

U.S. Army MARS: VHF Giant

Here's How You Can Monitor This Large Network On Your Scanner

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An extensive VHF repeater network serving northern Ohio, southeastern Michigan, and parts of western Pennsylvania has been assembled by U.S. Army MARS affiliate members to augment their high frequency activity in the respective states. This

system is used to enhance the capabilities of MARS in providing a conduit for emergency communications and to route third party service messages in this tri-state area.

Initiated in 1971 by former affiliate member Roy Polizzi, WA8YEP, now of Hunting-

ton Beach, California and rebuilt and expanded through the efforts of Mr. John S. Papay, K8YSE/AAR5WI, this system provides VHF communications for user stations from north of Detroit, Michigan through the metropolitan areas of Toledo, Cleveland,



Installing an Army MARS receiving antenna 375 feet up; WDLI-TV transmitter tower located in Canton, Ohio. (Photo by John S. Papay, K8YSE/AAR5WI)

Table 1

Subject: Addendum information pertaining to new VHF frequency assignments for eastern area Army MARS

The following table lists frequency, modulation modes, and type of station authorized for use in the VHF frequency band (above 30 MHz) by eastern area Army MARS. Primary and secondary uses are shown as registered with IRAC. Primary use is to be encouraged. Each application involving secondary use is to be specifically approved by MDEA or his designate and in any event secondary use of any frequency is on a non-interference basis to a primary use assignment.

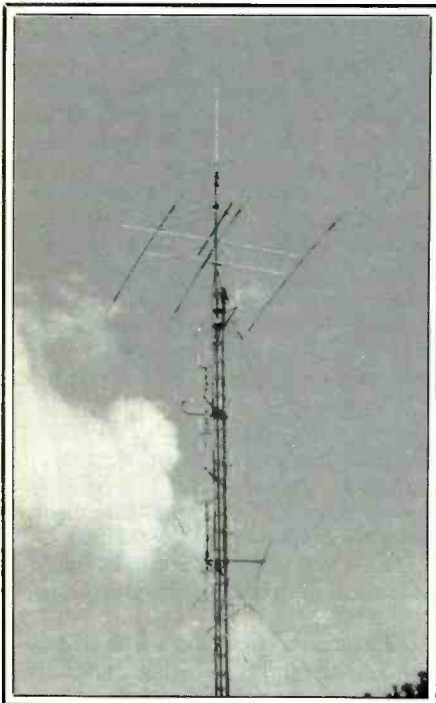
| Frequency MHz | Modulation Mode | Type of Station | Category |
|---|-----------------------------------|-------------------|------------|
| 40.95 | 16F2, 16F3, 16F4 | Repeater Trunking | •Primary |
| | 16F2, 16F3, 0.1A1, 6A2, 6A3 | Fixed Base | •Secondary |
| | 6A3, 16F3 | Mobile | •Secondary |
| 46.79 | 16F2, 16F3, 16F4 | Repeater Trunking | •Primary |
| | 16F2, 16F3, 0.1A1, 6A2, 6A3 | Fixed Base | •Secondary |
| | 6A3, 16F3 | Mobile | •Secondary |
| (this frequency not used within a 100 mile radius of Ft. George G. Meade, MD) | | | |
| 49.79 | 16F2, 16F3, 16F4 | Repeater Trunking | •Primary |
| | 16F2, 16F3, 0.1A1, 6A2, 6A3 | Fixed Base | •Secondary |
| | 6A3, 16F3 | Mobile | •Secondary |
| 49.93 | 16F2, 16F3, 16F4, 0.1A1, 6A2, 6A3 | Fixed Base | •Primary |
| | 6A3, 16F3 | Mobile | •Primary |
| 143.415 | 16F2, 16F3, 16F4 | Repeater Trunking | •Primary |
| | 16F2, 16F3, 0.1A1, 6A2, 6A3 | Fixed Base | •Secondary |
| | 6A3, 16F3 | Mobile | •Secondary |
| 143.990 | 16F2, 16F3, 16F4 | Repeater OUTPUT | •Primary |
| | 16F2, 16F3, 0.1A1, 6A2, 6A3 | Fixed Base | •Secondary |
| | 6A3, 16F3 | Mobile | •Secondary |
| 148.010 | 16F2, 16F3, 16F4 | Repeater INPUT | •Primary |
| 148.650 | 16F2, 16F3, 16F4, 0.1A1, 6A2, 6A3 | Fixed Base | •Primary |
| | 6A3, 16F3 | Mobile | •Primary |
| | 16F2, 16F3, 16F4 | Repeater Trunking | •Primary |
| 150.625 | 16F2, 16F3, 16F4 | Fixed Base | •Secondary |
| | 16F2, 16F3, 0.1A1, 6A2, 6A3 | Mobile | •Secondary |
| | 6A3, 16F3 | Mobile | •Secondary |

General Restrictions: RF power output for all fixed base and mobile stations is limited to 100 watts into the antenna. RF power output for a repeater station should be limited to 100 watts but can, upon specific need and on a case-by-case basis, be approved by MDEA for not more than 300 watts RF output.

