



## Comparing Four Mid-Priced Portables: Grundig G4000A, Kaito 1103, Grundig G5, and Sony ICF-SW7600GR

By Todd Van Gelder

I'm tough on my shortwave portables. I expose them to travel, the tropical conditions of a hot and humid bathroom during showers, and occasional freezing conditions, when I venture outside on winter nights to hunt longwave beacons and elusive shortwave signals away from the wrath of the RF interference that pervades my Maryland neighborhood.

Since I rediscovered my love of shortwave listening and DXing several years ago, I've acquired a small collection of affordable radios. My initial purchase conditions were simple: digital readout and SSB reception. Now this may not seem like a lot to ask for, but as anyone who was an SWL during the 1970s or before (as I was) can tell you, these features were a mere fantasy then. So, when I picked up the hobby again, I purchased a Grundig Yacht Boy 400PE. It seemed amazing to me that for around one hundred and forty dollars, one could purchase a compact, full featured radio that covered longwave to shortwave and had great FM reception as well. More importantly, as an occasional utility listener, I could actually make out what was being said on side-band and stations didn't drift!

However, after several years of daily use, sometimes under harsh conditions, the YB 400PE started to have some minor problems. Most of these issues were due to the fact that I traveled quite a bit with it. So, it was time to pick up a radio just for travel. Around that time, I started to read some good things about the newly introduced Kaito 1103. The feature-set seemed incredible for any radio under two hundred dollars. The fact that it was around ninety dollars made it a downright bargain, so I ordered one.

The Grundig G-5 and Sony ICF-SW7600GR were more recent acquisitions. My reasons for picking up these additional radios will be mentioned later in this article.

### ❖ It's what's on the outside that counts

The old adage, "It's what's on the inside that counts," is generally used when talking about people. But when talking about shortwave reception, it's what's on the *outside* that counts: your antenna. When taking these radios through their paces, I tested reception three ways: with the attached whip antennas, the internal AM antennas and with my outdoor longwire antenna.

I've had two outdoor setups in the last eight years. The first was a 75 foot, end-fed wire, which was in a horizontal V-shape. It provided excellent reception, although it picked up its fair share of noise, since we lived on a main road with nearly half a dozen power lines running right past our house. This past summer, our family moved a few doors down, which took us off the main road, so the noise levels are somewhat lower. However, since we live in a historic village, I was faced with the challenge of keeping my new antenna setup discreet (as I had at the old house).

I had known that the previous owner of our new house had installed an electric "border" fence for his dog. This gave me a great idea. I knew that there was well over two hundred feet of heavy gauge copper wire buried throughout our new property. I also noticed that at least 60 feet of this wire ran across the rafters of our detached garage. Since the previous owner had taken the electronics off of the system in order to set up

an electric fence at his new house, I thought that tapping into the existing copper wire fencing at a point closest to our house might make for a good shortwave antenna and would insure that I had no visible antennas outside of the house.

Though I understood that, theoretically, a buried shortwave antenna is not ideal, I threw caution to the wind. I snipped the heavy copper wire where it ran next to the house in a planting bed and ran a length of coax out the side of the house. I connected the center lead to both stripped wires and sealed it up with a large wire-nut. Strange though it may be, the antenna performs quite well and provides that extra boost needed when a whip antenna just won't do the trick. During the evaluations that follow, this was the primary antenna used.

### ❖ The Grundig YB400PE – A Full Featured Workhorse

Why mess with success? The YB 400PE is likely the most popular shortwave portable in recent history. So instead of dropping the model, Grundig simply renamed it the Grundig G4000A. I've been using this radio for over 5 years on almost a daily basis and it has performed well. I wish I could say "without a hitch," but that would not be true. On several occasions over the years, the radio has lost all of the 40 pre-set frequencies that I've entered into its memory and each time, for no apparent reason. After this happened the first time, I built a spreadsheet which listed all of the frequencies, along with country or station data. This way, I'd have a paper and electronic record to back my choices up in the event this happened again.



