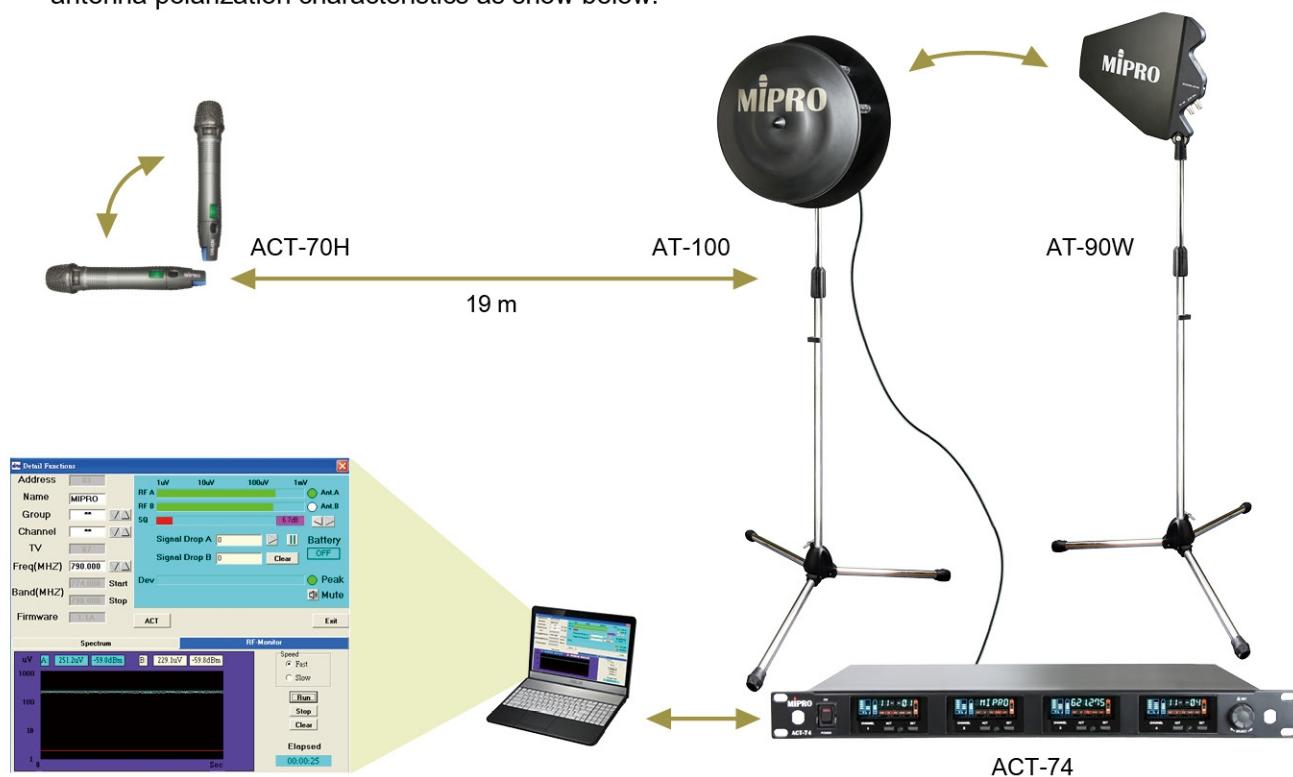


# AT-100 and AT-90W (or other directional antenna) Comparison Chart

## 1. Static Measurement of Antenna Polarization Loss:

Antenna observation statistics of MIPRO RCS2.Net 2.6 monitoring software connected to ACT-74 receiver and signal transmitted by ACT-70H handheld transmitter. AT-100 and AT-90W directional antenna is connected to the same antenna input port at the receiver and measuring differences to antenna polarization characteristics as show below:



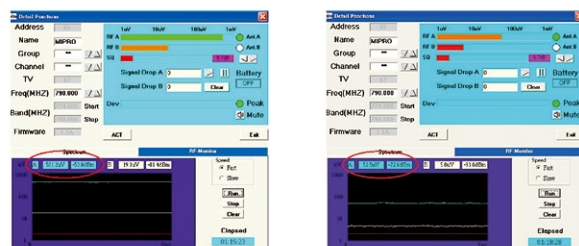
### AT-100 Measurement Result



Vertical Positio

Horizontal Position

### AT-90W Measurement Result



Vertical Positio

Horizontal Position

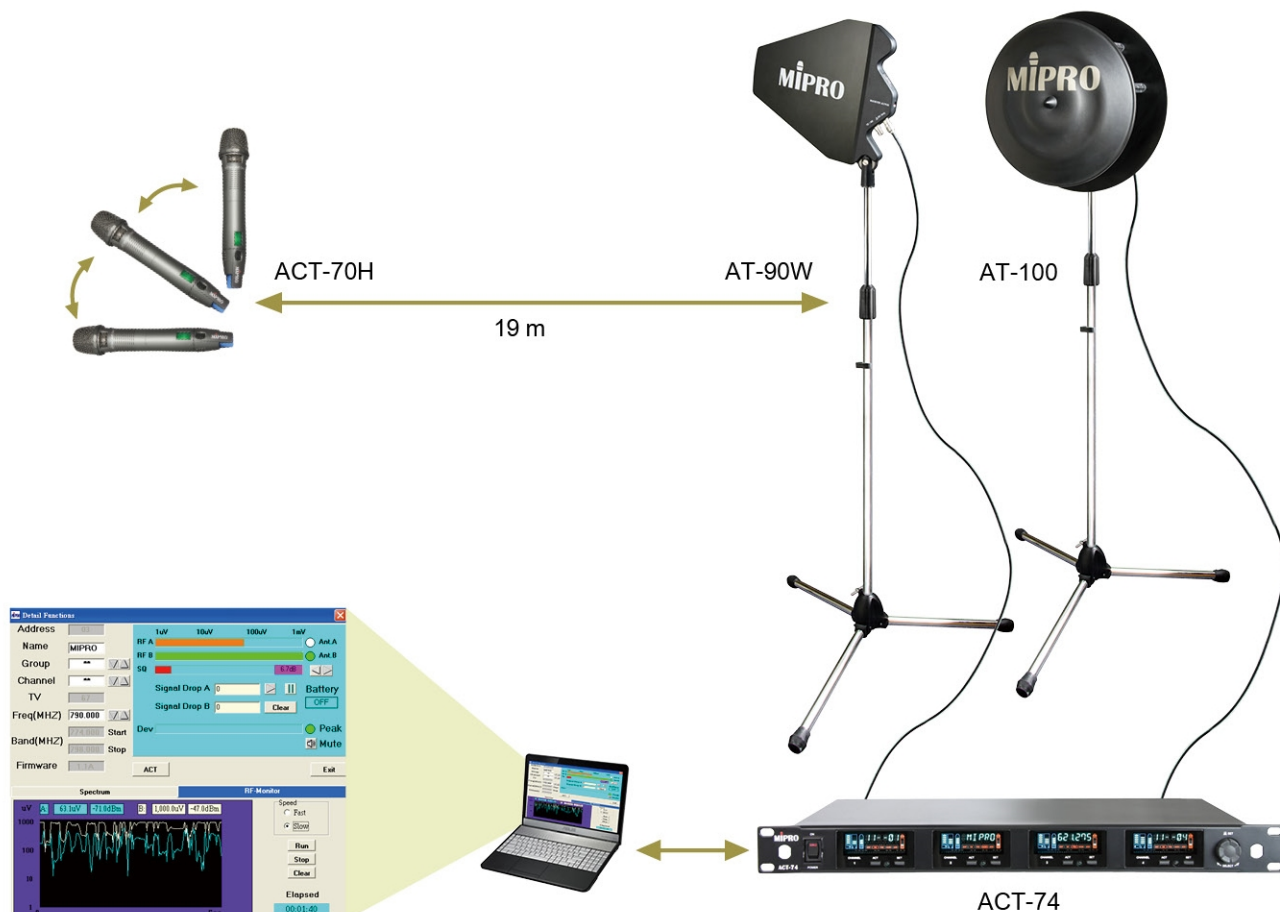
## Measurement Result Clearly Indicated

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

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

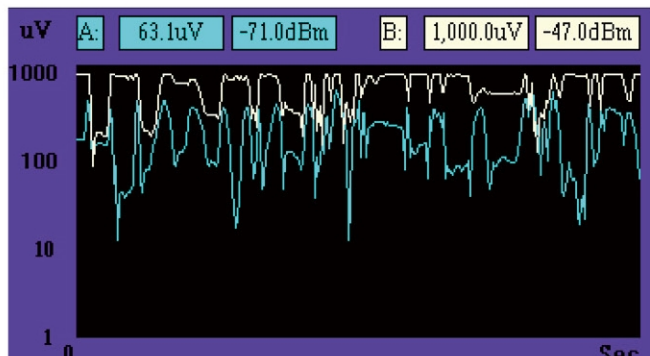
