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AM Stereo with the Sony SRF-A1

N1UGK

I remember the first time, and only time, I ever heard AM stereo. It was in a 1989 Plymouth Horizon (our family car at the time) with the stock AM/FM Chrysler stereo back in the late 90s.

Perhaps some reading this post can remember seeing some sort of indicator on car stereos when tuning around the FM dial – the Stereo indicator. It was usually an indicator which would light up when the tuning dial was set correctly “on center” and the received signal was strong enough for stereo reception. Even today’s car radios indicate stereo as well.

I remember once seeing the same indicator for an AM station, from NYC on the same radio. During commercial breaks and background music, it was in fact easy to hear that it was indeed stereo.

I am not certain the station, but I think it was 1010 WINS from NYC, and the year would have been 1989 or 1990 most likely. I remember this because it was the first car we had which had electronic tuning, as opposed to the mechanical push button memory system with a manual tuning dial.

AM Stereo – Real or Imaginary?

Over the years since, I remember mentioning this car having AM stereo to friends or in conversations about car stereos. Of course, before the internet, and it was a debated subject as to whether I was imagining hearing AM stereo on a stock stereo in an economy car or if it was a real thing. In fact, that indicator light could have been labelled “Stereo” but it might light up whenever tuning was on center. However, the stereo light would only light up on that one AM station, and no other.

Fast forward to 2025 and I stumble across a web site for AM stereo and read through the history and various radio receivers and stations that support AM stereo. On the site is mention of Chrysler receiver models that supported AM stereo, one of which was in fact available in the Plymouth Horizon. AM stereo is confirmed, it is real and it’s spectacular (allegedly).

Backward Compatibility

I am not looking to repeat the detail and history of AM stereo in this post, as others have done so already and far better than I can. However, one of the highlights of the history and format of AM stereo is there were four different methods of early AM stereo broadcasting.

Similar to FM stereo, the broadcast format needed to be backward compatible. In other words, a stereo FM broadcast needed to work on a receiver that did not support FM stereo. Otherwise, there would need to be simulcast or a hard switchover to the new format, and a retirement of the old format, much like the transition to “digital TV”.

Likewise, an AM stereo broadcast needed to be backward compatible with AM receivers that did not support stereo. Therefore, various competing ideas were tried in the marketplace. In summary, four most used methods of AM stereo broadcast were tried in the market:

- Harris
- Magnavox
- Motorola C-QUAM
- Kahn-Hazeltine

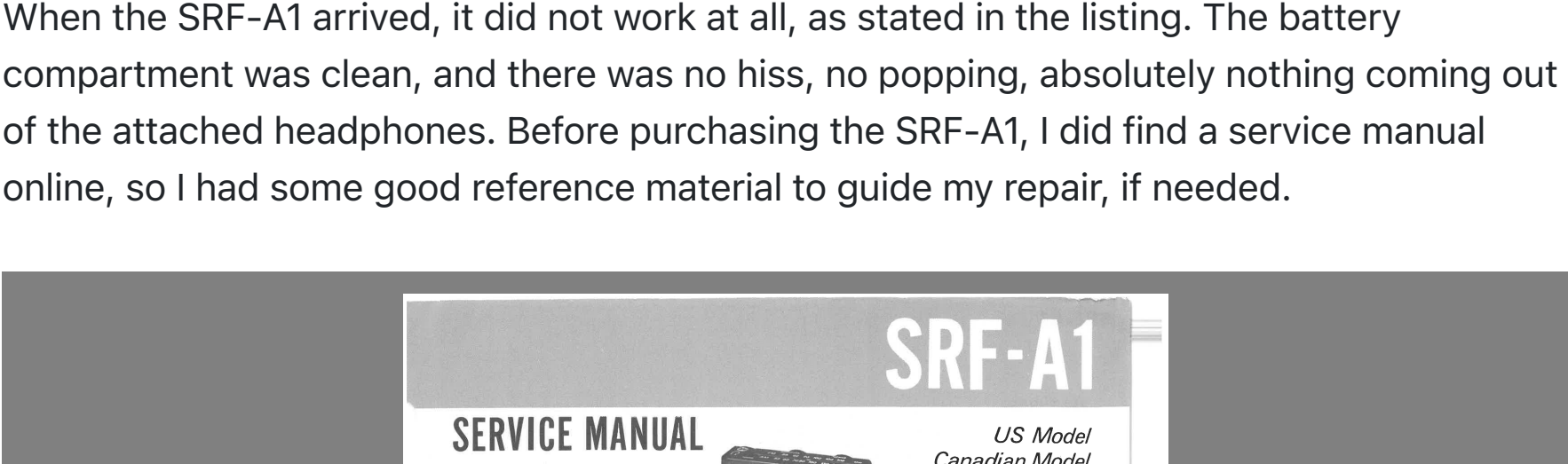
Each had unique characteristics to address various challenges for receivers, such as skywave versus ground wave and multi-path propagation for example.

