

## STATUS OF NOAA WEATHER RADIO PROGRAM

Samuel Carnegia, National Weather Service

### NOAA WEATHER RADIO (NWR)

NOAA Weather Radio (NWR) is a service of the National Weather Service (NWS) of the National Oceanic and Atmospheric Administration. Its mission is to provide the nation with continuous broadcasts of weather information and to provide weather alerts to areas threatened by impending environmental disaster.

Presently there are 348 NOAA Weather Radio Systems in operation. As a result, in most parts of the country, a traveler could be almost constantly in a listening area of NWR.

### SERVICE AREA

The NWR Service Area is approximately an area of 40 miles radius from a given NWR transmitter. At the 40 mile perimeter, a maximum signal strength of 8 microvolts per meter is authorized. Within a NWR service area a broad spectrum of listeners could exist. Farmers, fishermen, travelers, schools, various businesses and recreational facilities are examples of the listeners interested in NWR. Future expansion of the number of NWR service areas is a possibility.

### WARNING ALARM FEATURE

The distinguishing factor between NWR and other systems is the weather warning alarm tone feature. This feature provides a single 1050 HZ tone that is sent over the NWR transmitter prior to the transmission of a special weather message. This tone, when transmitted, activates NWR receivers containing a specially designed decoder. Depending on the receiver, visual and/or audio alarms will be activated, and audio will automatically be raised to a listening level-even when the receiver is turned off. The importance of this feature has been shown by the White House designation of NWR as the sole government-operated radio system to provide direct warning into private homes for both national disasters and nuclear attack.

Just how valuable is the tone alarm feature of NWR? Here is an example: On the evening of June 3, 1980 in Grand Island Nebraska seven (7) tornadoes struck. One monster tornado had estimated 250 mile per hour winds. After the storm

200 people were injured, 700 homes and businesses were destroyed, 3000 other buildings were damaged, and \$300 million damage was done. The death toll was 5 people. NWR warning played a major role in keeping the death toll low. One NWR listener stated that she had no idea of what the weather was doing that evening, since the record player was turned up. Her life was spared by the NWR automatically coming on to provide warnings and advice in time for her to take cover.

### BROADCAST EQUIPMENT

The NWR System consists of the four major components, the audio console, the communications link, the transmitter and the monitor receiver. Weather information is transmitted live or recorded and played back on 8 possible tape cartridge decks. The console audio is connected by a link (via phone lines, or VHF) to the NWR transmitter. The transmitter receives and modulates the audio on the channel frequencies of 162.40, 162.475 and 162.55 MHz at powers varying from 90 to 1000 watts RF output. The monitor receiver detects frequency drift, loss of carrier, and loss of audio in the NWR system and will alert maintenance personnel at the NWS office.

### RECEIVER EQUIPMENT

A great variety of weather radios for public and commercial use are available to match a variety of listener needs. Most medium to high cost receivers offer the weather alarm tone feature to give a visual, audio or visual-audio alarm to automatically warn the listener of severe weather conditions.

### FREQUENCY ADDITIONS

In addition to 162.40, 162.475 and 162.55 MHz, NWS has received 4 additional frequencies for use in NWR. These additional frequencies are 162.425, 162.450, 162.50 and 162.525 MHz. With these additional frequencies, we are hopeful that Co-channel interference can be eliminated and expansion of NWR can result, but the net effect will be tighter specifications for NWR receiver selectivity.

In conclusion, NWR is invaluable for routine and specialized weather information. But above all, its most valuable function is the protection of human life during severe weather conditions.