

# Waterproof Handheld VHFs Update

*Testers try out Icom's new floater and Standard Horizon's budget radio.*



*The benefits of having a waterproof handheld VHF, like the Cobra HH325 above or one that floats, in an abandon-ship situation cannot be overstated.*

Electronics is undoubtedly the most rapidly changing category of marine products, and the steady stream of new VHF radios is a good example of just how fast the market changes.

Since our reports earlier this year on VHF radios, two new waterproof handhelds have been released, warranting a test update. In the inexpensive (under \$125) category, the HX280S is Standard Horizon's latest entry-level handheld; it replaces the company's HX270S, which *PS* reviewed in the October 2006 issue. Newcomer to the high-end handheld market, Icom's M36 is the company's newest floating portable VHF.

We put both radios in head-to-head tests with our 2009 Best Choice radios in each respective test field. The HX280S faced off with Cobra's HH325VP, the top pick in the April 2009 issue, and the M36 took on Standard Horizon's HX850S, which led the pack in the July 2009 issue.

(We also reviewed mid-priced VHF radios in the February 2009 issue.)

## HOW WE TESTED

Both newbies were put through the same field and bench tests as the VHF radios reviewed earlier this year,

and both were rated according to how well they met *Practical Sailor's* definition of the ideal handheld VHF. (For our VHF buyer's checklist and more on how we tested, view this story online at [www.practical-sailor.com](http://www.practical-sailor.com).)

Bench tests included evaluating audio output, transmitter power output, frequency accuracy and stability, and receiver sensitivity using a Ramsey COM3010 communications service monitor.

Display ratings were based on the size of the screen, the size of the channel number display, the amount of other information shown, the value of the channel comments, and the quality of the backlighting.

Submersion and drop tests were conducted to see how well the radios withstood a controlled beating. Turned on, the radios were submerged in freshwater for 30 minutes. They also were dropped from 4 feet onto concrete. A pass/fail rating system was used for both tests.

The battery-life test commenced immediately after a full charging. We accomplished full-power transmissions for about three minutes every hour and voice reception for about five minutes every hour until the battery died or the unit began to malfunction. Total battery test time was 15 hours.

In the final analysis, we considered performance, cost (initial and battery

replacement), warranty (both unit and battery), battery life, included equipment, recharge time, display, audio output, and features.

## STANDARD HORIZON HX280S

The Standard Horizon HX280S features a tough polycarbonate case and ships with an automatic AC charger that requires just seven hours to fully charge the 1650-mAH lithium ion battery pack. A DC charger cord and belt clip is included, too.

All functions of the HX280S are controlled with nine pushbuttons. A top-mounted knob controls volume and squelch. One-button control is available for transmitter power selection, channel changing, weather channel selection, a preset channel change, quick selection of channel 16 or 9, and some scanning options.

The preset key is used to store and quickly recall up to 10 favorite channels. Each successive press of the preset key switches to the next favorite channel.

Scan modes include dual watch, memory, or priority. When using scan, the HX280S can be set to monitor from two to all the channels. Like its counterpart, the Cobra HH325, the Standard Horizon HX280S can use all Canadian, International, and U.S. marine VHF channels and NOAA weather channels. Both also sound an alarm and display a visual alarm when threatening weather is near.

The HX280S display, rated Good, shows large segmented channel numbers and the alpha designation on appropriate channels. A sliding scale shows the current squelch level. The battery level icon empties as the battery is depleted. The selected transmitter power output is also shown. When transmitting, a "TX" appears while "BUSY" shows when receiving. "WX" indicates a weather channel selection.

One notable feature that the Cobra has but the HX280S does not is a signal-strength meter, which displays the power of the transmitted or received signal.

The Cobra isn't much larger than the HX280S, but it's a hefty 4.5 ounces heavier.



