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The Panasonic RF 2900 and RF 4900 (from Perry Ferrell) ...yes, they are different (from the RF-2800 and RF-4800-ed.) The 2900 was improved--selectivity-wise--and the 4900 has had some of the severe overload problems reduced (not eliminated). The 2900 has had the back to back IF transformers removed and a 4-section ceramic filter substituted. This gives better initial skirts and oddly enough is roughly comparable to the RF-4800/4900 "narrow" selectivity mode. The RF-2900 "Narrow" mode is still an emitter ceramic to resonate the IF stage. The RF-4900 retains the IC stage for the AM/FM IF/Detector/AGC and still has severe leakage problems across the selectivity nose that seemingly defy removal. We (Gilfer) sell a modified version of the 4900 by eliminating the "Wide" mode and making it the "Narrow" mode and then installing a very tight filter in the spot left from the "Wide" mode circuit. Obviously, the front panel switch is changed to reflect the interior changes. Because of the IC leakage the nose can't be reduced (without a lot of extra wiring) below ± 2.5 kHz at -6 dB (on the average, since it varies between receivers in different production runs). At -60 dB we're able to get the skirts down from 14 kHz ("wide") to 10 kHz ("narrow")...For sake of comparison, the original "wide" mode of the 4900 (and to some extent the original 2800) is about 8 kHz at -6dB and 20 kHz at -60dB.

Grant Manning adds that the RF-4900 is essentially the European version of the RF-4800 and neither is much good on BCB, due to overload problems. For more on the 4800 see Grant's review of it available as IRCA reprint R20.



the irca technical column

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More on the Panasonic RF2600 (from Armand di Filippo)

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After reading Mort Meehan's comments on his method of coupling an inverted L to the RF-2600 by wrapping wire around the receiver's case, and Grant Manning's assertion that the antenna input is not even coupled to the internal BCB ferrite antenna, I felt I should relate to my experiences with the radio.

Like many frustrated RF-2600 owners, I tried various strategies to couple wire antennas to this receiver. After many attempts I must agree with Grant Manning's comments. In fact, not even active loop antennas can be used efficiently if connected to the provided antenna input on the back of this set.

However, after additional experimentation, I now rate the RF-2600 my number one BCB receiver. Better than my FRG-7 with mechanical filter and digital display; better than my Shotgun loop TRF with selectivity improvement; better than by RF-2200, RF-1150, ICF-5900W, GE Superadio 7-2880, and JVC FR-6600JW. The FRG-7 might have better selectivity but the RF-2600 without any preselector to peak and its slow tuning speed make it a joy to operate. I must point out that the RF-2600 appears to have pretty decent selectivity in the narrow position.

Comparisons of all radios were made using the Palomar BCB loop antenna, SM-2, and Dymek DA-5. At the very least, the RF-2600 equaled all receivers in terms on sensitivity, provided the following loop antenna connection is observed:

Naturally, the outer braid of the connecting cable should be connected to the set's ground terminal. The core should be connected to an alligator clip which in turn is clipped to the whip antenna. The whip antenna should not be extended. Only have enough exposed to connect the alligator clip. Using such loops as the SM-2 or Dymek DA-5, you should be ready to cook. (The palomar BCB loop is ideal for portable use, but is not as sensitive as the other loops mentioned). If one should experience any overloading (I have not), the Radio West outboard attenuator may be used.

In short, I have found the RF-2600 to be a great set for BCB work, provided one uses a good active loop coupled to the set via the whip antenna. I have found no discernible drift; the digital display on my set is right on the money, and the selectivity on narrow position is pretty useful.

The Panasonic RF-2200 (from Randy Tomer): I've always been highly enthusiastic about the RF-2200. Although it does not compare with a good communications rig, it sure beats the heck out of any other portable I've owned or looked at. It has all the controls featured on big radios, except for a noise limiter (big deal!) yet it runs for a good while on one set of batteries. Best features for MW are its accurate 20 kHz dial readout and its rotating loop antenna. Price is a little steep (\$125 discount) for a MW only DX'er but for an all band listener it's a real bargain. Selectivity in the "narrow" position is good enough to hear the stronger split frequencies and its BFO is great for spotting carriers. And when inductively coupled with my Wedge loop, this a pretty hot receiver sensitivity-wise. There were 2 or 3 birdies (like BFO whistles) between 540 and 600, only during the daytime, perhaps due to overload from locals on daytime power. Not there at night. No other overload noticed, and no cross modulation, even when used with the Wedge loop. The RF-2200 has excellent audio

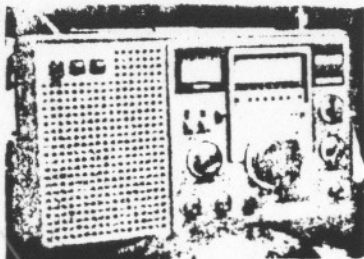
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quality but could use a more powerful audio amplifier. It has external antenna and ground connections that work with a loop or longwire, but on mine they are reversed, i.e. antenna should go to ground terminal and vice versa. If an amplified loop is used, it must be kept well away from the radio to avoid oscillation. My Wedge inductively coupled works best. The RF-2200 is a much better rig in all regards than the Realistic TRF--and for the price, it had better be, hi.

