The VHF Omni-directional Range (VOR) equipment operates within the 108.0 to 117.95 MHz frequency necessary to provide coverage within a volume. They are subject to line-of-sight restriction, proportionally to the altitude of the receiving equipment. For voice transmission on the VOR frequency, identifying a VOR is by its Morse Code identification.

For reasons peculiar to military or naval operations – such as the pitching and rolling of a naval vessel, etc. -- the requirement for more accurate direction – the Tactical Air Navigation (TACAN) system was developed for military and naval use. A new navigational system, TACAN, was developed to meet these requirements. Although the theoretical, or technical, implementations of VOR and TACAN equipment are quite different from those of VOR/DME facilities, the user, or pilot, is concerned, is the same.

TACAN ground equipment consists of a fixed transmitting unit. The airborne unit reduces the transmitted signal to a visual presentation of both azimuth and range using a pulse system and operates in the Ultrahigh Frequency (UHF) band of frequencies.

The VHF Omni-directional Range/Tactical Air Navigation (VORTAC) is a facility consisting of the VOR and TACAN, which provides three individual services: VOR azimuth, TACAN range (DME) at one site. Although consisting of more than one component, including an incoherent pulse system and using more than one antenna system, a VORTAC is considered a single site. Both components of a VORTAC are viewed as operating simultaneously and at the same time.

Transmitted signals of VOR and TACAN are each identified by three-letter codes so that pilots using VOR azimuth with TACAN distance can be assured they are receiving signals from the same ground station. The frequency channels of the VOR facility are "paired" in accordance with a national plan to simplify airborne operations.