



WMS 61

WMS 81



User Instructions

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Please read this Manual carefully before operating the equipment.

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Parts 74, 15, and 90 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded cables and I/O cords must be used for this equipment to comply with the relevant FCC regulations.

Changes or modifications not expressly approved in writing by AKG Acoustics may void the user's authority to operate this equipment.

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. Introduction

Thank you for selecting a wireless microphone system from AKG. The WMS 61 and WMS 81 systems are functionally identical. They provide the same controls and their only difference is the frequency range. The WMS 61 operates in the VHF range from 138 MHz to 250 MHz, the WMS 81 in the UHF range from 710 MHz to 869 MHz.

Please take a few minutes to read through this Manual. It contains essential information on how to make optimum use of your equipment. All instructions contained in the Manual refer to both the WMS 61 and WMS 81 except where otherwise noted. All illustrations show the respective WMS 81 models. Have fun!

2. Precautions

- 2.1. Spill no liquids on the equipment and do not drop any objects through the ventilation slots in the equipment.
- 2.2. 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.
- 2.3. Be sure to dispose of used batteries as required by local waste disposal rules. Never throw batteries into a fire (risk of explosion).

3. The WMS 61 and WMS 81 Systems

The WMS 61 and WMS 81 are available in two different configurations:

3.1. Handheld System

1 SR 61 or SR 81 Receiver

- 1 AC power adapter for 12 VDC/300 mA
- 1 RMU 60 19" rack mounting kit for 1 or 2 receivers including one blank panel
- 1 screwdriver

1 HT 61 or HT 81 Handheld Transmitter

- 2 AA size 1.5 V dry batteries
- 1 SA 43 stand adapter
- 1 adjustable protective ring for controls

3.2. Bodypack System

1 SR 61 or SR 81 Receiver

- 1 AC power adapter for 12 VDC/300 mA
- 1 RMU 60 19" rack mounting kit for 1 or 2 receivers including one blank panel
- 1 screwdriver

1 PT 61 or PT 81 Bodypack Transmitter

- 1 belt clip
- 2 AA size 1.5 V dry batteries

Check that the package contains all the parts listed above for your system. If anything is missing, please contact your AKG dealer.

3.3. Optional Accessories

PS 61 Power Splitter for remote antennas and up to four SR 61 receivers

RA 61 B Booster Antenna for WMS 61 multichannel systems

PS 81 Power Splitter for remote antennas and up to four SR 81 receivers

RA 81 B Booster Antenna for WMS 81 multichannel systems

PSU 01 Central Power Supply Unit for up to three power splitters for setting up WMS 61 or WMS 81 multichannel systems with up to ten channels

CH 60 plastic carrying case for one complete WMS 61 or WMS 81 system.

Color Coding Kit: Set of rings (for the HT 61/HT 81) and platelets (for ST 61/SR 81 and PT 61/PT 81) in various colors for identifying the individual channels of a multichannel system.

4. Receiver

The SR 61 is a stationary True Microcontrolled Diversity receiver for use with WMS 61 transmitters. The SR 61 operates in a sub-band up to 4 MHz wide of the 138 MHz to 250 MHz VHF carrier frequency range. The SR 61 can be switched to a maximum of 15 different carrier frequencies depending on local frequency allocations.

The SR 81 is identical to the SR 61 except that it operates in the 710 MHz to 869 MHz UHF range

4.1. Controls

4.1.1. Front Panel

- 1a POWER: Switches the power to the receiver ON and OFF.
- 1b VOLUME: The VOLUME pot matches the receiver's output level to the input sensitivity of your mixer or amplifier.
- 1c TCSQ: The TCSQ (Tone Code Squelch) automatic squelch circuit mutes the receiver if the received signal is too weak or the transmitter switched off, effectively suppressing the audible noise caused by an excessive drop in received signal strength. The squelch circuit is controlled by a pilot frequency in the transmitter signal and therefore needs no user-adjustable control.
- 1d CHANNEL: This rotary switch selects the desired carrier frequency or its alternative frequencies.
- 1e BATTERY HI, MID, LO: These three LEDs indicate the current status of the transmitter batteries:
 - HI, MID, and LO lighting constantly indicate the batteries will last for more than 6 hours (rechargeable batteries: 5 hours max.).
 - MID and LO lighting constantly indicate the batteries will last for more than 3 hours.
 - LO (red) lighting constantly indicates the batteries will last for 1 hour.
 - LO (red) blinking indicates the batteries will be down in less than 1 hour.When using rechargeable batteries, note that only MID and LO may light even if the batteries are fully charged. This means that depending on the capacity, quality, or age of the batteries their maximum life is approx. 4 hours.
- 1f MUTE LED: Lights red if the squelch is active. In this case the audio output will be muted. Note that the MUTE LED does **not** indicate the position of the MUTE switch on the transmitter!
- 1g RF LEDs: One yellow and four green LEDs indicate the received field strength of the transmitter signal. Only the yellow LED lighting indicates low field strength.
- 1h AF/PEAK LEDs: Indicate the received audio level.
 - The green LEDs lighting and the red LED flashing occasionally indicate optimum modulation.
 - If the LEDs do not light, the sensitivity setting on the transmitter is too low.
 - The red LED lighting constantly indicates overmodulation.
- 1i Diversity LEDs A and B: Indicate which of the two receiving antennas is active.
 - If you use remote antennas, only one LED lighting constantly indicates that the cable to the other antenna has broken.
- 1j Color Code: If you use the receiver within a multichannel system, you may remove the black plastic platelet and replace it with a colored platelet included in the optional Color Coding Kit to identify each channel by a different color.

4.1.2. Rear Panel

- 1k Carrier Frequency Table: A label listing the available frequencies is affixed to the bottom panel of the receiver.
- 1l Frequency Set Designation: The label on the bottom panel also indicates the designation of the Frequency Set.
- 1m POWER: Input connector for the supplied AC adapter.
- 1n AUDIO OUT UNBALANCED: Unbalanced audio output on a 1/4" mono jack for connecting to, e.g., a guitar amplifier.
- 1o AUDIO OUT BALANCED: Balanced 3-pin XLR audio output for connecting to, e.g., a microphone input on the mixing console.
- 1p BALANCED LINE/MIC: Switches the balanced audio output to line or microphone level. Therefore, you can connect the receiver to microphone or line level inputs as desired.

- 1q ANTENNA A, ANTENNA B: BNC sockets for connecting the two supplied receiving antennas. The SR 61 and SR 81 are diversity receivers and use two antennas in order to receive the transmitter signal at two different spots. The diversity electronics will automatically activate the antenna that delivers the better signal.

