

DJ-A446

Instruction Manual

Thank you for purchasing your new Alinco transceiver. Please read this manual carefully before using the product to ensure full performance, and keep this manual for future reference as it contains information on after-sales service.

In case addendum or errata sheets are included with this product, please read those materials and keep them together with this instruction manual for future reference.

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Introduction

Thank you very much for purchasing this excellent Alinco transceiver. Our products are ranked among the finest in the world. This radio has been manufactured with state of the art technology and it has been tested carefully at our factory. It is designed to operate to your satisfaction for many years under normal use.

Please read this manual completely from the first page to the last, to learn all the functions the product offers. It is important to note that some of the operations may be explained in relation to information in previous chapters. By reading just one part of the manual, you may risk not understanding the complete explanation of the function.

Before transmitting

There are many radio stations operating in to the frequency ranges this product covers. Be careful not to cause interference when transmitting around such radio stations.

■ Lightning

Any person is not safe outdoor during thunderstorm and lightning. This condition is getting worse if somebody keeps a hand-held radio; chances of being hit by lightning are doubled since lightning may hit a radio antenna as well. At this time, there is no hand-held radio having any kind of protection against lightning current (which is higher than 10 kA.). Note also that no car provides adequate protection of its passengers or drivers against lightning as well. Therefore, Alinco will not take responsibility for any danger associated with using its hand-held radios outdoor or inside the car during lightning.

■ About IP54 rating / Dust and splash resistant

About IP54 rating

- 5: Dust protected /Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment; complete protection against contact.
- 4: Splashing water / Water splashing against the enclosure from any direction shall have no harmful effect. Test duration: 5 minutes / Water volume: 10 liters per minute /Pressure: 80~100 kN/m²

The IP54 designation provides for limited dust and splash proofing of the radio per specified above. This compatibility is factory guaranteed for a period of one year provided all the jack covers are securely in place, any accessories connected must be specified genuine Alinco accessories and the radio has not been disassembled by the customer. The factory has tested and made the equipment compatible to IP54 certification during engineering. However, please understand that this equipment is NOT certified IP54 compliant but is designed to remain operational when used in hard conditions and is in no way stating that you should attempt to wash the radio for cleaning. Warranty will not cover radios that are water/dust damage due to negligence or misuse of the product.

The warranty period of dust and splash resistance is the same as the period of the product warranty.

■ Covering ranges

You may expect a range of approx.1.5km/1 miles or more when located on a flat, noise-free place like on a beach.However,it may vary drastically depending on how to wear and carry the radios, surrounding locations/conditions and static noise levels (below or near power transmission lines), etc. In urban areas with many buildings or inside a building, such covering range will become drastically short even to several tens of meters.

Features

- Li-Ion battery pack and stand-charger as standard accessories
- FM broadcasting 76-108MHz receiver built-in
- Sub-tone (CTCSS/DCS) Encode/ Decode and DTMF/ANI
- Inversion Scramble(Analog encryption)














Tested to comply MIL-STD-810G

-Shock: Method 514.6/I,IV -Vibration: Method 516.6/I





Alert

■ **Environment and condition of use**




-  Use of this product may be prohibited or illegal outside of your country. Be informed in advance when you travel.
-  It is recommended that you check local traffic regulations regarding the use of a radio equipment while driving. Some countries prohibit or apply restrictions for the operation of radios and mobile- phones while driving.
-  Do not use this product in close proximity to other electronic devices, especially medical ones. It may cause interference to those devices.
-  Keep the radio out of the reach of children.
-  In case a liquid leaks from the product, do not touch it. It may damage your skin. Rinse with plenty of cold water if the liquid contacted your skin.
-  Never operate this product in facilities where radio products are prohibited for use such as aboard aircraft, in airports, in ports, within or near the operating area of business wireless stations or their relay stations.
-  The manufacturer declines any responsibilities against loss of life and/or a property due to a failure of this product when used to perform important tasks like life-guarding, surveillance, and rescue.
-  Do not use multiple radios in very close proximity. It may cause interference and/or damage to the product(s).
-  Risk of explosion if battery is replaced with an incorrect type.

-  The manufacturer declines any responsibilities against loss of life and property due to a failure of this product when used with or as a part of a device made by third parties.
-  Use of third party accessory may result in damage to this product. It will void our warranty for repair.

