



PS 61

PS 81



User Instructions

Please read the manual before using the equipment!

Table of Contents

FCC Statement 2

1 Precautions 2

2 Description 3

2.1 Introduction 3

2.2 Unpacking 3

2.3 Optional Accessories 3

2.4 PS 61 and PS 81 Power Splitters 3

 2.4.1 Front Panel 4

 2.4.2 Rear Panel 4

2.5 PSU 01 Power Supply (optional) 4

2.6 RA 61 B Receiving Antenna (optional) 5

2.7 RA 81 B Receiving Antenna (optional) 5

3 Getting Started 5

3.1 Rack Mounting a Single Power Splitters 5

3.2 Rack Mounting Two Power Splitters Side by Side 5

3.3 Setting Up Antennas 5

 3.3.1 Placement 5

 3.3.2 Mounting Antennas on Floor Stands 6

 3.3.3 Wall Mounting 6

 3.3.4 Connecting Antennas 6

 3.3.5 CABLE ATTENUATION Switch 6

3.4 Connecting Receivers to the Power Splitter and AC Power 7

 3.4.1 System with Two to Four Channels 7

 3.4.2 Systems with More than Four Channels 8

4 Operating Notes 8

4.1 Carrier Frequencies 8

4.2 Systems Powered via Receivers 8

4.3 Systems Powered by the PSU 01 9

4.4 ERROR LEDs 9

 4.4.1 Powering via Receivers 9

 4.4.2 Powering by the PSU 01 9

5 Cleaning 9

6 Troubleshooting 10

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

1 Precautions



1. Spill no liquids on the equipment and do not drop any objects through the ventilation slots in the equipment.
2. Do not place the equipment near heat sources such as radiators, heating ducts, or amplifiers, etc. and do not expose it to direct sunlight, excessive dust, moisture, rain, mechanical vibrations, or shock.



2 Description

2.1 Introduction Thank you for purchasing a product from AKG. This Manual contains important information on how to set up and operate WMS 61 (VHF) and WMS 81 (UHF) multi-channel wireless microphone systems using the Power Splitter PS 61 for WMS 61 or PS 81 for WMS 81 and remote antennas. Please take a few minutes to read through the Manual before operating the equipment. Have fun creating a fabulous production!

Please refer also to the instructions in your WMS 61 or WMS 81 manual!

2.2 Unpacking Check that the packaging contains the following items:



1. PS 61 or PS 81 Power Splitter



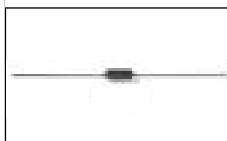
2. Rack mounting kit including 1 blank panel

If anything is missing, contact your AKG dealer.

2.3 Optional Accessories



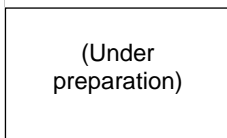
1. PSU 01 power supply for up to three Power Splitters and ten receivers.



2. RA 61 B booster antenna for WMS 61 VHF systems



3. RA 81 B booster antenna for WMS 81 UHF systems



4. SRA 1 UHF directional antenna



5. MK A 5, MK A 10, MK A 20 antenna cables



6. BNC cable, 31.5 in. (0.8 m) long

2.4 PS 61 and PS 81 Power Splitters The half-rack format PS 61 is an antenna distribution system for setting up a VHF multichannel system with up to ten SR 61 receivers. The PS 81 is identical to the PS 61 except that it operates in the UHF range and allows you to set up a multi-channel system with up to ten SR 81 receivers. (The number of channels you can actually use simultaneously depends on local frequency allocation plans.) The rack mountable Power Splitter provides antenna sockets for two RA 61 B or RA 81 B receiving antennas with built-in boosters and two sets of four antenna output sockets for up to four SR 61 or SR 81 diversity receivers.



The Power Splitter receives its supply voltages from the AC adapters that power the receivers connected to the Power Splitter. For systems with more than four channels, we recommend to use the optional PSU 01 power supply for up to three Power Splitters.

Both the boosters and the Power Splitter are wideband designs for the entire VHF or UHF range allowing you to connect receivers using different frequency sets.

2.4.1 Front Panel



Fig. 1: PS 81 front panel (identical to PS 61 front panel).