In the end, the United States along with many other areas settled on Motorola C-QUAM.

AM Stereo Receivers

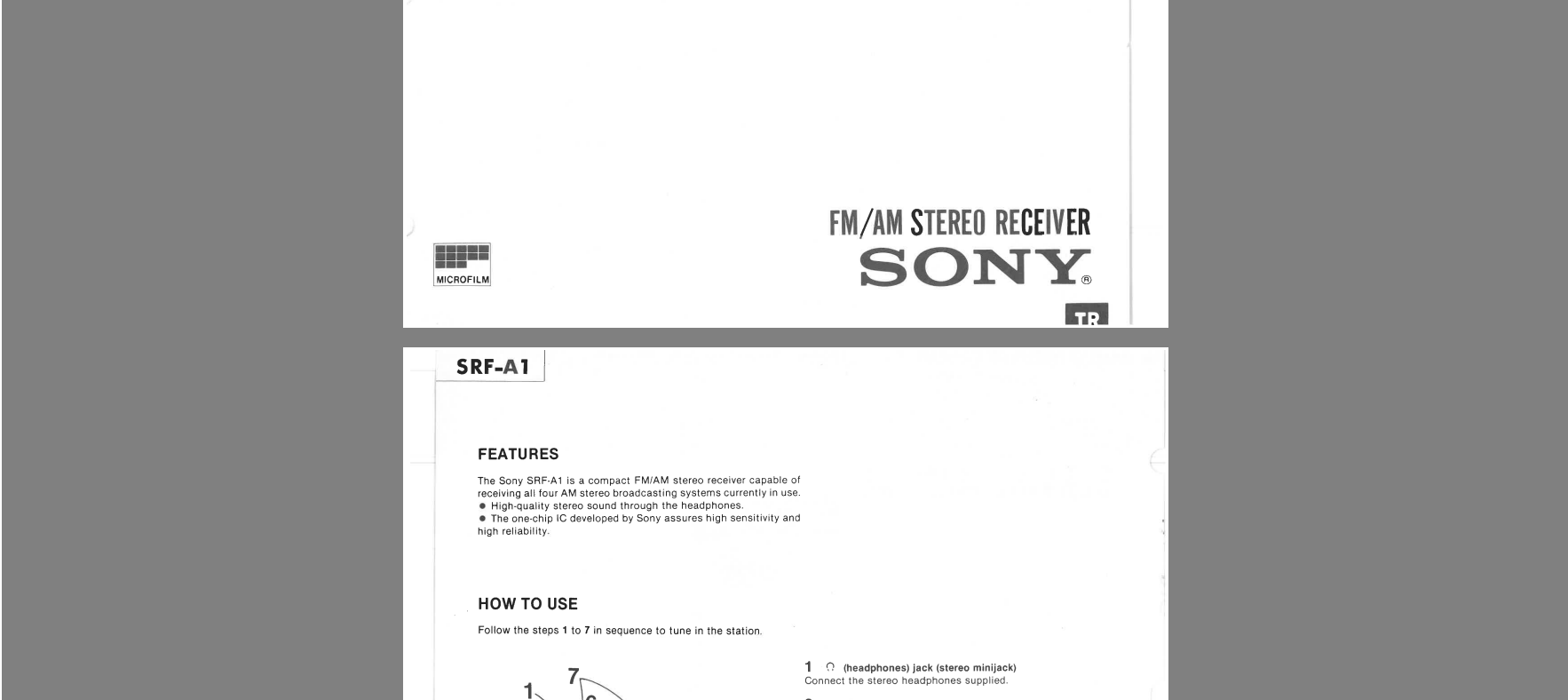
Several receivers mentioned on the AM stereo web site are (at the time of the writing of this post) available on auction sites such as eBay, and at fairly low prices for vintage gear, given inflation.

One such receiver is the Realistic TM-152, an AM stereo receiver. This receiver has line level outputs for connection to an amplifier as part of a HiFi system at home or at an office. This receiver supports the Motorola C-QUAM system only. C-QUAM happens to be the most widely adopted mode.



