Product Reviews and Short Takes

April 2013

Product Reviews:

Yaesu FTDX3000 HF and 6 Meter Transceiver

Short Takes:

Palm Radio Mini-Paddle
Yaesu FTdx3000 HF and 6 Meter Transceiver

More than just a pretty face — this medium priced transceiver offers a top notch receiver and many other features.

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At last summer’s Japan Amateur Radio League Ham Fair in Tokyo, I was able to break away from my official duties as ARRL representative and check out some of the action on the floor. As always, there was a lot of commotion around the newest equipment displayed by the manufacturers, and the Yaesu booth was no exception. It was evident that the company had placed a lot of stock in their newest HF/6 meter transceiver because they had fewer than six FTdx3000s on display for fairgoers to fiddle with. A gang of Yaesu representatives was on deck to answer questions.

Yaesu has been updating their HF transceiver line with FTdx series models that offer improved features and performance compared to the previous generation. So far the new models have been geared toward the top of the line, with the various versions of the new models have been geared toward the top of the line, with the various versions of the FTdx9000 and FTdx5000. The FTdx3000 brings the new series down market a bit, with pricing closer to the popular FT-2000.1

The FTdx3000 is a 100 W transceiver for 160 through 6 meters. The 60 meter channels (including the most recent changes) are preset in special memories, taking the guesswork out of getting on the right frequency. The receiver covers 30 kHz to 56 MHz. It is a downconversion design (IFs at 9 MHz and 30 kHz) with selectable roofing filters and a suite of DSP filters and tools. SSB, CW AM, FM and digital modes are supported.

Look and Feel

In appearance, the FTdx3000 is a radical departure from what we are used to seeing in Yaesu’s FT series radios. It’s a very alluring transceiver that looks even nicer in person than it does in the brochures or print ads. The photos just don’t seem to capture the seductiveness of this radio. The FTdx3000’s profile has nice proportions with a soft satiny finish and no sharp corners. Even the push buttons have been softened with rounded edges and corners. If you see the FTdx3000 in a showroom it just purrs to you and says “Take me home.”

When you first sit down with the FTdx3000, you will quickly notice the rig’s layout was well planned, at least for my style of operating. I found myself accessing any of the knobs or buttons with natural fluid motions. For example, the main tuning knob drag is easily adjusted by simply holding the skirt and turning the big main knob to the left or right until you get the right feel for your fingertips. The control knob faces have a spun finish to give them a nice satin look and the grip surfaces of the knobs are knurled for a positive grasp while making adjustments. Some of the controls, such as AF GAIN and RF GAIN have smooth linear operation, while others like the MIC GAIN and NOTCH filter settings provide a soft click, affirming the control is being adjusted and ensuring that the settings don’t move should a knob be bumped accidentally.

After powering up the radio, the first thing that attracted my attention was the bright full color 4.3 inch thin film transistor (TFT) display. The high resolution screen offers a lot of information at a quick glance. The animated multifunction meter’s virtual needle bounces to the beat of received signals while at the same time the band scope shows activity peaks north and south of your listening frequency.

Filter status, VFO B frequency, CW zero beat, digital signal processing (DSP) and audio processing, antenna port and antenna tuner status are all simultaneously displayed on the TFT screen in an easy to read layout. The display even has a 24 hour clock that is set by holding the custom switch (C.S. button) for a second then entering the time via the front panel keypad. Frequently used buttons are illuminated and conveniently located to the left of the TFT display.

Out of the Box

In spite of its advanced features the FTdx3000 is relatively simple to use. Users are strongly urged to read the well illustrated owner’s manual to fully understand all of the
features and controls of this or any other piece of equipment, but out of the box operation of the FTDX3000 is straightforward. Connect an antenna, microphone or CW paddles and a 13.8 V dc power source and you can be on the air in no time.

There are three antenna jacks and the menus allow you to associate an antenna choice with each band. The built-in automatic antenna tuner is rated to match loads from 16.5 to 150 Ω (3:1 SWR). Tuner settings are stored in memories for fast band changes.

