurious signal and harmonic suppression: 60 dB.	59 dB.
Transmit-receive turnaround time (PTT release to 50% of full audio output): Not specified.	Squelch on, S9 signal, 188 ms.
Receive-transmit turnaround time ("tx delay"): Not specified.	124 ms.

*Measurement was noise limited at the value indicated.
[1]Sensitivity is very poor below 420 MHz.

function of the other three buttons. When the button is held for three seconds, the rig enters SET mode (menu system). If pushed twice in succession, the 1 MHz tuning step is enabled (the MHz digit flashes to indicate this). Because SET is an orange label (as with the second functions on the other buttons), I found that I initially got confused a couple of times on this operation and pressed the button twice in succession when I actually intended to enter SET mode. This is just the force of habit from my use of other handhelds.

The UP TSQL and DWN CALL buttons (both gray) change the frequency by one step when in VFO mode and select the next memory when in memory mode. If they are held in briefly (about a second), scanning starts. If held for a slightly longer time, the frequency change/memory step function repeats (much like the "auto repeat" feature on a computer keyboard). During the "window" of time to start the scanning mode, the decimal point flashes. When it has stopped flashing, then you know you have entered the step repeat operation. I found this also took a bit of practice.

The second function of UP TSQL toggles between CTCSS encode (T icon), decode (T SQ icon) and off. Enabling either encode or decode also displays the selected tone frequency. To change the tone, you press the UP TSQL and DWN CALL buttons. When you have the selection you want, you press either the V/M MW button or PTT to accept it. If you don't know the CTCSS tone of a particular repeater, you can use the tone scan feature to determine it for you (in most cases). As would be expected, the second function of the DWN CALL button selects (or deselects) the call channel. If you press the UP TSQL button while transmitting, the high power output is selected. Pressing DWN CALL while transmitting selects the low power output (150 mW), and a small L icon appears.

The last button on the front panel, V/M MW, toggles between VFO and memory modes. The second function of this button is used to write the current frequency information to a memory location. The source frequency (plus shift and tone selections) is whatever was on the display before the button was pressed (so you can program a memory from the VFO, the call channel or another memory). When you

are in the memory write mode, a flashing W appears as a reminder. You then scroll through the numbered memories until you find the one you wish to program; if the selected memory is empty, the memory number also flashes, whereas if the channel is already programmed, the number doesn't flash (you can still overwrite an existing memory if you choose, however). Another press of V/M MW saves the display to the selected memory.

If you want to clear the contents of a memory, you follow the same procedure as programming a memory, except that instead of pressing V/M MW to save the contents, you press F then V/M MW to clear them. Unfortunately, there doesn't seem to be any way to transfer the contents of a memory that you have programmed back into the VFO.

The CALL channel works in a similar fashion to the memories, with a couple of minor exceptions. You can't scan the call channel, you can't scroll to it while in memory mode (although it appears as C on the memory list when in memory write mode), and you can't clear its contents.

Figure 2—Batteries not included: The DJ-S40T does not come with a rechargeable battery or a charger, although the user may purchase them as optional equipment. Three AA batteries must be provided by the user. Yes, all three go in the same way: negative pole at the top; positive at the bottom. As you can see, the rig is *tiny*; the battery pack provides a great deal of the radio's volume (as measured in cubic units of length, not dB).

Features, Features and more Features!

The set mode menu (referred to as "Parameter Setting Mode" in the manual) has 19 items for setting both commonly used and infrequently used functions. Each item is given a number and an abbreviation referring to the function and current setting. Many of the abbreviations differ somewhat from the names seen on other handhelds for the same functions, so this is another area of mental adjustment for those with established habits. As an example, the repeater shift is SFD (shift direction) and when you are in simplex mode, this is indicated by OF, so you have to remember that SFD-OF = simplex. For those who have trouble remembering the meanings of the abbreviations, Alinco thoughtfully included a "cut on the dotted lines" Mode Settings Chart in the owner's manual.

The UP TSQL and DWN CALL buttons are used to change the settings of each menu item, so they can't also be used to scroll through the list; instead, the FUNC SET and MONI KL buttons serve for this (I would have found it slightly more intuitive if V/M MW was used instead of MONI KL, but the pressing the former exits set mode altogether).