■ Handling this product

-  Be sure to reduce the audio output level to minimum before using an earphone or a headset. Excessive audio may damage hearing.
-  Do not open the unit without permission or instruction from the manufacturer. Unauthorized modification or repair may result in electric shock, fire and/or malfunction and voids warranty.
-  Do not operate this product in a wet place such as in a shower room. It may result in electric shock, fire and/or malfunction. This product is splash-proof but not a complete water-proof.
-  Do not place the product in a container carrying conductive materials, such as water or metal in close proximity. A short-circuit to the product may result in electric shock, fire and/or malfunction.

■ About chargers

-  Do not use adapters other than having the specified voltage. It may result in electric shock, fire and/or malfunction. Never turn on the radio while charging.
-  Do not plug multiple devices using an adapter into a single wall outlet. It may result in overheating and/or fire.
-  Do not handle adapter with a wet hand. It may result in electric shock.



Securely plug the adapter into the wall outlet. Insecure installation may result in short-circuit, electronic shock and/or fire.



Do not use the adapter if the plug or socket contacts are dirty. Overheating and/or short-circuiting may result in fire, electric shock and/or damage to the product.

■ In case of emergency

In case of the following situation(s), please turn off the product, switch off the source of power, then remove or unplug the power-cord. Please contact your local dealer of this product for service and assistance. Do not use the product until the trouble is resolved. Do not try to troubleshoot the problem by yourself.

- When a strange sound, smoke and/or strange odor comes out of the product.
- When the product is dropped or the case is broken or cracked.
- When a liquid penetrated inside.
- When a power cord (including DC cables, AC cables and adapters) is damaged



For your safety, turn off then remove all related AC lines to the product and its accessories from the wall outlet if a thunderstorm is likely.

■ Maintenance








Do not open the unit and its accessories. Please consult with your local dealer of this product for service and assistance







Alert

■ Environment and condition of use

-  Do not use the product in proximity to a TV or a radio. It may cause interference or receive interference.
-  Do not install in a humid, dusty or insufficiently ventilated place. It may result in electric shock, fire and/or malfunction.
-  Do not install in an unstable or vibrating position. It may result in electric shock, fire and/or malfunction when/if the product falls to the ground.
-  Do not install the product in proximity to a source of heat and humidity such as a heater or a stove. Avoid placing the unit in direct sunlight.
-  Be cautious of a dew formation. Please completely dry the product before use when it happens.

■ About transceiver

-  Be cautious of the whip antenna when carried in your shirt-pocket etc. It may make contact with your eye and cause injury.
-  Do not connect devices other than specified ones to the jacks and ports on the product. It may result in damage to the devices.
-  Turn off and remove the power source (AC cable, DC cable, battery, cigar cable, charger adapter etc.) from the product when the product is not in use for extended period of time or in case of maintenance.
-  Never pull the cord alone when you unplug AC cable from the wall outlet.



Use a clean, dry cloth to wipe off dirt and condensation from the surface of the product. Never use thinner or benzene for cleaning.



Check with your local waste officials for details on recycling or proper disposal of the electronics product, battery-packs and accessories in your area.



■ PC PROGRAMMING

NOTE: The utility software may be available to distributors/dealers only. USB programming cable is required. The manufacturer will not release the software to unauthorized party so please contact your dealer for details.

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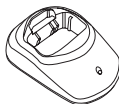
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• STANDARD ACCESSORIES/OPTIONAL ACCESSORIES

(((Standard Accessories



Battery



Charger



AC Adaptor



Belt Clip



Instruction
Manual




Hand Strap

NOTE: Accessories may differ depending on the version you have purchased. Please contact your local dealer for details of standard accessories and the warranty-policy before purchase.

(((Charging Operation

The battery is not charged at the factory, so please charge it before use. Charge the battery for the first time after purchase or extended storage (more than 2 months) may not bring the battery to its normal operating capacity. After repeating fully charge/ discharge cycle, the operating capacity will reach the best performance. The battery life is over when its operating time decreases even though it is fully and correctly charged, and it must be replaced with a new one.

(((Battery Charger Type

Please use Alinco's designated charger, other models may cause explosion and injury. After installing the battery, when the radio displays  low battery, please charge the battery.