The Panasonic RF-2200

This quite a popular radio for MW DX'ing, as it features a "gyro" MW antenna--a ferrite loop which can be rotated for nulls without turning the radio as is necessary with other portables. Its tuning dial features 20 kHz markings on MW; it also covers SW from 3.9 to 28 MHz with 10 kHz calibration and includes an FM band. Features similar to a communications receiver include a BFO, RF gain control and S-meter. Bass and treble controls and broad and narrow selectivity are featured; it can be run from batteries or AC. On SW the receiver is dual conversion with a first IF of 2 MHz; on MW it is a single conversion receiver with a 455 kHz IF.



MW sensitivity is fairly good, though not comparable to, say, a FRG-7. Using a loop antenna ("Shotgun" or air core loop) inductively coupled to the RF-2200 provides improved sensitivity. "Wide" selectivity is OK for domestics; the stronger splits can be heard on "narrow" selectivity. Unfortunately, strong MW signals can cause problems; a few birdies and some cross-modulation have been noticed by urban DXers. Cross-mod can generally be defeated by turning down the RF gain or nulling the offending station. Birdies are tougher to handle, particularly at the the bottom end of the band where they appear to be image related. If you have locals between 1450 and 1600 kHz there may be problems. Coupling in a longwire could also be dicey without a good tuner. The RF-2200 does have external antenna and ground terminals which can be used on MW. An amplified loop fed into these terminals should be kept well away from the radio; oscillation can result otherwise.

Dial calibration varies from one RF-2200 to another, so not all are accurate. Alignment is reasonably simple; Steve Kennedy describes it in the December 28, 1979 *DX News*. Audio output could be more powerful, but quality of sound is very good. The S-meter suffers the usual problem of pinning on most signals. Finally, although the rotatable loop antenna is handy, it is sometimes not very effective when the radio is powered from AC. Nulls are usually better when battery power is used.

In all, a reasonable starter radio for the medium wave DXer who also has shortwave interests.

The Panasonic RF-2600

This radio covers MW, FM and SW bands from 3.9 to 28 MHz, though there have been complaints of insensitivity in the highest SW band. It is dual conversion on the SW bands but has single conversion (to 455 kHz) on MW. Controls include RF gain, selectivity switch, calibrator switch (only effective on SW), bandswitch, BFO switch and pitch control, volume, bass and treble controls. A tuning/battery-level meter is also included. A whip antenna can be used for FM and SW, though there are external antenna connections.

The RF-2600 uses a small ferrite loop for BCB, but that doesn't put out enough signal for serious DX'ing. Also, the radio is fairly bulky (at the limits of portability) which makes it a chore to turn it around to null a signal. The external antenna terminal is apparently not coupled to the internal MW loop. An external antenna is necessary for BCB DX, so some form of coupling with the internal loop is needed. Armand di Filippo had success connecting amplified loops to his RF-2600 by connecting an alligator clip to the center conductor of his loop feedline and hooking it up to the whip antenna of the radio. The whip was raised just enough to take the clip, and the braid of the loop's feedline was connected to the RF-2600's ground terminal.

Selectivity is switchable from "wide" to "narrow". The latter position will allow you to hear stronger splits; the wide is not that much wider, but provides better audio quality.

Without an external antenna, the radio seems to handle strong signals fairly well, but it's also quite insensitive. An external antenna is necessary for DX, but it would probably be wise to use a tuner with a longwire, and back off the RF gain where necessary to avoid overload. Using a loop hooked up to the whip seems to avoid overloading problems if the loop is tuned correctly.

Readout is digital--green display to the nearest 1 kHz on MW and SW; tuning is slow enough to take advantage of this accuracy. However, some RF2600's have been found inaccurate by 2 kHz, so beware. There is also a mechanical tuning scale, but it is of limited accuracy. The display can be switched off to conserve battery power (though the set runs on AC also).

The BFO is tuneable so it is possible to spot carriers dead on frequency rather than having to add or subtract 1 or 2 kHz as you must with the USB/LSB type BFOs. Audio quality is reasonable; the radio's bass and treble controls allow some shaping of the audio passband.

