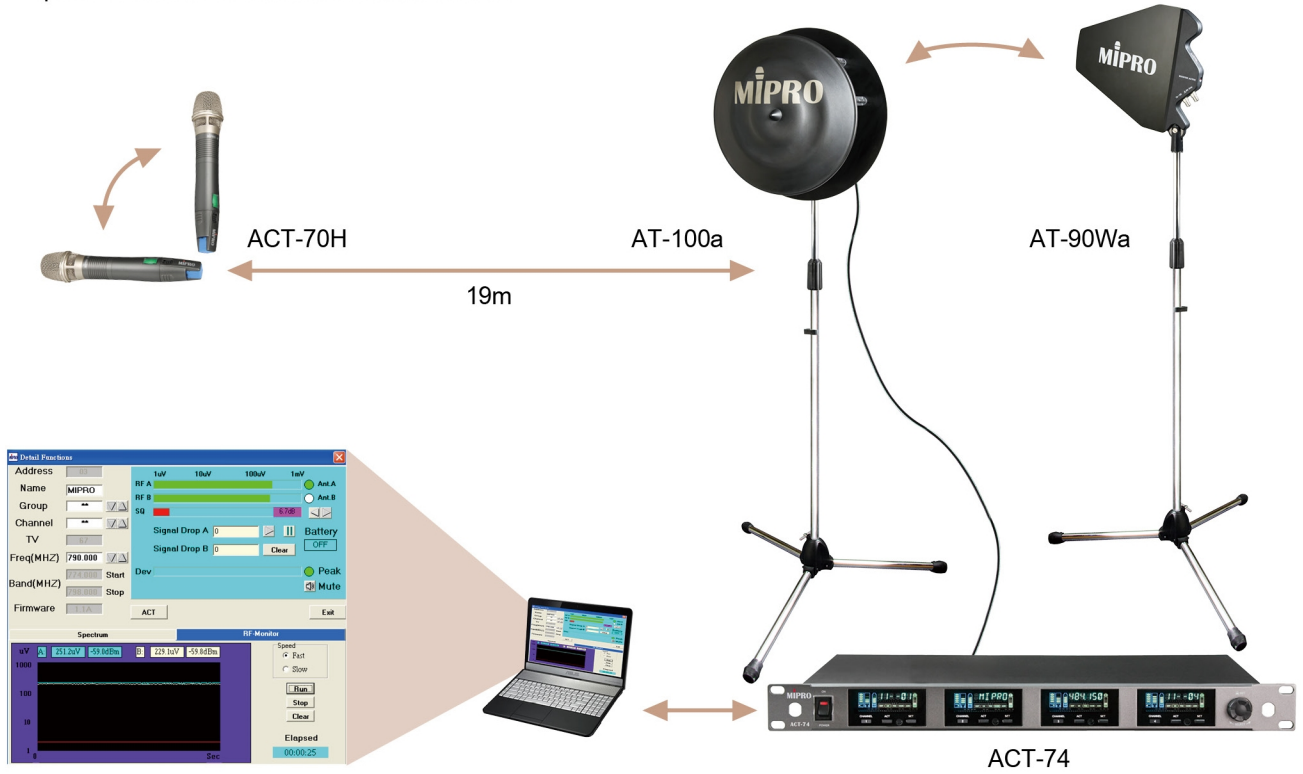


AT-100a and AT-90Wa (or other directional antenna) Comparison Chart

1. Static Measurement of Antenna Polarization Loss:

These antenna observation statistics were taken of the MIPRO RCS2.Net 2.6 monitoring software connected to an ACT-74 receiver with the signal transmitted by an ACT-70H handheld transmitter. The AT-100a and AT-90Wa directional antennas were connected to the same antenna input port at the receiver, measuring differences to antenna polarization characteristics as shown below:



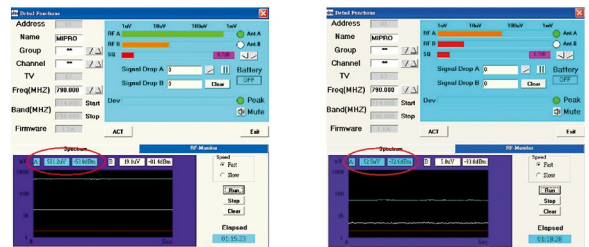
AT-100a Measurement Result



Vertical Position

Horizontal Position

AT-90Wa Measurement Result



Vertical Position

Horizontal Position

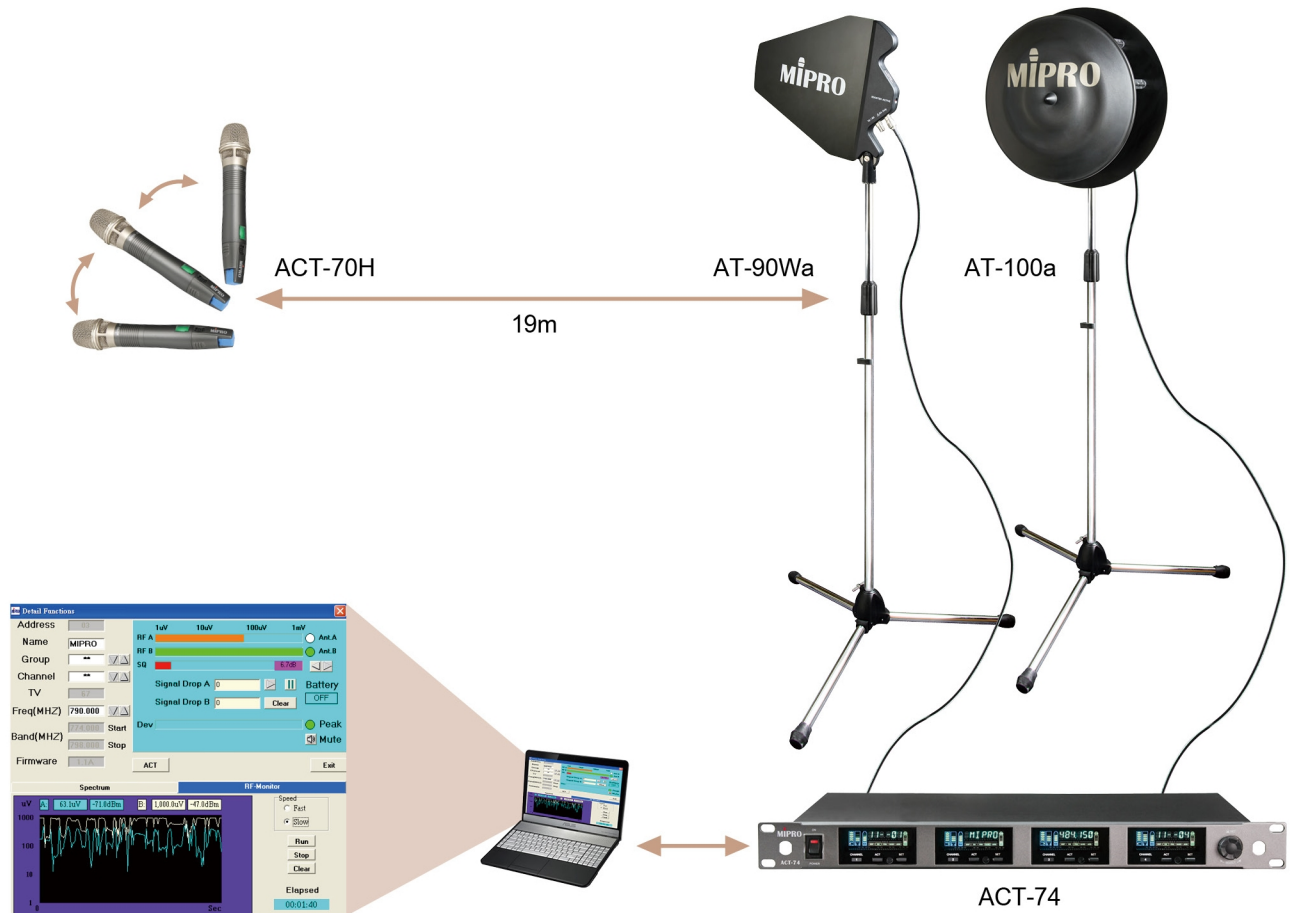
Measurement Result Clearly Indicated

Model	RF Received Signal Strength (dBm)	
	Vertical Position of Microphone	Horizontal Position of Microphone
AT-100a	-51.8	-51.8
AT-90Wa	-53.0	-72.6

Due to the low polarization loss of the AT-100a circularly-polarized antenna, the received signal strengths are almost the same and stable when the transmitting microphone is in both vertical and horizontal positions. On the contrary, due to the large polarization loss of the linearly-polarized AT-90Wa antenna, the received signal strengths indicate a difference of 19.6 dB when the transmitting microphone is in vertical versus horizontal positions.