Site Locations And Information Ohio/Michigan/Pennsylvania U.S. Army MARS VHF Repeater System

| | | | | | |
|---------|---|---|----------|--|--|
| Site #1 | Main Cleveland area transmitter Transmitter outputs | Broadview Hts., Ohio 143.990 MHz 49.930 MHz | Site #9 | Slave repeater output and satellite receiver Transmitter output Receiver input | 148.010 MHz only with VHF link Kingsville/Conneaut, Ohio 143.990 MHz 148.010 MHz with low VHF band link |
| Site #2 | Main receiver site and control hub Receiver input frequencies | North Royalton, Ohio 148.010 MHz 49.790 MHz | Site #10 | Slave high profile repeater Michigan main transmitter Transmitter output Receiver input | Petersburg, Michigan 143.990 MHz 148.010 MHz only with low VHF link to Ohio Sharpesville, Pennsylvania |
| Site #3 | Satellite receiver Receiver inputs | Cleveland, Ohio Federal Building 148.010 MHz 49.790 MHz with VHF link | Site #11 | Slave repeater output and Sharpesville receiver site Transmitter output Receiver input | 143.990 MHz 148.010 MHz with low band VHF link to Ohio |
| Site #4 | Satellite receiver Receiver input | Mayfield Hts., Ohio 148.010 MHz only with UHF link | | | |
| Site #5 | Satellite receiver Receiver input | Chardon, Ohio 148.010 MHz 49.709 MHz with VHF link | | | |
| Site #6 | Satellite receiver Receiver inputs | Mansfield, Ohio Ohio Air National Guard 148.010 MHz 49.790 MHz with VHF link | | | |
| Site #7 | Satellite receiver Receiver inputs | Canton, Ohio WDLI-TV 148.010 MHz 49.790 MHz with VHF link | | | |
| Site #8 | Satellite receiver | Warren, Ohio located at Howland Corners, Ohio | | | |

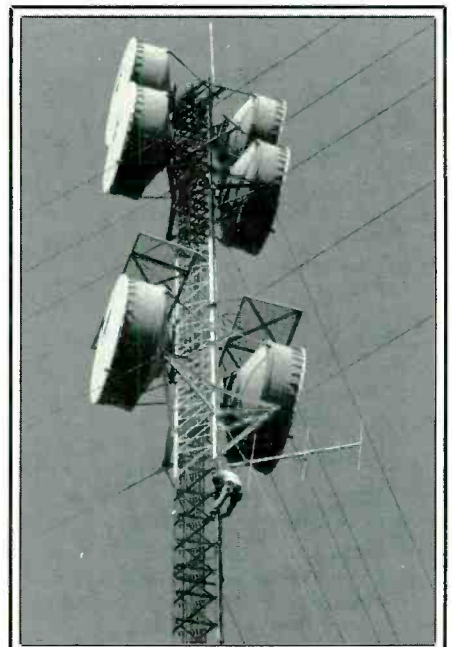
Other U.S. Army MARS standalone repeaters in the Ohio, Michigan, and Pennsylvania areas are located in Columbus, Ohio; Red Lion, Ohio (serving Dayton and Cincinnati); Niles, Michigan; Cory, Pennsylvania; Pittsburgh, Pennsylvania; and Mountain Top, Pennsylvania (serving Wilkes-Barre/Scranton). Future plans include a full time link between the master system and the Cory, Pennsylvania repeater, plus a low profile repeater in Newcomerstown, Ohio, with full time links to the master system. Many metropolitan areas throughout the United States have standalone repeaters. All highband repeater outputs are on an output of 143.990 MHz.



Army MARS main control point for Cleveland and 148.01/49.79 MHz receiver site. This tower is 105 feet high. (Photo by John S. Papay, K8YSE/AAR5WI)

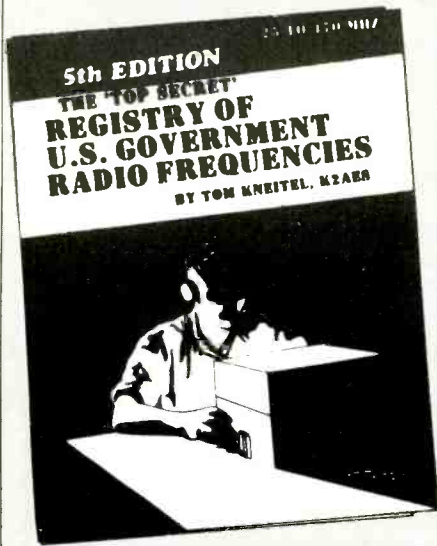


Main Cleveland area repeater antennas cover frequencies 143.99 MHz and 49.49 MHz. This water tank is 174 feet above ground. (Photo by Patrick J. Chick, N8DAQ/AAR5TO)



Army MARS member Ed Kaleta (AAT5IA) installs a 49.79 MHz link antenna on an M.C.I. tower in Petersburg, Michigan. An Army MARS 143.99 MHz repeater antenna is at the top of this tower. (Photo by John S. Papay, K8YSE/AAR5WI)

