

User Manual (FCC Version Draft)

This manual is applicable to the following product:

P53U,BF-1903,P53UH,P53UL,P53X , P54U,BF-1904,P54UM,P54G,P54X



ATTENTION

This is a multi-task GMRS transceiver. Combining the latest technology in radio communication along with a sturdy mechanical frame, Radio is the ideal and effective solution for the professionals who need to stay in touch with the working team (in construction sites, buildings, shows, trade fairs or hotels) or for leisure users that just want to keep up with friends and family.

To help you ward off bodily injury or property loss that may arise from improper operation, please read all the information carefully before using our products.

Use the two way radio in the environment with the temperature between $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$, otherwise, it may damage your two way radio. It can be operating under 2000m.



Long-term high-power channel transmitter, the radio fever is a normal phenomenon, but we do not recommend you for a long time at high power transmitter, do not use the radios in without installing an antenna or antenna damaged.

Intended Use

Our products are designed to provide reliable wireless communication services for users across many industry sectors. In order to use the products safely and to achieve the best performance, they must be used as intended. The operator of the product is responsible for damage to the product or damage caused by the product if the product was used beyond the intended use instructions.

Intended use includes that:

- The product is used by users who have full knowledge of its RF exposure and can exercise control over their RF exposure to meet the occupational limits in FCC/ICNIRP and international standards.
- All the security instructions set forth in this document are always heeded.
- The general, national and in-house safety regulations are heeded.
- The product is exclusively used with the frequencies licensed by the respective authority.
- The product is configured appropriately by the dealer.

Besides, intended use also requires the product operator to be well-trained and to be familiar with the applicable standards, regulations and provisions.

REGULATORY Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. Verification of harmful interference by this equipment to radio or television reception can be determined by turning it off and then 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 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.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the 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.

FCC License required for GMRS operation (Only applicable for GMRS radio use in the US)

The radios operate on GMRS frequencies which require an FCC license. You must be licensed prior to operating on channels 1~16, which comprise the GMRS channels of the radio.

Serious penalties could result from unlicensed used of GMRS channels, in violation of FCC rules, as stipulated in the communications acts sections 501 and 502 (amended).



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You will be issued a call sign by the FCC which should be used for station identification when operating the radio on GMRS channels.

You should also cooperate by engaging in permissible transmissions only, avoiding channel interference with other GMRS users, and being prudent with the length of your transmission time.

To obtain a license or ask questions about the license application, contact the FCC at 1-88-CALL FCC or go to the fcc website: <http://www.fcc.gov> and request form 605.

Important: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device. Your radio is set up to transmit a regulated signal on an assigned frequency. It is against the law to alter or adjust the settings inside the radio to exceed those limitations. Any adjustments to your radio must be made by qualified technicians.

To be safe and sure:

- Never open your radio's case.
- Never change or replace anything in your radio except the battery.

Your radio might cause TV or radio interference even when it is operating properly. To determine whether

Your radio is causing the interference, turn it off. If the interference goes away, your radio is causing it.

Try to eliminate the interference by moving your radio away from the receiver. If you cannot eliminate the interference, the FCC requires that you stop using the radio.

Hazardous Environments: Do not operate the radio in hazardous environments. Explosion or fire may result.

Do not operate the radio near unshielded electrical blasting caps.

Under certain conditions, radios can interfere with blasting operations and may cause an explosion. Turn your radio OFF to prevent accidental transmission when in a blasting area or in areas posted: "Turn off two-way radio." Construction crews often use remote control RF devices to set off explosives.

RF EXPOSURE INFORMATION

WARNING! Read this information before using the radio. In August 1996 the Federal Communications Commission (FCC) of the United States with its action in Report and Order

FCC 96-326 adopted an updated safety standard for human

Exposure to radio frequency electromagnetic energy emitted by FCC regulated transmitters.

Those guidelines are consistent with the safety standard previously set by both U.S. and

International standards bodies. The design of the radio complies with the FCC guidelines and these international standards.

Never allow children to operate the radio without adult supervision and the knowledge of the following guidelines.

WARNING! It is up to the user to properly operate this radio transmitter to insure safe operation. Please adhere to the following:

Use only the supplied or an approved antenna.

