# Sony ICF-S10MK2

**VERSION 1.2 ©2003**


*No representation is made that the following information is entirely free of mistakes.*

**1. Introduction:**

The Sony ICF-S10MK2 is an "FM/AM 2-Band Pocket Radio" made in China. Cost including shipping and taxes is $10.55 when ordered directly from Sony's website. Can this inexpensive radio be used to pursue the hobby of AM distance reception (AM DX)?

**2. Features:**

The front includes a tuning scale, LED-tuning indicator, and built-in speaker. The right panel contains a tuning dial and AM/FM band switch. The left panel includes a power-switch volume-control wheel, earphone jack, carrying strap, and telescoping FM antenna. There is a rear battery compartment.

*Note: The red tuning LED grows faint when the batteries need replacing.*
*Note: An internal ferrite bar is used for AM reception, not the telescoping antenna.*

**3. Specifications:**

- Reception: 530 kHz to 1650 kHz AM and 87.5 MHz to 108.0 MHz FM.
- Output: 100 mW at 10% THD via a 2.25" (5.7 cm) speaker.
- Power: 3 Volts via 2 "AA" (R6) batteries, not included.
- Battery Life: FM ~40 hours and AM ~45 hours.
- Dimensions: 2.875" x 4.750" x 1.188" (71 mm x 119 mm x 30 mm) WHD.
- Weight: 7 ounces (202 grams) with batteries.
- Warranty: 1 year limited.

*Note: Although Sony's literature states an AM tuning range of 530 kHz to 1710 kHz, testing revealed a range of 530 kHz to 1650 kHz.*


**4. The AM DX Hobby**

The hobby of AM distance reception goes by two names: MW (mediumwave) DX and BCB (broadcast band) DX. The object is to identify (ID) and log stations using: time, call sign (usually given each half-hour), frequency, content, language, or local color (ex. weather or commercials).

Reception is best during the winter, decent in the fall, and poor in the summer. Daytime reception is poorer than nighttime reception. Nighttime offers less noise and some stations reduce or discontinue power. At local sunset stations to the west can be heard as stations in the east power down for the night, this is called "gray path" reception. Different catches will be made at sunrise, daytime, sunset, and nighttime. Station tests are often performed late on Sunday night. Conditions change minute by minute as stations fade in and out.

Clear channel stations with up to 50 kW power are located at: 540, 640-780, 800-900, 940, 990-1140, 1160-1220, and 1500-1580 kHz. Local channels (called the "graveyard") with 1 kW or less power are located at: 1230, 1240, 1340, 1400, 1450, and 1490 kHz. The graveyard contains many interfering signals. All other channels below 1610 kHz are considered regional, having 10 kW or less power. The "expanded AM band" runs from 1610 to 1710 kHz.

Some collect QSL (reception) cards. Simply mail the station a reception report consisting of the: date, time and time zone, frequency, program details (station ID, program name, host, commercials, etc.), and how well the signal was received (excellent, good, fair, poor). Make sure to include your name, address, and return postage! Making a recording of the broadcast will definitely help.

For station identification see WRTH (World Radio and TV Handbook), a yearly publication. Or visit the following websites:

http://www.fcc.gov/mb/audio/amq.html
http://www.radio-locator.com/

For more AM DX information including when stations perform DX and equipment tests join either the National Radio Club (NRC) or the International Radio Club of America (IRCA).

http://www.nrcdxas.org/
http://www.ircaonline.org/

**5. Performance:**

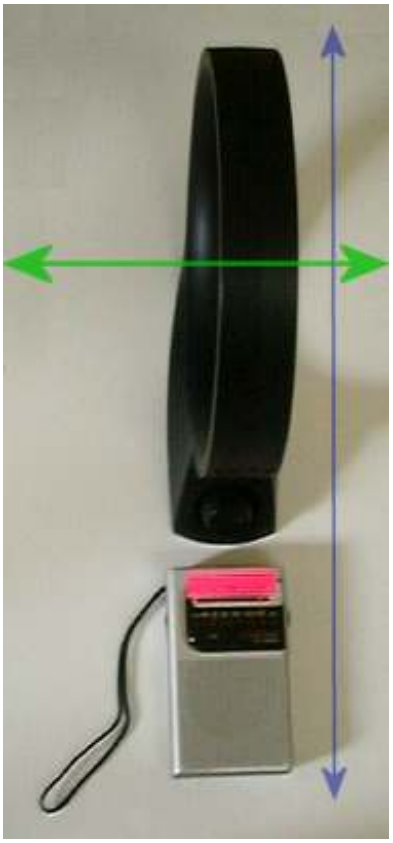

The Sony ICF-S10MK2 with a Radio Shack Loop was compared against a modified ICOM R75 with a Quantum QX Loop. This testing was, in essence, a shootout between a $31 portable setup and a $780 tabletop setup! The R75 provides ~1.77 µV AM sensitivity [PREAMP "1" ON] and the Quantum adds another +40 dB of RF gain.

