



11535 West 83rd Terrace Lenexa, Kansas 66214 Phone: 913-859-9515 Fax: 913-859-9550 www.maxonamerica.com maxon@maxonamerica.com

Welcome

Thank you for your purchase and welcome to the Maxon family of products. We proudly offer a 3 year warranty on the radio section to insure that you are confident with your purchase for years to come.

As a product built to the Digital Mobile Radio (DMR) standards, the TPD-1000 series of radios provide the latest in digital technology with user-friendly ergonomics and the highest in production standards to provide you stable and reliable communications.

Please read this manual and familiarize yourself with the radio before use.

Safety Information

Please read the following safety guidelines. Nonobservance of these guidelines may cause danger or violation of law.



Don't transmit with antenna detached from the radio or don't damage or change antenna type. Strong electronic waves are emitted from the radio and damages or changes to the antenna may effect the performance of the radio, and it may cause the radio to be defective and not covered under warranty.



Don't use other manufacturers' accessories. Unknown or unauthorized accessories may cause the radio to be defective and void the warranty.



Don't disassemble the radio. Disassembly of the radio may cause a serious defect or malfunction and void



Avoid an excessive shock to the radio. Don't place the radio where the direct sunlight or high temperature occurs. Avoid damage to the battery pack by sharp object or an excessive shock.



Don't use the radio in the hospital without any pre-approval.

Turn off the radio before boarding on an airplane.

Don't use the radio at the place of where computer of other electronic devices are being used.



- Please keep the radio at least 1 inch away from the human body.
- Don't give any damage to antenna.
- When using earphone, please reduce the volume to a low level. If not, unexpected high sound may have harmful effect to your ear.
- Don't touch the conductive metal of the battery radio with wet hands. It may cause damage on your hands.
- Please be careful when putting the battery in a pocket or a bag.

• FCC RF EXPOSURE COMPLIANCE REQUIREMENTS FOR OCCUPATIONAL USE ONLY

The Federal Communications Commission (FCC), with its action in General Docket 93-62, November 7, 1997, has adopted a safety standard for human exposure to Radio Frequency (RF) electromagnetic energy emitted by FCC regulated equipment. Proper operation of this radio will result in user exposure far below the Occupational Safety and Health Act (OSHA) and Federal Communications Commission limits.

- DO NOT transmit for more than 50% of total radio use time (50% duty cycle). Transmitting more than 50% of the time can cause FCC RF exposure compliance requirements to be exceeded.
- This radio is NOT approved for use by the general population in an uncontrolled environment. This radio is restricted to occupational use, work related operations only where radio operator must have the knowledge to control the user's exposure conditions for satisfying the higher exposure limit allowed for occupational use.
- When transmitting, hold the radio in a vertical position with its microphone 1 inch (2.5cm) away from your mouth.
- . The radio is transmitting when the red LED on the front of the radio is illuminated. You can cause the radio to transmit by pressing the PTT bar on the radio.
- These are required operating configurations for meeting FCC RF exposure compliance. Failure to observe these restrictions mean violation.

FCC Notice

Croup Call

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.

Contents

Contents

Safety Matters01
Product Inspection02
Getting Started03
Battery Information04
Attaching and Removing05
Attaching/Removing the Battery05
Attaching/Removing the Antenna06
Installing/Removing the Belt Clip07

Glorib Gall13
All Call15
Zone16
LED16
Talk Around16
Man Down (Optional)17
Invalid Channel Indication17
Squelch17
Transmission Management

Optional Accessories19
Troubleshooting Guide20
Care and Maintenance21
Appendix 124
Appendix 2 · · · · · 25
Appendix 326
FCC Caution27

Contents

Setting Started

Safety Matters

Please read the following safety guidelines. Nonobservance of these rules may cause danger or violation of law.

- The use of this radio must comply with regulations of local government.
- Turn off the radio before you enter places of flammable or explosive environments.
- Do not replace or charge battery pack in places of flammable or explosive environments.
- Turn off the radio before you approach blast area and /or detonator area.
- Do not use if the antenna is broken as it may cause minor burn to skin.
- Only qualified technicians are allowed to maintain this two-way radio. Do not disassemble the radio by yourself as it will void the warranty.