Unauthorized antennas, modifications, or

Attachments could impair call quality, damage the radio, or result in violation of FCC regulations.

Do not use the radio with a damaged antenna.

If a damaged antenna comes into contact with the skin, a minor burn may result. Please contact your local dealer for a replacement antenna.

Hand-held Operation (Held-to-Face)

This device was evaluated for typical hand-held (held-to-face) operations with a 1 inch spacing from the front of the radio.

For hand-held operation, the radio should be held 1 inch from the user's face in order to comply with FCC RF exposure

maximum duty cycle 50% requirements. For more information about RF exposure, please visit the FCC web site at

www.fcc.gov.

Body-worn Operation

This device was evaluated for body-worn operations with the supplied belt-clip accessory. (All necessary accessories are included in the package; any additional or optional accessories are not required for compliance with the guidelines.) Third party accessories (unless approved by the manufacturer) should be avoided as these might not comply with FCC RF exposure guidelines (maximum duty cycle 50%).

For more information about RF exposure, please visit the FCC web site at www.fcc.gov.



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Precautions for Batteries

■ Charging Prohibitions

To protect you against any property loss, bodily injury or even death, be sure to observe the following safety instructions:

1. Do not charge or replace your battery in a location containing fuels, chemicals, explosive atmospheres and other flammable or explosive materials.
2. Do not charge your battery that is wet. Please dry it with a soft and clean cloth prior to charge.
3. Do not charge your battery suffering deformation, leakage and overheat.
4. Do not charge your battery with an unauthorized charger.
5. Do not charge your battery in a location where strong radiation is present.
6. Overcharge shall always be prohibited for it may shorten the life of your battery.

■ Maintenance Instructions

To help your battery work normally or prolong its life, be sure to observe the following instructions:

1. Accumulated dust on charging connector may affect normal charging. Please use a clean and dry cloth to wipe it on a regular basis.
2. It is recommended to charge the battery under 5°C~40°C. Violation of the said limit may cause battery life reduction or even battery leakage.
3. To charge a battery attached to the product, turn it off to ensure a full charge.
4. Do not remove the battery or unplug the power cord during charging to ensure a smooth charging process.
5. Do not dispose of the battery in fire.
6. Do not expose the battery to direct sunlight for a long time nor place it close to other heating sources.
7. Do not squeeze and penetrate the battery, nor remove its housing.

■ Transportation Instructions

1. Damaged batteries must not be transported.
 2. To avoid short circuit, separate the battery from metal parts or from each other if two or more batteries are transported in one packaging.
 3. The radio must be switched off and secured against switch-on, if the battery is attached.
- The content of the shipment must be declared in the shipping documents and by a Battery Shipping Label on the packaging. Contact your hauler for the local regulations and further information.

Precautions for Disposal

Once the service life of our products (including but not limited to radios and batteries) has ended, they shall not be disposed as household garbage. Their recycling and disposal shall satisfy your local regulations.

Care and Safety

Your P54U was designed to fulfill any warranty obligations and to enjoy this product for many years.

As for all the electronically devices, we recommend you to follow this few suggestions:

- Do not attempt to open the unit. Non-expert handling of the unit may damage it and/or annul the warranty.
- When using regulated power supply, take notice of power voltage that must be 5V to avoid damages.
- High temperatures can shorten the life of electronic devices, and warp or melt certain plastics. Do not store the radio in dusty or dirty areas.
- Keep the Radio dry. Rainwater or damp will corrode electronic circuits.
- If it appears that the Radio diffuses peculiar smell or smoke, please shut off its power immediately and take off the charger or battery from the Radio.
- To clean the radio, use a soft cloth dampened with water. Do not use cleaners or solvents because they can harm the body of the unit and leak inside, causing permanent damage.
- Use a dry, lint-free cloth to clean the battery contacts.

Programming software (optional)

Thanks to Pofung Programming software CPS-P53U-FCC, it is possible to increase the performance of your radio or to reduce its functionality by disabling some of the default features (CTCSS, DCS, TOT, VOX...)



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For further information, please consult the Programming software manual.