(((Notice for Charging Battery

- ▼ Do not shortcircuit the charger. Never attempt to remove the casing from the battery, otherwise the warranty is void and you risk serious damage to yourself and properties.
- ▼ The ambient temperature should be between 5°C and 40°C in charging. Charging outside this range may not fully charge the battery.
- ▼ Always switch off the transceiver equipped with a battery before charging. Otherwise, it will interfere with correct charging.
- ▼ To avoid interfering the charging procedure, please do not cut off the power or take out the battery during charging.
- ▼ Do not recharge the battery if it is already fully charged. This may shorten the life of the battery.
- ▼ Do not charge the battery or transceiver when wet. Dry it before charging to avoid danger.

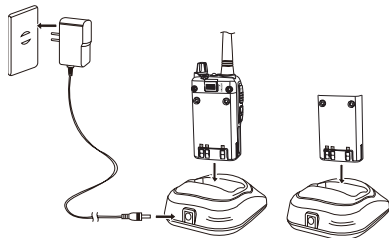
• BATTERY INFORMATION

Caution

- Risk of explosion, generation of heat or leak of chemicals inside if the battery is replaced by an incorrect type or reverse polarity. Use always the recommended types of batteries in this manual only.
- The battery pack isn't fully charged when shipped. It must be charged before use.
- Charging should be conducted in a temperature range of +5°C to +40°C (+41°F to +104°F).
- Don't modify, dismantle, incinerate or immerse the battery pack in the water as this can be dangerous.
- Never short-circuit the battery pack terminals, as this can cause damage to the equipment or lead to heating of the battery which may cause burns.
- Unnecessary prolonged charging (overcharging) can deteriorate battery performance.
- The battery pack should be stored in a dry place where temperature is in -10°C to +45°C (+14°F to +113°F) range. Temperatures outside this range can cause the battery liquid to leak. Exposure to prolonged high humidity can cause corrosion of metal components.
- Battery-packs are a consuming part. When its operating time becomes considerably short after a normal charge, please consider that the pack is exhausted and replace it with a new one.
- The battery pack is recyclable. Check with your local waste officials for details on recycling options or proper disposal in your area.
- Use specified genuine chargers only to charge battery packs. Use of other chargers may cause damage to products, you and your property.
- Never carry battery packs together with conductive articles such as metals in a same bag to prevent from short-circuiting. Put the packs only in nylon bags to carry them safely.

How to Charge the battery pack

1. Plug the AC adaptor into the AC outlet, then plug into the DC jack, the indicator lights orange for 1 second and goes out---waits to charge.
2. Slide the battery or transceiver with battery into the charger; make sure the battery terminals are in contact with the charging terminals. LED turns into twinkling RED ---pre-charging begins.
3. Pre-charging for about 5 minutes, LED stop blinking then charging begins.
4. It takes up to 4 hours to fully charge the battery, and LED turns to green when the charge is complete.



Warning: Never charge while the radio is turned on. When turned on, the charger can't detect the charging voltage properly and LED fails to indicate charge status correctly.

5. LED Indicator:

STATUS	self-examine when power on	(No battery)	Pre-charging	Charge normally	Fully Charged	Trouble
LED	Orange (for 1 second)	None	Red blinks for 5 minutes	Red	Green	Red blinks alternatively

• BATTERY INFORMATION

NOTE:

▲ Trouble means battery heating, short-circuit or charger malfunction. Remove the battery pack from the charger immediately and contact to your local dealer for services.

▲ The max trickle pre-charging time is 30 minutes. In case the red indicator continues to blink longer, please stop charging and consult with your local dealer for services.

▲ It is known that Li-Ion battery packs heat up over 400°C by itself when kept in a temperature of over 80°C for extended period of time. Although the packs are protected against overheating with a protective circuit, never leave the battery packs in a car or similar locations in hot seasons.

▲ Li-ion packs may deteriorate by over 30% regardless of conditions after 3 years. This is a nature of Li-ion pack and not a defect of the product.

▲ The charger is to charge the battery pack only. It is not an AC adapter to operate the radio. Never attempt to transmit the radio with using the charger as it will cause the damage to the charger and a repair/replace may become necessary.

▲ The charge should be conducted in an ambient temperature with a minimum proper air-conditioning in an extremely hot or cold seasons.

▲ Try charging the battery pack only when having trouble charging with the radio. In case the radio may have troubles, the charge can't be conducted properly. If the battery pack can be charged alone, please take the radio to your local dealer for services.