Each ANTENNA socket provides a 4.2 V/35 mA supply voltage for the optional RA 61 B or RA 81 B remote booster antennas.

In a multichannel setup using the optional PS 61 or PS 81 Power Splitter and optional PSU 01 Central Power Supply, the ANTENNA sockets are also used as inputs for the supply voltage delivered by the PSU 01. In this configuration, be sure not to use the supplied external AC adapter. For details on setting up multichannel systems, refer to the PS 81 or PS 81 Manual.

- 1r Screwdriver for adjusting GAIN and CHANNEL controls.

4.2. Optional Accessories

Color Coding Kit

5. Handheld Transmitter

The HT 61 handheld transmitter and matching microphone elements (optional) provide the same acoustic performance as the equivalent hardwire microphone versions. The microphone elements available for the HT 61 have been specifically designed for vocal use.

The HT 61 operates in a subband up to 4 MHz wide within the 138 MHz to 250 MHz VHF carrier frequency range. The HT 61 can be switched to a maximum of 15 different carrier frequencies depending on local frequency allocations.

The transmitter uses a dipole antenna integrated in the body.

The controls can be protected against accidental misadjustment collectively (2d) or individually with the supplied adjustable protective ring (2j).

The HT 81 is identical to the HT 61 except that it operates in the 710 MHz to 869 MHz UHF range

5.1. Controls

- 2a PWR: Switches the transmitter power ON ("I") and OFF ("O").
 - 2b Status LED: Indicates battery status and audio input overload.
 - LED glowing dimly: batteries are OK.
 - LED constantly lighting brightly: batteries will be dead in about 60 minutes.
 - LED illuminating brightly: audio input is overloaded.
 - 2c MIC: Mutes the audio signal (position "O") while power and carrier frequency remain ON.
 - 2d Color Code: If you use the transmitter in a multichannel system you can remove the black plastic ring and replace it with a colored ring from the optional Color Coding kit to identify each wireless channel by a different color.
 - 2e GAIN: This rotary pot allows you to match the microphone level to the transmitter's audio section.
 - 2f Battery Compartment: Refer to Section 9. Setting Up.
 - 2g CHANNEL: This rotary switch selects the desired carrier frequency (depending on local allocations) or switches between the carrier frequency and its alternative frequencies.
- Important:** Prior to selecting frequencies, switch the transmitter OFF.
- 2h Carrier Frequency Table: A label listing the available frequencies is affixed to the battery compartment.

- 2i Frequency Set Designation: The label inside the battery compartment also indicates the designation of the Frequency Set.
- 2j Adjustable protective ring: Protects the controls from being misadjusted accidentally.

5.2. Interchangeable Microphone Elements

The interchangeable microphone elements (2k) D 880 WL1, D 3700 WL1, D 3800 WL1, C 5900 WL1, and C 535 WL1 are acoustically and mechanically identical to the equivalent hardwire versions. They feature the same transducer capsules and mechanical construction.

Extremely high gain before feedback, optimum handling noise rejection, ultimate protection from damage, and an integrated wind and pop screen are only the most impressive features of these microphones. For more details, refer to the respective AKG brochures.

5.3. Optional Accessories

- W 880** foam windscreen for D 880 WL1
- W 3001** foam windscreen for D 3700 WL1 and C 5900 WL1
- W 23** foam windscreen for C 535 WL1
- Color Coding Kit**

6. Bodypack Transmitter

You can use the PT 61 bodypack transmitter with both dynamic microphones and condenser microphones operating on a supply voltage of approx. 7 V. You may also connect an electric guitar, electric bass, or remote keyboard.

The PT 61 operates in a subband up to 4 MHz wide of the 138 MHz to 250 MHz VHF carrier frequency range. The HT 61 can be switched to a maximum of 15 different carrier frequencies depending on local frequency allocations.

The PT 81 is identical to the PT 61 except that it operates in the 710 MHz to 869 MHz UHF range

6.1. Controls

- 3a **POWER:** Switches the transmitter power ON ("I") and OFF ("O").
- 3b **MIC:** Mutes the audio signal (position "O") while power and carrier frequency remain ON.
- 3c **Status LED:** Indicates battery status and audio input overload.
 - LED glowing dimly: batteries are OK.
 - LED constantly lighting brightly: batteries will be dead in about 60 minutes.
 - LED illuminating brightly: audio input is overloaded.
- 3d **Audio Input:** 3-pin mini XLR connector with both mic and line level pins that automatically match the connector pinout of the microphone or optional MKG/L guitar cable.
- 3e **Color Code:** If you use the transmitter within a multichannel system, you may remove the black plastic platelet and replace it with a colored platelet included in the optional Color Coding Kit to identify each channel by a different color.
- 3f **CHANNEL:** This rotary switch selects the desired carrier frequency.

Important: Prior to selecting frequencies, switch the transmitter OFF.

- 3g **Belt Clip** for fixing the transmitter to your belt.
- 3h **Battery Compartment:** Refer to Section 9. Setting Up.
- 3i **Antenna:** Permanently connected, flexible antenna.
- 3j **GAIN:** This rotary pot allows you to match the microphone or instrument level to the transmitter's audio section.

- 3k **Carrier Frequency Table:** A label listing the available frequencies is affixed to the transmitter rear panel.
- 3l **Frequency Set Designation:** The label on the rear panel also indicates the designation of the Frequency Set.
- 3m **Security Cover:** Protects the POWER and MIC switches from being actuated unintentionally.

6.2. Microphones, Guitar Cable (optional)

The following AKG microphones have been designed specifically for direct connection to the audio input of the PT 61 or PT 81:

- C 417 L**
- C 419 L**
- C 420 L**
- CK 77 L**

The **MKG/L** guitar cable from AKG lets you connect an electric guitar, electric bass, or remote keyboard to the bodypack transmitter.

6.3. Optional Accessories

- CB 60** bag
- Color Coding Kit**

7. Frequencies

The transmitter and receiver of your WMS 61 or WMS 81 system have been factory programmed for up to 15 selectable carrier frequencies. The carrier frequency label (1k) on the receiver, (2g) on the handheld transmitter, or (3k) on the bodypack transmitter lists the Frequency Set your WMS 61 or WMS 81 system uses and all available carrier frequencies.

7.1. Frequency Sets

Prior to powering up your WMS 61 or WMS 81 system, check that the transmitter and receiver use the same Frequency Set. If they do not, you may not be able to find a common carrier frequency for the transmitter and receiver.