While having to enter the settings menu to change items like squelch level and shift direction (no automatic settings are available) is somewhat inconvenient, the alternative would have been for Alinco to either add more buttons to the radio or make each button perform more tasks, both of which have disadvantages. Also, it is worth noting that the items that are typically changed frequently are all grouped together in the settings menu, so it doesn't take a lot of button presses to get to them.

Because the rig offers the choice of several optional rechargeable batteries as an alternative to the supplied pack for alkaline cells, there is a menu setting that enables and disables internal battery charging (default is disabled to prevent accidental damage to non-rechargeable types). There is another menu setting for battery type (choices are 1 or 2), but the manual offers no insight as to the proper setting for this item. The optional rechargeable batteries come in two different voltages, so I would assume this item corresponds to the different charge voltages.

The Call Tone feature enables the transmission of an audio tone when the MONI button is pressed at the same time as the PTT. A menu setting selects one of four tone choices (1000, 1450, 1750, 2100 Hz) to be transmitted. The call tone feature is disabled if CTCSS is enabled.

For folks who tend to be long-winded, a time-out-timer is included. The interval can be set from 30 to 450 seconds, in 30-second increments (it can also be turned off altogether). The transceiver gives a 10-second countdown at the end of the time-out interval to give a bit of warning before it cuts you off.

The Reception Bell is not described in any detail in the owner's manual. However, the operation is essentially the same as the altering function found on Alinco's earlier DJ-S11 handheld. When an incoming signal breaks the squelch, the radio emits a telephone-like ringing sound three times in succession. The volume of the tones is set to a fixed level that does not depend on the transceiver's volume control.

As with the Reception Bell, the Stand-by Beep is only mentioned briefly in the manual. This menu item can be set to on or off. When it is enabled, a beep is added to the end of each transmission, which is heard both at the transmitter and receiver.

The scanning functions on the DJ-S40 are fairly typical, with memory and VFO scanning, the latter including a skip feature for memories that are marked with the skip label. The scan pause behavior can be set for a 5 second timed pause, or set to pause as long as there is a signal present ("busy").

Special features of the transceiver include a theft alarm and a mosquito repelling sound. The theft alarm uses a cable plugged into the speaker jack; the radio will emit the alarm sound when the cable is removed while the alarm is active. Since the theft alarm is turned off by removing the battery pack, this feature offers only a modest level of security. A mosquito-repelling feature uses a high pitched audio tone to dissuade the pests from hanging around. I found the tone to be quite audible when this was enabled, but the volume was not too loud. It could definitely be distracting though. As it wasn't mosquito season when this was being written, the opportunity to "field test" this feature did not arise (and I wasn't anxious to try it in any case).

Manufacturer: Alinco Inc, Shin Dai Building 8F, 1-2-6 Doujimahama, Kitaku, Osaka 530-0004, Japan. Alinco's US distributor is ATOC Amateur Distributing LLC, 23 S High St, Covington, OH 45318; tel 937-473-2840; fax 937-473-2862; **www.alinco.com**. $89.99. QST

AALog

The "AA" in *AALog* stands for Alexander Anipkin, RZ4AG, the author of the program. What Alex has developed in *AALog* is a shareware logging package that tries to be all things to all hams at an affordable price. I've been using *AALog* for a year and I'd have to say that Alex has gone a long way toward his goal.

Features

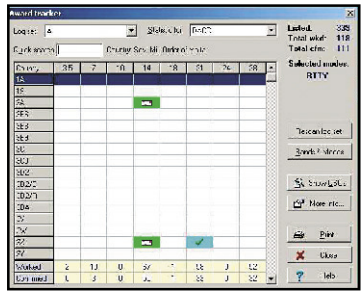
AALog allows you to create multiple logs for different applications. You can switch between logs via a drop-down menu. At my station I have set up separate logs for RTTY, PSK31, phone, CW, 6 meter and satellite contacts. Each line in the log is color-coded to indicate the QSL status. For my setup, a powder-blue coloring indicates a QSL has been sent; green indicates a QSL has been received. You can change the colors to suit your taste. You can also select which fields display in the logging window.

By clicking on the awards manager, I get an instant tally of DXCC entities worked, states worked or my qualifications of several other awards. The tally also indicates the bands on which I've worked various entities, and the list can be sorted by mode.