Any attempt to change frequencies or output power of the radio invalidates the approval.

Package Contents

- 1 transceiver
- 1 2800mAh Li-ion rechargeable battery pack
- 1 Wall adaptor
- 1 Wrist belt
- 1 Belt clip
- 1 Fast desktop charger
- 1 User Manual

If any item is missing, please notify your pofung dealer.

Main characteristics

- GMRS Transceiver
- Ultra clear voice
- Channel spacing: 12.5 KHz
- VOX (voice activated transmit)
- Channels monitor (on channel 16)
- 2pin Kenwood accessory jack
- 50 CTCSS tones and 210 DCS codes
- Selectable output power: high (5W) or low (0.5W)
- Output power: Max 5W
- High performance antenna
- Channel Scan, Scan mode: Time, Carrier, Search
- Battery saving
- Ten (10) levels of Squelch adjustment
- TOT (Time out timer)
- Li-Ion 2800mAh battery pack

Coverage/Range

The maximum range depends on terrain condition and is obtained during use in an open space. The only limitation to maximum possible range are environmental factors such as blockage caused by trees, buildings, or other obstructions. Inside a car or a metallic constructions, the range can be reduced. Normally the coverage in the city, with buildings or other obstructions is about 1 or 2 Km. In open space but with obstructions like trees, leaves or houses the maximum possible range is about 4-8 Km. In open space, without obstructions and in sight, like for example in mountain, the coverage can be more than 12Km.

Battery recharge

Charging the Battery Pack

The Li-ion battery pack is not charged at the factory; please charge it before use. Charging the battery pack for the first time after purchase or extended storage (more than 2 months) may not bring the battery pack to its normal maximum operating capacity. Best operation will require fully charging/ discharging the battery two or three times before the operating capacity will reach its best performance. The battery pack life may be depleted when it's operating time decreases even though it has been fully and correctly charged. If this is the case, replace the battery pack.

Charger Supplied

Please use the specified charger provided by Pofung. Other models may cause explosion and personal injury. After installing the battery pack, and if the radio displays low battery with a voice prompt, please charge the battery.

Use Caution with the Li-ion Battery

- a. Do not short the battery terminals or throw the battery into a fire. Never attempt to remove the casing from the battery pack, as Pofung cannot be held responsible for any accident caused by modifying the battery.
- b. The ambient temperature should be between 5°C-40°C (40°F - 105°F) while charging the battery. Charging outside this range may not fully charge the battery.
- c. Please turn off the radio before inserting it into the charger. It may otherwise interfere with correct charging.
- d. To avoid interfering with the charging cycle, please do not cut off the power or remove the battery during charging until the green light is on.
- e. Do not recharge the battery pack if it is fully charged. This may shorten the life of the battery pack or damage the battery pack.



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f. Do not charge the battery or the radio if it is damp. Dry it before charging to avoid damage.

WARNING !

When keys, ornamental chain or other electric metals contact the battery terminal, the battery may become damage or injure a human. If the battery terminals are short circuited it will generate a lot of heat. Take care when carrying and using the battery. Remember to put the battery or radio into an insulated container. Do not put it into a metal container.

How to Charge

- Plug the AC adaptor into the AC outlet, and then plug the cable of the AC adaptor into the DC jack located on the back of the charger. The indicator light blinks orange and is then ready to charge a battery.
- Plug the battery or the radio into the charger. Make sure the battery terminals are good in contact with charging terminals. The indicator light turns to red--- charging begins.
- It takes approximately 2-5 hours to fully charge the battery. When the lamp lights green, the charging is completed. Remove the battery or the radio unit with its battery from socket.

When charging a radio (with battery) the indicating lamp will not turn into green to show the fully charged status if the radio is powered on. Only when the radio is switched off will the lamp indicate normal operation. The radio consumes energy when it is power-on, and the charger cannot detect the correct battery voltage when the battery has been fully charged. So the charger will charge the battery in constant voltage mode and fail to indicate correctly when the battery has been fully charged.

LED Indicator

STATUS	LED
No Battery	Green and red alternately flashing
Charge Normally	Red
Fully Charged	Green
Trouble	Red blinks fast for a long time

NOTE: Trouble means battery too warm, battery short-circuited or charger short-circuited.