For currently available Frequency Sets and frequencies suited for intermodulation-free simultaneous operation, refer to the Frequency Lists in section 12.

7.2. Ordering Transmitters and Receivers

If you want to order additional transmitters or receivers operating on the same set of frequencies as your original equipment, be sure to state the designation of your original Frequency Set (1k/1l, 2l, 3k/3l) and the serial number of the original device. We need this information to make sure your new equipment will be compatible with the original units.

8. Multichannel Systems

Using optional RA 61 B or RA 81 B remote booster antennas, one to three PS 61 or PS 81 Power Splitters, and a PSU 01 Central Power Supply you can set up multichannel systems with a maximum of ten receivers and only two remote antennas. For detailed instructions on how to set up and operate multichannel systems refer to the PS 61 or PS 81 Manual.

In each carrier frequency table (1k, 2h, 3k), the basic frequencies you can use simultaneously and without risk of intermodulation are marked with *.

If you have any questions regarding allocated frequencies contact your dealer, the competent authority, your AKG representative, or the AKG head office in Vienna, Austria.

9. Setting Up

Prior to connecting the receiver to AC power and inserting the batteries into the transmitter, set the transmitter and receiver to the same carrier frequency. The carrier frequency tables on the transmitter (2h, 3k) and receiver (1k) list the channel number corresponding to each carrier frequency.

9.1. Selecting the Carrier Frequency

1. **Handheld transmitter:** Unscrew the battery compartment cover and the color code ring (2d or 2j) CCW.

Bodypack transmitter: Open the battery compartment (3h).

All controls are now accessible.

2. Use the supplied screwdriver (1r) to set the CHANNEL control (2g) on the handheld transmitter or (3f) on the bodypack transmitter to the desired channel.

3. Set the CHANNEL control (1d) on the receiver to the same channel as the transmitter.

Important: Be sure to switch power to the transmitter OFF every time before changing the carrier frequency. The new carrier frequency will not be activated before you switch the transmitter back ON. (If you change the carrier frequency while the transmitter is ON, the transmitter will remain tuned to the old carrier frequency.)

9.1.1. Multichannel Systems

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 (1k, 2h, 3k).

Note: If reception on the selected carrier frequency is disturbed, set the **carrier frequencies for all channels** up or down one or two notches using the respective CHANNEL controls (1d, 2g, 3f) on each transmitter and receiver.

This is necessary to provide the minimum frequency spacing required for intermodulation-free multichannel operation.

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.

9.2. Handheld Transmitter

9.2.1. Microphone Element

Prior to switching the transmitter on, screw the microphone element CW onto the thread on the transmitter. All electrical connections will be made automatically.

9.2.2. Inserting, Testing, and Removing Batteries

1. Make sure that the end of the ribbon fixed inside the battery compartment (2f) will stick out of the battery compartment (2f). (The ribbon is needed for removing the batteries.)

2. Insert the supplied batteries into the battery compartment (2f) conforming to the polarity marks.

The transmitter will not function with incorrectly inserted batteries.

3. Set the PWR switch to "I" to switch the power to the transmitter on.

The status LED (2b) will flash momentarily. If the batteries are in good condition, the status LED (2b) will continue glowing dimly. When the status LED (2b) illuminates brightly the batteries will be dead within about 90 minutes. Replace the batteries with new ones as soon as possible.

If the status LED (2b) fails to illuminate the batteries are dead. Insert new batteries.

4. Screw the supplied protective ring (2j) and the battery compartment cover back onto the transmitter CW. You can rotate the protective ring (2j) so that any one of the controls will be accessible and all others covered (B to E) and thus protected from being misadjusted unintentionally.

Note: For easy channel identification in a multichannel setup, you can install a different-color protective ring included in the optional Color Coding Kit. These protective rings are adjustable, too.

Note: If you prefer to cover all controls, reinstall the original color code ring (2d) **after adjusting the system** as described in section 9.6.

5. **Removing batteries:** Pull the ribbon outward to release the batteries from the battery compartment (2f) and remove the batteries.

9.3. Bodypack Transmitter

1. Insert the supplied batteries into the battery compartment (3h) conforming to the polarity marks.

The transmitter will not function with incorrectly inserted batteries.

2. Close the battery compartment (3h). The GAIN control (3j) remains accessible through an opening in the battery compartment cover.

3. Connect your microphone -- or your instrument using an optional MKG/L guitar cable -- to the audio input (3d).

4. Rotate the security cover (3m) CW to uncover the switches.

5. Set the POWER switch (3a) to "I" to switch the power to the transmitter on.

The status LED (3c) will flash momentarily. If the batteries are in good condition, the status LED (3c) will continue glowing dimly. When the status LED (3c) illuminates brightly the batteries will be dead within about 90 minutes. Replace the batteries with new ones as soon as possible.

If the status LED (3c) fails to illuminate the batteries are dead. Insert new batteries.

6. Snap the security cover (3m) back over the switches CCW.

You can wear the transmitter inside a shirt or jacket pocket, fix it to your belt with the belt clip (3g), or attach it to your body with adhesive bandage.

Important: Make sure the antenna will hang down freely, without being covered by the body.

Note: For easy channel identification in a multichannel setup, you can replace the snap fitted color code platelet (3e) with a different-color platelet included in the optional Color Coding Kit.

9.4. Replacing Transmitter Batteries

In order to ensure proper functioning of the BATTERY status display on the receiver, make sure to

- use 2 new batteries of the same type and make only;
- check that the batteries were not used for at least two hours prior to inserting them; and
- do not remove batteries before they are dead (the BATTERY LO LED on the receiver will flash).

If you use rechargeable batteries, be sure to use only high quality branded batteries, e.g., from SANYO. Note that the discharge curve of any rechargeable battery will change over time. Therefore, the BATTERY display on the receiver may operate less accurately with older rechargeable batteries.

9.5. Receiver

9.5.1. 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 receiver as follows:

1. Place the receiver near the performance area (stage). Make sure, though, that the transmitter will never get any closer to the receiver than 16 ft. (5 m). Optimum separation is 10 ft (3 m).
2. There should always be a direct line of sight between the transmitter and receiver.
3. Place the receiver at least 5 ft. (1.5 m) away from any big metal objects, walls, scaffolding, ceilings, etc.

You can either use the receiver free-standing or mount it in a 19" rack using the supplied RMU 60 rack mounting kit.