The Power Splitter front panel provides the following indicators:

POWER ON: This green LED lights to indicate the Power Splitter is powered.

BOOSTER A, BOOSTER B O.K.: These two green LEDs light to indicate the correct supply voltage for the boosters is available at the antenna input sockets ANTENNA A and ANTENNA B.

If the supply voltage across one of the antenna inputs is shorted or fails (drops below 2 V), the related LED will extinguish.

IMPORTANT: The two BOOSTER O.K. LEDs do NOT indicate the status of the related booster and therefore will not extinguish when you disconnect an antenna cable.

BOOSTER A, BOOSTER B ERROR: These red LEDs light to indicate the booster supply voltage across the ANTENNA A or ANTENNA B input socket is shorted or has failed.

2.4.2 Rear Panel

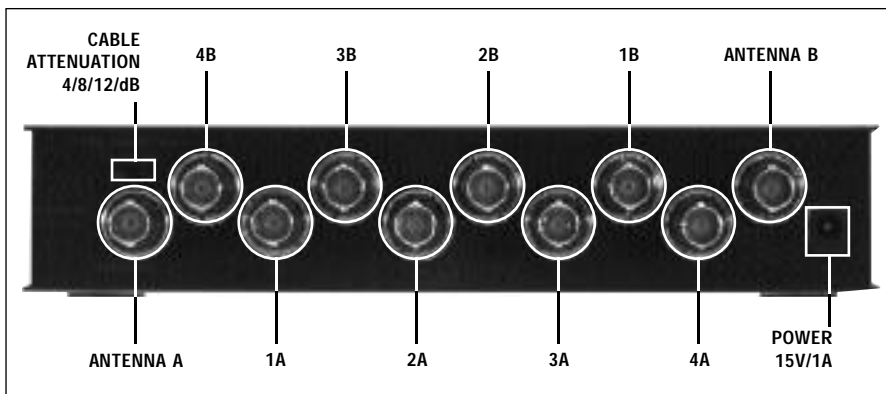


Fig. 2: PS 81 rear panel (identical to PS 61 rear panel).

The PS 61/PS 81 rear panel provides the following inputs, outputs, and controls:

POWER 15 V/1A: Input jack for the optional PSU 01 external power supply.

ANTENNA A, ANTENNA B: BNC input sockets for remote receiving antennas RA 61 B for VHF systems or RA81 B for UHF systems.

Since both the WMS 61 and the WMS 81 use diversity receivers, you will need two receiving antennas (optional).

CABLE ATTENUATION: This three-stage slide switch (4/8/12 dB) matches the antenna inputs (ANTENNA A and ANTENNA B) to the length of the antenna cables.

1A to 4A: BNC output sockets for up to four SR 61 or SR 81 diversity receivers (receiving sections A). Sockets 1A and 1B are also used for powering the Power Splitter electronics from the receiver.

1B to 4B: BNC output sockets for up to four SR 61 or SR 81 diversity receivers (receiving sections B). Sockets 2A and 2B are also used for powering the booster antennas from the receiver.

All unused outputs are electrically terminated automatically.

The PSU 01 power supply provides a secondary voltage of 15 V DC, 1 A for up to 2.5 PSU 01 Power Supply three Power Splitters and the receivers connected to them. For details refer to the (Optional) PSU 01 Instruction Manual.



2 Description

- 2.6 RA 61 B Receiving Antenna (Optional) Remote VHF receiving antenna with integrated booster for connection to the SR 61 receiver or PS 61 Power Splitter. The booster case is watertight so you can use the RA 61 B outdoors with no extra cover. A green status LED lights to indicate the antenna is being powered. An SA 43 stand adapter for mounting the antenna on a commercial boom stand is supplied as standard.
- 2.7 RA 81 B Receiving Antenna (Optional) Identical to the RA 61 B except that it is tuned to the UHF range for use with SR 81 receivers or PS 81 Power Splitters.



3 Getting Started

- 3.1 Rack Mounting a Single Power Splitter Referring to figs. 3a to 3d, you can mount the Power Splitter in a 19" rack in the same way as the SR 61 or SR 81 receiver.