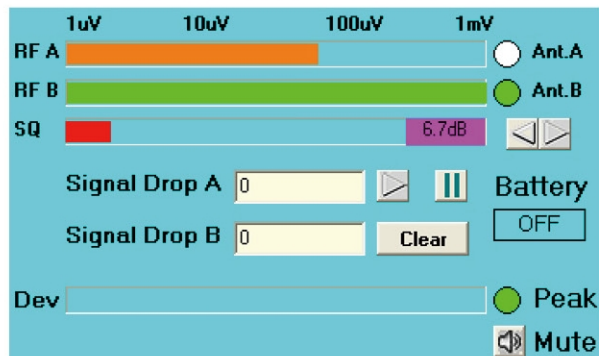
## 2. Antenna Dynamic Measurements with Polarization Loss Experiments

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



### Test Result

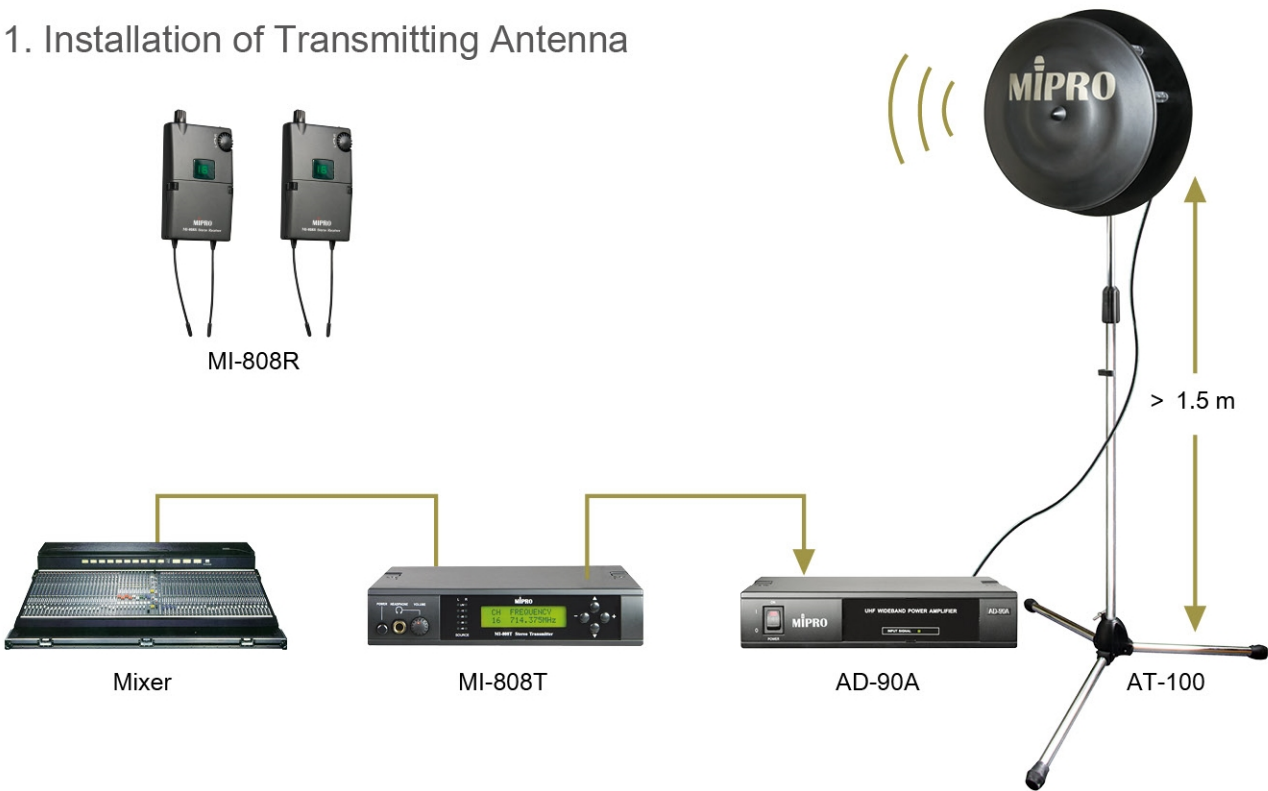
Below diagram clearly indicated that AT-100 circularly polarized antenna has improved performance than AT-90W in terms of received signal strengths and signal stability.