RadioShackCatalogs.com – Realistic TM-152 AM Stereo Receiver

Another receiver I saw on eBay was the Sony SRF-A1, a “walkman” style AM stereo / FM stereo receiver. This walkman, advertised as an “AM Stereo Walkman” supports all four AM broadcasting systems and uses an A/B switch to select the AM stereo mode.

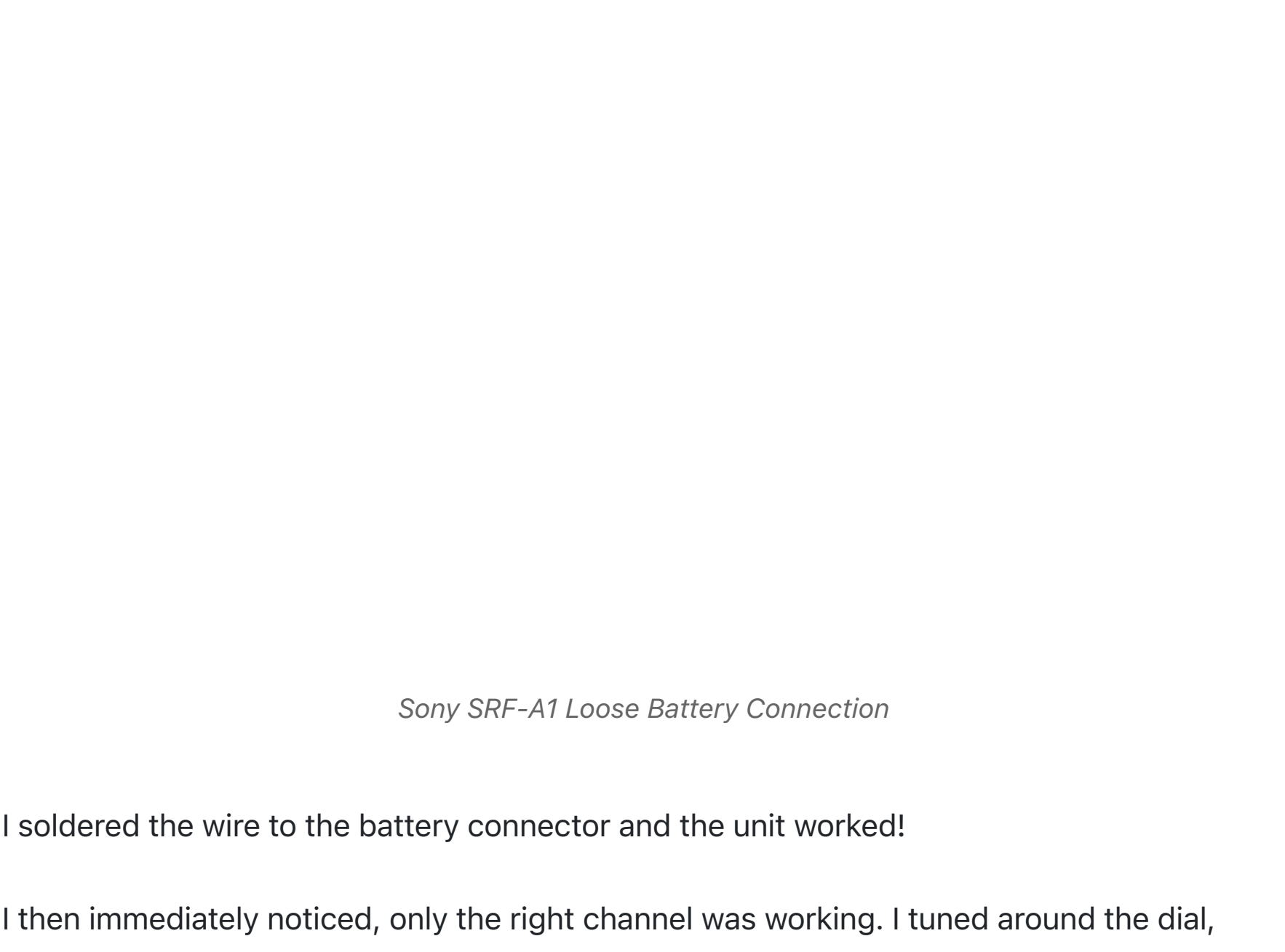


Calgary Herald, February 10, 1984

There were a few Sony SRF-A1 units on eBay at the time of my search, two at auction and one with a “buy it now” option. The “buy it now” unit was listed for just over \$30 USD and it was listed as “parts only”, not working. I took the chance at this price rather than paying more, or perhaps double at auction.