Installation of accessories

Before the radio is ready for use we need to attach the antenna and battery pack, as well as charge the battery.

Installing the belt clip

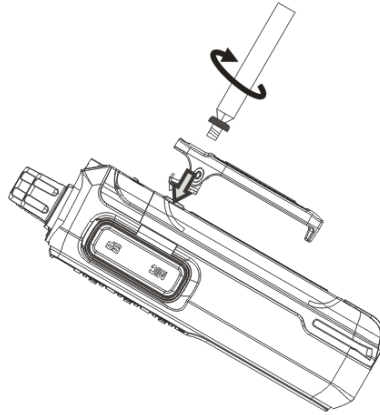
- At the back of the radio there are two parallel screws mounted above the battery, remove these and thread them through the holes on the belt clip as you screw them back into the radio body.
- Removing the Belt Clip: Unscrew counter-clockwise to remove the belt clip.



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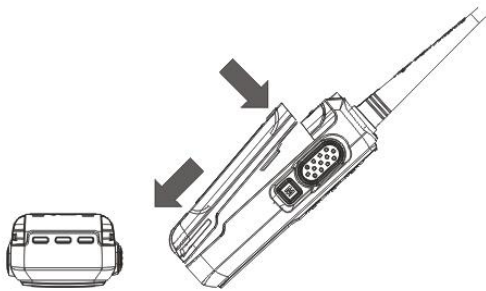
P53U,BF-1903,P53UH,P53UL,P53X , P54U,BF-1904,P54UM,P54G,P54X



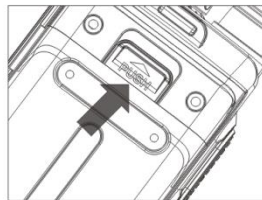
Installing the battery pack

Before attaching or removing the battery make sure your radio is turned off by turning the power/volume knob all the way counter-clockwise.

- Make sure the battery is aligned in parallel with the radio body with the lower edge of the battery about 1-2cm below the edge of the radio.
- Once aligned with the guide-rails, slide the battery upward until you hear a click as the battery locks in place.



Installing the battery pack



Remove the battery pack

Remove the battery pack

To remove the battery, press the battery release above the battery pack, as you slide the battery downward.

Installing the Additional Speaker/Microphone (Optional)

Pry open the rubber MIC-Headset jack cover and then insert the Speaker / Microphone plug into the double jack.

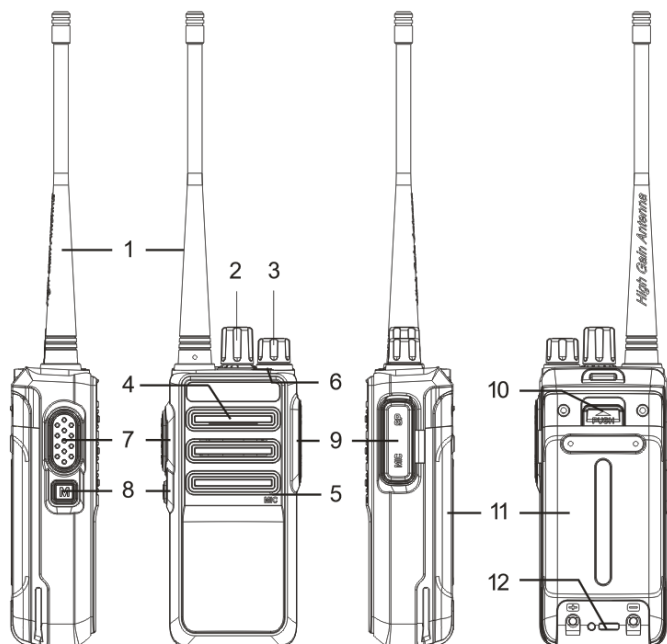
Main controls and parts of the radio



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1. Antenna
2. Encoder: rotate clockwise or counter-clockwise to select the desired channel
3. Power/volume knob-turn clockwise to power on and increase the volume level.
Turn counter-clockwise to decrease the volume level and power off.
4. Speaker
5. Built-in microphone
6. Led indicator: RED: TX; GREEN: RX.
7. PTT: push this button to transmit, release it to receive.
8. Side key 1: hold down this button to activate the Monitor function.
9. External Speaker/Mic Jack- allows the connection with external devices such as headsets, microphones.
10. Battery release latch.
11. 2800mAh Li-Ion battery pack.
12. Micro USB charging port

