

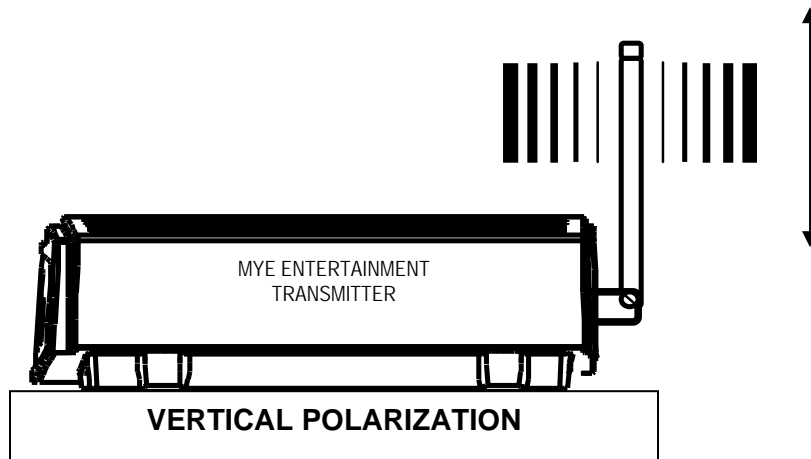
Dual Diversity Antenna Technology

The issue of “Coupling Loss” or commonly referred to as the polarization loss factor is a measure of the loss factor between a vertically polarized transmitting antenna and a horizontally polarized receive antenna.

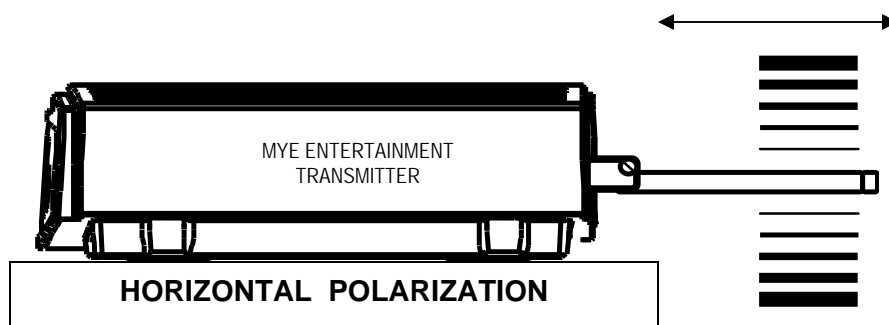
Polarization Review:

An antenna is a transducer that converts radio frequency electric current to electromagnetic waves that are then radiated into space. The electric field or "E" plane determines the polarization or orientation of the radio wave. In general, most antennas radiate either linear or circular polarization. Our focus is linear radiation because we use standard “whip” antennas.

A linear polarized antenna radiates wholly in one plane containing the direction of propagation. An antenna is said to be “vertically polarized” when its electric field is perpendicular to the Earth's surface.



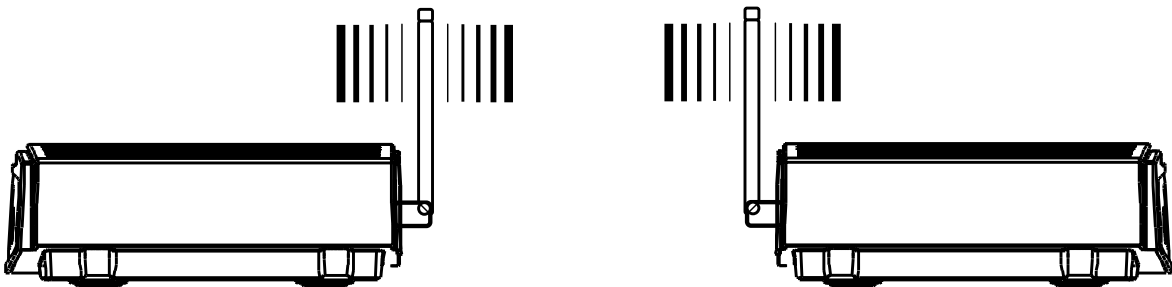
Horizontally polarized antennas have their electric field parallel to the Earth's surface.



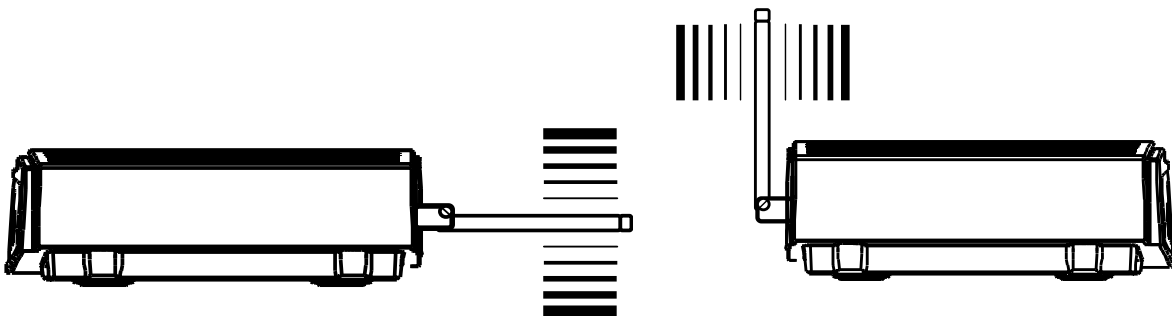
Important Considerations:

Polarization is an important design consideration. The polarization of each antenna in a system should be properly aligned. *Maximum signal strength between stations occurs when both stations are using identical polarization.* When choosing an antenna, it is an important consideration as to whether the polarization is linear or elliptical. If the polarization is linear as in our case, is it vertical or horizontal?

On line-of-sight (LOS) paths, it is most important that the polarization of the antennas at both ends of the path use the same polarization. The MYE Entertainment transmitters are designed for LOS deployment. In a linearly polarized system, a misalignment of polarization of 45 degrees will degrade the signal up to 3 dB and if misaligned 90 degrees the attenuation can be 20 dB or more. Also note that linearly polarized antennas will work with circularly polarized antennas and vice versa. However, there will be up to a 3 dB loss in signal strength. In weak signal situations, this loss of signal may impair communications. A general rule of thumb is that a 6dB loss in the transmission path will result in 50% less overall range.



These antennas are in the same polarization for maximum transmission coupling



These antennas are cross polarized for minimum transmission coupling

Polarization Diversity:

MYE Entertainment has chosen to transmit its media by deploying polarization-diversified antennas. The MYE Entertainment Console receivers may be positioned in virtually any orientation in regards to the receive antenna, and guaranteed to receive the transmitted media in or near perfect polarization. This will enhance the overall system performance in terms of overall coverage.



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