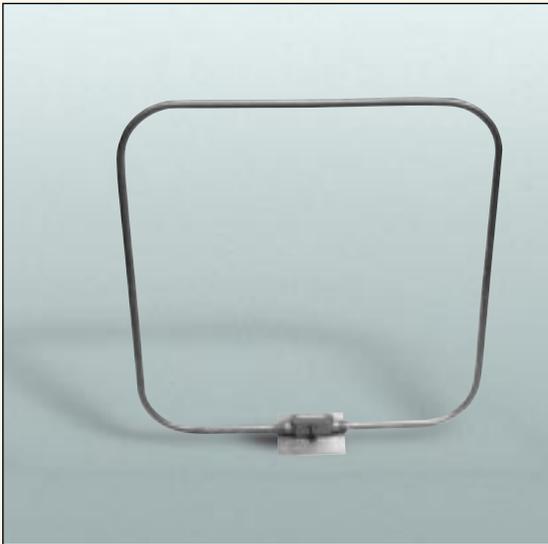


TYPE 9130-1 LOOP ANTENNA

for receiving or generating magnetic fields, 10 KHz to 3 MHz



DESCRIPTION

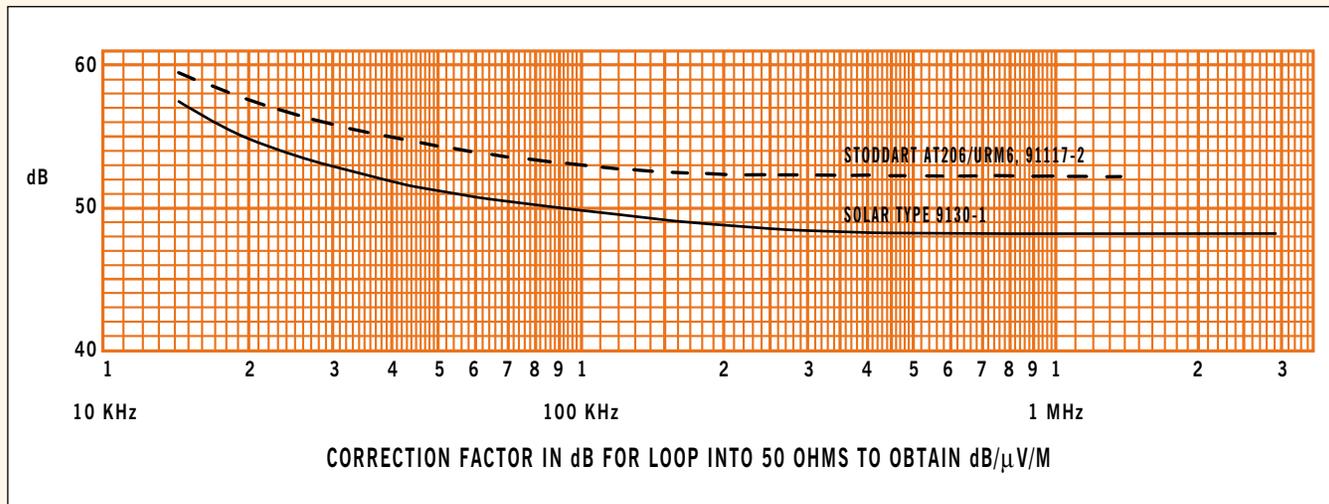
This antenna was designed as a replacement for Eaton 94608-1. It is similar to Stoddart 91117-2, 30-inch diameter loop, supplied with AN/URM-6B and NM-10A EMI receivers. In addition to operating as a receiving antenna, the **Type 9130-1 Loop Antenna** is capable of carrying ten amperes in test setups for generating magnetic fields.

Although the antenna it is replacing is circular (30 inches in diameter), the **Type 9130-1 Loop Antenna** is almost square, 28.5" x 29.75" with 6.31" radius at each corner (12.4 cm x 75.5 cm with 16 cm radius). This larger area results in an improved pickup factor. The loop is wound with larger wire than the original, so that it can carry more current in the transmitting mode. Fitted with Type N connector.

APPLICATION

As a receiving antenna the **Type 9130-1** is more sensitive than the original 30-inch diameter loops. The graph below shows the comparison when connected to a receiver with 50 ohm input impedance.

When used to generate magnetic fields, the **Type 9130-1 Loop Antenna** is capable of carrying up to ten amperes through its eleven turns, making 110-ampere turns. With one ampere flowing through the winding, the magnetic field generated is over 277.5 volts-per-meter at one meter distance from the plane of the loop and 12.6 volts-per-meter at three meters distance. With ten amperes flowing, the field intensity is 126 volts-per-meter at three meters distance.



APPLICATION INFORMATION FOR TYPE 9130-1 LOOP ANTENNA

The **Type 9130-1 Loop Antenna** can be used for receiving radiated magnetic fields as well as generating a stipulated magnetic field at a specified distance. The generated magnetic field is a function of the current flowing in the loop and the distance from the loop to the point of measurement.

The graph on this page indicates how the current through the loop varies with distance and magnetic field levels. For 18 dB increase in field intensity at a given current, the distance is divided by two. Conversely, at a given current as the distance is doubled, the field intensity becomes 18 dB less. As the current is multiplied by ten,

the field intensity increases by 20 dB. In other words, the field intensity change in dB is twenty times the log of the change in current at a given distance.

Note that the **Type 9130-1 Loop Antenna** is wound with wire suitable for carrying up to ten amperes. For higher currents, apply the current for short intervals. Allow the winding to cool off.