The Grundig G4000A, Sony ICF-SWS7600GR, Kaito 1103 (Photo by Eric Van Gelder)

Just as I finished entering the 40 frequencies into the spreadsheet, it *did* happen again! Fortunately, this radio shines compared to the other three in the area of intuitive operation when it comes to station memory entry, so re-entering the frequencies wasn't that much of a chore. You simply enter the frequency, choose a pre-set number, and away you go. Entering presets into the other radios is more complex.

However, one of the drawbacks of this Grundig model compared to the other radios is that it *only has* 40 station presets. The Sony has 100, the Kaito has 268, and the Grundig G5 has a whopping 700. Another minus is overall frequency coverage. Where the other three radios cover almost all of the broadcast and utility spectrum from longwave (LW) through commercial FM (US) and then some, the G4000A has a frequency gap between 353 and 500 kHz. I've found there are enough beacons (including the one at our local small airport) and other interesting signals in that range, that I missed having continuous coverage.

On the other hand, this radio has great sensitivity on LW. The proof was that on a trip to the Caribbean, I could actually pick up numerous European broadcasters with it! In fact, the overall sensitivity of the G4000A is excellent. There seems to be little difference in what signals it can pull in from the bottom to the top end of the shortwave frequency spectrum. It is also sensitive enough to pick up several Cuban broadcasters on AM, like Radio Reloj on 870 AM, with just a slight turn of the radio. For AM reception, the G4000A uses the internal ferrite bar antenna. The external antenna connection only works for shortwave and FM, not AM or LW.

One of the biggest differences between these four radios is the tuning method. This model can be tuned using direct frequency entry, or by using one of the up or down buttons on the front panel in steps of one, five and ten kHz (in the case of FM).

As all of these radios are portable, battery consumption is an issue. The G4000A is average in this department. It will use up a new set of alkaline batteries after around two weeks of daily use of approximately an hour a day. However, an excellent power adapter is included. It puts out very little of the noise that is typically associated with "wall warts" of this kind.

One other nice accessory is the wind-up antenna (included). I've used this while traveling not only with the G4000A, but with the other radios mentioned in this article.

Since I use the G4000A as my daily alarm clock as well as a SW receiver, I like the fact that it has settings for two time zones. I have one set to UTC and the other set to our local time. The level of the backlight leaves a bit to be desired.

I noticed after about a year of use, the side-mounted volume control started to give off that "crunchy" sound that is common to old potentiometers. It's usually the sign of a dirty control. I sprayed it with some commonly available CRC electronic contact cleaner. It was fine for a while, but started to happen again about two months later. After several consecutive treatments with that contact cleaner, I tried an alternate: Radio Shack tuner cleaner w/lubricant. Four years after

that treatment, the problem still hasn't returned. So for this particular radio, I'm a believer in that little can from RS!

In comparison to the other radios here, it's worth mentioning that the G4000A and the Sony 7600GR have the best audio quality when using the built in speaker, with the Grundig getting the slight edge. In terms of quality on SSB, the G4000A is a bit tinny.

#### FEATURES

- o Tunes both upper and lower sideband with infinite fine-tuning.
- o User selectable tuning steps: 1kHz/5kHz in SW; 1kHz/9kHz/10kHz in MW; 1kHz/9kHz in LW.
- o User selectable wide/narrow bandwidth filter.
- o DX/Local switch.
- o Hi/Low tone option.
- o Switchable 9kHz/10kHz scan rates on MW
- o FM-stereo with mono option.
- o Telescopic antenna for FM and shortwave reception.
- o Built-in ferrite antenna for MW and LW.
- o External SW antenna can be connected via the built-in receptacle.
- o Shipped with owner's manual, warranty card, operating instructions, carrying case, ear-phones and AC adaptor for North American use.
- o Dimensions: 8"W x 4.8"H x 1.5"D Weight: 1lbs. 5oz.
- o Power Source: 6 AA batteries (not included) or AC adaptor (included)
- o PLL synthesized tuning for rock-solid frequency stability.
- o Continuous shortwave from 1.6 through 30 megahertz, covering all existing shortwave bands, AM and Longwave.
- o Single sideband (SSB) circuitry
- o 40 randomly programmable memory presets. The memory "FREE" feature automatically shows which memories are unoccupied and ready to program.
- o The LCD shows simultaneous display of time, frequency, band, automatic turn-on, and sleep timer.
- o Liquid crystal display (LCD) shows time and clock/timer modes.
- o Dual alarm modes: beeper & radio.
- o Dual clocks show time in 24 hour format.