Standard Horizon HX280S

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MAKER	ICOM	STANDARD HORIZON	STANDARD HORIZON	COBRA
MODEL	M36 	HX850S 	HX280S 	HH325 VP 
PRICE	\$189	\$220	\$99	\$100
PRICE SOURCE	pyacht.com	consumersmarine.com	basspro.com	consumersmarine.com
WARRANTY	3 years	3 years	3 years	3 years
12v DC CHARGER / AC CHARGER	Included	Included	Included	Included
AA OR AAA BATTERY PACK	Optional	Optional	Optional	Optional
BATTERY CAPACITY	980 mAH	1,150 mAH	1,650 mAH	1,500 mAH
BATTERY TYPE	Lithium Ion	Lithium Ion	Lithium Ion	Nickel Metal Hydride
BATTERY COST / WARRANTY	\$56 / 12 months	\$45 / 12 months	\$48 / 12 months	\$20 / 12 months
MAXIMUM CHARGE TIME	14 hours	8 hours	7 hours	14 hours
TESTED OPERATION TIME	15 hours*	8 hours	15 hours*	11 hours
WX ALERT	Yes	Yes	Yes	Yes
FREQUENCY BANDS	Marine	GPS, Marine	Marine	Marine
CHANNEL COMMENTS	No	Yes	No	No
EXTERNAL SPEAKER/MIC	Optional	Yes	No	Optional
WATERPROOF / FLOATS	Yes (IPX7) / Yes	Yes (JIS7) / Yes	Yes (IPX7) / No	Yes (JIS7) / No
DSC CAPABILITIES	No	Yes	No	No
UNIT SIZE (W X H X D)	2.5 x 5.8 x 1.9 inches	2.5 x 5.7 x 1.7 inches	2.3 x 5.3 x 1.2 inches	2.7 x 4.9 x 1.6 inches
WEIGHT	9.7 ounces	11.9 ounces	10.9 ounces	1.1 pounds
TX SETTINGS	6, 5, 1 watts	6, 5, 2.5, 1 watts	5, 1 watts	5, 3, 1 watts
SELECTIVITY	70 decibels	70 decibels	70 decibels	60 decibels
AUDIO OUTPUT (FROM 1 FOOT)	88 dBA	99 dBA	88 dBA	93 dBA
RATINGS				
TRANSMITTER POWER STABILITY	Excellent	Good	Excellent	Good
TRANSMITTER FREQUENCY STABILITY	Good	Good	Excellent	Fair
RECEIVE SENSITIVITY	Excellent	Excellent	Excellent	Good
DISPLAY RATING	Fair	Excellent	Good	Excellent
AUDIO QUALITY	Good	Good	Good	Good
DROP / SUBMERSION TEST	Pass / Pass	Pass / Pass	Pass / Pass	Pass / Pass

★ Best Choice  Recommended

\* Maximum test time.

The HX280S's transceiver performance for the HX280S was top shelf and surpassed that of the Cobra. The HX280S earned Excellent ratings for transmitter power and frequency stability, and receiver sensitivity.

Audio performance was Good. During our output test, we measured 88 dBA, compared to the Cobra's healthy 93 dBA. The HX280S turned in an excellent performance in our battery life test by lasting 15+ hours, where the Cobra lasted for 11 hours solid, then refused to transmit due to a weak battery.

Both radios passed both the drop and submersion tests with no glitches, and both carry an IPX7 waterproof rating, which means they can be submerged to

a depth of 1 meter for 30 minutes without sustaining any damage.

The HX280S has a street price of just \$99, making it one of the least expensive submersible marine handheld VHF radios on the market.

The Standard Horizon HX280S performed above average in all of our testing. The beefy Cobra (also a \$100 radio) lagged slightly behind the HX280S in performance tests but offers a better display and some unique features not found in the HX280S. If no transmission is made after 10 seconds, the Cobra

switches to battery saver mode to conserve power.

**Bottom line:** The Standard Horizon's superior performance earns it our Best Choice pick for an inexpensive, handheld, submersible VHF radio. The Cobra remains a recommended product.