9.5.2. Rack Mounting

Mounting a Single Receiver

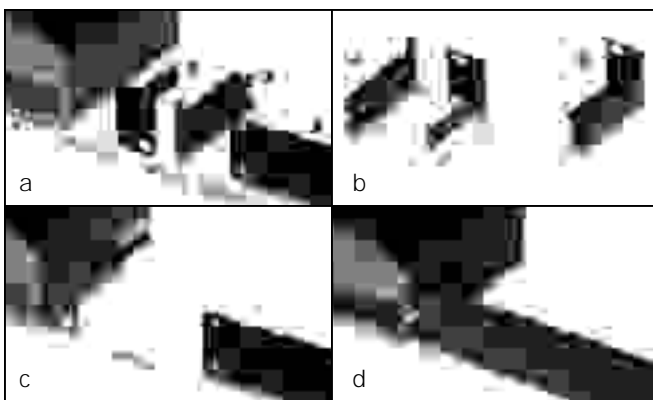


Fig. 1: Installing a single receiver in a 19" rack.

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. 1a and 1b.
2. Slide the clamping slides (3) and rack ears (2) into the fixing rails on both sides of the receiver (1) from rear to front as shown in fig. 1 c.
3. Tighten the two Phillips screws in the clamping slides (3) CW to fix the rack ears (2) on the receiver (1).
4. Use the supplied screws to fix the supplied blank panel to the left or right rack ear (2) as shown in fig. 1d.
5. Use the supplied installation screws to install the receiver (1) in the rack.

Mounting Two Receivers Side by Side

1. Fix one rack ear (2) to the outside panel of each receiver (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 receiver (1).
3. Insert the receiver (1) with the clamping slide (3) on its inside panel into the fixing rails on the inside panel of the other receiver (1).
4. Tighten the two Phillips screws in the inside clamping slide (3) CW to connect the two receivers (1).
5. Use the supplied installation screws to install the receiver (1) in the rack.

9.5.3. Audio Connections

Connect one of the AUDIO OUT sockets to the desired input:

- BALANCED socket (1o) - XLR cable - microphone input: set

BALANCED LINE/MIC switch (1p) to MIC.

- BALANCED socket (1o) - XLR cable - line input: set BALANCED LINE/MIC switch (1p) to LINE.
- UNBALANCED jack (1n) - 1/4" jack cable - unbalanced 1/4" microphone or line input jack. (BALANCED LINE/MIC switch (1p) position is uncritical.)

Important: Never use the two AUDIO OUT sockets simultaneously! This may cause signal loss or increased noise.

9.5.4. Connecting Antennas

1. Connect one of the two supplied antennas to the ANTENNA A BNC input and the other one to the ANTENNA B input on the receiver rear panel.
2. Point the antennas upward and slightly outward to form a "V".
3. **SR 61:** For optimum reception, make sure to extend the two telescoping antennas exactly as far as specified for each Frequency Set in Table 1 on page 51.

SR 81: Since the SR 81 is a UHF receiver, it uses fixed-length antennas that you do not need to extend.

9.5.5. Connecting to Power

1. **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.
2. Plug the feeder cable on the supplied AC adapter into the POWER socket (1m) on the receiver.
3. Bend part of the feeder cable into a bight, pass the bight through the opening in the lower part of the screwdriver support, and place the end of the bight snugly against the strain relief hook above the POWER socket (1m).
4. Plug the power cable on the supplied AC adapter into a convenient power outlet.
4. Switch the receiver ON with the POWER switch (1a).

Note: For easy channel identification in a multichannel setup, you can replace the snap fitted color code platelet (1j) with a different-color platelet included in the optional Color Coding Kit.

9.6. System Adjustments

1. **Handheld transmitter:** Using the supplied screwdriver (1r), set the GAIN control (2e) so that on the receiver the green AF LEDs (1h) will light and the red PEAK LED (1h) on the receiver as well as the status LED (2b) on the transmitter will only flash on the loudest signal peaks.
Bodypack transmitter: Using the supplied screwdriver (1r), set the GAIN control (3j) so that the green AF LEDs (1h) will light and the red PEAK LED (1h) on the receiver as well as the status LED (2b) on the transmitter will only flash on the loudest signal peaks.
2. The red PEAK LED (1h) on the receiver and/or the status LED (2b, 3c) on the transmitter lighting brightly means the transmitter is overloaded. Turn the GAIN control (2e) or (3j) on the transmitter CCW to the point that the PEAK (1h) and status (3c) LEDs will only flash occasionally.
3. Set the VOLUME control (1b) on the receiver so that the receiver output will optimally drive the connected device (e.g., mixer input). Refer to the instruction manual for the connected device.
4. Check the performance area for "dead spots", i.e., places where the field strength seems to drop and reception deteriorates. If you find any dead spots, try to eliminate them by repositioning the receiver. If this does not help, avoid the dead spots.
5. Check the field strength of the received signal. If the RF LOW

LED (1g) lights, reposition the receiver and/or transmitter such that field strength will increase back to optimum (OK LED (1g) illuminating).

6. The MUTE LED (1f) on the receiver illuminating means the squelch is active.

Remedies: Switch the transmitter ON or move closer to the receiver to the point that the MUTE LED (1f) will extinguish.

9.6.1. Multichannel Systems

If reception on the selected carrier frequency is disturbed, set the **carrier frequencies for all channels** up or down one or two notches using the respective CHANNEL controls (1d, 2g, 3f) on each transmitter and receiver.

This is necessary to provide the minimum frequency spacing required for intermodulation-free multichannel operation.

10. Cleaning

To clean the transmitter and receiver surfaces, use a soft cloth moistened with methylated spirits or alcohol.

11. Specifications

11.1. WMS 61

	HT 61	PT 61	SR 61
Carrier frequency	138 to 142 MHz/169 to 250 MHz		
Modulation	FM		
Audio bandwidth	50 to 20,000 Hz		
Frequency stability (-10°C to +50°C)	±10 ppm		
Rated deviation	30 kHz (22.5 kHz AM)		
T.H.D. at 1 kHz	<0.8%		<0.5%
Compander	Yes		
Signal/noise ratio	typ. 50 dB(A)		>100 dB(A)
Limiter	Yes		
RF output	10 mW		
Current consumption	typ. 150 mA	170 mA	220 mA
Power requirement	2x1.5 V AA size batteries		120/230 V AC, 50/60 Hz
Battery life	>8 hours	>8 hours	
Input sensitivity			typ. -95 dBm
Audio input level for rated deviation	350 mV/1 kHz	1400 mV/1 kHz	
Input impedance	220 k	220 k //660 pF	
Condenser microphone power supply		6 V/6.8 k on pin 3	
Squelch threshold			-95 dBm (fixed)
Pilot tone	32.678 kHz	32.678 kHz	
Audio output			balanced XLR: switchable between microphone and line levels; typ. 30 dB unbalanced XLR: 6 dBm unbalanced 1/4" jack: 0 dBm
Size (WxDxH)	240 x 36 dia. mm (9.4 x 1.4 in.)	92 x 65 x 20 mm (3.6 x 2.6 x 0.8 in.)	210 x 170 x 42 mm (8.3 x 6.7 x 1.7 in.)
Net weight	245 g (8.7 oz.)	76 g (2.7 oz.)	470 g (16.6 oz.)