If you are to truly appreciate the beauty of this radio, then take some time to familiarize yourself with all of its features. Even with 196 menu items you will find that most of the settings in the various menus do not require regular access once you have customized the settings to suit your operating style. For those instances at which you would think a control knob would be better than a menu setting for quick access, the designers worked through this. Certain menu items such as the MONITOR GAIN or CONTOUR control that may require frequent adjustment can be quickly accessed by holding the button that activates a function for a second, which will take you directly to the menu item for that particular setting. The user can also configure the C.S. button to have quick access to any menu item.

Speaking of menus, I found them easier to use than menu systems in previous generation models. The menu choices are in plain language and easy to understand, compared to the somewhat cryptic labels in older models. Navigation is via a small cluster of arrow keys next to the TFT display.

**On The Air**

I used the FTDX3000 in a variety of operating situations including casual SSB contacts and nets, CW DXing and less than serious efforts in the ARRL 160 Meter Contest and Stew Perry Topband Distance Challenge. The FTDX3000 performs well regardless of your favorite mode of operation. The receiver is very quiet, especially if the digital noise reduction (DNR) is activated.

**CW Features**

For the CW operator there are some nice features such as the audio peak filter (APF) — a sharp audio filter that provides a very narrow audio bandwidth. The ‘3000 includes an electronic keyer with memories, a CW spotting (zero beat) function and semi or full break-in (QSK). The ‘3000 even has a built-in CW decoder that works fairly well as long as you are not trying to copy slow speed code sent with a straight key.

On previous models of Yaesu transceivers, the built in contest memory keyer feature was accessed through difficult to reach front panel buttons or by using an optional keypad accessory. The FTDX3000 comes with the FH-2 keypad as standard equipment, which makes using the contest memory keyer extremely easy. The FH-2 plugs into the rear of the transceiver and lies on the desk, providing easy access to the keys. The FH-2 is also used to activate features specific to SSB and digital modes of operation.

The contest memory keyer works in conjunction with your CW paddles allowing you to insert Morse characters before or after a prerecorded message. In addition to programming the memories using your CW paddles, messages in the memory keyer can also be programmed via the menu using the sub VFO knob to scroll through alphanumeric characters. The memory keyer is able to insert serial numbers for contests such as the ARRL November Sweepstakes and other events that require a consecutive serial number as part of the exchange. Granted, a serious contest will most likely be using dedicated software for contest logging, rig control and CW keying, but the casual operator will appreciate the built-in features.

The ‘3000 has a tuning indicator displayed on the TFT screen that lets you quickly zero in on a CW signal. Combine this with the visual spikes on the band scope and you can troll a band, picking off stations with precision accuracy.

**SSB Features**

Phone operators will appreciate the two built-in three-band parametric equalizers that allow customization of your transmitted audio. Having two equalizers offers the flexibility to preset the controls for different microphones or different operating styles. One group of settings works with the speech processor off, and the other with the processor on.

I found that I could set the two equalizers for different effects and change them very quickly. For the parametric equalizer that is activated when the speech processor is on, I found that setting up the equalizer using a small amount of processing with 50-3000 Hz bandwidth (menu item 104) provides warm natural sounding audio for those armchair QSOs. I set the second equalizer, with the speech processor off, for stronger articulation in the upper midrange and reduced the transmit bandwidth to a tighter 300-2700 Hz to achieve a punchier signal that pierces through pileups. Whether checking into my weekly phone net or working some of the recent DXpeditions, the FTDX3000 yielded good audio reports with various equalizer settings.

For SSB operating, the FH-2 keypad is used to program and activate the optional DVS-6 digital voice recorder should you have that installed. The DVS-6 is a simple plug-in module and an upgrade well worth the few extra dollars to the active contestor. The
FH-2 also allows you to record and play back the most recent 15 seconds of receive audio.

**Digital Mode Features**

Fear not, you digital operators out there. The Yaesu designers built some goodies into the FTDX3000 for you too. The rear panel has connections for FSK and AFSK to interface with a computer for RTTY and soundcard modes. RTTY keying polarity, shift and MARK frequency are adjustable via menus. The RTTY DSP filter characteristics (bandwidth, filter shape) can be adjusted separately from the CW and SSB filters. You can set up AFSK modes to work with VOX mode, eliminating a PTT connection. The manual cautions to reduce output power if you are transmitting continuously for several minutes, or if transmitting time exceeds receiving time.