This radio is quite pleasant to use, but there seems to be some variation in quality from set to set. As always, try it at your DX'ing location if you can, otherwise make sure you can get another one or a refund if you're not satisfied for some reason.

Again, the radio will be much more valuable to you if your interests include SW DX'ing. It's main advantages over, say, a GE Superadio are the digital display, BFO, tuning meter and a touch more selectivity. Disadvantages for some might be the necessity for an external antenna for worthwhile MW DX'ing, and of course the price.

The Panasonic RF-2800 and RF-2900

by Bruce Portzer

The Panasonic RF-2800 and RF-2900 are two portable receivers for hearing signals on the AM and FM broadcast bands and 3.2 to 30 MHz shortwave. The two receivers have almost identical features and internal circuitry. The main difference is that the RF-2800 has a red seven-segment LED digital frequency readout which operates on shortwave only. The RF-2900 has a green incandescent display, for lower power consumption, which operates on both the medium and shortwave bands.

Front panel controls on the two receivers include treble and bass controls, RF gain and volume controls, two speed main tuning knob, fine tuning control (for shortwave only), BFO, and tuning meter. The front panel also has a speaker, and miniature jacks for stereo demultiplexer, tape output and earphones. Connections for external AM or FM antennas are located on the rear of the case. A collapsible whip antenna is used for shortwave or FM reception. The receivers operate from either 110 volt AC or from six "D" cells.

Performance: The following comments are based on evaluations of an RF-2800 and an RF-2900 owned by other DXers. Where appropriate, I've included comments by the owners in addition to my own impressions.

Sensitivity on medium wave was generally good. Without external antennas, the two receivers seemed to be as sensitive as any of the more popular portable receivers (GE Superadio, Realistic TRF etc.). Many clear channel stations 1000-1500 miles away were audible, as were one or two Latin American stations. With a passive external "booster" (Radio West Shotgun, 4' box loop) evening reception was excellent. For example, WLW-700 was at armchair quality with little splash from local KIRO-710. Similar results were obtained with a Radio West loop connected to the antenna terminals of the RF-2800.

Selectivity seemed adequate for domestic DX'ing. Splash from adjacent channel locals was not too severe. I was unable to evaluate foreign "split" reception due to lack of appropriate signals (none were in at the time, even on the HQ-180A). My own feeling is that reception of weak "splits" would require a selectivity modification, such as a mechanical filter. Audio quality, I might add, was excellent, presumably at the expense of selectivity.

The tuning meter usually leaves a lot to be desired. It barely moves on most non-local stations and is "pinned" on most locals. It is fairly good on medium wave when an external antenna is used and can be used to tune a loop antenna.

The digital readout on both receivers was impressive but the relatively wide IF bandwidth sometimes made it difficult to tune the receiver to the right frequency. For example, it was a real challenge to tune to WWV on 10 MHz and carefully adjust the receiver to read 10 000 instead of 10 003, 9997, or something in between. This problem is true of many receivers with digital readout and a wide IF passband.

Two problems were encountered on medium wave. When the whip antenna was extended on either receiver, scratchy distorted audio from KSEA FM (100.7) and/or KISW FM (99.9) wiped out almost everything between 700 and 900 kHz. Since the two FM stations are 800 kHz apart, the two signals apparently mixed in the receiver's front end. Collapsing the whip antenna eliminated all or most of the problem.

Both receivers were troubled by images below 690 kHz. An image from KZOK-1590 made normally strong KNBR-680 almost unlistenable. Other images (in the form of whistles) were noted on 630 and 600, from KZAM-1540 and KGA-1510 respectively. The receivers also had images on shortwave, despite their billing as "double superheterodynes".

Conclusions: For the person whose interests include shortwave listening, the RF-2800 and RF-2900, at around \$300 offer performance and features that are very competitive compared to other receivers in the same price range. For a price not much more than a DX-160 or most tube type receivers, the RF-2800 and RF-2900 offers the features of these sets plus digital readout and portability. However, Panasonic, Sony, Sanyo and others all make receivers with similar prices and features, so it pays to shop carefully.

For the person who is interested only in medium wave DX, these receivers are not very competitive. Even if you purchased a used RF-2800 for \$150-200 it would probably not receive anything a \$65 GE Superadio couldn't receive and would have no additional features useful for BCB DX aside from a tuning meter. The RF-2900, even with digital readout on medium wave, would probably not be worth the cost difference to the MW only DXer. The RF-2800 and RF-2900 cost about the same as a used HQ-180A and more than many other used tube-type communications receivers. While they do have some advantages, such as portability and better readout on shortwave, they do not have the sensitivity, selectivity and image rejection that some of the older receivers have.