Theoretically the Sony is capable of tuning to a maximum of 113 stations. Any station sounding good enough to allow identification was counted as being "heard". The chart below summarizes the data from eight separate comparison trials.

| TRIAL | TOTAL | NEITHER HEARD | SONY and R75 HEARD | R75 only HEARD |
|---|---|---|---|---|
| 1 | 113 | 30 | 70 | 13 |
| 2 | 113 | 26 | 80 | 7 |
| 3 | 113 | 14 | 98 | 1 |
| 4 | 113 | 25 | 85 | 3 |
| 5 | 113 | 8 | 94 | 11 |
| 6 | 113 | 30 | 80 | 3 |
| 7 | 113 | 17 | 90 | 6 |
| 8 | 113 | 0 | 112 | 1 |

The results? On average the Sony/RS combo heard 94% of what the twenty-five times more costly ICOM/Quantum combo did. Impressive! Tuning through the AM band yielded an average catch of about 87 stations for the Sony. Trial eight was done on a particularly "hot" night and resulted in 112 stations heard on the Sony. What the chart does not show is that two distinct stations were resolved on 19 frequencies that night. This means that the Sony heard a total of 131 distinct stations including: news, business, talk, sports, religious, music, nostalgic, and ethnic. Incredible! The $11 Sony, when coupled with a loop antenna, is more than adequate for "casual" AM DX.

*Note: The Sony was not penalized for the six stations it could not tune from 1160 kHz to 1710 kHz. In North America frequency spacing is 10 kHz, elsewhere 9 kHz. The ICOM maintained a higher signal-to-noise ratio than the Sony.*



**6. Operation:**

Using the Sony definitely takes some practice. Tune very slowly until the previous station just fades, then retune the loop antenna, and finally rotate the Sony/loop combo as a couple through 180°, as loops are highly directional in nature. The Sony may need additional fine-tuning. The picture above shows the proper alignment of the radio and antenna for reception along the green axis. Maximum attenuation ("nulling") of strong interfering stations occurs along blue axis. A red piece of paper was taped to the radio and marked every 100 kHz for usage as a tuning aid.

*Note: Usage of headphones is recommended; always start with the volume low.*

**7. Pros and Cons:**

The $11 Sony has several attributes going for it including: an analog local oscillator, a tuned loop input, and battery power (no AC hum problems). It is possible that the Sony ICF-S10MK2 uses a similar receiver chip and ferrite rod as their $90 digital portables. Ironically the more expensive and "flashy" digital Walkmans often experience processor and synthesizer related noise.

The Sony does suffer from noise, bleed-over, images, overload, and frequency drift. It is also difficult to know what frequency you're on using its analog tuning scale. Care must be taken not to miss stations, especially at the upper end of the tuning range. Data analysis revealed that stations adjacent to the strongest stations and stations located at the images of the strongest stations accounted for 55% of all failures to be heard. Much of the remainder was due to very weak signals.

**8. Conclusion:**

Like to AM DX while on vacation? No money in the current radio budget for a "big gun" receiver? Need a truly portable performer? Want a radio suitable for usage where it may become lost, damaged, or stolen? Trying to introduce a child to AM DX? Then you may want to consider an $11 Sony ICF-S10MK2 and an inexpensive loop: Radio Shack, Torus, Terk, Select-A-Tenna, Edek, or homebrew.

**9. History:**

In 1948 scientists at Bell Labs invented the transistor. Akio Morita purchased a license to build transistors for $25,000 in 1952. He quickly became the laughing stock of the business community. Bell Labs engineers informed him that transistors were "only good for making hearing aids". Akio Morita's vision was to manufacture transistor radios. Advisors warned him that: "radios are far too expensive to devote to one person".

In 1957 a company, co-founded by Morita, named *Tokyo Tsushin Kogyo Limited,* exported their six-transistor "*Sony*" TR-63. This $40 pocket-sized radio was so successful that the company changed their name to Sony and their motto to: "One Person, One Radio". This marked the start of Sony dominating the consumer electronics industry. It appears that after 50 years Sony remains true to their roots, producing high-quality pocket radios. Happy listening!

# Contact

Please direct all comments and corrections to just_rtfm@yahoo.com. dr phil :)

"We meet again, at last."



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