11.2. WMS 81

	HT 81	PT 81	SR 81
Carrier frequency	710 to 869 MHz		
Modulation	FM		
Audio bandwidth	50 to 20,000 Hz		
Frequency stability (-10°C to +50°C)	±10 ppm		
Rated deviation	30 kHz		
T.H.D. at 1 kHz	<0.5%		<0.4%
Compander	Yes		
Signal/noise ratio	typ. 50 dB(A)		>100 dB(A)
Limiter	Yes		
RF output	10 mW		
Current consumption	typ. 170 mA	180 mA	240 mA
Power requirement	2x1.5 V AA size batteries		120/230 V AC, 50/60 Hz
Battery life	>8 hours	>8 hours	
Input sensitivity			typ. -95 dBm
Audio input level for rated deviation	350 mV/1 kHz	1400 mV/1 kHz	
Input impedance	220 k	220 k //320 pF	
Condenser microphone power supply		6 V/6.8 k on pin 3	
Pilot tone	32.678 kHz	32.678 kHz	
Squelch threshold			-95 dBm (fixed)
Audio output			balanced XLR: switchable between microphone and line levels; typ. 30 dB unbalanced XLR: 6 dBm unbalanced 1/4" jack: 0 dBm
Size (WxDxH)	240 x 36 dia. mm (9.4 x 1.4 in.)	92 x 65 x 20 mm (3.6 x 2.6 x 0.8 in.)	210 x 170 x 42 mm (8.3 x 6.7 x 1.7 in.)
Net weight	245 g (8.7 oz.)	76 g (2.7 oz.)	470 g (16.6 oz.)

This product conforms to ETS 300.422 and ETS 300.445 as well as Parts 15 (receiver), 74, and 90 (traveler) of the FCC Rules.

12. Frequency Lists

12.1 WMS 61





Set: DK		Set: UK1		Set: AT	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	138.250MHZ*	1	173.800MHZ*	1	246.300MHZ*
2	138.700MHZ	2	174.100MHZ	2	247.100MHZ*
3	138.800MHZ*	3	174.500MHZ*	3	247.500MHZ
4	139.050MHZ	4	174.800MHZ	4	248.600MHZ*
5	139.750MHZ*	5	175.000MHZ*	5	248.600MHZ
6	142.075MHZ	6	175.000MHZ	6	248.600MHZ
7	142.075MHZ	7	175.000MHZ	7	248.600MHZ
8	142.075MHZ	8	175.000MHZ	8	248.600MHZ
9	142.075MHZ	9	175.000MHZ	9	248.600MHZ
A	142.075MHZ	A	175.000MHZ	A	248.600MHZ
B	142.075MHZ	B	175.000MHZ	B	248.600MHZ
C	142.075MHZ	C	175.000MHZ	C	248.600MHZ
D	142.075MHZ	D	175.000MHZ	D	248.600MHZ
E	142.075MHZ	E	175.000MHZ	E	248.600MHZ
F	142.075MHZ	F	175.000MHZ	F	248.600MHZ

Set: EUS7		Set: EUS8a		Set: EUS8b	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	176.000MHZ	1	182.000MHZ	1	184.150MHZ
2	176.125MHZ	2	182.125MHZ	2	184.275MHZ
3	176.250MHZ*	3	182.250MHZ*	3	184.400MHZ*
4	176.375MHZ	4	182.375MHZ	4	184.525MHZ
5	176.500MHZ	5	182.500MHZ	5	184.650MHZ
6	176.350MHZ	6	182.400MHZ	6	184.600MHZ
7	176.475MHZ	7	182.525MHZ	7	184.725MHZ
8	176.600MHZ*	8	182.650MHZ*	8	184.850MHZ*
9	176.725MHZ	9	182.775MHZ	9	184.975MHZ
A	176.850MHZ	A	182.900MHZ	A	185.100MHZ
B	176.850MHZ	B	182.950MHZ	B	185.200MHZ
C	176.975MHZ	C	183.075MHZ	C	185.325MHZ
D	177.100MHZ*	D	183.200MHZ*	D	185.450MHZ*
E	177.225MHZ	E	183.325MHZ	E	185.575MHZ
F	177.350MHZ	F	183.450MHZ	F	185.700MHZ

Set: EUS9		Set: EUS10		Set: EUS11	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	190,175MHZ	1	196,000MHZ	1	198.125MHZ
2	190,300MHZ	2	196,125MHZ	2	198.250MHZ
3	190,425MHZ*	3	196,250MHZ*	3	198.375MHZ*
4	190,550MHZ	4	196,375MHZ	4	198.500MHZ
5	190,675MHZ	5	196,500MHZ	5	198.625MHZ
6	190,675MHZ	6	196,575MHZ	6	198.550MHZ
7	190,800MHZ	7	196,700MHZ	7	198.675MHZ
8	190,925MHZ*	8	196,825MHZ*	8	198.800MHZ*
9	191,050MHZ	9	196,950MHZ	9	198.925MHZ
A	191,175MHZ	A	197,075MHZ	A	199.050MHZ
B	191,300MHZ	B	196,925MHZ	B	199.150MHZ
C	191,425MHZ	C	197,050MHZ	C	199.275MHZ
D	191,550MHZ	D	197,175MHZ*	D	199.400MHZ*
E	191,675MHZ	E	197,300MHZ	E	199.525MHZ
F	191,800MHZ	F	197,425MHZ	F	199.650MHZ

Set: EUS12		Set: EUS13		Set: RS	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	204.200MHZ	1	214,550MHZ	1	180.000MHZ
2	204.325MHZ	2	214,675MHZ	2	180.125MHZ
3	204.450MHZ*	3	214,800MHZ*	3	180.250MHZ*
4	204.575MHZ	4	214,925MHZ	4	180.375MHZ
5	204.700MHZ	5	215,050MHZ	5	180.500MHZ
6	204.825MHZ	6	214,900MHZ	6	180.375MHZ
7	204.950MHZ	7	215,025MHZ	7	180.500MHZ
8	205.075MHZ*	8	215,150MHZ*	8	180.625MHZ*
9	205.200MHZ	9	215,275MHZ	9	180.750MHZ
A	205.325MHZ	A	215,400MHZ	A	180.875MHZ
B	205.200MHZ	B	215,500MHZ	B	180.900MHZ
C	205.325MHZ	C	215,625MHZ	C	181.025MHZ
D	205.450MHZ*	D	215,750MHZ*	D	181.150MHZ*
E	205.575MHZ	E	215,875MHZ	E	181.275MHZ
F	205.700MHZ	F	216,000MHZ	F	181.400MHZ