Operations

Power on/off and volume adjustment

Rotate the **Power/Volume** knob clockwise to turn the radio on. Rotate the control clockwise /counter-clockwise to adjust the volume level as you prefer. To turn the radio off, rotate the control counter-clockwise till hearing a mechanical “click”.

Transmission

To communicate, all radios in your group must be set to the same channel. Briefly press the **Side key 1** to enable the Monitor feature in order to make sure that the frequency is not busy, and then press the **PTT** key. Release the **PTT** key to receive. Only one user at a time can talk during radio communications. Therefore, it is important not to transmit when you are receiving a communication and use the transmission mode sparingly to allow other users to talk. Transmission consumes a significant amount of energy and should therefore be used sparingly to prolong the battery life. If you are unable to contact a station that you have no problems in receiving, the station may be using CTCSS tones or DCS codes.

Monitor

The Monitor feature is for excluding (opening) the Squelch, in order to listen to signals that are too weak to keep the



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Squelch permanently opened. Hold down the **Side key 1** to enable such function.

Scan

This function can be activated only by means of the optional programming software. To enable the Scan function, all 16 channels must be programmed. If you turn on the radio on channel 16, the scanning will automatically start. Whenever any signal is detected, the scanning will stop on a busy channel. If the PTT is pressed, you will transmit on the latest busy channel. Channel 16 is the priority channel; therefore if you don't pick up any signal when you press PTT, the radio will transmit on channel 16.

FM Radio (FM)

The frequency range for listening to the radio is 88-108MHz.

Press and hold the **Side key 1** to turn on the radio, and then use the **Side key 1** to search for radio stations automatically.

Press the **PTT** key or turn off the radio to exit the FM radio.

English/Chinese language switch

On the 15th channel, press and hold the **PTT + Side Key 1** to turn on the radio and switch the prompt language between Chinese and English.

Squelch

The Squelch function suppresses noises on free channels and allows receiving even weak signals. P54U has 10 different Squelch levels that can be set by programming software: 0 means that the Squelch is turned off; from level 1 to level 9 you will have different levels of noise reduction. The higher is the level, the louder will be the Squelch. By default, the Squelch level of P54U is set on level 4. Make sure you do not set an excessively high squelch level because in this case you may not be able to receive weaker signals. On the other hand an excessively low Squelch value could enable the Squelch even when no signals are present. Squelch must always be adjusted when no signals are present. The Time Out timer is settable from 30 sec to 270 sec. only through the programming software. This feature is disabled by default.

CTCSS/DCS tones

CTCSS and DCS tones are similar to access codes and enable the radio to communicate only with the users that are tuned on the same channel and have set the same code. For each channel, you can set up to 50 CTCSS tones and 210 DCS codes. The CTCSS/DCS tones are a sort of "access codes" and enable the radio to communicate only with the other users set on the same frequency and on the same CTCSS/DCS tone. Undesired signals coming from other stations set on the same frequency but with different CTCSS/DCS tones won't be received.

VOX

The VOX feature enables hands free conversations without using PTT: just speak in the direction of the microphone and the communication will be automatically activated.

On channels 1, press and hold the **PTT + Side Key 1** key to turn on the radio and turn the VOX function on or off. Accompanied by a voice prompt VOX ON or VOX OFF.

The VOX sensitivity can be adjusted in 5 different levels (1...9) through the programming software:

Level 2 is set by default and has the lowest VOX sensitivity, 9 is the lowest one.

With the programming software you can enable/disable the VOX feature and select the sensitivity levels.