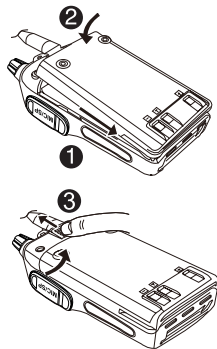
(((How to Store the Battery

- 1.The battery should be kept in the status of 50% discharge when storing.
- 2.Remove the battery pack from the radio and keep it in a cool, dry place.
- 3.Keep away from source of heat and direct sunlight.

Note: Incorrect storage will damage both the battery pack and the radio. Please always remove the battery pack from the radio when not in use.

(((Installing / Removing the Li-ion Battery

- 1.Match the three grooves of the battery pack with the corresponding guides on the back of the transceiver, then push it.
- 2.Press the battery and transceiver firmly together until the release latch on the top of the transceiver locks. After hearing a “click” sounds, the battery has been locked.
- 3.To remove the battery, slide up the release latch and remove the pack away from the transceiver.



• INSTALLATION & CONNECTION

(((Installing / Removing the Belt Clip

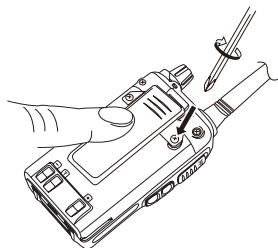
Installing the Belt Clip:

1. Put the belt clip on the back of the unit, and the screw clockwise until it stops.
 2. Confirm that the belt clip is securely attached.
- * Tighten up the screw occasionally.

Removing the Belt Clip:

Turn the screw counter-clockwise to remove the belt clip.

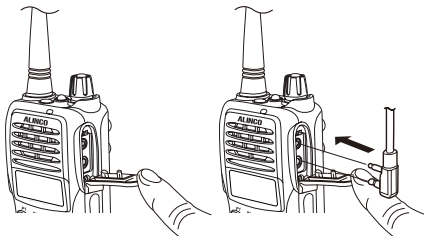
Caution: Use the screws of specified size only. Others may cause damage to the product. (screws size PM Φ 2.5mm x 3mm)



(((Accessories

Open the jack cover and insert the accessory plug into the jack, as shown.

When the accessory is not used, please be sure to close the cover securely.

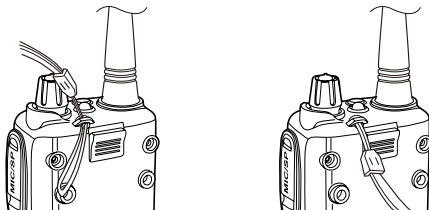


NOTE:

- 1.To keep the radio dust and splash resistant, the cover must be closed properly with the original supplied cover.
- 2.The radio is not dust and splash resistant while using the optional accessory risking that the water may penetrate inside through the plug.

(((Installing the Hand Strap

Attach the hand strap as shown.

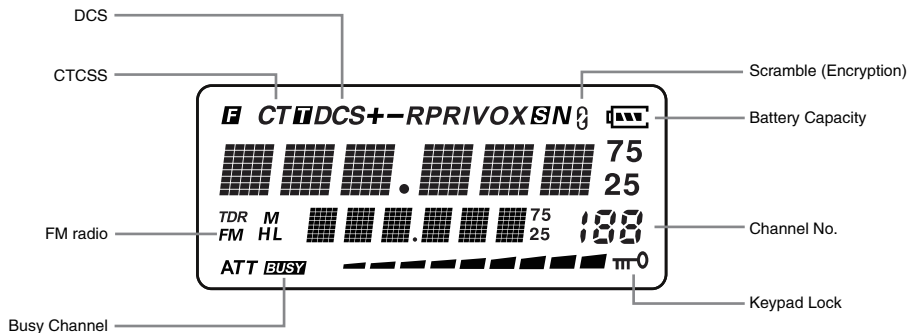


• GETTING ACQUAINTED

(((LCD Display

Following are the meaning of the icons and signs shown on the display.

Some icons may not appear while operating this product due to pre-programming status by your dealer.