If you just want to receive digital mode signals or make an occasional contact without connecting a computer, the FTDX3000 features a built-in RTTY and PSK encoder/decoder. Toggling the SCOPE button changes the lower portion of the TFT display into an RTTY or PSK display that shows a couple of lines of received text with a tuning aid to the right.

Using the FH-2 keypad, you can program five memory banks with text messages for RTTY and PSK operation. RTTY message memories are independent of PSK message memories. Direct keyboard entry is not an option, so inserting text on the fly, such as including the other station’s call sign, is not possible.

While the built-in encoder/decoder will allow you to make some RTTY or PSK contacts, its utility is limited. An external computer with some of the amazing digital mode software available these days is still the way to go if you operate these modes regularly.

**Computer Control**

All Yaesu transceivers use CAT (Computer Aided Transceiver) to control the transceiver via software and a computer. Up until now this has been accomplished through a DB-9 serial port. Today, the serial port is going the way of the floppy disk. Most new computers don’t include them, and using USB-to-serial adapters can be cumbersome.

The FTDX3000 has the standard DB-9 serial connection on the rear for CAT operation, but also adds the flexibility of using a USB cable to connect to your computer or laptop. To use the USB port you will have to download a USB driver from Yaesu’s website. All I can say about the USB connection is what took them so long? After all, many

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**Table 1**

| Yaesu FTdx3000, serial number 2K020062 |
|-------------------------------|--------------------------|
| **Manufacturer’s Specifications** | **Measured in the ARRL Lab** |
| Frequency coverage: Receive, 0.03-56 MHz (specified performance, amateur bands only); transmit, 1.8-54 MHz (amateur bands only). | Receive and transmit, as specified. |
| Power consumption: Receive, 1.8 A (no signal), 2.1 A (signal present); transmit, 23 A (100 W) at 13.8 V dc ±10%. | At 13.8 V dc: Receive, 1.88 A (VFO, TTF and backlights max brightness, max vol, no signal); 1.83 A (min brightness). Transmit, 9 A at 5 W RF output, 19 A (typical) at 100 W RF output. Operation confirmed at 12.4 V dc. |

**Modes of operation:** SSB, CW, AM, FM, RTTY, PTT.

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**Receiver**

| **SSB/CW sensitivity:** 2.4 kHz bandwidth, 10 dB S+N/N: 0.5-1.8 MHz (IPO), 4.0 µV; 1.8-30 MHz, 0.16 µV (preamp 2 on); 50-54 MHz, 1.25 µV (preamp 2 on). |
| **Noise figure:** Not specified. |
| **AM sensitivity:** 6 kHz bandwidth, 10 dB S+N/N: 0.5-1.8 MHz (preamp off), 28 µV; 1.8-30 MHz (preamp 2), 2 µV; 50-54 MHz (preamp 2), 1 µV. |
| **FM sensitivity:** 15 kHz bandwidth, 12 dB SINAD: 28-30 MHz (preamp 2), 0.5 µV; 50-54 MHz (preamp 2), 0.35 µV. |
| **Spectral display sensitivity:** Not specified. |
| **Blocking gain compression dynamic range:** Not specified. |
| **Gain compression:** 500 Hz bandwidth, 600 Hz roofing filter: Preamp off/1/2: –100/–113/–120 dBm. Preamp off/1/2: 20 kHz offset: –106/–114/–120 dBm. Preamp off/1/2: 5/2 kHz offset: 137/127 dB. |

