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 ETON USA  
 MR ESMAIL AMID-HOZOUR CEO  
 1015 CORPORATION WAY  
 PALO ALTO CA 94303-4305

## QST Reviews

**Yaesu FTM-300DR**  
Dual-Band FM/Digital  
Mobile Transceiver

**Shark RF openSPOT3**  
Multimode Digital Hotspot

**Etón Elite 750 Portable**  
Receiver

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# Etón Elite 750 Portable Receiver

*Reviewed by Steve Ford, WB8IMY*  
**wb8imy@arrl.net**

Those familiar with shortwave receivers may notice something familiar in the Etón Elite 750. In its previous life it was the Grundig Satellit 750. It underwent a bit of a metamorphosis and emerged as the Etón Satellit 750.

The Satellit 750 was discontinued and the shortwave listening community assumed that was the end of the line, but this was not the case. In 2020, it reappeared as the Etón Elite 750.



## A Hefty Portable

At a little more than 14 × 7 × 5 inches and weighing more than 5 pounds, the Elite 750 is one of the larger receivers in its class that can still be called portable. Like its Grundig predecessor, the Elite 750 sports the side-mounted rack handles, which gives the Elite 750 an industrial profile. While you can certainly carry the 750 by the rack handles, there is a more conventional handle that folds out of the top of the case.

## Bottom Line

The Etón Elite 750 portable receiver covers all of the popular longwave, mediumwave, and shortwave bands, as well as the FM broadcast band and air band. It works well with the built-in antennas and the audio quality is good. Its SSB and CW capability is fine for casual listening in the ham bands.

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Figure 7 — The Elite 750 S-meter and display.

The sizeable tuning knob has a smooth, competent feel, as do all the knobs and buttons. The illuminated LCD is large enough to be easily readable, yet small enough to avoid stealing ergonomic space from the other controls (see Figure 7). To help conserve battery power, the display backlighting automatically comes on

when you turn the tuning knob or adjust some of the controls, and then turns off after about 5 seconds. You can keep the illumination on continuously by pressing and holding the **LIGHT/SNOOZE** button.

I am so accustomed to seeing graphical signal-strength indicators that I was pleasantly surprised to find a real meter in the Etón Elite 750. The circular meter is recessed and illuminated by a single, amber LED. However, as useful as the meter is, I often found it difficult to read in less than optimal lighting. Improved illumination would be a welcome addition.

Beneath the sizeable speaker, and adjacent to the separate bass and treble controls, you'll find an ear-phone/headphone jack and a **LINE IN** jack. The **LINE IN** jack is intended for those times when you might want

**Table 2**  
**Etón Elite 750, serial number n/a**

**Manufacturer's Specifications**

Frequency coverage: Receive only, 0.1 – 0.519, 0.52 – 1.710, 1.711 – 29.999 MHz (SSB, AM), 88 – 108 MHz (FM broadcast), 117 – 137 MHz (AM).

Power requirement: External 6 V dc supply or four D cells. 80 mAh w/o backlight, 90 mAh with backlight.

Modes of operation: SSB, AM, wideband FM (FM broadcast band only, stereo reception).

**Receiver**

Sensitivity: Not specified.

AM sensitivity: Not specified.

FM sensitivity: Not specified.

S-meter sensitivity: Not specified.

Blocking gain compression dynamic range: Not specified.

Reciprocal mixing dynamic range: Not specified.

Two-tone, third-order intermodulation distortion dynamic range: Not specified.

Two-tone, second-order intermodulation distortion intercept point: Not specified.

Squelch sensitivity: Not specified.

IF/audio response: Not specified.

Size (height, width, depth, including protrusions): 4.4 × 7.6 × 1.3 inches; with handle lifted add 2.7 inches.

Antenna length, 38.8 inches. Loop length, 8.2 inches. Weight 6.25 pounds with batteries (4 D cells); 5.55 pounds without.