NOTE:

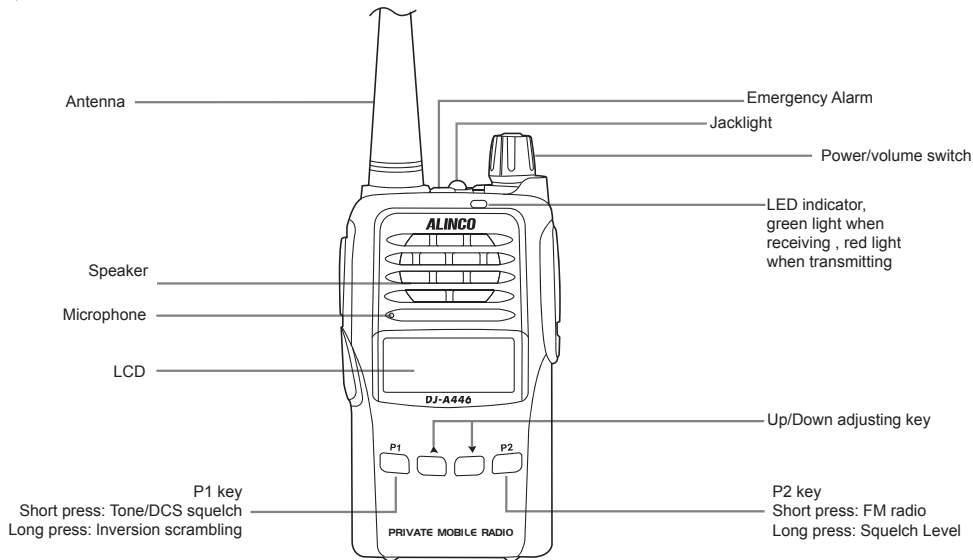
Battery capacity indicator(full)

Battery capacity remnant

No power,replace battery pack or charge battery

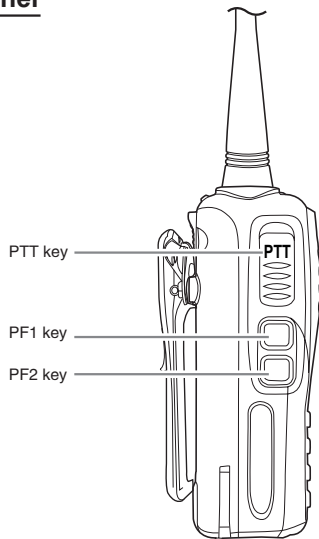
Real time display receiving signal strength/Power Indicator

Front Panel

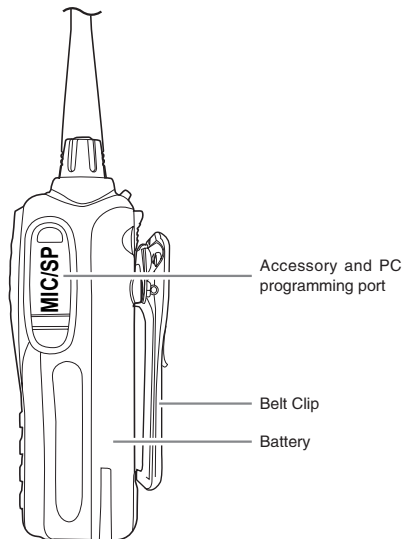


• GETTING ACQUAINTED

Side Panel

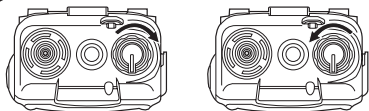


Left Panel



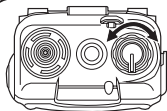
Right Panel

⌘ Power On and off



Turn **【POWER】** / **【VOLUME】** dial clockwise to power on.
Turn it counterclockwise to power off.

⌘ Adjusting Audio output level



Press PF2 key to monitor white noise to refer to the current audio level.
Turn **【POWER】** / **【VOLUME】** clockwise to increase the audio level,
counterclockwise to decrease.

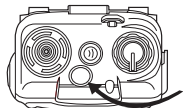
CAUTION:

NEVER USE EARPHONE while adjusting audio level. The max audio output is 1W, and it's loud enough to hurt your eardrums.

You may feel a static shock when wearing an earphone in a dry atomosphere but it's not a defect of product but a cause of nature. It is the same shock you feel typically when opening a door of a car in certain conditions.

• BASIC OPERATIONS

(((Emergency Alarm Function



While Stand-by state, press this key for 3 seconds to enable the emergency alarm function. When activated the function, the radio will sound an alarm beep and start transmitting the alarm beep.