On-line service and support

The Pofung website provides additional information about obtaining service or support for the Pofung line of two-way radios and accessories. Visit: www.pofung.cn Mail: service@pofung.cn



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FCC Licensing Information This pofung radio operates on Commercial/ Land Mobile frequencies which require a license from the Federal Communications Commission (FCC) for business, personal, education and recreational use. To obtain forms, call the FCC forms hotline at: 1-800-418-3676 or go to <http://www.fcc.gov> For questions concerning commercial licensing, contact the FCC at 1-888CALL-FCC (1-888-225-5322).

Appendix A. – Trouble shooting guide

Phenomena	Analysis	Solution
You cannot turn on the radio.	The battery may be installed improperly.	Remove and reattach the battery.
	The battery power may run out.	Recharge or replace the battery.
	The battery may suffer from poor contact caused by dirty or damaged battery contacts.	Clean the battery contacts or replace the battery.
During receiving, the voice is weak or intermittent.	The battery voltage maybe low.	Recharge or replace the battery.
	The volume level may be low.	Increase the volume.
	The antenna maybe loose or maybe installed incorrectly.	Turnoff the radio, and then remove and reattach the antenna.
	The speaker maybe blocked.	Clean the surface of the speaker.
You cannot communicate with other group members.	The frequency or signaling type maybe inconsistent with that of other members.	Verify that your TX/RX frequency and signaling type are correct.
	You may be too far away from other members.	Move towards other members.
You hear unknown voices or noise.	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.
	The radio in analog mode maybe set with no signaling.	Request your dealer to set signaling for the current channel to avoid interference
You are unable to hear anyone because of too much noise and hiss.	You may be too far away from other members.	Move towards other members.
	You may be in an unfavorable position. For example, your communication may be blocked by high buildings or blocked in an underground area.	Move to an open and flat area, restart the radio, and try again.
	It may be the result of external disturbance (such as electromagnetic interference).	Stay away from equipment that may cause interference.
The radio keeps transmitting.	VOX may be turned on or the headset is not installed in place	Turn off the VOX function. Check that the headphones are in place.
You cannot use the keys.	The keypad may not work temporarily.	Restart the radio.

NOTE: If the above solutions cannot fix your problems, or you may have some other queries, please contact your dealer for more technical support.

Appendix B. – Technical Specifications

General Part

Frequency Range	GMRS 462.5500 to 467.7250MHz
Working temperature	-10°C to +40°C
Operation Voltage	DC 7.4 V $\pm$ 10%
Operation Mode	Simplex
Dimensions	138mm×60mm×39mm (without Antenna)
Weight	263g (Battery pack included)
Antenna Impedance	50ohm
Duty cycle	5/5/90%
Category	B

Transmitter Part

RF Output Power	GMRS $\leq$ 5 W
FM Modulation	11K0F3E@12.5KHz
Spurious Emission	-36dBm < 1GHz , -30dBm > 1GHz
Adjacent Channel Power	60dB @ 12.5KHz
Transmission current	$\leq$ 1500mA

Receiver Part

Receive Sensitivity	0.25 μ V (12dB SINAD)
Adjacent Channel Selectivity	$\geq$ 55dB@12.5KHz

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Inter Modulation and Rejection $\geq 55\text{dB}@12.5\text{KHz}$
Conducted Spurious Emission $\leq -57\text{dB}@12.5\text{KHz}$
Rated Audio Power Output 1W @16 ohms
Receive current $\leq 380\text{mA}$
Rated Audio Distortion $\leq 5\%$

NOTE: All specifications may be modified without prior notice or liability.

Appendix C. - GMRS Frequency Chart (MHz)

CH.No	CH.Freq.	GMRS No.	CH.Freq.	CH.Freq.	GMRS No.
1	462.5625	1	11	462.6250	18
2	462.5875	2	12	462.6500	19
3	462.6125	3	13	462.6750	20
4	462.6375	4	14	462.7000	21
5	462.6625	5	15	462.7250	22
6	462.6875	6	16	467.6500	27
7	462.7125	7			
8	462.5500	15			
9	462.5750	16			
10	462.6000	17			

Disclaimer

The accuracy and completeness of the contents are sought in the process of compilation, but we do not bear any responsibility for the possible errors or omissions. With the continuous development of technology, we reserve the right to change the design and specification of the product without notice. No copy, modification, translation and dissemination of this handbook may be made in any form without the prior written authorization of our department.

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