**ARRL Lab Two-Tone IMD Testing (500 Hz bandwidth, 600 Hz roofing filter)**

<table>
<thead>
<tr>
<th><strong>Band/Preamp</strong></th>
<th><strong>Spacing</strong></th>
<th><strong>Input Level</strong></th>
<th><strong>Measured IMD Level</strong></th>
<th><strong>Measured IMD DR</strong></th>
<th><strong>Calculated IP3</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 MHz/Off</td>
<td>20 kHz</td>
<td>–23 dB</td>
<td>–127 dB</td>
<td>104 dB</td>
<td>+29 dB</td>
</tr>
<tr>
<td>14 MHz/Off</td>
<td>20 kHz</td>
<td>–17 dB</td>
<td>–127 dB</td>
<td>110 dB</td>
<td>+38 dB</td>
</tr>
<tr>
<td>14 MHz/Pre 1</td>
<td>20 kHz</td>
<td>–28 dB</td>
<td>–138 dB</td>
<td>110 dB</td>
<td>+27 dB</td>
</tr>
<tr>
<td>14 MHz/Pre 2</td>
<td>20 kHz</td>
<td>–36 dB</td>
<td>–142 dB</td>
<td>106 dB</td>
<td>+17 dB</td>
</tr>
<tr>
<td>14 MHz/Off</td>
<td>5 kHz</td>
<td>–22 dB</td>
<td>–127 dB</td>
<td>105 dB</td>
<td>+31 dB</td>
</tr>
<tr>
<td>14 MHz/Off</td>
<td>2 kHz</td>
<td>–27 dB</td>
<td>–127 dB</td>
<td>100 dB</td>
<td>+23 dB</td>
</tr>
<tr>
<td>50 MHz/Off</td>
<td>20 kHz</td>
<td>–33 dB</td>
<td>–125 dB</td>
<td>92 dB</td>
<td>+13 dB</td>
</tr>
</tbody>
</table>
Second-order intercept point: Not specified. 14 MHz, preamp off/1/2:
+87/+75/+75 dBm;
50 MHz, +89/+75/+75 dBm.

Notch filter depth: Not specified. Manual: >70 dB; auto: >70 dB,
attack time: 100 ms.

FM adjacent channel selectivity: Not specified. 29 MHz, 86 dB; 52 MHz, 82 dB.
FM two-tone, third-order IMD dynamic range: Not specified. 20 kHz offset, preamp 2:
29 MHz, 86 dB; 52 MHz, 82 dB.
10 MHz channel spacing:
29 MHz, 111 dB; 52 MHz, 105 dB.

S-meter sensitivity: Not specified. S9 signal at 14.2 MHz, preamp off/1/2:
94.3/24.8/9.2 µV.
Squelch sensitivity: Not specified. At threshold: SSB (preamp off), 9.22 µV;
FM, 29 MHz (preamp 2), 0.42 µV;
52 MHz (preamp 2), 0.33 µV.

Receiver audio output: 2.5 W into 4 Ω at 10% THD.
IF/audio response: Not specified. Range at –6 dB points, (bandwidth):‡
CW (500 Hz): 450-947 Hz (497 Hz)
Equivalent Rectangular BW: 501 Hz
USB (2.4 kHz): 164-2306 Hz (2142 Hz)
AM (6 kHz): 79-2686 Hz (5234 Hz).
Image rejection: 160-10 meters, >70 dB;
50-54 MHz, >60 dB.

Transmitter Power output: 5-100 W, (2-25 W AM).
Harmonic suppression: >60 dB (1.8-29.7 MHz),
>65 dB (50-54 MHz).
SSB carrier suppression: At least 60 dB.
Undesired sideband suppression: At least 60 dB.
Third-order intermodulation distortion (IMD) products: –31 dB @ 14 MHz, 100 W PEP.
CW keyer speed range: Not specified.
CW keying characteristics: Not specified.
Transmit-receive turn-around time (PTT release
to 50% audio output): Not specified.
Receive-transmit turn-around time (tx delay):
SSB, 34 ms; FM, 30 ms.
Composite transmitted noise: Not specified.
Size (height, width, depth): 4.5 × 14.4 × 12.3 inches; weight, 22 lbs.
Price: $2700; XF-127CN 300 Hz roofing filter, $200; DVS-6 digital voice recorder, $70.

††Carrier level must be lowered to 25% of PEP for proper AM operation, for example a 25 W carrier
with full modulation provides 100 W PEP output.

Figure 1 — CW keying waveform for the FTdx3000 showing the first two dits in full-break-in (QSK)
mode using external keying. Equivalent keying speed is 60 WPM. The upper trace is the actual key closure; the lower trace is the RF
envelope. (Note that the first key closure starts at the left edge of the figure.) Horizontal divisions are 10 ms. The transceiver was being
operated at 100 W output on the 14 MHz band.

Figure 2 — Spectral display of the FTdx3000 transmitter during keying sideband testing. Equivalent keying speed is 60 WPM using
external keying. Spectrum analyzer resolution bandwidth is 10 Hz, and the sweep time is
30 seconds. The transmitter was being operated at 100 W PEP output on the 14 MHz band,
and this plot shows the transmitter output ±5 kHz from the carrier. The reference level is
0 dBc, and the vertical scale is in dB.