(((Adjusting Channel

Press ▲ key/ ▼ key to choose the desired channel. Press ▼ key once to enter the downward channel while press ▲ key to enter the upward channel.

(((Side Key 【PF1】 (Jacklight Switch)

Long press this key to switch on or off the jacklight.

(((Side Key 【PF2】 (Keypad lock)

Long press this key to start keypad lock function. Repeat to cancel the key lock function.

(((Squelch Off

Press the 【PF2】 key, squelch opens and the background noise is heard. Press this key again, it beeps twice, and the squelch closes. By using this function you can monitor weaker signals.

(((Receiving

Select the channel that you wish to operate.

When a signal is received on the channel that you selected, and S-meter is displayed on the LCD, then the received signal can be heard. The RX indicator also lights green at this time.

NOTE: Please be aware of the squelch level and selective-calling settings such as CTCSS and DCS as you may risk not hearing the receiving signal.

(((Transmitting

1. Select the channel by using the keypad.
2. Press the **【PTT】** key. The red TX indicator turns on while transmitting.
3. While holding down the **【PTT】** key, speak into the unit at normal voice from the distance of 5cm (2").
4. Release the **【PTT】** key to receive.

Before transmitting, it is recommended to monitor the channel you are going to use to ensure it is not busy by pressing and holding **【PF2】** key.

(((Resetting

When you reset the unit, all settings are returned to the initial factory settings. The reset deletes the programmed memory channels also.

1. Turn on the unit with the **【PF1】** and **【P2】** keys pressed together.

• BASIC OPERATIONS

2. All the icons appear on the display.
3. Release the keys.

NOTE: THE RESET DELETES ALL THE MEMORIES.

Please take notes of the important data and keep it for future reference.

(((Tone Squelch / DCS squelch (Sub tone CTCSS / DCS)

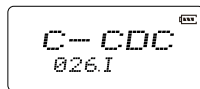
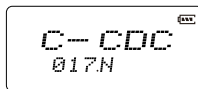
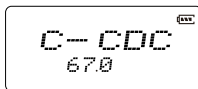
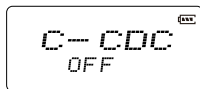
Encode/Decode tones synchronized setup

Short press **【P1】** key to choose the desired CTCSS / DCS encode tone.

Available CTCSS tones: 67Hz– 254.1Hz, 50 tones in total, Default is OFF.

DCS: 017N–765I, 232 codes, "N" stands for positive, "I" stands for inverse codes. Default is OFF.

Press **【PF2】** key to confirm and exit.



(((Inversion scrambling (Encryption)

NOTE: This is an analog encryption and decoding is possible by using commonly available receivers. Alinco does not warranty the confidentiality of the communications.

An analog voice inversion scrambler is equipped and such audio processing can offer an advanced confidentiality to your business communications.

Long press the **【PF2】** key, Scramble is enabled.
Repeat the operations to turn off.

(((Turn On/ Off FM Radio receiver

Short pressing **【P2】** key, FM Radio is enabled.

LCD displays 'FM' and starts receiving FM broadcasting frequency. Repeat the operations to turn off.
While listening to the FM broadcasting, press ▲ key or ▼ key to start scanning. When a signal is received, LCD displays current frequency and stops scanning.

(((Squelch Level

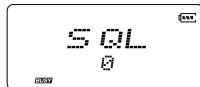
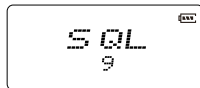
Squelch is a function that eliminates the noise when no signals are being received.

Setting the higher squelch level allows you to monitor only stronger signals.

Usually start from level zero (the squelch is open and hear the noise), increasing the level and when the noise is gone, set just 1 level higher than the current level. For example the noise is cut at level 3, set the level to 4 and exit.

Long press **【P2】** key then press ▲ key or ▼ key to choose the parameter, that is from 00 to 09 in 10 levels.

Press **【PF2】** key to confirm and exit.