#### RATINGS (0-10 scale) Grundig G4000A

Audio Quality	9
Battery Consumption	7
User Interface/Ease of Use	8
Overall Features	6
Overall Reception	7
Longwave Reception	7
Construction/Initial Quality	9
Long Term Quality	6

### ❖ The Kaito 1103 - Almost too good to be true

When I first started reading the feature list of the Kaito 1103 in an on-line catalog, I kept glancing over at the price to make sure I wasn't imagining things. Here was a full range, full featured digital radio with SSB, 268 pre-set station memory, a tuning knob, as well as direct input tuning and two frequency readouts, one fully digital and one that mimicked an analog radio and all for around \$90.00! It was as if someone had gone into the subconscious minds of all of us who loved analog radio, but also embraced the digital age and came up with the ideal inexpensive radio. In short, this radio was *cool!*

Even though there was a bit of a learning curve when it came to operating the 1103, it seemed the more I played with this radio, the more I liked it. Because the tuning knob also controls volume and several other functions, it takes a while to get used to. However, there is always another option besides this knob to select or change each feature on the 1103.

The SSB on the 1103 is clear as one could expect for a radio of this price, but better than I expected.

The backlight is strong and steady on both the digital and pseudo-analog readouts and battery consumption is very low. But with the 1103, one need not worry about batteries, as the radio comes with rechargeable batteries built in and the wall adapter also acts as a charger. One charge and the radio would play for over a week of daily use. This is one feature that I really appreciate and miss on the Sony 7600GR and the Grundig G4000A.

In terms of sensitivity, the 1103 is just as sensitive as the G4000A and like all of these dual-conversion radios, there are rarely any frequency ghosts or other signal overload problems associated with single-conversion radios. However, the 1103's sensitivity seems to drop off sharply in the longwave bands. I can easily pick up LW signals with the other three radios that I can barely detect with this one.

One drawback of this radio is that, that like the G4000A, you can't use the external antenna jack for either AM or LW. One night I was trying to tune in the pirate radio station from Brooklyn, NY, "Radio Mosiach and Redemption" on 1710 AM. No dice. However, when I tuned to 1711, my outdoor antenna was activated and there it was! Radio Mosiach is a favorite target for me, as I often visit family in the NY metro area. In fact, the 1103 made for a handy direction finding radio, as I tracked the pirate station to an approximate location near its mailing address, just off Eastern Parkway in Brooklyn one afternoon.

#### Trouble in Paradise?

About two years into owning the 1103, the multifunction knob used for tuning, volume, and several other functions started to go bad. Via an article in *Monitoring Times*, I had read about the possibility of this happening on some early production runs of both the Kaito and Degen models of this radio. But there was no guarantee that it *would* happen.

The symptoms started gradually; frequencies would zip by faster when using the tuning knob and sound levels would jump sporadically when using the same knob to adjust the volume. I temporarily fixed the problem using the same Radio Shack cleaner/lubricant spray I had used on the G4000A, but the problem would return the next day. Eventually, I had to open the 1103 in order to clean this control more thoroughly, but this solution didn't work, either.

However, by using the push buttons for tuning and volume controls, I still use this radio regularly. It's still a technological marvel to me.

#### FEATURES:

- o 268 memory presets (Dynamic memory on 19 Pages) with autoscans



- o Beeper, radio and sleep clock/alarm
- o Manual or direct-entry frequency tuning
- o Electronic volume set
- o Smart charger with count-down timer and battery power/charge indicator
- o Meter band to frequency conversion
- o 3 backlight modes
- o LCD bar graph signal strength indicator
- o External speaker, earphone, line output and antenna jacks
- o Auto reset prevents deadlocking
- o Extra-long telescoping antenna improves reception
- o DX/LOCAL switch to prevent front-end overload
- o FM mono/stereo selection
- o Music/news (voice) tone control with "Super bass" selection

#### **RATINGS (0-10 scale) Kaito 1103**

Audio Quality	6
Battery Consumption	9
User Interface/Ease of Use	6
Overall Features	9
Overall Reception	7
Longwave Reception	2
Construction/Initial Quality	8
Long Term Quality	5

### ❖ The Grundig G5 – The New Kid on the Block

The newly introduced Grundig G5 became available in 2006. This model takes the features of the Kaito 1103 a step further. Once the problems started on the 1103, I was tempted to buy another of the same model, but fearing history would repeat itself, made the step up to the G5.

