

AOR AR8600 Mark 2 Receiver

The AOR AR8600 Mark 2 is a wide coverage, multimode receiver built in Japan. It is an improved version of the AR8600 we reviewed in April 2001 *MT*. Except for a “Mark 2” gummed label affixed to the cabinet top, the AR8600 Mark 2 looks identical to the original AR8600. Both models are furnished with the same manual, though the Mark 2 comes with a two-page update sheet.

The AR8600 is both a shortwave and VHF/UHF receiver, and frequency coverage has been expanded to 0.1 to 3000 MHz versus the earlier model’s 0.53 to 2040 MHz limits. Three AM bandwidths, three FM bandwidths, CW, USB, and LSB are supported.

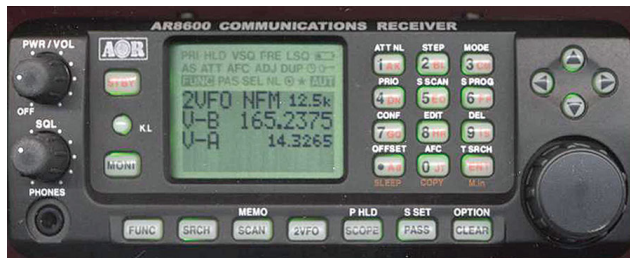
The AR8600 is powered by 12 - 14 VDC or from the AC mains using the provided wall wart power supply. A telescoping antenna and a tiny, removable AM broadcast antenna are included.

Extra cost options include a dealer installed eight AA 700 mA NiCd battery pack and “slot” cards which can be plugged into edge connectors on the rear panel. Cards available are: TE8200 tone eliminator, CT8200 CTCSS squelch, VI8200 inversion descrambler, RU8200 20 second audio recorder, and EM8200 secondary memory. An optional mobile mounting bracket (MM8600) is available, as well. We tested AR8600 serial number 551213, but have none of the options to evaluate.

◆ VFOs, Memory, Scanning, and Searching

The AR8600 has two VFOs and displays the frequency of both simultaneously. The tuning step size is more flexible than found in most receivers. It is adjustable, regardless of emission mode, in 50 Hz increments up to 999.95 kHz, with an additional choice of an exact 8-1/3 kHz. Though the procedure requires some effort, you can offset the AR8600 tuning if you want to tune only the interstitial channels, e.g., use a 25 kHz step size to tune 470.0125, 470.0375, 470.0625, etc.

The VFOs are handy for general band tuning or searching, using both VFOs to designate upper and lower limits. Our AR8600 often stops a few kHz away from a signal’s



center frequency. Up to 50 frequencies may be skipped. The AR8600 will not stop on signals within 10 kHz of designated skip frequency.

In addition to searching between the VFO limits, there are 40 pairs of search limits available. They can be linked together, though the step, mode, and attenuator settings can differ for each one. Each search bank also supports up to 50 “pass” (skip) frequencies.

An Auto Store facility stores active frequencies into a memory bank. The AR8600 stops on the active frequency during an Auto Store and you can hear the audio. It will not resume searching until end of transmission, depending on the search settings.

The 1000 memory channels are divided into 20 banks, designated A, a, B, b, etc. Initially, each bank has 50 channels, but you can re- apportion 100 channels between bank pairs. For instance, bank A can contain 15 channels and bank a can hold the remaining 85 channels.

An alphanumeric label can be programmed for each memory channel, memory bank, and search bank. Banks can be scanned individually or in combination.

◆ A Solid Build

The AR8600 Mark 2 is ruggedly built in a clamshell metal cabinet with cast metal front and rear panels. It “feels” like an expensive radio and won’t walk off the desk when keys are pressed. One can easily envision a Mark 2 installed inside a police surveillance van or emergency communications truck.

The tuning, volume, and squelch knobs are rubbery and easy to grasp.

The green LCD display

and keypad are brightly lit, and you can adjust the LCD contrast to suit. The Mark 2 has a new option to turn on backlighting for a few seconds after the squelch opens or a key is pressed. We would have preferred that the light remain on for the duration of a transmission instead of timing out.

A standard DB9 connector is fitted on the rear panel so a computer may control the AR8600 Mark 2. AOR wisely documents the computer commands in the radio’s operating manual. The manual update sheet mentions the AOR Workshop PC software (for Windows) available for free download (<http://www.aoruk.com>), but we haven’t used it.

A 10.7 MHz IF output jack is provided and enabled in WFM mode. Enabling it for other modes is an operation which “should be carried out in a workshop,” but the user manual doesn’t tell how. An odd, 8-pin jack on the rear provides unfiltered detector output, high and low level audio outputs, but the Mark 2 no longer provides the same tape recorder switching connections as the original AR8600. AOR doesn’t include the mating connector with this kilobuck radio.

◆ Performance

Our AR8600 Mark 2 performs fairly well on VHF/UHF, though we confined testing to frequencies below 1300 MHz. The image rejection, audio, intermod immunity, and sensitivity are on par with good scanners. The Mark 2 hears intermodulation products in the VHF high band from a NWR 162.4 MHz transmitter, as do our Radio Shack PRO-2006 and Uniden BC9000XLT. The “old faithful” ICOM IC-R8500 is unaffected.

Audio output power is usually specified as some number of watts or milliwatts at 10% distortion. Our Mark 2’s audio distortion was less than 2%, even with the volume control at full rotation. We connected the receiver to a noninductive 8-ohm resistive load



instead of a speaker while making this measurement.