**ICOM M36**

The Icom M36 is the second floating marine handheld VHF from this well-respected communications company.

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*The Cobra HH325 (right) lost its title as PS's Best Choice among inexpensive handhelds to Standard Horizon's new HX280S in this test update.*





Icom M36

(The first was the M34, which we reviewed in the January 2008 issue.) The benefit of a floating handheld really hits home when you watch a perfectly good waterproof VHF bounce over the toerail and sink into oblivion.

And it goes without saying that in an abandon-ship or crew-overboard scenario, a positively buoyant VHF is much better to have on hand than one that must be tethered with a lanyard.

The M36 features 6 watts of power, a lithium-ion battery pack, and clear voice boost, an Icom exclusive that offers a large increase in audio volume with a single button press. This radio also features AquaQuake, which uses a burst of low-frequency sound to clear water from the speaker following submersion.

The Icom M36 comes with an AC charger, belt clip, and hand strap. The accompanying charger requires approximately 10 hours to fully charge the 980-mAH battery pack and will shut off automatically after a 14-hour charge.

System functionality is controlled by 10 pushbuttons, most of which operate both a primary and secondary function. (We prefer knob-controls for volume and squelch.) One-button control is available for transmitter power selection, channel changing, weather channel selection, quick selection of channel 16 or 9, favorite channel selection, clear voice boost, and some scanning options.

Menu-selected scan modes include priority, normal, dual watch, and tri-watch. The M36 can use all U.S., International, and Canadian marine VHF channels and NOAA weather channels.

We rated the small M36 display Fair as the night lighting was uneven. Seg-

*The Standard Horizon HX850S (right), PS's Best Choice among high-end handhelds, offers full DSC capability and has a built-in GPS receiver.*

mented numbers are used to display the selected channel, and when appropriate the alpha character is displayed. An "L" is displayed when low power is selected. A battery level meter, shaped like a battery, drops as power is depleted. The M36 also has onscreen level meters for volume and squelch.

Overall transceiver performance of the M36 was very good, and overall audio performance was Good. Its 88-dBA audio output was average in this test group; however, the HX850S cranked out 99 dBA.

We've tested many Icom radios over the years, and one thing we commonly find is that Icom transmitters use less power than any others to produce the same output. We think that fact contributed significantly to the outstanding battery life exhibited by the M36: It lasted 15 hours in our battery life test—nearly double the manufacturer's claim. And battery life is the main drawback of the HX850S: It lasted only seven hours in our test.

In this head-to-head matchup, the cards were stacked against the \$189 Icom M36. Both it and the HX850S float, but the M36 lacks the built-in GPS receiver and full DSC capability of the HX850S. Rare for a handheld, the HX850S can transmit and receive DSC distress calls, and can handle all ships, individual, and group calls, as well as position requests or position reports. It was the only test radio capable of displaying current position data, as well as speed over ground and course over ground.

**Bottom line:** The M36 is a well-built radio with good transceiver performance and outstanding battery life, but for about \$30 more, buyers can get a radio that floats, performs as well or better, and offers DSC and a GPS receiver.

The HX850S maintains its Best Choice spot for high-end handhelds, while the M36 gets our recommendation.

## CONCLUSION

The field of handheld marine VHF radios offers many, many options to choose from, covering a range of price points. The basic, entry-level radios are well-suited for small boaters on a budget or as backup to a primary, fixed radio. Those in the market for a no-frills, portable VHF would do well with either the Standard Horizon HX280S or the Cobra HH325, but the HX280S gets the Best Choice nod.

For those able to spend a little more—or willing to spend a little more to get the bonus features—the high-end radios offer more bells-and-whistles and are typically better equipped for duty as a primary VHF for coastal sailors (although we suggest cruisers have at least one fixed VHF on board). The hands-down Best Choice among high-end handhelds is the floatable Standard Horizon HX850S, with a GPS receiver and full DSC. These bonus function eat up significant battery power, so we suggest keeping backup batteries onboard. ▲



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