Figure 3 — Spectral display of the FTdx3000 transmitter output during composite-noise test-
ing. Power output is 100 W on the 14 MHz band. The carrier, off the left edge of the plot, is not
shown. This plot shows composite transmitted noise 100 Hz to 1 MHz from the carrier. The
reference level is 0 dBc, and the vertical scale is in dB.
computers available to consumers today have USB only. The USB port on the ‘3000 is used only for CAT operation or CW keying from your PC but does not allow connection of a USB device. It sure would have been nice to be able to connect a USB keyboard for operating RTTY and PSK modes.

**Receiving Features**
The FTDX3000 is packed with an arsenal of interference fighting tools. Once you learn these features and their role, you will find them indispensable for isolating signals on the bands.

It should be noted that many of the settings are stored in the band stacking registers. If you take advantage of the FTDX3000’s triple band stacking registers you can essentially set up your radio for SSB, CW and digital mode operation on each band. Once set up, there is no need for you to keep changing the filter selection or other settings when switching bands and/or modes.

Here are short descriptions of the features I found useful:

- **Selectable roofing filters.** These are in the first IF stage to limit the off-frequency signals reaching the mixer and amplifier stages. Choices are 600 Hz, 3 kHz, 6 kHz and 15 kHz. We didn’t test the optional 300 Hz roofing filter. The filters can be selected automatically based on the bandwidth of the mode selected, or you can change the setting manually.

- **DSP bandwidth filters.** The bandwidth filters can be set separately for SSB, CW and RTTY/data modes using the WIDTH control. Bandwidth ranges are: SSB, 1.8 to 4 kHz; CW and RTTY/data, 500 Hz to 2.4 kHz. When the front panel NAR button is pushed, the ranges become 200 Hz to 1.8 kHz for SSB and 50 to 500 Hz for CW and RTTY/data. This two tier system lets you use the NAR button to toggle quickly between one very narrow setting and a wider one. Menu settings allow adjustment of the filter characteristics (soft or sharp, and steep, medium or gentle sloped skirts). Separate adjustments are available for HF SSB, CW and FSK filters and for 6 meter SSB and CW filters.

- **IF shift, IF notch.** Using the SHIFT and NOTCH controls, the operator can make adjustments to the IF passband to reduce or eliminate interfering signals. The FTDX3000 makes these available through knobs conveniently placed below the TFT display. These adjustments work in conjunction with the WIDTH setting and provide control of the receiver’s IF passband to eliminate or reduce interference.

- **Audio peak filter.** APF is a CW only feature. It is a very narrow, very sharp audio filter that almost isolates CW signals within its passband. I find it a very useful feature when working CW on a crowded band.

- **Contour filter.** This filter allows additional filter shaping within the receiver passband, for example to suppress a low frequency rumble without affecting the rest of the signal. I found the CONTOUR filter useful as it allowed me to null unwanted signal components in the passband while enhancing the good components.

- **Digital noise reduction.** DNR is another DSP filtering component that uses 15 selectable algorithms to suppress a variety of noise situations you will encounter on any band on any given day.

- **Digital notch filter.** This handy filter works like a heterodyne seeking missile, searching out an annoying heterodyne and destroying it. It really expands the use of the 40 meter phone band when AM broadcast carriers make some frequencies above 7200 kHz unusable at night. A note about automatic notch filters: I cannot tell you how many times another ham has called me trying to diagnose a problem in which the CW sounds like thumping, or RTTY is not being decoded. The first thing I ask is if the DNF control is engaged. Using the band stacking registers to remember DNF settings for the different modes will help you avoid this sort of mistake.

- **Automatic gain control.** AGC is selectable (FAST, MID, SLOW) from the front panel and may be tailored through the menu. The AUTO setting automatically selects AGC characteristics for the selected mode.

- **IPO (intercept point optimization).** Similar to many other Yaesu models, the IPO switch selects two levels of preamplification or bypass the preamps and feeds the signal directly into the mixer. The ATT switch offers attenuation of 6, 12 or 18 dB.