Sony SRF-A1 Walkman

When the SRF-A1 arrived, it did not work at all, as stated in the listing. The battery compartment was clean, and there was no hiss, no popping, absolutely nothing coming out of the attached headphones. Before purchasing the SRF-A1, I did find a service manual online, so I had some good reference material to guide my repair, if needed.



Sony SRF-A1 Service Manual [Download](#)

I removed the cover and put on my lighted magnifier glasses and took a look around the inside, looking for signs of battery corrosion or leakage, bad capacitors, or burned or broken components. I did not see anything obvious, until I made my way around to the battery connector. It had some corrosion on the wire attached to it, and I poked it with a jewelers screwdriver and it came loose. It clearly was not making good contact with the battery terminal.

Sony SRF-A1 Loose Battery Connection

I soldered the wire to the battery connector and the unit worked!

I then immediately noticed, only the right channel was working. I tuned around the dial, cleaned the headphone connector, tried a different pair of headphones, played with all of the switches and dials, and still, only the right channel worked.

I noticed the left channel had a low level of hiss, and at higher volumes, I could faintly hear the sound and music. If this was not fixable, there is little point to having an AM stereo walkman if only one channel works.

As I switched between FM, AM, and AM mono (the large slider switch on the front), I noticed sometimes for a brief moment, sound was coming from the left channel also.

I then cleaned the switch attached to the large slider with DeoxIT D5, and it worked! Stereo FM, AM, AM mono all had two channels (left and right).

Detecting AM Stereo Broadcasts

The first thing I noticed with this unit is the tuning light will light up not only if an FM station is tuned in fully, but also if an AM station is tuned in on center. This light does not indicate stereo however, on the AM band.

Because there is no AM stereo indicator on this unit, and, I am unsure whether I can pull in a known AM stereo station, I need some other method to detect AM stereo quickly, rather than long periods of searching around the dial.

Of the four AM stereo modes this unit supports, the only mode currently used in the United States is C-QUAM.

- Harris – 25 Hz Pilot
- Magnavox – 5 Hz pilot
- Motorola C-QUAM – 25 Hz pilot
- Kahn-Hazeltine – 15 Hz pilot

All four modes use a pilot tone, below audible levels, to indicate to the receiver that the mode is AM stereo. The Harris mode initially did not use a pilot signal but this was added later on.

Similar to how an FM stereo receiver can use the presence of a pilot signal to turn on the stereo indicator, an AM stereo receiver can do the same.

Since C-QUAM uses a 25 Hz pilot signal, the presence of this signal can be visually seen on a high resolution SDR (software defined radio).

Searching for AM Stereo

I found a web site which is maintained and has a list of AM stations broadcasting in C-QUAM. I also found a list on Wikipedia and cross referenced both lists and found the following possible stations nearby:

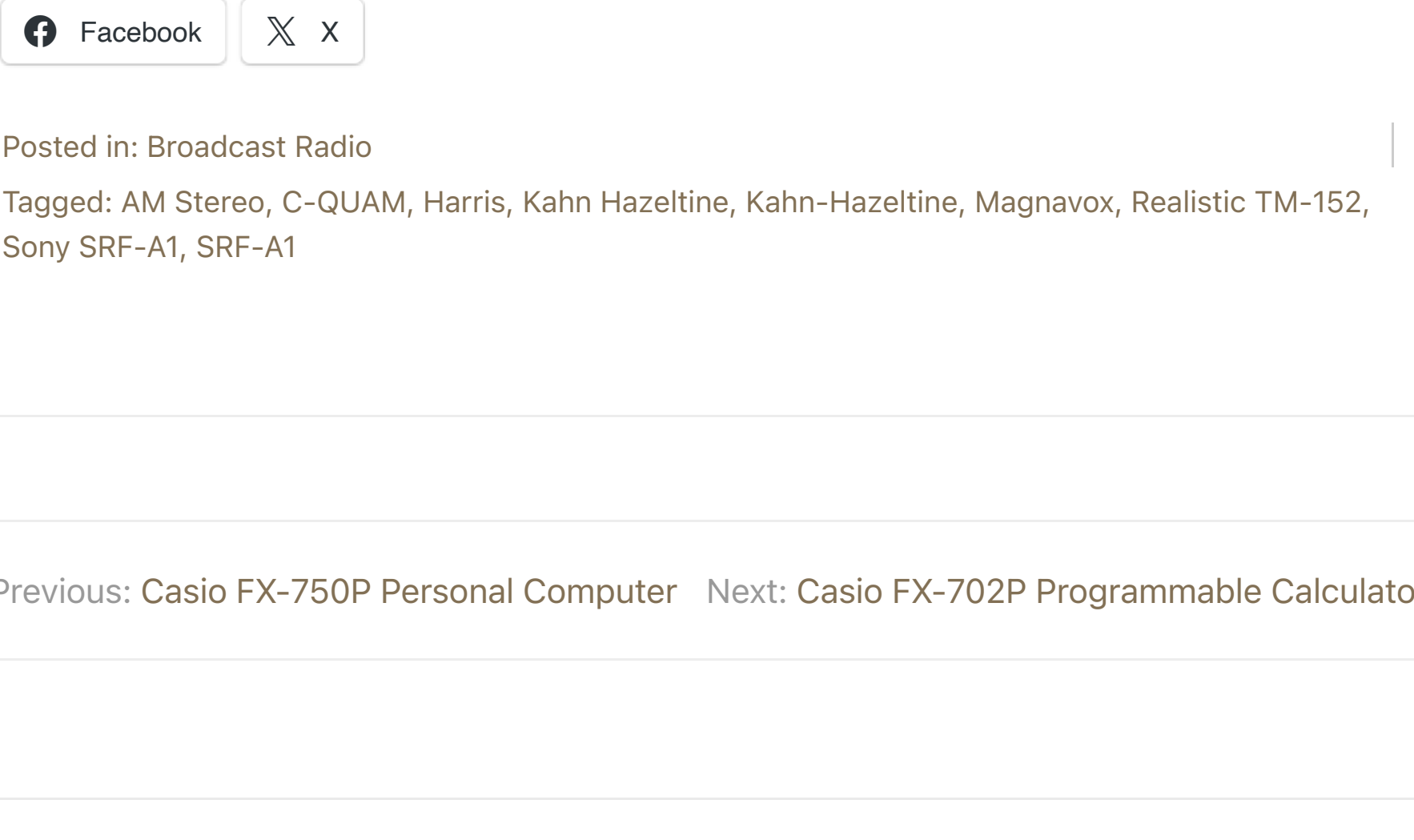
- 620 kHz—WKHB, Irwin, Pennsylvania
- 1310 kHz—WOKR, Canandaigua, New York
- 1350 kHz—WINY, Putnam, Connecticut (not during the day)
- 1310 kHz—WEMG, Camden, New Jersey
- 1220 kHz—WATX, Hamden, Connecticut (not during the day)
- 1230 kHz—WBLQ, Westerly, Rhode Island (not during the day)
- 720 kHz—WJIB, Cambridge, Massachusetts

Of this list, most are not possible for me to receive at my current location. 720 kHz, WJIB is not likely receivable where I am, as 710 WOR from New York is a strong local signal. 1310 kHz is shared by another station, WXMJ, in Parsippany-Troy Hills NJ, and I cannot determine if WEMG nor WOKR are still broadcasting, since WXMJ is on the same frequency. WKHB is on the same frequency as WSNR, a local station.

This leaves 1230, 1220, and 1350 kHz as options, but none came in during the day. At night, on 1350 kHz I hear a station from Rome/Utica WRNY, so I cannot hear WINY in Putnam Connecticut. 1230 WBLQ was not received well, due to another DX station on the same frequency. 1220 WATX was not receivable due to another station which came in stronger.

AM stations cut their output power significantly at night, once the D and E layers merge with the F layer. The D layer absorbs most of the RF at AM broadcast wavelength during the day, leaving only ground wave propagation possible. However, at night, when only the F layer exists, ground wave propagation is augmented by sky wave propagation. This results in much farther reach, potentially. Therefore, stations must limit their output power to avoid interfering with other distant stations on the same frequency.

Below are two snapshots from an SDR on the AM broadcast band (United States). The first is during the day, the second at night:



AM Broadcast Band – Nighttime

Several more stations are received at my location at night compared to daytime.

Final Thoughts

Unfortunately I was unable to receive any AM stereo stations from my home location, due to lack of broadcasters locally transmitting in AM stereo and other local stations on the same frequency as some of the DX stations that are listed as AM stereo broadcasters.

Perhaps if I remember to take the Sony SRF-A1 with me when traveling to an area which might have an AM stereo broadcast, I can try receiving and record the results.

Being a fan of vintage 80s tech, including Walkmans, the Sony SRF-A1 is unique, and still pulls in AM and FM stations quite well. Perhaps one day I will be hunting around for the remaining FM stereo stations still broadcasting, as eventually those too will become sparse.

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