12.1.1 Table 1

Set	Antenna sections	
AT1	3	
EUS10	4	
EUS11	4	
EUS12	4	
EUS13	4	
US1a	5	
US1b	5	
UK1	5	
EUS7	5	
RS	5	
EUS8a	5	
EUS8b	5	
EUS9	5	
DK	7	

12.2 WMS 81

Set: NZ2		Set: UK69A (UKSpot)		Set: UK69B (UKSpot)	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	833.200MHZ	1	854.900MHZ*	1	858.200MHZ*
2	833.400MHZ*	2	855.275MHZ*	2	860.400MHZ*
3	833.600MHZ	3	856.175MHZ*	3	860.900MHZ*
4	833.800MHZ	4	857.625MHZ*	4	860.900MHZ
5	834.000MHZ*	5	857.625MHZ	5	860.900MHZ
6	834.200MHZ	6	857.625MHZ	6	860.900MHZ
7	834.400MHZ	7	857.625MHZ	7	860.900MHZ
8	834.600MHZ	8	857.625MHZ	8	860.900MHZ
9	834.800MHZ*	9	857.625MHZ	9	860.900MHZ
A	835.000MHZ	A	857.625MHZ	A	860.900MHZ
B	835.200MHZ	B	857.625MHZ	B	860.900MHZ
C	835.400MHZ	C	857.625MHZ	C	860.900MHZ
D	835.600MHZ	D	857.625MHZ	D	860.900MHZ
E	835.800MHZ*	E	857.625MHZ	E	860.900MHZ
F	836.000MHZ	F	857.625MHZ	F	860.900MHZ

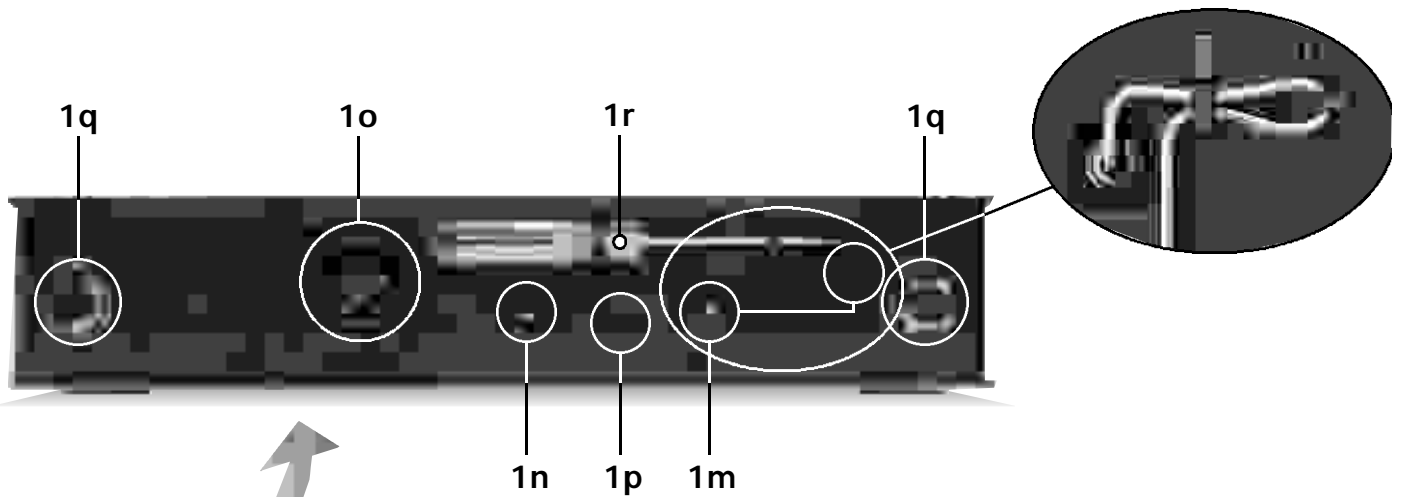
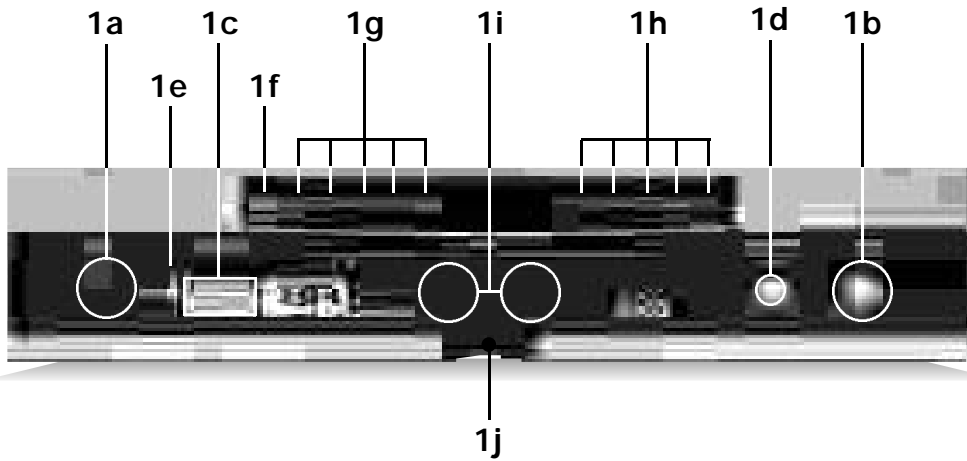
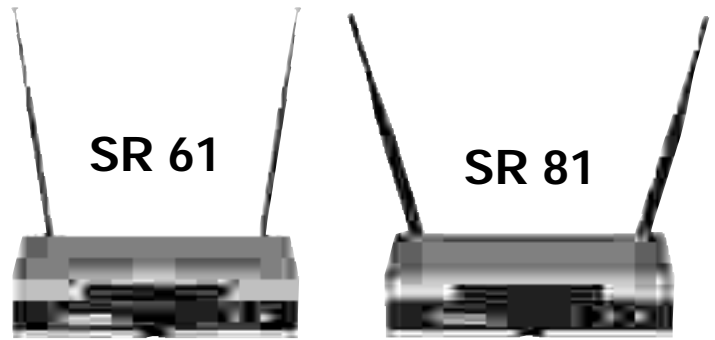
Set: US54		Set: US55		Set: US58	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	710.200MHz	1	719.000MHz	1	734.400MHz
2	710.400MHz*	2	719.200MHz	2	734.600MHz*
3	710.600MHz	3	719.400MHz	3	734.800MHz
4	710.800MHz	4	719.600MHz	4	735.000MHz
5	711.000MHz*	5	719.800MHz*	5	735.200MHz
6	711.200MHz	6	720.000MHz	6	735.400MHz
7	711.400MHz	7	720.200MHz	7	735.600MHz
8	711.600MHz	8	720.400MHz	8	735.800MHz
9	711.800MHz*	9	720.600MHz*	9	736.000MHz*
A	712.000MHz	A	720.800MHz	A	736.200MHz
B	712.200MHz	B	721.000MHz	B	736.400MHz
C	712.400MHz	C	721.200MHz	C	736.600MHz
D	712.600MHz	D	721.400MHz	D	736.800MHz
E	712.800MHz*	E	721.600MHz*	E	737.000MHz*
F	713.000MHz	F	721.800MHz	F	737.200MHz