- **Noise blanker.** The IF noise blanker can reduce or eliminate short pulse transient type noise or long pulse man-made noise. The noise blanker level is adjustable via the menu.

**Split Operation**
There are many times when split frequency operation is necessary, especially if you are an active DXer. For those who may not be familiar with operating split, allow me to explain. Split frequency operation involves transmitting on one frequency and receiving on a different frequency nearby in the same band (not to be confused with cross band or cross mode operation).

There are two typical instances when split frequency operation is used. One is if band allocations differ between operators, such as for phone operation on 40 meters if DX operators transmit below 7100 kHz and listen in the US phone band. The other is a DX pileup, in which a DX station listens for stations who are calling a few kHz above or below his or her transmitting frequency. That technique keeps the DX transmit frequency clear so that the calling stations can hear when he transmits and determine whom he is calling.

The FTDX3000 allows you to set up the QUICK SPLIT button to shift your transmit frequency up or down a predetermined increment. The spread can be set from –20 kHz to +20 kHz. For larger splits, as in the 40 meter phone example, you would simply press the VFO B TX button and tune to the correct transmit frequency. The VFO B frequency is shown on the TFT display and controlled by the CLR/VFO-B knob to the right of the main tuning knob.

In any case, you do not want to be on the wrong VFO, causing interference to the DX or possibly operating illegally out of band. The FTDX3000 has a TXW button that, when pressed, switches the VFO so you can listen on your transmitting frequency. Releasing the TXW button reverts back to your original VFO configuration thus preventing the wrong VFO syndrome.

The dual VFOs in split operation are also used while working FM repeaters on the 6 meter or 10 meter bands.

**The Spectrum Scope**
Most HF radio operation relies on what you hear in the speaker or headphones, but visual enhancements abound. The monitor scope and panadapter are not new to ham radio. For example, the Yaesu FT-101E series popular in the 1970s offered a monitor scope accessory that tapped the IF stage of the radio allowing the user to visually monitor components of the transmitted signal as well as the signal being received. Most manufacturers offered similar accessories.

Today’s technology has greatly enhanced transceiver visual aids providing the operator with (almost) real time view of the radio spectrum around the operating frequency. Is this just amusement, or does the band scope offer any real advantage? That depends on the operator. Say for instance you are on the 10 or 6 meter band calling CQ but nobody is answering. On the spectrum scope you notice a spike of activity above your calling frequency so you dial your VFO up there to find a station you’d like to contact. Without the visual aid, the only way you would have
My home station includes a Yaesu FT-2000 that I’ve used for several years. Placing the FTDX3000 side by side with the FT-2000 I was able to compare the two radios back and forth on the same antenna listening to the same signals. My first impression is that the FTDX3000 has a slightly quieter receiver. A distinct difference between the two radios can be found with the roofing filters. The FT-2000 has 6 kHz and 3 kHz roofing filters, but I don’t hear much difference between them. With the FTDX3000, switching among the 600 Hz, 3 kHz and 6 kHz roofing filters has a more noticeable effect on signals in the passband.

When it comes to physical appearance, both transceivers are appealing to the eye. The FTDX3000’s bright display and smooth design give it a real modern look on the desk with all the appeal of a sports car. The larger FT-2000’s attractiveness is a bit on the mature side, somewhat conservative yet able to compete in any event.

The Yaesu FTDX3000 is a lot of radio in an attractive desktop package. It has so many features that it takes a well illustrated 140 page operating manual to cover them all. Its customizable configuration makes it compatible with any operating style. Competitive contester, weak signal DXer, 6 meter enthusiast, digital mode aficionado or a casual operator, it really makes no difference where your HF operating interests may lean. The features in the FTDX3000 allow it to compete on any level.

Manufacturer: Yaesu USA, 6125 Phyllis Dr, Cypress, CA 90630; tel 714-827-7600; www.yaesu.com.

Lab Testing
ARRL Lab test results are shown in Table 1. The benefits of the new receiver design and narrow roofing filter are apparent, with blocking gain compression dynamic range of 127 dB and two-tone IMD dynamic range of 100 dB at 2 kHz spacing. These figures are a significant improvement over the FT-2000. Reciprocal mixing dynamic range (–82 dBc at 2 kHz offset) is also an improvement over the FT-2000.