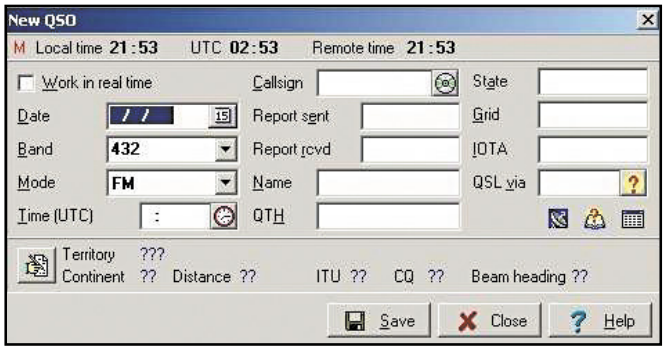
In addition to keeping multiple logs under your call sign, you can also set up logs for different call signs. This is particularly convenient if you have other hams under your roof, or if you need to log under a different call for a contest.

AALog will import and export in ADIF format. To test this function, I imported a log created in *WriteLog* during a recent RTTY contest. The file imported smoothly with all the contact data lining up under the correct headers.

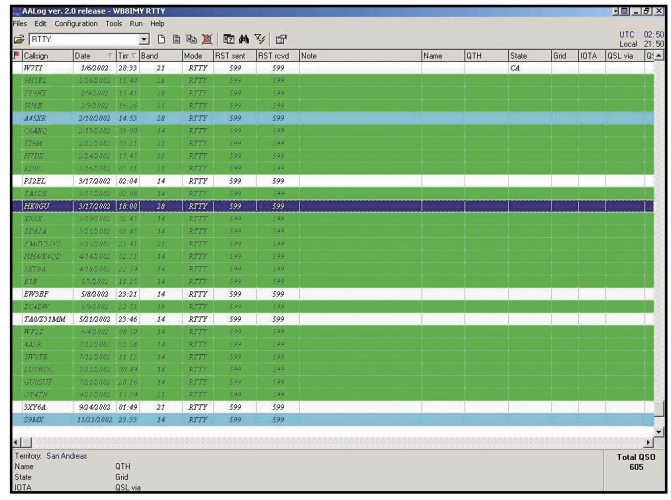
I enjoy *AALog's* QSO entry window. It has fields for all the necessary information and an interface to a CD-ROM database (such as *Buckmaster*, *HamCall*, *QRZ*, etc). When you enter the call sign, *AALog* immediately shows the DXCC entity name, distance and heading. I have a devil of a time remembering which call sign prefixes go with which DXCC entities. A month before this review was written, I heard S9MX on RTTY. Where was S9? Since I was already perched at the keyboard, I brought up the *AALog* QSO entry window and typed in S9MX. Sao Tome! That was a new one for me, so I jumped into the pileup (and worked him, too).



The *AALog* award tracker.



***AALog's* QSO entry window.**



AALog can print QSL labels as well as paper logs. *AALog* was built with a Borland database engine and sorts records smoothly by time, call sign, frequency and mode. Just a mouse click at the top of a column is all it takes.

Like many sophisticated logging programs, *AALog* can interface with other ham software packages. For instance, *AALog* can work with *HamPort* to control your radio or *DXAtlas* to create world maps. *AALog* can also be married to *TrueTTY* for RTTY and PSK31, *CWType/CWGet* for CW and *AAVoice* for voice keying.

Conclusion

Logging programs *can't* be all things to all amateurs, try as they may, but *AALog* strikes an attractive balance between price and functionality. My only wish for *AALog* is that it could alert me to duplicate grid-square contacts in the QSO entry window. When competing for new contacts during a 6-meter band opening, it would be nice to know if I have already worked (and received a QSL from) a station in a particular grid square. The most recent version of *AALog* is compatible with eQSL, but I hope that new versions will also be compatible with the ARRL Logbook Of The World when it comes on-line later this year.

You can download the shareware version of *AALog* free of charge, but several important functions are disabled until you register. Registration is quick and easy on the Web and $49 seems more than reasonable for the benefits, which include free lifetime upgrades.

Manufacturer: Alexander Anipkin, RZ4AG. System requirements: Windows *98/2000/NT/XP. Distributor: DXSoft,* **www.dxsoft.com/miaalog.htm**. *Registration: $49.* QST

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