Set: US59		Set: EU58		Set: EU59	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	742.800MHz	1	770.600MHz	1	777.600MHz
2	743.000MHz*	2	770.800MHz*	2	777.800MHz*
3	743.200MHz	3	771.000MHz	3	778.000MHz
4	743.400MHz	4	771.200MHz	4	778.200MHz
5	743.600MHz*	5	771.400MHz*	5	778.400MHz*
6	743.800MHz	6	771.600MHz	6	778.600MHz
7	744.000MHz	7	771.800MHz	7	778.800MHz
8	744.200MHz	8	772.000MHz	8	779.000MHz
9	744.400MHz*	9	772.200MHz*	9	779.200MHz*
A	744.600MHz	A	772.400MHz	A	779.400MHz
B	744.800MHz	B	772.600MHz	B	779.600MHz
C	745.000MHz	C	772.800MHz	C	779.800MHz
D	745.200MHz	D	773.000MHz	D	780.000MHz
E	745.400MHz*	E	773.200MHz*	E	780.200MHz*
F	745.600MHz	F	773.400MHz	F	780.400MHz

Set: EU60		Set: EU62		Set: EU63	
CHANNEL	FREQ.	CHANNEL	FREQ.	CHANNEL	FREQ.
0	OFF	0	OFF	0	OFF
1	785.600MHz	1	802,525MHz	1	812,775 MHz
2	785.800MHz*	2	803,025MHz	2	812,800 MHz
3	786.000MHz	3	803,100 MHz	3	812,825 MHz
4	786.200MHz	4	803,550 MHz	4	813,050 MHz
5	786.400MHz*	5	803,575 MHz	5	813,075 MHz
6	786.600MHz	6	803,625 MHz	6	813,100 MHz
7	786.800MHz	7	803,675 MHz	7	813,125 MHz
8	787.000MHz	8	804,775 MHz	8	813,150 MHz
9	787.200MHz*	9	804,800MHz	9	813,175 MHz
A	787.400MHz	A	804,850 MHz	A	813,200 MHz
B	787.600MHz	B	805,175 MHz	B	813,250 MHz
C	787.800MHz	C	805,200 MHz	C	813,275 MHz
D	788.000MHz	D	805,275 MHz	D	813,300 MHz
E	788.200MHz*	E	805,300 MHz	E	813,750 MHz
F	788.400MHz	F	805,800 MHz	F	813,800 MHz