It's no coincidence that the G5 has many of the same features as the Kaito. In fact, the side panel layout is almost identical. This is because Kaito/Degen manufactures the G5 for Grundig. The G5 has excellent sensitivity across the board on SW, AM and FM and is a great performer in the LW band as well. This made me curious as to why Grundig doesn't mention LW even existing on this radio in ads or feature lists (a mystery that has yet to be solved).

In terms of power, the G5 includes an adapter that also acts as a battery charger, but unlike the Kaito 1103, the rechargeable batteries are not included. Another oddity of this charging system is that the radio asks you how many hours you would like the batteries to charge. The Kaito, on the other hand, stops the charging process when the batteries are full.

This radio sports 700 memories, which is an impressive number and one that I'd never likely come even close to fully populating. However, I found that the method for both

entering frequencies into memory and recalling them was tedious and not well thought out. In order to get to any page of memorized frequencies, one has to hold down the tiny button of that page and scroll through the 10 selections. I like intuitive radios and in this regard, the G5 is not.

SSB clarity on the G5 was very similar to the 1103. In fact, in terms of performance, the G5 is like the 1103 in many ways. One area where the G5 stands head and shoulders above the rest, though, is FM reception. I don't know if enhanced FM reception was an intended feature, but it certainly is a welcome one. Just using the built in whip antenna, I could clearly get every station from not only Washington, DC, which is around sixteen miles away, but also Baltimore and its surrounding areas, which is close to 30 miles away.

What was amazing was the selectivity between tightly packed FM stations. This radio seemed to separate them with no problem. Reception had very little of the "fuzz" that is common to distant FM stations. The real test was to try to tune in a weak FM station from Annapolis, Maryland, that I enjoy. The station, WRNR, is not only less than ten-thousand watts, but it is over 50 miles away and beams its signal away from the DC area, to eliminate interference with WAFY from Frederick, Maryland. Although both stations put out similar wattage, typically, because of directional patterns, WAFY wins the battle. Not so with the G5. A quick turn of the antenna to the east, and WRNR came in like a champ.

With the exception of the non-intuitive memory feature, I really like the G5 overall. However, the question that looms large is whether or not the G5's tuning multi-function tuning knob will hold up. Since it has the same genetic makeup (and presumably, comes from the same factory) as the Kaito 1103, I wonder if the same problems with the knob will ultimately occur.

#### **FEATURES:**

- o AM, FM-Stereo and Full-Shortwave Coverage (1711-29999 kHz)
- o PLL Dual Conversion AM/SW Circuitry with SSB
- o 700 Programmable Memory Presets
- o FM Station Auto Tuning Storage (ATS)
- o Alpha-Numeric Four Character Memory Bank Labeling
- o Tunes via Auto-Scan, Manual-Scan, Direct Key-in Entry and Tuning Knob
- o Selectable 9/10 kHz AM Tuning Steps
- o Clock, Sleep Timer and Four Programmable Timers (for alarm or wake-up)
- o Weekday Setting
- o World Time-Zone Selection
- o Shortwave Narrow/Wide Bandwidth Selection
- o AM/FM News/Music Tone Selection
- o Stereo Earphone and Line Out Sockets
- o Socket for External Shortwave Antenna
- o Internally Recharges Ni-MH Batteries (batteries not included)
- o Power Source: 4 AA batteries (not included); AC Adapter (included)
- o Dimensions: 6-5/8" W x 4-1/8" H x 1-1/8" D
- o Weight: 12.2 oz
- o Included: Owner's Manual, Protective Case, AC Adapter/Charger and Warranty Card
- o Weight: 12.2 oz