Second-order intercept point was determined at the S-5 signal level.

\*Bass and treble control adjusted for flattest response — bass midway, treble, maximum.

**Measured in the ARRL Lab**

As specified.

At maximum volume, battery power: backlights on, 462 mA; backlights off, 450 mA. With external 6.3 V dc supply: at max volume, backlight on, 540 mA.

As specified.

**Receiver Dynamic Testing**

Noise floor (MDS), narrow filter, attenuator off: 475 kHz, -129 dBm; 3.5 MHz, -127 dBm; 7 MHz, -130 dBm; 14 MHz, -127 dBm; 28 MHz, -122 dBm.

10 dB (S+N)/N, 1 kHz tone, 30% modulation, narrow filter: 0.198 MHz, 1.0 μV; 1.020 MHz, 0.94 μV; 3.885 MHz, 0.90 μV; 6.160 MHz, 0.90 μV; 7.490 MHz, 1.0 μV; 15.1 MHz, 0.75 μV; 120.0 MHz, 1.46 μV.

For 12 dB SINAD, 15 kHz deviation: 100 MHz, 1.57 μV.

For S-9 (50 μV) signal at 14.2 MHz: Narrow, 3.93 μV; Wide, 1.74 μV.

At 14 MHz, 20 kHz spacing: 97 dB.

At 14 MHz, 20 kHz spacing: 79 dB.

At 14 MHz, 20 kHz spacing: 82 dB.

At 14 MHz: +29 dBm.

At threshold: 7.42 μV.

Range at -6 dB points, (bandwidth)\*  
SSB Narrow: 290 – 2390 Hz (2100 Hz)  
SSB Wide: 290 – 2340 Hz (2050 Hz)  
AM Narrow: 290 – 3560 Hz (3270 Hz)  
AM Wide: 330 – 2910 Hz (5160 Hz).



**Figure 8** — The Elite 750's built-in ferrite bar antenna works well for AM broadcast band reception.

to connect another audio device and play it through the Elite 750.

You'll find **LINE OUT** ports on the back, and they are a nice feature for those times when you want to make recordings of your listening adventures. The engineers thoughtfully included two line-level ports, one for each audio channel when recording FM stereo broadcasts. Of course, you can also use these ports to connect the Elite 750 to a much larger audio system.

The profile of the Elite 750 is dominated by its rotatable, directional ferrite-bar antenna (see Figure 8). It's one of the reasons the 750 is prized among those who enjoy AM broadcast DXing. Of course, there is also a long telescoping antenna for higher frequencies. The right side of the radio has BNC and terminal jacks for any other external antenna system you might wish to attach (see Figure 9).

You can power the Elite from its 6 V dc power supply, or take it traveling if you install four D cell batteries. (It seems like ages since I've used a radio that accommodated D cells.) If you choose to use an external 6 V dc supply provided by another manufacturer, or perhaps one of your own design, beware. The 750's dc power jack has an unconventional arrangement with negative polarity at the center/tip rather than positive.

The Elite 750 offers wide frequency coverage. It starts in the longwave basement from 100 to 519 kHz and extends all the way to 29.99 MHz. The receiver adds FM stereo broadcast band coverage from 88 to 108 MHz and then continues into the aeronautical band at 117 to 137 MHz.

### Mediumwave, Shortwave, and Longwave

My introduction to the Etón Elite 750 occurred right after I pulled it out of the box and deployed the telescoping antenna. I took a cruise through the popular shortwave broadcast hangouts and was fortunate to run into Radio Romania's transmission in English. The signal strength was excellent, despite using the



**Figure 9** — The Etón Elite 750's external antenna connectors.

receiver indoors. I wanted to catch a later broadcast using my outdoor antenna, so I added the frequency to one of the radio's 1,000 memory slots. This is easy to do and requires only a few button presses. Recalling memories is even easier.