WMS 61 / WMS 81

Wireless Microphone Systems

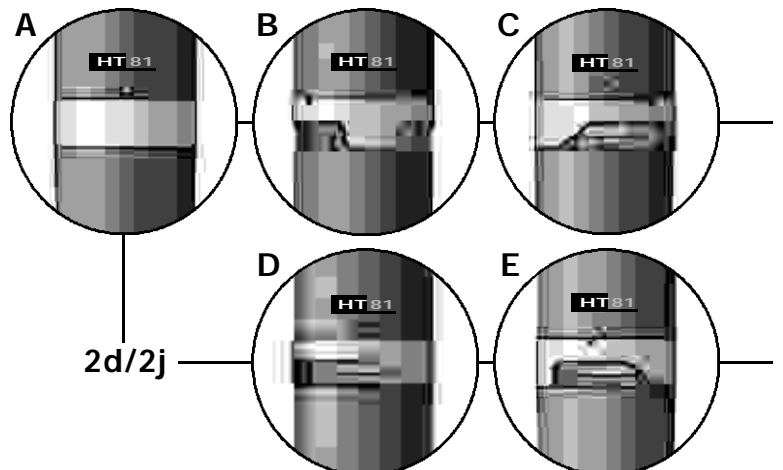


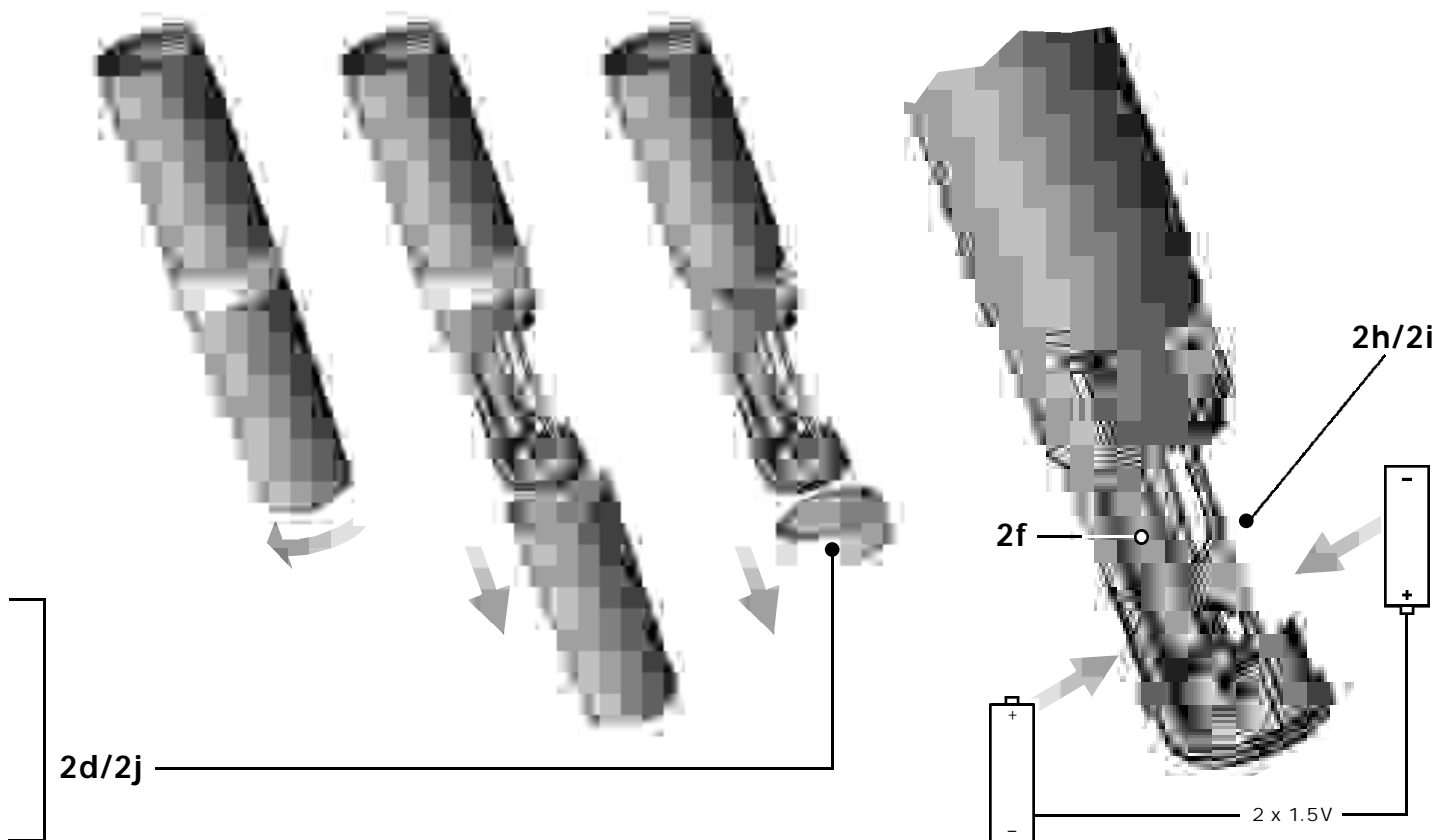
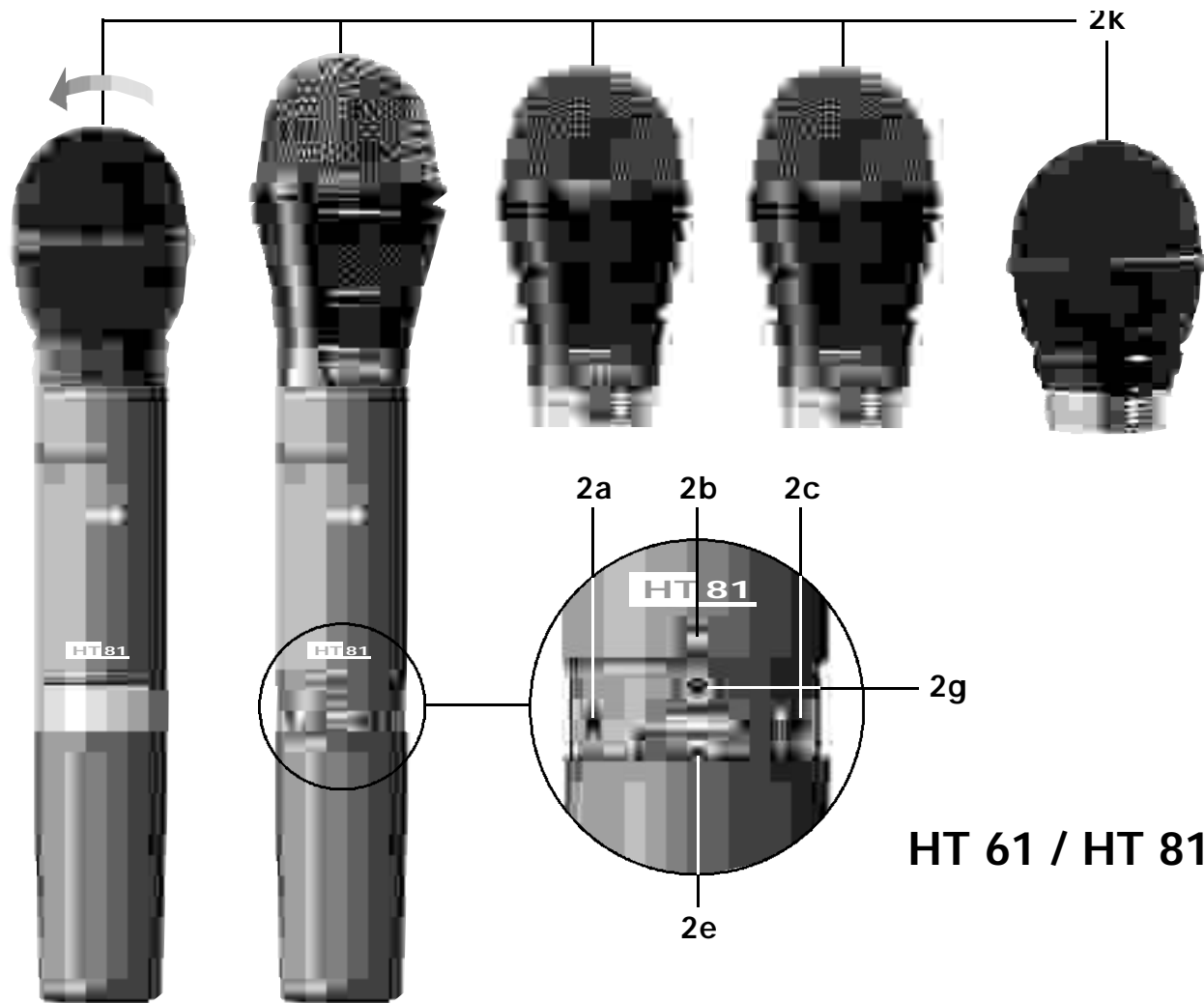
SR81 0000Z000
SNR:01001 AKG Set:EUS..

1:000.000	9:000.000 MHz
2:000.000	10:000.000 MHz
3:000.000	11:000.000 MHz
4:000.000	12:000.000 MHz
5:000.000	13:000.000 MHz
6:000.000	14:000.000 MHz
7:000.000	15:000.000 MHz
8:000.000	

1k/1l

HT 61 / HT 81





PT 61 / PT 81