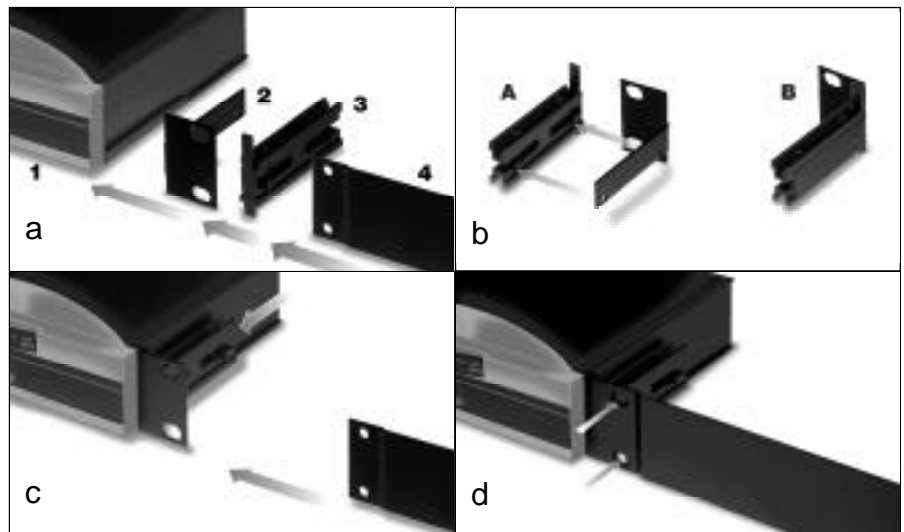
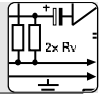


Fig. 3: Installing a single Power Splitter in a 19" rack.

1. Place a clamping slide (3) on each rack ear (2), checking that the pegs on the clamping slides (3) engage in the fixing holes on the rack ears (2) as shown in figs. 3a and 3b.
 2. Slide the clamping slides (3) and rack ears (2) into the fixing rails on both sides of the Power Splitter (1) from rear to front as shown in fig. 3c.
 3. Tighten the two Phillips screws in the clamping slides (3) CW to fix the rack ears (2) on the Power Splitter (1).
 4. Use the supplied screws to fix the supplied blank panel to the left or right rack ear (2) as shown in fig. 3d.
 5. Use the supplied installation screws to install the Power Splitter (1) in the rack.
- 3.2 Mounting Two Power Splitters Side by Side
1. Fix one rack ear (2) to the outside panel of each Power Splitter (1) referring to steps 1 through 3 above.
 2. Insert a clamping slide (3) with no rack ear (2) into the fixing rails on the INSIDE PANEL of one Power Splitter (1).
 3. Insert the Power Splitter (1) with the clamping slide (3) on its inside panel into the fixing rails on the inside panel of the other Power Splitter (1).
 4. Tighten the two Phillips screws in the inside clamping slide (3) CW to connect the two Power Splitters (1).
 5. Use the supplied installation screws to install the Power Splitters (1) in the rack.
- 3.3 Setting Up Antennas The following instructions for setting up receiving antennas apply to all VHF or UHF multichannel systems no matter how many channels they may use.

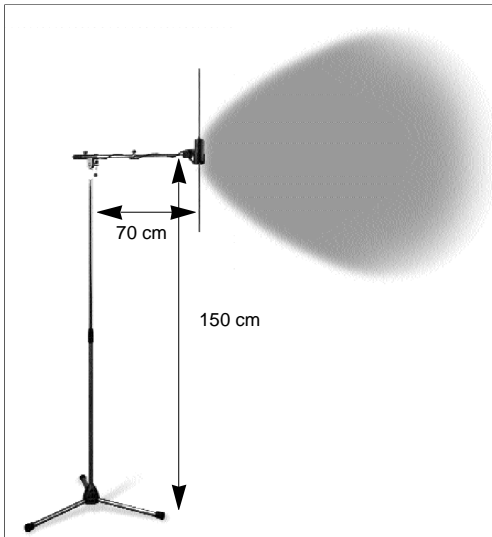
- 3.3.1 Placement Reflections off metal parts, walls, ceilings, etc. or the shadow effects of musicians and other people may weaken or cancel the direct transmitter signal. For best results, place the antennas as follows:



1. Place the antennas near the performance area (stage). Make sure, though, that the transmitter will never get any closer to the antennas than 10 ft (3 m). Optimum separation is 16 ft. (5 m). Place the antennas at least 10 ft. (3 m) from each other.
2. There should always be a direct line of sight between the transmitter and antennas.
3. Place the receiver at least 5 ft. (1.5 m) away from any big metal objects, walls, scaffolding, ceilings, etc.
4. Do not place antennas in wall recesses.
5. Place antennas at least 5 ft. (1.5 m) away from any equipment that may emit RF radiation such as lighting racks, fluorescent lamps, digital effects units, or PCs.

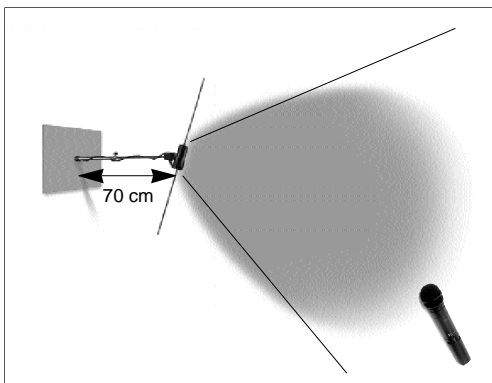
When mounting the antennas on floor stands, be sure to proceed as follows:

3.3.2 Mounting Antennas on Floor Stands



1. Use the supplied SA 43 stand adapter to mount the antenna on the boom of a boom stand.
2. Pull the boom out all the way to one side to make sure the antenna will be at least 28 inches (70 cm) away from the stand.
3. Extend the stand high enough to place the boom at least 5 ft. (1.5 m) above the floor.

Fig. 4: Antenna mounted on floor stand.



The sensitivity of the booster antenna is highest within an angle of ± 35 degrees to ± 50 degrees off its transverse axis. If you mount the antenna higher than 10 ft. (3 m) above the floor, make sure to aim the antenna to the performance area.

3.3.3 Wall Mounting

Fig. 5: Antenna mounted on a wall.

1. Connect the antenna cables to the antennas and wind the cables about the booms. Do not allow cables to sag below the boom because this may degrade the reception quality.
2. Connect one antenna cable to the ANTENNA A input and the other to the ANTENNA B input on the Power Splitter. Lock the connectors by rotating them through 90 degrees CW.

3.3.4 Connecting Antennas

To compensate for antenna cable attenuation, set the CABLE ATTENUATION switch on the Power Splitter rear panel to the position given in Table 1 for the length of antenna cable you are using. **Note that the values in Table 1 apply to RA61 B and RA 81 B antennas only!**

3.3.5 CABLE ATTENUATION Switch

RA 61 B Antenna - PS 61			RA 81 B Antenna - PS 81		
Length (m)		CABLE ATT.	Length (m)		CABLE ATT.
RG58	RG213		RG58	RG213	
50 - 75	110 - 140	12 dB	24 - 32	48 - 64	12 dB
30 - 50	70 - 110	8 dB	17 - 24	34 - 48	8 dB
15 - 30	30 - 70	4 dB	10 - 17	20 - 34	4 dB

Table 1: CABLE ATTENUATION switch position vs. antenna cable length.



3 Getting Started

IMPORTANT: When daisy-chaining Power Splitters, set the CABLE ATTENUATION switch to the position given in Table 1 on the first Power Splitter only. Set the CABLE ATTENUATION switch on the other one or two Power Splitters to “12 dB”.

3.4 Connecting Receivers to the Power Splitter and AC Power

IMPORTANT: Never connect a 50-ohm terminal to any unused Power Splitter output. The terminal may be damaged by the supply voltage across the output socket.