Frequency memories are grouped into numbered pages for convenience, and the Elite 750 allows you to sort them in various ways. The receiver also includes the ability to scan through the longwave, AM, and FM broadcast bands, automatically storing the strongest signals into Page 0 memories.

Audio quality was excellent with the Elite 750's built-in speaker. The sound is rich and full, especially at lower frequencies. The radio provides separate bass and treble controls, and they make a substantial difference in fidelity, unlike controls on other receivers that only add or subtract muddiness.

The Elite 750 comes equipped with an RF gain control and a switchable two-step attenuator. Both are useful if you encounter strong signals, especially when using an external antenna. For example, I found that the Elite 750 seemed somewhat prone to front-end overload on the HF bands when I connected it to my wire dipole antenna. A quick tap of the **ANT.ATT** button would bring the attenuator into play and the level of attenuation is indicated in the LCD as a vertical bar graph. The bar graph is somewhat counterintuitive until you get used to it. The highest (tallest) bar indicates that the *least* amount of attenuation is being applied.

Another tool is the Elite 750's selectable wide and narrow bandwidth options. The manual does not specify the bandwidths, but the wide selection seemed a bit too wide, and it was problematic in crowded conditions. I found myself using the **NARROW** setting much of the time.

After hunting through the HF bands for a while, I was eager to give the rotatable ferrite antenna a try on medium and longwave signals.

I remember hunting distant AM stations with a portable receiver many years ago and having to endure the hassle of turning the entire radio this way and that, trying to aim its ferrite rod antenna for maximum signal strength. This is not the case with the Elite 750. Its bar antenna turns smoothly with a slight clicking sound, as if it were moving through mechanical detents. Not only could I peak desired signals, I was also able to use the antenna to null interference from stations on adjacent frequencies.

My first test was on 700 kHz. That's the home of the mighty WLW in Cincinnati, Ohio. At first there was little to hear but noise, but as I gently turned the bar the static fell away, and WLW emerged. Reception was surprisingly good considering that the Elite 750 was sitting inside an aluminum-sided house at the time.

Longwave broadcasters are a vanishing breed, but their signals can still be heard when conditions are optimal. Try as I may, I was unable to receive longwave broadcasts during this review, but I was able to spin the bar and isolate some interesting signals from other services, such as aeronautical beacons.

### SSB and CW

The Elite 750 is not a replacement for a high-performance ham radio receiver, but it does offer SSB and CW reception. It achieves this with an adjustable beat-frequency oscillator (BFO). The knob is labeled **SSB BFO**, but of course, its use isn't strictly limited to SSB. Tuning is in 1 kHz steps, and the SSB BFO control does an admirable job of tuning in separate CW signals above and below the tuned frequency, as long as the band is not too crowded.

I've often been disappointed with how BFOs are implemented in consumer shortwave radios. Either the BFO control is way too sensitive, or the BFO introduces annoying distortion that can make listening almost painful. I was pleasantly surprised to see that the worst failings of consumer BFOs were avoided in the Elite

### Lab Notes: Etón Elite 750 Receiver

Bob Allison, WB1GCM

In testing the Elite 750, I found that the sensitivity is not quite uniform throughout the HF spectrum, like we are used to with amateur transceivers. It's good below 20 MHz and fair at higher frequencies. The aircraft band could use more sensitivity. At less than 4  $\mu\text{V}$  needed for an S-9 reading (normally 50  $\mu\text{V}$ ), the signal strength meter is not very accurate.

There are wide and narrow filter settings. In the SSB mode, you will notice that the audio frequency response measured slightly greater with the narrow filter than the wide filter. Audibly, it's hard to tell much difference, but the narrow filter setting eliminates hiss in the audio.

Dynamic range performance looks good at first glance for a portable, consumer-grade receiver, although I could not perform 5 or 2 kHz spacing measurements, as we do with amateur transceivers because there was considerable bleed-through from the adjacent signals. I hooked up an external antenna for the AM broadcast but found that the increased signal levels overloaded the receiver such that I heard a lot of intermodulation distortion. As noted in the review, the ferrite bar antenna does a good job on its own.