#### **RATINGS (0-10 scale) Grundig G5**

Audio Quality	6
Battery Consumption	7
User Interface/Ease of Use	5
Overall Features	9
Overall Reception	8
Longwave Reception	8
Construction/Initial Quality	8
Long Term Quality	NA
Audio Quality	6
Battery Consumption	7
User Interface/Ease of Use	5
Overall Features	9
Overall Reception	8
Longwave Reception	8
Construction/Initial Quality	8
Long Term Quality	NA

### ❖ The Sony ICF-SW7600GR

#### **– A great radio, built to last**

When I went to J & R in New York City to buy up the Sony ICF-SW7600GR, the salesman, an older gentleman, said to me as he handed me the radio, "You know, that one is *still* made in Japan." I laughed to myself, as I remembered that as a kid that "Made in Japan," meant "junk." Now, a piece of electronic equipment that's made in Japan and *not* China (as the other three radios are) is considered a rarity. Japanese craftsmanship has become legendary, as it transformed the entire automobile and electronics industries.

In fact, you can feel a real difference when you first pick up the Sony 7600GR. It feels very solid compared to the other three radios. It looks and feels like it's built to last. The buttons and controls seem a bit bigger than even the G4000A. In fact, in terms of look and feel, it seems that the Sony and the Grundig are in direct competition. The radios are both around \$140.00 and have a similar feature set and are around the same size. The Sony wins in most categories, especially the memory department, with 100 presets, although it's not as easy to program and recall stations as it is on the G4000A.

It also has extended FM tuning range (as do the 1103 and the G5). I also have noticed over the years that this radio and its predecessor, the ICF-SW7600G, have been mentioned numerous times in *MT's Below 500 kHz* column. As I felt that the other three receivers were somewhat lacking in either frequency selection and/or sensitivity in the longwave bands, I wanted to see why the Sony models were so often the radios of choice in this range.

A quick survey of beacons answered my question: This radio is by far the best performer in the LW bands over the other three, and is quite strong on the AM side, too.

On sideband, the Sony also outshines the other radios with one simple feature: in addition to a fine tuning control, it allows the user to select upper or lower sideband via a switch. The other radios have a general sideband switch and a fine-tuning knob only. Selectable upper and lower sideband is a big help when pulling in sideband signals if multiple transmissions are happening on one particular frequency (as in listening to hams).

However, the outstanding feature on the Sony 7600GR is the selectable synchronous detection mode. I've read and heard arguments

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Now, I had to use a 10 power magnifying glass and bright light to see the connections. Even a 15 watt pencil type soldering iron is nearly too large. Using a couple of dental picks, I scraped away even the most minute track of dirt, solder or flux from the repaired connections.

The toothbrush and alcohol scrubbing is something we never dreamed of when soldering resister and condensers to terminal strips, components, or each other. If we got our irons to heat the heavy chassis to just the right temperature, we could solder our connections direct for a good ground. That had the advantage of reducing unnecessary wiring. "Just don't let the excess solder run down on too many components," our shop teacher warned. A splatter of solder here and there was permissible as long as we didn't short out anything in the process.

### ❖ Second Time's a Charm

So back into the ICOM I went. This time the display unit came free a bit quicker than the first time. I inverted the unit and went through the examination process once again. Taking my time on my repair bench, I went over each soldered connection. Gary had resoldered a through-board



*The author, back on the air and enjoying an evening operating his repaired rig.*



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over the years that synchronous detection is a "gimmick" or "glorified sideband." I found neither to be the case. Although, technically, it does borrow its basic operational principles from a sideband detection circuit, in actual use, it's quite different. It not only boosts weak signals, it smoothes out moderate and strong signals as well. It meets its goal of evening out the peaks and valleys of reception of both groundwave and propagation path signals.

Running the Sony and the Grundig G4000A side-by-side using just the whip antennas, I was able to pull in weak stations with the synchro switch on that I simply could not hear at all on the Grundig (like Belarus, for example). It is quite amazing.