3.4.1 Systems with Two to Four Channels

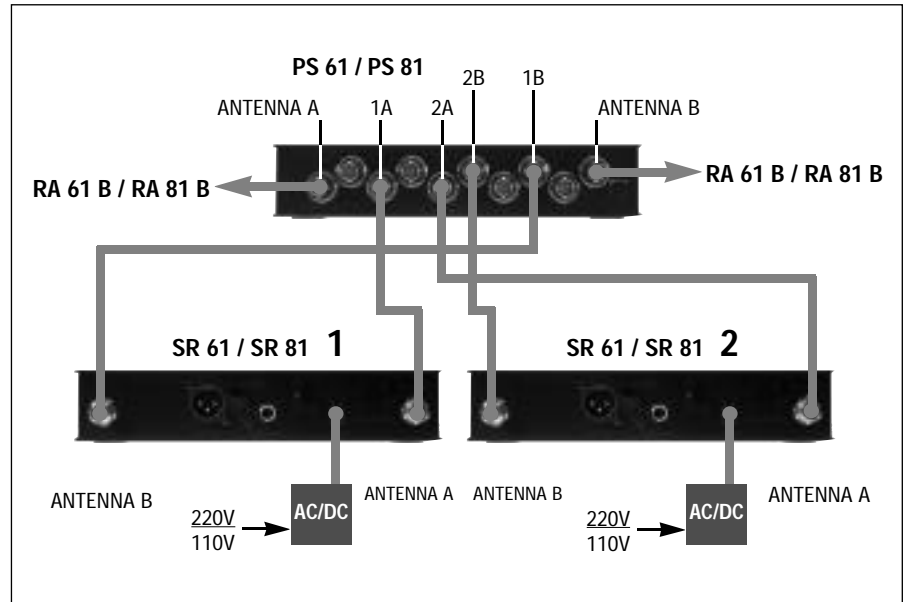


Fig. 6: Wiring a two-channel system.

1. Use BNC cables (optional - see section 2.3) to connect one receiver to outputs 1A and 1B and another receiver to outputs 2A and 2B as shown in fig. 6 above.

IMPORTANT: It is imperative to connect receivers to these outputs in order to ensure that the Power Splitter will be powered correctly!

2. Connect the other Power Splitter outputs to the ANTENNA inputs on the other receivers as shown in fig. 6.
3. **Check that the AC mains voltage stated on the supplied AC adapter is identical to the AC mains voltage available where you will use your system.** Using the AC adapter with a different AC voltage may cause irreparable damage to the unit.
4. Connect the receivers to AC power using the supplied AC adapters. (Refer to the WMS 61/WMS 81 Instruction Manual.)

Powering via PSU 01 Instead of using the AC adapters, you can also power the Power Splitter and receivers connected to it from an optional PSU 01 power supply:

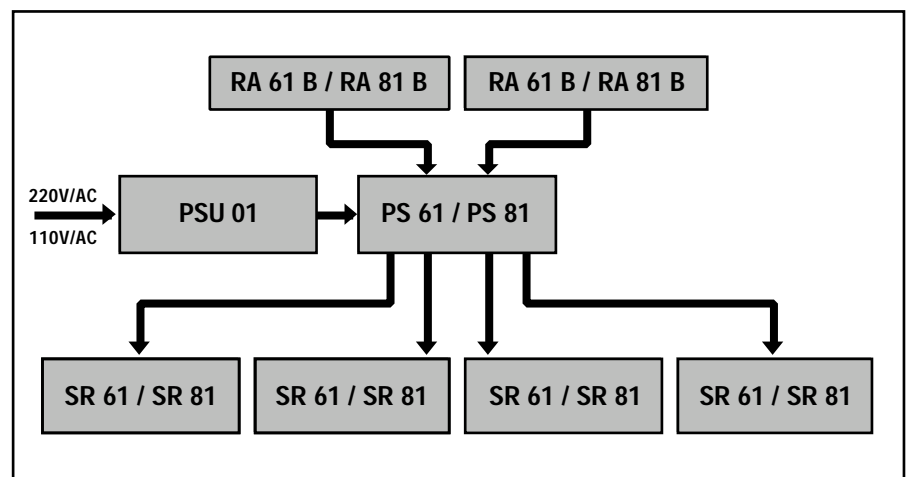
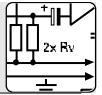


Fig. 7: Four-channel system using optional PSU 01 power supply.



1. Use BNC cables (optional) to connect the Power Splitter outputs to the ANTENNA inputs on the receivers as shown in fig. 6 above.
2. Use the feeder cable supplied with the PSU 01 power supply to connect the PSU 01 to the POWER jack on the Power Splitter (see fig. 7).