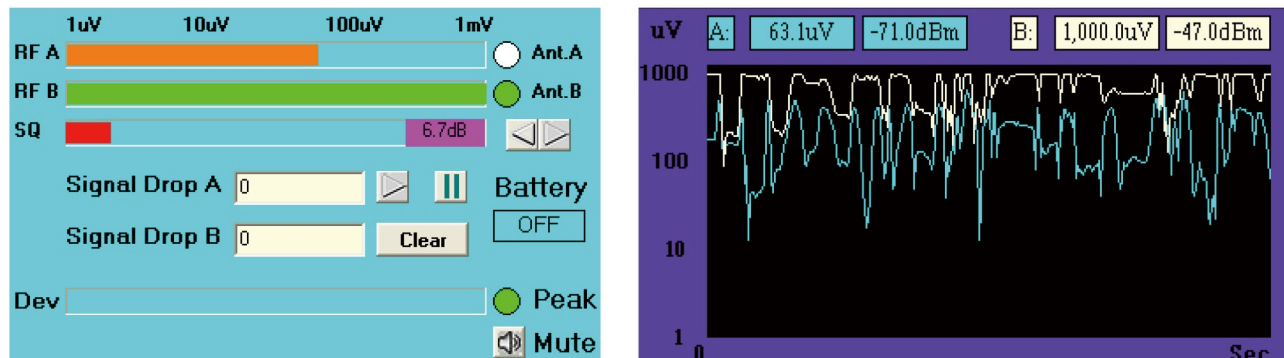
2. Antenna Dynamic Measurements with Polarization Loss Experiments

These antenna observation statistics were taken of the MIPRO RCS2.Net 2.6 monitoring software connected to an ACT-74 receiver with the signal transmitted by an ACT-70H handheld transmitter. The AT-100a and AT-90Wa were connected to the ACT-74 receiver input "B" and "A" terminals, respectively. The measuring differences to antenna polarization characteristics are as shown below:



Test Result

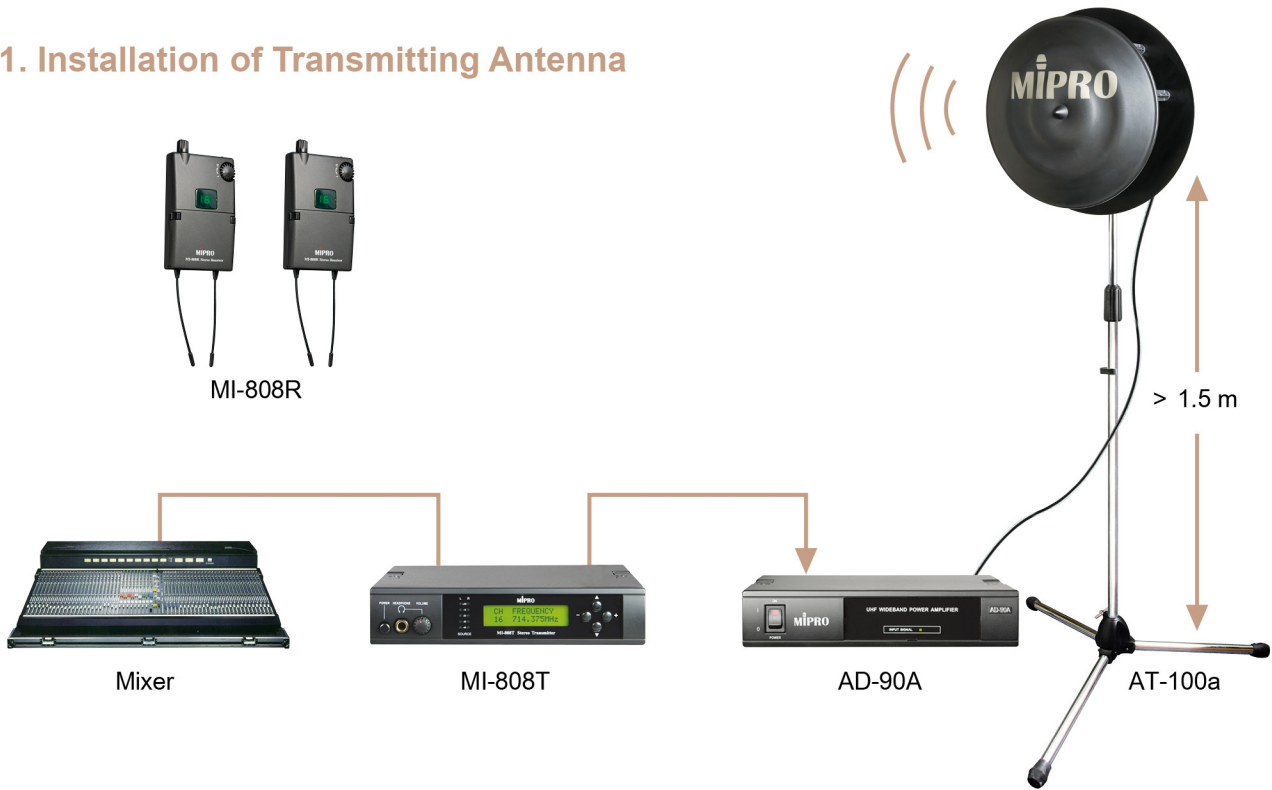
Below diagram clearly indicated that AT-100a circularly polarized antenna has improved performance than AT-90Wa in terms of received signal strengths and signal stability.