Of course, all good things come with a downside. With the synchro switch engaged, the level of background noise increases slightly. But not nearly as much as it would with an active amplifier hooked up to the antenna. The synchro mode also brings an unadvertised advantage with it. Although the Sony (and the other three radios) have "high-low" tone switches, when listening to a medium to strong station, if the synchro switch is on, switching between upper and lower sideband (even though you're not in sideband mode) gives two additional tone selection choices. No, it's not as good as having a DSP circuit, but it helps.

With all this great reception, my big question with the Sony is: why doesn't it have a signal strength meter? Although it will tell you via the LED readout when a signal is strong enough for synchro mode and will automatically lock to it (if synchro is switched on), there is no other indicator of signal strength. I found this somewhat frustrating in a radio this advanced, but certainly not a deal-breaker.

This is also the only radio of the three where a power supply has to be purchased separately

from the unit. Although this is another drawback, batteries seem to last a bit over three weeks when using the radio daily. So this has not been a problem.

#### FEATURES:

- o AM(LW/MW/SW)/FM Stereo Reception
- o 10 Key Direct Access™ Tuning
- o Short Wave Guide Book
- o PLL Quartz Frequency Synthesized Tuning
- o Hold Button
- o Compact Antenna
- o Synchronous Detection Circuitry
- o Auto Scan Tuning/Memory Scan
- o SSB Reception
- o 1 kHz Step Tuning
- o 100 Station Memory Presets
- o World Time Clock/Dual Clock

#### RATINGS (0-10 scale) Sony ICF-SW7600GR

Audio Quality	8
Battery Consumption	8
User Interface/Ease of Use	7
Overall Features	8
Overall Reception	9
Longwave Reception	9
Construction/Initial Quality	9
Long Term Quality	8

### ❖ Rounding the final turn, the winners are:

Picking a winner among these radios is tough. If based on ratings alone, the Sony would win. However, each radio is unique enough to make it stand out on its own, and if I were more careful with how I handled my portables, some of the problems listed above might not have occurred.

If genetics were the basis for my decision, since the Kaito and the Grundig G5 come from the same family, I'd give the Kaito the slight edge, because of the easier user interface and its superior access to the presets. However, I haven't owned the G5 long enough to know if

connection that had looked questionable. There was some flux that bridged the connections between the circuit board traces. I scraped these clean, and, with a dental pick, pressed hard on each connection. There was no further evidence of visible problems and I decided against resoldering all the joints, lest I cause more problems than I solved.

With another alcohol scrub down, followed by a dry brush scrub down, I replaced the display unit. Things went back together much more quickly than before. This time, however, I did not replace the outer case until I gave it the power test. With power on, I was delighted to find the readout back to normal. Whew!

With the rig back in its proper place at my operating station, I happily worked a dozen stations over the next few days. As I sat in my California QTH, a fellow in Moscow, Idaho, with a good CW fist, gave me a favorable signal report. His weather was 25 degrees F and one foot of snow on the ground. A shiver ran through me as I thought back to my three years of New Jersey's winters. My shack was a comfortable 72 degrees as I sat there in my pajamas and slippers, tuning up and down the band while admiring my crispy-clear blue frequency read out digits. It was pure bliss!

tuning knob problems will pop up. But so far, so good.

Putting the Grundig G4000A and the Sony head to head, the Sony has a slight edge in terms of features. However, I have been very happy with the G4000A over the years. To borrow some terminology from horse racing, overall, it's a photo finish. Although I would buy any one of these radios again, the results of this tight race look like this: (1) The Sony ICF-SW7600GR, (2) the Kaito 1103, (3) the Grundig G4000A, (4) the Grundig G5.

Luckily for the consumer, in the range of \$90-\$150 radios, all bets are safe.

## Longwave Resources

✓ **Sounds of Longwave** CD or Audio Cassette (please specify) featuring WWVB, Omega, Whistlers, Beacons, European Broadcasters, and more!  
\$13.95 postpaid

✓ **The BeaconFinder** A 65-page guide listing Frequency, ID and Location for hundreds of LF beacons and utility stations. Covers 0-530 kHz.  
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**Kevin Carey**  
P.O. Box 56, W. Bloomfield, NY 14585

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