750. Yes, the control requires a light touch to tune signals perfectly, but once I had it tuned to my liking, the BFO remained stable and the resulting audio was clean and undistorted.

Even while using just the telescoping whip antenna, I was able to monitor a number of amateur SSB and CW conversations. The radio lacks the ability to create the kind of narrow filtering that is critical when listening to a crowded band, but again, the Elite 750 is a consumer product, not a ham receiver.

With the radio still in the SSB mode, I couldn't resist punching 14.074 MHz into the keypad. That's the 20-meter FT8 watering hole. As the musical cacophony of what sounded like a million FT8 signals erupted from the speaker, I grabbed a microphone headset, plugged it into my computer, and then held the mic close to the radio. I started the *WSJT-X* software and configured the program to select the computer's headset input as its audio source. Within seconds, I was greeted with a waterfall display full of successfully decoded signals. Later I tried again, but this time, I tapped the audio from the Elite 750's **LINE OUT** jacks and, as one would expect, it worked even

better. I have a feeling the designers didn't have HF digital reception in mind for the Elite 750, but this is what happens when you turn a product over to a ham.

### FM and Aeronautical Bands

The Etón Elite 750 turned in excellent FM broadcast performance. You can listen in stereo only through headphones or earbuds, but even monaural listening with the internal speaker was impressive. Stereo decoding is selectable, so you can also choose to listen in monaural, which is useful for weak signals.

It is worth noting that the bandwidth, RF gain, and attenuator controls appear to be disabled when the Elite 750 is used in the FM broadcast band. In addition, the signal strength meter indicates maximum strength regardless of what you may be listening to.

Exploring the aeronautical band, I was relieved to see the bandwidth, RF gain, attenuation, and metering return to normal functioning. I live in an area with a lot of air traffic, but I found that I had to use an outdoor antenna to receive an adequate number of signals. The sensitivity on the air band could be better.

The good news is that the Elite 750 includes a squelch control that works on all frequencies, and it was put to good use on the aeronautical band. It's a well-designed squelch with a sharp, fast cutoff.

I'd be remiss if I didn't mention the Elite 750's clock and timing features. There are two independent alarms that you can set to activate the radio whenever you wish. The Etón manual emphasizes their usefulness as alarms to awaken you from sleep, which is fine, but nothing would prevent you from tuning to a particular frequency — a shortwave broadcast frequency, for example — and using the alarm to switch on the radio at the beginning of a specific broadcast. A voice-operated (VOX) recorder attached to the **LINE OUT** jacks could then record the broadcast while you are away. I tried this using my station computer and the VOX function in my *Audacity* audio-editing software, and it worked perfectly.

### Conclusion

The Etón Elite 750 appeals primarily to the consumer market, and it does an outstanding job in that application. With its rotatable ferrite bar antenna, I think it may also be a formidable contender among radios used for AM broadcast DXing.

Amateurs would find it most useful for casual listening, but there are times when it can do double duty as a test receiver. During this review, I needed to compare the transmit audio quality of two microphone/headsets I was using with my HF transceiver. I reduced the transceiver output to just a few watts, turned on the Elite 750, stowed its telescoping antenna, and then kicked in considerable attenuation. Using headphones plugged into the Elite 750, I was able to listen closely and compare the characteristics of the two microphones.

Of course, you wouldn't invest in an Elite 750 just to use it as a test receiver, but it is an extra benefit to consider for those times when you're not hunting long-wave, AM broadcast, or shortwave signals, or enjoying your favorite FM stations.

*Manufacturer:* Etón Corporation, 1015 Corporation Way, Palo Alto, CA 94303, [etoncorp.com](http://etoncorp.com). Price: \$449. Available directly from Etón's website or select dealers.