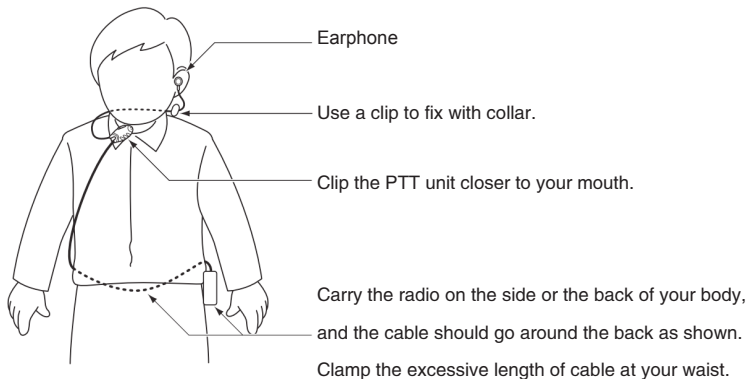


• **OPTIONAL ACCESSORIES**

EBC-34	Belt Clip
EBP-87	Li-ion Battery Pack (DC 7.4V 1500mAh)
EBP-88	Li-ion Battery Pack (DC 7.4V 1700mAh)
EDC-189	Li-ion Battery Charger
EDC-191E	AC Adaptor (220V)
EME-56A	Earphone Microphone
EMS-76	Speaker microphone

- Recommended installation of earphone microphone

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• AUXILIARY FUNCTIONS STARTING TAKES

(((Key programming

The **【PF1】** , **【PF2】** , **【P1】** and **【P2】** keys are programmable.

NOTE: The keys can be programmed of long press and short press, if program of short press, the function will be activated when press the programmed key, if program of long press, the function will be activated when press and hold the key for programmed time.

• TECHNICAL SPECIFICATIONS

ALINCO

General	
Frequency Range	446.00625–446.09375 MHz
Channel Capacity	128 channels
Operating Voltage	7.4V DC $\pm 20\%$
Battery Life	More than 14 Hours (1500mAh), by 5-5-90 work cycle
Frequency Stability	$\pm 2.5\text{ppm}$
Temperature range	Operating: $-10\sim+45^{\circ}\text{C}$ ($+14\sim113^{\circ}\text{F}$) / Charging: $+5\sim+40^{\circ}\text{C}$ ($+41\sim104^{\circ}\text{F}$)
Size	240×56×30mm (with battery pack, antenna)
Weight	240 g (with battery pack, antenna)

Receiving Part(ETSI EN 300 086 Standard Test)	
Sensitivity(12dB SINAD)	$\leq 0.35\mu\text{V}$
Adjacent Channel Selectivity	$\geq 60\text{dB}$
Intermodulation	$\geq 60\text{dB}$
Spurious Rejection	$\geq 70\text{dB}$

Audio Response	$+1\sim-3\text{dB}$ (0.3~2.55KHz)
Hum & Noise	$\geq 45\text{dB}$
Audio Distortion	$\leq 5\%$
Audio Power Output	1000mW/10%

Transmitting Part(ETSI EN 300 086 Standard Test)	
Power Output	0.5W
Modulation	8K50F3E (FM)
Adjacent Channel Power	$\geq 65\text{dB}$
Hum & Noise	$\geq 36\text{dB}$
Spurious Emission	$\leq -36\text{dB}$
Audio Response	$+1\sim-3\text{dB}$ (0.3~2.25KHz)
Audio Distortion	$\leq 5\%$

• TECHNICAL SPECIFICATIONS

Problem	Corrective Action
No power	A.The battery may be exhausting. Recharge or replace the battery. B.The battery may not be installed correctly. Remove the battery and install it again. C.The power switch is broken; send it to local dealers to repair. D.Battery life is end; contact to local dealers to replace.
Battery power dies shortly after charging.	The battery is exhausted. Replace the battery pack with a new one.
All band noisy after programmed	Adjust squelch level.
No sound when using earphone.	Earphone or the jack is broken. Please contact with local dealers for inspection.
Communication distance becomes short, and Low sensitivity	A.Check whether the antenna is in good conduction and the antenna base do not come adrift. B.Antenna may be broken. Consult your local dealer for services.
Cannot talk or hear other members in your group	A.Different channel, please change it. B.Different CTCSS / DCS /DTMF, please reset it. C.Out of communication range.
Can not power on or frequent power off	Check if the battery pack is securely attached.