IMPORTANT: In this mode, the receivers will also be powered by the PSU 01 and the power switches on the receivers will be overridden. **To prevent damage to the equipment, disconnect from AC power the AC adapters of all receivers connected to the Power Splitter.**

3. Check that the PSU 01 is set to the AC mains voltage available where you will use your system. If it is not, set the PSU 01 to the correct AC mains voltage referring to the PSU 01 Instruction Manual.
4. Connect the PSU 01 to a convenient power outlet.

Daisy-chaining two Power Splitters allows you to operate 5 to 7, three Power Splitters 3.4.2 Systems with More than 7 to 10 wireless channels. Connect outputs 4A and 4B on the first Power Splitter to Four Channels inputs ANTENNA A and ANTENNA B on the second Power Splitter and so on. Although it is perfectly acceptable to power the system through the AC adapters supplied with the receivers, we recommend to use an optional PSU 01 power supply. Refer to section 3.3.1 and fig. 8 below for system wiring:

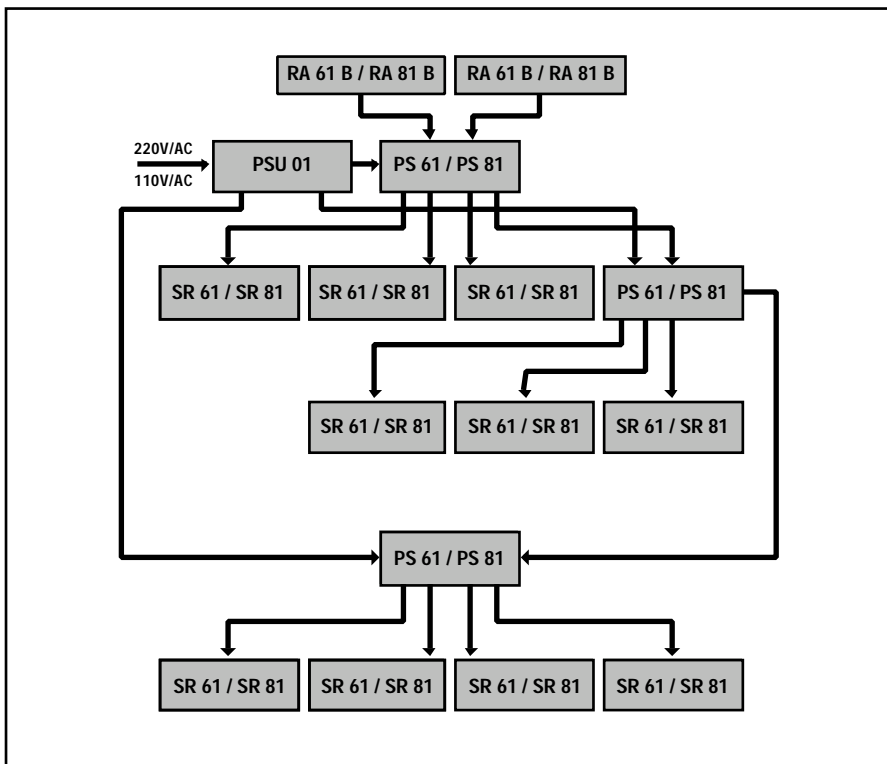


Fig. 8: Wiring a 10-channel system.



1. Be sure to assign a separate carrier frequency to each transmission channel (transmitter + receiver).
2. Set the transmitter and receiver to one of the frequencies marked with * in the carrier frequency tables on the receivers and transmitters.

IMPORTANT: Do not operate two or more channels on the same frequency at the same time and location. This would cause unwanted noise due to radio interference.

1. Switch all receivers ON. The Power Splitter will receive its supply voltages from the receivers connected to outputs 1A, 1B and 2A, 2B. The POWER ON, BOOSTER A OK, and BOOSTER B OK LEDs on the Power Splitter will illuminate. The green status LEDs on the two booster antennas will illuminate.