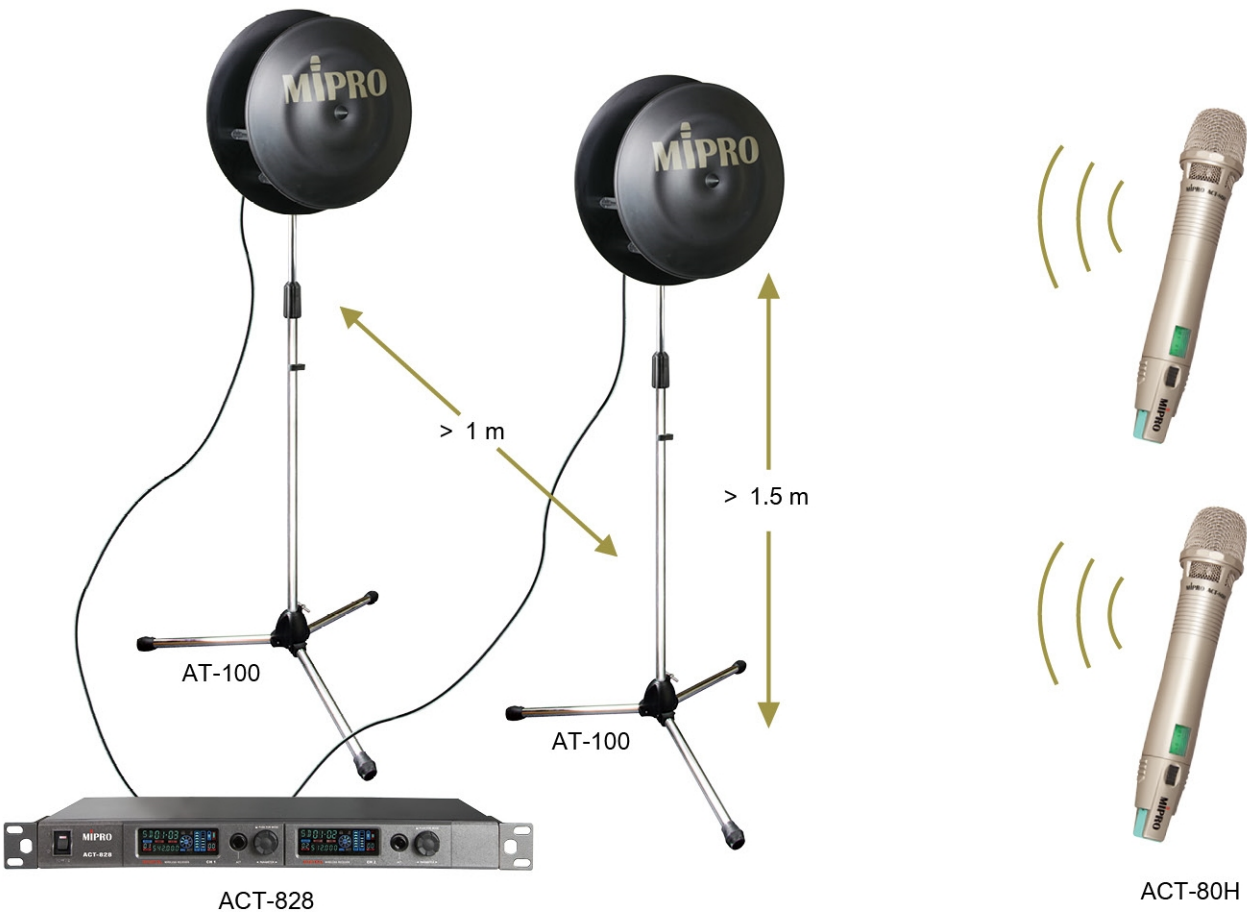
Computer Monitoring Graphs

# 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 rack-mount.

### Wall Mounting-horizontal position



Convenient MS-90 wall rack-mount.

### Outdoor Installation



Convenient MS-90 rack-mount.

## Built-in booster Usage

### 1. Optimal signal quality through proper booster usage

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

ACT-100 has two connectors, one is for RX (receiver only) with built-in 12 dB antenna gain, and can be used effectively to compensate the signal lose from extended cable transmission.

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

Please refer to the catalog Technical Knowledge "How to design receiver antenna system."