With a 12 channel/sec scan rate and 24 step/sec search rate, our Mark 2 is not a fast scanner.

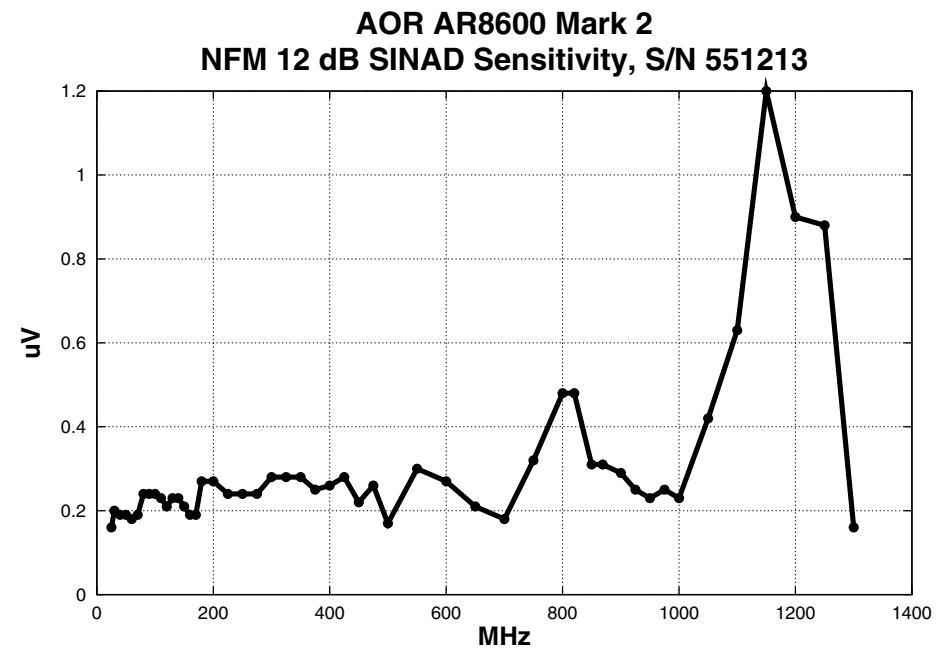
AM BCB reception using the small plug-in "dorsal fin" antenna is disappointing. Our minimalist AM/FM portable radios are more sensitive.

We used the AR8600 Mark 2 on short-wave side by side with a Japan Radio NRD545 (s/n RG05179) and ICOM IC-R8500 (S/N 01075). They shared the same 132-foot center fed Zepp antenna.

Our AR8600 Mark 2 overloads below 30 MHz without attenuation and is severely stricken with AM broadcast intermod. The Mark 2's built-in attenuator does not completely eliminate the problem, but reduces it better than in the original AR8600. The more expensive NRD545 and IC-R8500 are nearly intermod free under the same conditions.

◆ Finicky Squelch

The squelch has three modes: carrier operated, voice operated, and signal strength. The squelch tail is slightly longer than our AR8600 during FM reception in normal operation. Our Mark 2's squelch threshold varies by mode and that means that scanning



channels with a variety of modes (e.g., NFM, SFM, AM, NAM) requires a compromise squelch setting. The squelch doesn't close consistently in SSB when using it in the carrier operated mode, regardless of the squelch knob position. Luckily, the voice activated squelch mode works well during SSB reception unless it becomes confused by a high noise level, e.g., 4 MHz band conditions on a summer night.

balance of attenuation and antenna.

The Mark 2's VHF and UHF performance is on par with other scanners. Listeners with more space should consider an ICOM IC-R75/Uniden BC780XLT combination alternative.

The AR-8600 Mark 2 receiver is available for \$889.95 from Grove Enterprises, 7540 Hwy 64 West, Brasstown, NC 28902; 800-438-8155 or email order@grove-ent.com.

Measurements

AOR AR-8600 Receiver S/N 551213

List price \$999
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<http://www.aorusa.com>

Frequency coverage (MHz):
0.1 - 3000

Steps: 0.05 kHz - 999.95 kHz
in 0.05 kHz increments

NFM modulation acceptance: 7.7 kHz

Attenuator:

15 dB @ 14 MHz
15 dB @ 40 MHz
15 dB @ 155 MHz
14 dB @ 460 MHz
14 dB @ 860 MHz

Intermediate Frequencies (MHz):

1) 243.85 or 754.85
2) 10.7 or 45.05
3) 0.455

Audio output power, measured at speaker jack:
400 mW @ 2% distortion

Squelch tail near threshold (1 uV @ 155 MHz): 40 ms.

Practical memory scan speed: 12 channels/sec.
Search speed: 26 steps/sec.

◆ Wrapup

The AR8600 is solidly built. The wide spectrum coverage, front panel illumination, flexible step sizes, and adjustable memory banks are assets we'd like to see in more receivers. It oozes with features and options, but the multiple keypad sequences make the AR8600 Mark 2 difficult to use and program. Changing the mode and step size requires several key presses. The 143-page AR8600 manual is much more comprehensive than the Yaesu VR5000 manual, despite a few omissions.

The most important improvement in the Mark 2 over the original AR8600 is in reception below 30 MHz. Our Mark 2 is quite usable for short-wave reception when teamed with an external, adjustable attenuator and an outdoor antenna. The original AR8600 was more easily overloaded, and we could not find the right

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