The receiving sound level is low or intermittent	Consult with local dealers for inspection.
Receiving signal is intermittent.	A.Out of communication range or obstruct by walls, buildings etc. Change position to transmit. B.4Internal components may be in trouble, please contact with local dealers to repair.
Loudspeaker sounds lower or with dry noise after certain time of usage.(Speaker magnet attracts iron powders)	Check whether the loudspeaker is broken, Iron powder or dusts is in the loudspeaker. Please contact with local dealers to repair.
Receive voice from the other parties and can not transmit	Interference is being received. BCLO activated.
Receiving indicator with green light but no sound	A.Low volume, increase the audio level. B.Volume switch or loudspeaker is broken, please contact with local dealers to repair. C.Earphone jack is broken, please contact with local dealers to repair.

NOTE: Alinco guarantees the supply of minimum–necessary spare parts such as battery–packs, components and mechanical parts for at least 5 years after the production of this product is terminated except in case of accidents beyond control.

• ATTACHED CHART

Channel Frequency Chart

1	446.00625	5	446.05625
2	446.01875	6	446.06875
3	446.03125	7	446.08125
4	446.04375	8	446.09375

CTCSS Frequency Chart

1	67.0	11	94.8	21	131.8	31	171.3	41	203.5
2	69.3	12	97.4	22	136.5	32	173.8	42	206.5
3	71.9	13	100.0	23	141.3	33	177.3	43	210.7
4	74.4	14	103.5	24	146.2	34	179.9	44	218.1
5	77.0	15	107.2	25	151.4	35	183.5	45	225.7
6	79.7	16	110.9	26	156.7	36	186.2	46	229.1
7	82.5	17	114.8	27	159.8	37	189.9	47	233.6
8	85.4	18	118.8	28	162.2	38	192.8	48	241.8
9	88.5	19	123.0	29	165.5	39	196.6	49	250.3
10	91.5	20	127.3	30	167.9	40	199.5	50	254.1

(((**1024 groups DCS frequency chart**

000	001	002	003	004	005	006	007
010	011	012	013	014	015	016	017
020	021	022	023	024	025	026	027
030	031	032	033	034	035	036	037
040	041	042	043	044	045	046	047
050	051	052	053	054	055	056	057
060	061	062	063	064	065	066	067
070	071	072	073	074	075	076	077
100	101	102	103	104	105	106	107
110	111	112	113	114	115	116	117
120	121	122	123	124	125	126	127
130	131	132	133	134	135	136	137
140	141	142	143	144	145	146	147
150	151	152	153	154	155	156	157
160	161	162	163	164	165	166	167
170	171	172	173	174	175	176	177
200	201	202	203	204	205	206	207
210	211	212	213	214	215	216	217
220	221	222	223	224	225	226	227
230	231	232	233	234	235	236	237
240	241	242	243	244	245	246	247
250	251	252	253	254	255	256	257

• ATTACHED CHART

260	261	262	263	264	265	266	267
270	271	272	273	274	275	276	277
300	301	302	303	304	305	306	307
310	311	312	313	314	315	316	317
320	321	322	323	324	325	326	327
330	331	332	333	334	335	336	337
340	341	342	343	344	345	346	347
350	351	352	353	354	355	356	357
360	361	362	363	364	365	366	367
370	371	372	373	374	375	376	377
400	401	402	403	404	405	406	407
410	411	412	413	414	415	416	417
420	421	422	423	424	425	426	427
430	431	432	433	434	435	436	437
440	441	442	443	444	445	446	447
450	451	452	453	454	455	456	457
460	461	462	463	464	465	466	467
470	471	472	473	474	475	476	477
500	501	502	503	504	505	506	507
510	511	512	513	514	515	516	517
520	521	522	523	524	525	526	527
530	531	532	533	534	535	536	537

540	541	542	543	544	545	546	547
550	551	552	553	554	555	556	557
560	561	562	563	564	565	566	567
570	571	572	573	574	575	576	577
600	601	602	603	604	605	606	607
610	611	612	613	614	615	616	617
620	621	622	623	624	625	626	627
630	631	632	633	634	635	636	637
640	641	642	643	644	645	646	347
650	651	652	653	654	655	656	657
660	661	662	663	664	665	666	667
670	671	672	673	674	675	676	677
700	701	702	703	704	705	706	707
710	711	712	713	714	715	716	717
720	721	722	723	724	725	726	727
730	731	732	733	734	735	736	737
740	741	742	743	744	745	746	747
750	751	752	753	754	755	756	757
760	761	762	763	764	765	766	767
770	771	772	773	774	775	776	777