Mobile Companion User Manual

Content

Product overview

The signal amplifier is a miniature repeater, also known as a mobile phone signal amplifier, also known as a mobile phone companion. From its name, we know that the function of the signal amplifier is to amplify the signal. Amplifiers that specifically amplify mobile phone signals are called mobile phone signal amplifiers, which are mainly used to solve the problem of indoor mobile phone signal blind spots.

The mobile phone companion is mainly used for small-area indoor distribution systems. The repeater is in the downlink. The donor antenna picks up the signal in the existing coverage area of the base station, and the band-pass filter is used to isolate the out-of-band signal. The filtered signal is amplified by the power amplifier and then transmitted again. to the area to be covered. In the uplink path, the signal of the mobile station mobile phone in the coverage area is processed by the uplink amplification link in the same working mode and then transmitted to the corresponding base station, so as to achieve the signal transmission between the base station and the mobile phone. Provide users with stable and reliable signals, so that users can enjoy high-quality mobile communication services indoors. Product use range

◆ HIGH-RISE LOCAL USE OCCASIONS	◆ VILLA USE OCCASIONS
◆ Basement use	◆ parking lot usage
◆ Vehicle use occasions	◆ high speed train coverage
◆ Boundary, national border user coverage	◆ User coverage in urban villages
◆ High-rise elevator coverage	◆ Ship, yacht signal coverage
◆ High-level ping-pong effect solution	◆ Urban Tunnel Signal Solution
◆ Indoor coverage system renovation occasions	◆ Mine coverage occasions
◆ Airtight entertainment KTV occasions	◆ speakeasy bar, coffee house

1. Features of Mobile Companion

1.1 Anti-self-excitation function

After the device is installed and powered on, it will automatically detect the isolation between the indoor antenna and the outdoor antenna, and adjust the gain according to the change to ensure that no self-excitation occurs, and to avoid network interference caused by the abnormal operation of the device due to changes in the installation environment. If the isolation does not meet the installation requirements of the system, the device will automatically reduce the gain; if the isolation exceeds the control range of the device itself, the device will automatically turn off the power supply to protect the safety of the device and the network from interference.

1.2 The device gain is automatically adjustable

In addition to the active ALC function, the mobile phone companion also has a gain attenuator controlled by a microprocessor. The automatic gain adjustment range exceeds 60dB, which ensures high reliability and high stability of the system.

1.3 The low-noise tube design will not increase the noise floor of the base station.

Using stable and reliable electromagnetic compatibility design and low-noise tube technology, the noise figure of the equipment is less than 3db, which will not cause an increase in the bottom noise of the base station.

1.4 Up and down linkage control

After the system is installed and powered on, the system will automatically detect the input power and control the output power. After the device calculates the downlink gain of the system, it automatically adjusts the uplink gain of the system to maintain the amplification balance of the system, and realize the automatic linkage debugging of the

uplink and downlink of the device.

1.5 LED light alarm display, keep abreast of equipment status

The mobile phone companion uses LED lights to indicate the working status of the device, which is convenient for users to grasp the status of the device in time and make adjustments.

1.6 Easy installation

The mobile phone companion has perfect working status indication and can realize adaptive control, which makes the product engineering installation more convenient, and can be installed without the cooperation of the instrument.

1.7 Low carbon green

The mobile phone companion has low power, small size, and energy saving. The signal it transmits is only megawatts, without electromagnetic pollution, and it will not bring any health hazards to people. It is a low-carbon and green product.

1.8. Flexible configuration to deal with different complex places

Standard	Service locations for most applications.
High power type (20dbm)	It can deal with service places that require a wide range of signal coverage, such as large underground garages and other service places with little traffic.
elevator type	Dedicated to solving elevator signal coverage.
single mesh	GSM,DCS,CDMA800,CDMA2000, WCDMA type, 2G, 3G, 4G signal coverage is wider.