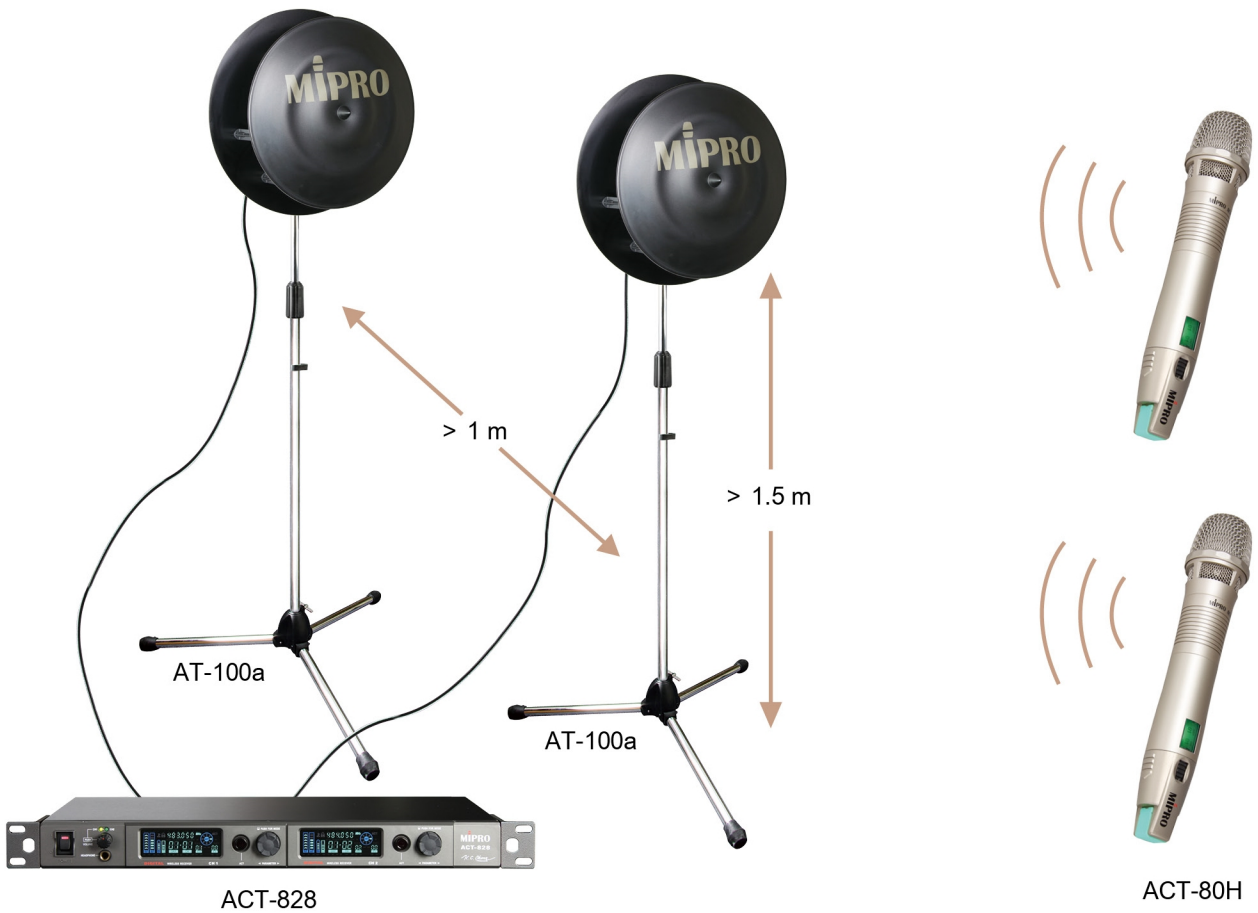
Computer Monitoring Graphs

Correct Antenna Installations

1. Installation of Transmitting Antenna



2. Installation of Receiving Antenna for Directional Stage Performances



Installed Venues and Mounting Methods

Stages



Convenient MS-30 mic stand.

Ceiling Mounting-Vertical Position



Convenient MS-90 ceiling mount.

Wall Mounting-Horizontal Position



Convenient MS-90 wall mount.

Outdoor Installation



Convenient MS-90 mount.

Built-in Booster Usage

1. Optimal signal quality through proper booster usage

Coaxial cable loss reduces signal receiving distance and stability. A booster must be connected to improve the antenna gain in order to compensate for this signal loss. However, too much antenna gain in the booster causes unnecessary interference from intermodulation distortion, resulting in deterioration of the received signal quality.

The AT-100a has two connectors. The one marked RX (receiver only) has a built-in 12dB gain controllable booster, which can be used effectively to compensate for the signal loss from extended cable transmission.

2. Calculation in selection of appropriate cable size and length to match the booster

Please refer to the Technical Knowledge section of the catalog for "How to Design Transmission Cable and Booster for Antenna Systems".