"INSIDER'S INFORMATION"

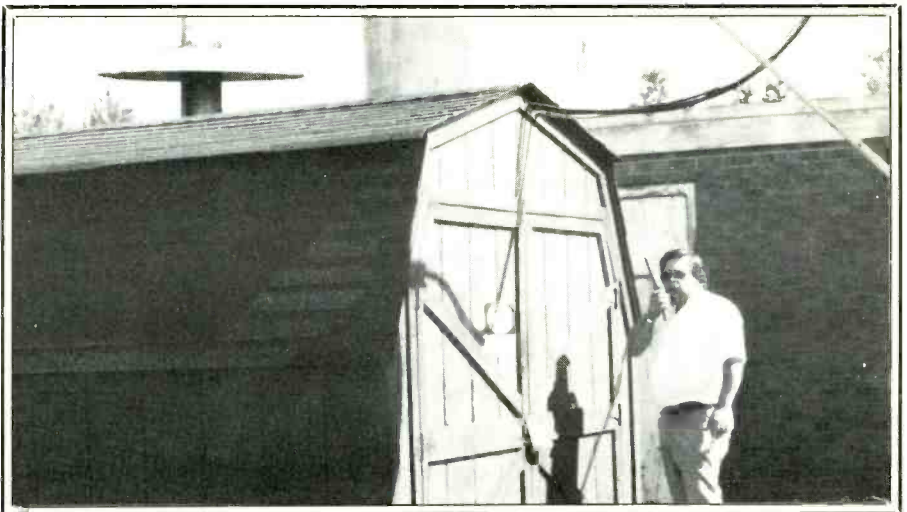


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Pat Chick uses HT-220 to talk to Monroe, MI 125 miles away. The barn houses the 143.990 and 49.930 MHz main Cleveland transmitter. (Photo by Alex Voloshen, K8LXE/AAR5XK)

and Akron, Ohio, extending northeast to Erie, Pennsylvania and east to the Sharon/Sharpesville, Pennsylvania area.

Monitors within this geographic area can easily hear base, mobile, and even handheld portable operations from any of these Metro-areas by listening to the system outputs on 143.990 MHz and 49.930 MHz.

Communications consist of voice operations in both formal net format and casual conversation, and, from time to time, intra and interstate radioteletype traffic. Teletype

is sent at a standard 60 wpm Baudot rate, 170 Hz shift. As many as 25 individual 24 hour autostart stations stand by on the system, including the Cleveland and Barberton Ohio Chapters of the American Red Cross, plus Ohio National Guard station AAR5USK in Barberton, Ohio.

Built totally with non-government support, funds are supplied by volunteer members and surplus equipment donated by local utilities and communications outlets. The system provides the most extensive coverage on VHF of any Army MARS system in the continental United States (CONUS).

Individual repeater/receiver site locations are provided by the State of Ohio, M.C.I., Public Television, The David Livingston Ministry, The G.S.A., a private communications firm and private affiliate MARS members.

Aside from normal everyday activities, use provides support of the Ohio National Guard, American Red Cross, and other disaster agencies.

Typical operations include communications support for such drills and actual events as the November 1984 Nuclear Evacuation Test for the Perry Nuclear Power Plant in Perry, Ohio and health and welfare messages during a May 31, 1985 disaster when deadly tornados completely devastated parts of northeastern Ohio and western Pennsylvania.

Reception of this system is quite easy in most of the coverage area using a quality programmable scanner without an elaborate monitor antenna system due to the multiple transmitter outputs on 143.990 MHz.

The 49.930 MHz output may be heard in many other parts of the country as propagation permits.

Verification of reception will be acknowledged when reports are accompanied by a self-addressed stamped envelope.

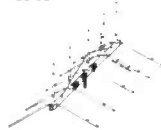
Send QSL information to: U.S. Army MARS Station Director, AAR5TO, 1340 Lander Road, Mayfield Heights, Ohio 44124-1606. **PC**

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5 STAR
SPECIFICATIONS:
TYPE
Horz. & Vert. Polarization Twin Feed Line
GAIN
16.5 DB
FRONT - BACK RATIO
48 DB True
SIDE REJECTION
50 - 55 DB True
BACK REJECTION
40 DB True
WEIGHT
37 Pounds
LENGTH
17 Feet 6 Inches
HORZ. - VERT. SEPARATION
25 - 30 DB
WIND SURVIVAL
100 MPH+
POWER MULTIPLICATION FACTOR
65
AUDIO GAIN
22 DB



Super Audio 6
SPECIFICATIONS:
TYPE
Horizontal (Flat)
GAIN
20 DB
FRONT - BACK RATIO
55 DB
SIDE REJECTION
55 - 60 DB
BACK REJECTION
50 DB
WEIGHT
45 Pounds
LENGTH
28 Feet
WIND SURVIVAL
100 MPH+
POWER MULTIPLICATION FACTOR
90X
AUDIO GAIN
30 DB



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