2. Technical indicators

2.1. parameter format

GSM standard Specification	Uplink 885-915 MHZ Downlink 930-960 MHZ	
Gain Gain		≧70±3dB (high power type) ≧65±3dB (standard type)
Automatic Level Control		≧50dB
Noise figure NF		≦5dB
Gain Flatness		≦6dB (pp),
Automatic Gain Control		30dB in step of 1dB (Auto)
Maximum output power Output Power		UL≧20±2dBm DL≧20(20)±2dBm (high power type) UL≧17±2dBm DL≧17±2dBm (standard type)
Input power range Output Power		≦-25dBm
Intermodulation attenuation IM3		≦-40dBc
spurious emissions Spurious Emission	9KHz~150KHz	≦-36dBm @ 1KHz
	150KHz~30MHz	≦-36dBm @ 10KHz
	30MHz~1GHz (out-of-band)	≦ -36dBm @ 100KHz
	1GHz~6.7GHz	≦ -36dBm @ 1MHz
Delay Group Delay		UL≦1μs
Operating voltage		AC 220V

3. Function interface and installation

3.1. product photo

3.2. Device Interface Description

BTS ------- Base station transmitting and receiving end (connected to donor antenna/outdoor antenna)

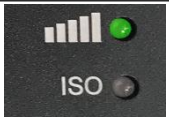
MS------- mobile phone user transmitting and receiving end (connected to retransmission antenna/indoor antenna)

DC IN------ power interface

POWER/signal grid/ISO------indicates the operating status of the device (see 2.1 for details)

3.3. Ordinary type (17-20dbm)

LED lights are used to provide alarm information, and the displayed content is as follows:

Display content	state	illustrate
signal strength		The signal is very poor, the downstream output is less than 5dBm
		Normal signal, downlink output 5 to 10dBm
		Strong signal, downlink output 10 to 15dBm
		The best signal, full power output downlink

DC power		Power is normal.
ISO isolation		Antenna isolation does not meet the requirements.

4. Accessories list

name	model	quantity	unit	Remark
mobile phone companion		1	tower	Standard
Power Adapter	220V/6V (normal type)	1	pcs	Standard
rubber antenna			pcs	Optional
flat panel antenna			pcs	Optional
Power outlet		1	pcs	Optional
Install fixing material		1	set	Standard

4.1 General scene installation instructions

4.1.1 Choose an appropriate location in the relevant indoor location (the best location for this location is close to the power supply and the outdoor antenna end with rain and sun protection and good ventilation) to install the mobile phone companion;

4.1.2 Fix the mobile phone companion and the retransmission antenna;

4.1.3 Use a mobile phone to check the direction and position of the strongest received signal (within a range of 20 meters) on the roof or around the building, as the location for installing the donor antenna (not fixed). For lightning protection, the donor antenna should be installed in Within the lightning protection zone of the building;

4.1.4 The distance between the transceiver antennas should be at least 10 meters if there are no obstacles. If there are obstacles, the distance should be more than 5 meters to meet the isolation requirements.

4.1.5 Connect the BTS port of the mobile phone companion to the donor antenna (panel antenna) through the RF cable, and the MS port to the retransmission antenna (glue stick antenna);

4.1.6 Connect the power adapter to the AC power supply AC220V, and connect its output DC6V to the mobile phone companion power socket;

4.1.7 Turn on the device, adjust the direction and position of the donor antenna, 20dBm device, observe the indicator light of the device, make the ISO fault indicator light in green, and try to ensure that the power indicator is in green light, the device works best at this time; When it is red, it means full power output, and the effect at this time is the best.

4.1.8 Fix the receiving antenna with magic glue or cable ties, and fix the cable with wire clips;

4.1.9 After installation, check the coverage effect;

4.1.10 As long as the transceiver isolation is moderate, the coverage effect can be achieved without any adjustment.

4.2. Elevator installation instructions (see installation instructions)

4.2.1 First, find a position on the elevator car where the equipment can be fixed, and use a cable tie to pass through the fixing plate on the back of the mobile phone companion to fix the equipment. It must be firm and reliable, without loosening, and the equipment has good heat dissipation.

4.2.2 The receiving antenna is also fixed on the upper part of the elevator car in the same way as the mobile phone companion, and the receiving direction is upward. After fixing, connect to the BTS port of the main device.

4.2.3 The retransmission antenna is fixed on the top of the elevator car by means of magic glue, and the emission direction is downward. Before pasting, wipe the position to be installed with a damp cloth to clean up the floating, oil stains, etc. that affect the fastness of pasting, and wait to dry. Dry, tear off the protective layer on the back of the magic glue (that is, tear it and use it, and paste it correctly at one time as much as possible to achieve the best paste effect), paste it on the back of the plate antenna, and then paste it directly on the top of the elevator car. On the panel, after fixing it, connect it to the MS port of the mobile phone companion.