4.1 Carrier Frequencies

4.2 Systems Powered via Receivers



4 Operating Notes

2. On the Power Splitter to which you connected the antennas, set the CABLE ATTENUATION switch to the position given in Table 1 in section 3.3.5.
3. Set the CABLE ATTENUATION switch on any other Power Splitter(s) you may use in the system to "12 dB".

4.3 Systems Powered by the PSU 01 **Disconnect AC adapter!**

1. Check whether one or more receivers are connected to AC power via the supplied AC adapter.
If so, **disconnect all AC adapters from power and from the receivers** to prevent damage to the equipment.
2. Switch the PSU 01 ON. This overrides the power switches on the receivers and both the Power Splitter(s) and the receivers will switch on automatically.
The POWER ON, BOOSTER A OK, and BOOSTER B OK LEDs on the Power Splitter will illuminate.
The green status LEDs on the two booster antennas will illuminate.
3. On the Power Splitter to which you connected the antennas, set the CABLE ATTENUATION switch to the position given in Table 1 in section 3.3.5.
4. Set the CABLE ATTENUATION switch on any other Power Splitter(s) you may use in the system to "12 dB".

4.4 ERROR LEDs If the BOOSTER A or B ERROR LED on the Power Splitter illuminates, this means that booster antenna A or B receives no supply voltage:

4.4.1 Powering via Receivers

1. Check that each of the AC adapters powering the receivers is connected to both AC power and the respective receiver.
2. Check that all receivers connected to the Power Splitter are switched ON.
If any receiver is OFF, switch it ON.
3. Check the antenna cables.
Should one of the antenna cables be shorted, replace it with a new one.
4. Check that all receivers are correctly connected to the Power Splitter.
Make any connections that may be missing.

4.4.2 Powering via PSU 01

1. Check that the PSU 01 is connected to AC power and the Power Splitter(s) and switched ON. Check that all connectors are plugged in securely.
2. Check the antenna cables.
Should one of the antenna cables be shorted, replace it with a new one.

IMPORTANT: Also read the Instruction Manual for the PSU 01, particularly the section on selecting power voltages and warnings.



5 Cleaning

To clean the Power Splitter surfaces, use a soft cloth moistened with methylated spirits or alcohol.



Problem	Possible Cause	Remedy
1. No sound:	<ol style="list-style-type: none"> 1. AC adapters of receivers connected to channels 1 and 2, PSU 01 power cable, or feeder cable from PSU 01 to Power Splitter are not plugged in or make poor contact. 2. AC adapters for channels 1 and 2 or PSU 01 power cable defective. 3. Antennas not connected to Power Splitter. 4. PSU 01 defective. 	<ol style="list-style-type: none"> 1. Connect AC adapter or power cord to AC power and feeder cable to PSU 01 and Power Splitter, or check all connectors for secure contact. 2. Replace AC adapters for channels 1 and 2 or PSU 01 power cord. 3. Connect antennas. 4. Contact your nearest AKG dealer.
2. No or poor reception on individual channels:	<ol style="list-style-type: none"> 1. Transmitter and/or receiver switched OFF. 2. Transmitter batteries down. 3. AC adapter of receiver or feeder cable from PSU 01 to receiver <ol style="list-style-type: none"> a) makes poor contact or b) is defective. 4. Transmitter and receiver of dead channel are tuned to different frequencies. 5. Transmitter or receiver defective. 	<ol style="list-style-type: none"> 1. Switch transmitter and/or receiver ON. 2. Replace transmitter batteries. 3. <ol style="list-style-type: none"> a) Check AC adapter or feeder cable connectors for secure fit or b) replace AC adapter or feeder cable. 4. Tune transmitter and receiver to the same frequency. Refer to the transmitter and receiver Instruction Manual. 5. Contact your nearest AKG dealer.
3. Green status LED on booster antenna does not light:	<ol style="list-style-type: none"> 1. Antenna cable not connected or makes poor contact. 2. Antenna cable defective. 3. Booster antenna defective. 	<ol style="list-style-type: none"> 1. Connect antenna cable or check connectors for secure fit. 2. Replace antenna cable. 3. Contact your nearest AKG dealer.
4. One of the Power Splitter ERROR LEDs illuminates:	Booster antenna receives no supply voltage.	Refer to section 4.4 ERROR LEDs.