The only testing issue noted is image rejection with certain frequency combinations in the general coverage receiver. For example, an S9 level 26 MHz signal at the antenna jack produces a barely audible image signal at 8 MHz. Increase the 26 MHz signal by 30 dB and the image increases to about S5, a noticeable level. This is a byproduct of the downconversion receiver design, which allows the inclusion of high quality narrow roofing filters at the 9 MHz IF. Previous generation general coverage designs used upconversion (first IF around 60 to 70 MHz) so any images were well away from frequencies of interest, but it is more difficult to make narrow roofing filters for that high IF. Inside the ham bands the FTDX3000’s bandpass filters attenuate any images to the point that they are not audible. Yaesu acknowledges that strong images may appear in the 9 to 12 MHz range, and the >70 dB image rejection specification is guaranteed inside the ham bands only.

Yaesu indicates that this will be improved with the installation of revised software version V01-06 or higher. We did not have this to test by press time, but it should be available for download from their web page by the time you read this.

Final Thoughts
My home station includes a Yaesu FT-2000 that I’ve used for several years. Placing the FTDX3000 side by side with the FT-2000 I was able to compare the two radios back and forth on the same antenna listening to the same signals. My first impression is that the FTDX3000 has a slightly quieter receiver. A distinct difference between the two radios can be found with the roofing filters. The FT-2000 has 6 kHz and 3 kHz roofing filters, but I don’t hear much difference between them. With the FTDX3000, switching among the 600 Hz, 3 kHz and 6 kHz roofing filters has a more noticeable effect on signals in the passband.

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Palm Radio Mini-Paddle

Most modern HF transceivers include CW keyers. All you have to do is plug in a set of paddles and off you go. Thanks to the inventiveness of hams, you have a horde of paddles to choose from. Choices range from gorgeously machined desktop creations to miniscule miniature keys. Since I often like to operate while traveling, I was in the market for a compact set of paddles that could withstand the rigors of suitcases and coat pockets. As I browsed the marketplace, I chanced upon a particularly interesting design: the Palm Radio Mini-Paddle.

What Makes the Mini-Paddle Different

The Palm Radio Company is actually based in Germany. Their Mini-Paddle is a mere 1 × 1 × 3 inches. You can drop it into your pocket and hardly know it is there.

If its small size were its only attribute, there would be little to distinguish the Mini-Paddle at first glance. But what makes the Mini-Paddle different is that the paddles can be quickly retracted and protected within their aluminum enclosure. You simply push gently on the paddles. Within seconds they disappear into the case for safekeeping.

My first test occurred at my home station with my Kenwood TS-2000 transceiver. I rested my left hand on the case to keep it from moving and started sending long strings of text with my transceiver’s keyer in “practice” mode. I always expect to fumble a bit when using an unfamiliar key, but the smooth response of the Mini-Paddle surprised me. It felt as though I was working a much larger key. Within minutes I was confident enough to take the Mini-Paddle on the air.

Out of the Case and On the Air

The Mini-Paddle includes rubberized feet to help hold it steady on most surfaces, but the package also includes a detachable base. For an additional $5.50, you can purchase a set of magnets that will secure the base to any metal surface. I purchased the magnets so that I could easily attach the Mini-Paddle to my Yaesu FT-817 transceiver (see Figure 1).

The Mini-Paddle comes with a 3 foot cable that offers a header style connector at one end (to attach to the key) and a ¼-inch three conductor plug at the opposite end for your transceiver. The cable easily detaches from the key should you need to remove it. All components arrive in a hinged, transparent travel case.

The key offers three adjustment screws for spring tension, contact spacing and paddle stops. The instructions clearly show you how to make the adjustments, but I found the default settings to be completely comfortable. There was little, if any, “play” in the paddles; they felt quite firm between my thumb and index fingers.

Going portable with the Mini-Paddle was a pleasure. When the magnets came into contact with my FT-817 case, they grabbed and held fast.

Quality Construction

A great deal of thought went into the design of the Palm Radio Mini-Paddle, and it shows. Even though I still haven’t bothered to make adjustments, I did take a peak inside the case. The mechanics of the Mini-Paddle are meticulous, right down to the gold-plated contacts. With reasonable care these paddles should last a lifetime.