4.2.4 Use the supplied power strip to connect with the power interface in the elevator, and connect the mobile phone companion power cord to the power strip. (The power strip provided with the machine must be used to provide the power interface for the occupied elevator)

4.2.5 Connect the power of the mobile phone companion and observe whether the indicator light is normal. If there is no problem, the device will start to work on its own without debugging.

4.2.6 If the elevator type equipment is equipped with UPS uninterruptible power supply, connect the 5V power adapter to the input IN port of the UPS uninterruptible power supply, and its output OUT port is connected to the mobile phone companion, and the UPS uninterruptible power supply switch is turned ON at the same time.

5. Application introduction

5.1. Elevator Environment Application

5.1.1 For elevators below 12 floors, a logarithmic period antenna is placed on the top

of the hoistway as a retransmission antenna, the equipment is placed in the elevator machine room, and the donor antenna is placed at the top of the machine room with a Yagi antenna.

5.1.2 Elevators above 12 floors

5.1.3 There is no signal in the elevator shaft

Two mobile phone companions are required:

The introduction type of the first signal source, installed on the top of the elevator, uses a log-periodic antenna to introduce signals from the top down to the elevator shaft;

The second one uses a dedicated elevator-type mobile phone companion to be placed on the elevator car for coverage.

5.1.4 The building is covered, or there is a weak signal in the elevator shaft (greater than -100dBm)

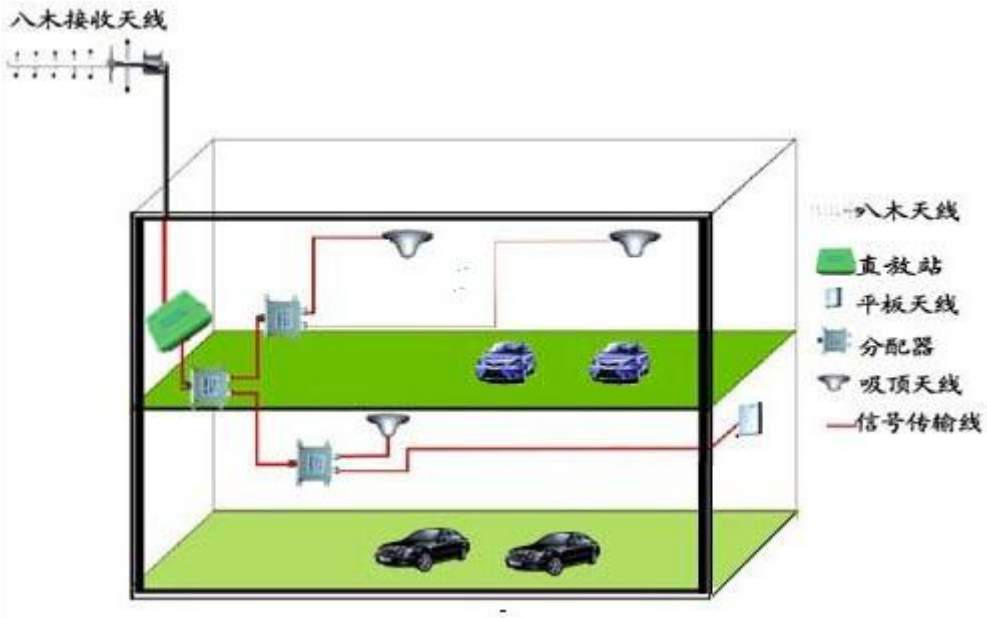
Adopt special elevator type mobile phone companion

5.2. Installation instructions

5.2.1 Elevator installation

5.2.2 General application installation diagram

5.2.3 Schematic diagram of underground garage



6. Precautions

6.1 Try to separate the two antennas from a wall and keep the distance apart. It is forbidden to turn on the device within 10 meters of the two antennas, otherwise it will not work properly.

6.2 The tail end of the Yagi antenna should point outdoors and in the direction of the receiving signal source.

6.3 Tighten the connector of the device and the antenna when connecting to avoid poor signal coverage.

6.4 The original machine is equipped with an AC 220V adapter, please pay attention to the voltage of the power input.

6.5 This product is designed for indoor use with a temperature range of -5~45℃. Also avoid moisture and rain.

6.6 When testing the equipment, please wait for the light or display information to flash slowly before adding the signal test to avoid test data errors!

Thank you for using Mobile Companion, if you have any other problems in using Mobile Companion, please call your local service provider.