- To avoid problems caused by electromagnetic interference or electromagnetic compatibility, please turn off the radio in places with "Wireless Communication Transmit Equipment Prohibited" posted, such as hospitals or other health care places. When taking a plane, turn off the radio if required.
- In a car with an air bag, do not place the radio within area where air bag expands.
- Do not expose the radio to direct sunlight or near heating devices for a long period of time.
- Keep the radio vertical and speak near the microphone during transmitting.
- Make sure that the antenna is 1" (2.5 cm) away from the body if you carry the radio on your body.

Product Inspection

Thanks for choosing the Maxon TPD-1000 Series radio. Before use, please check that the following contents are included.

If any item is missing or damaged, contact your Authorized Maxon Dealer.

Items

Qty: 1











Qty: 1

Antenna Qty: 1

28 750-000

User Manual

Charger Qty: 1

Lanyard Strap Qtv: 1

Belt Clip Qty: 1

Oser Mani Qty: 1

. с.

Note: For antenna identification, the frequency is marked on the color circle at the bottom of the antenna.

Getting Started

Battery Information

Please operate with Maxon approved battery only; Using other batteries may cause personal damage and void the warranty.

Note:

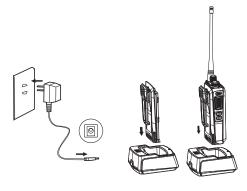
- Do not short-circuit the battery terminals or dispose the battery in fire. Never attempt to disassemble the battery pack.
- 2. Charge the battery in 32 90 F (0-45°C) temperature. Otherwise the battery may not obtain full charge.
- 3. Turn off the radio for optimum charging.
- Do not charge if the battery or radio is wet. Both battery and radio should be dry to avoid danger.

A Warning:

Treat any battery carefully when placing into pocket, wallet, or any metal container. Conductive metals such as jewelry, keys, or decorating lace can create a short circuit when coming in contact with battery electrodes causing a large amount of heat.

Charge Operation

Plug adapter into charger base, then wall adapter into outlet as follows:



- 1. Turn off the radio. Plug the DC connector of adapter into the DC jack on the rear of the charger.
- Plug the AC connector of adapter into an AC outlet.
 After the charger is powered, the LED glows red for 1 second and then goes out. This indicates the charger is ready for normal charging. If the LED flashes red continuously, the charger has encountered an error and will need servicing.
- Insert the battery or radio equipped with battery into the charger. Make sure the battery has a proper connection with the charger electrodes.
- 5. LED glows red during normal charging; if LED flashes red this indicates trickle charging because of very low battery condition. After the battery reaches a certain amount of capacity from trickle charge, the charger automatically turns to normal charge mode.
- 6. The battery is fully charged when LED glows green.

Battery Charging Notes

- The battery is not charged at the factory. Please charge the battery before initial use or after extended period of storage.
- 2. For new batteries, repeat the charging process 2 to 3 times to obtain the best capacity.

 Batteries will eventually need replacement, if low battery is indicated quickly after if it has been fully and correctly charged, this normally means the battery needs to be replaced. Please contact your Authorized Maxon Dealer for information.

Antenna Information

- Antenna length has a factor on distance of communication.
- The communication range can be shortened based on environmental or weather related issues such as rainy days or dense forest.

0

Attaching and Removing

Attaching the Battery

Match the two grooves of battery with corresponding guides on the back of the radio. Make sure that full contact is made between the battery and radio chassis.

Push the battery up along the guide until the battery latch locks. See Figure 1.



(Figure 1)

Push the battery latch towards the word "Lock" to lock it. See Figure 2.



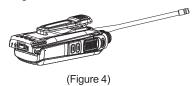
(Figure 2)

Removing the Battery

To remove the battery, first make sure the radio is turned off, then push the battery latch in the opposite direction of the word "LOCK" to unlock it, and push the battery latch downwards. See Figure 3.



Slide the battery down and away from the radio. See Figure 4.



Attaching the Antenna

Insert the antenna into the connector on the top of radio by holding the antenna at its base.

Rotate the antenna clockwise to fasten it. See Figure 5.

IMPORTANT: Do not over tighten antenna as it will cause damage to the radio.



Removing the Antenna

Rotate the antenna counter clockwise until you can remove it. See Figure 6.



Attaching Belt Clip

Match the grooves of belt clip with those on the rear of radio and press the belt clip downwards until it is locked. See Figure 7.

Removing Belt Clip

Lift the metal spring piece in the belt clip from topside and pull the belt clip upward from the battery pack. See Figure 8.

Note: For ease of installation and removal of belt clip, remove the battery from the radio.

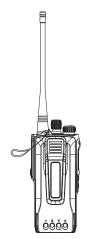


(Figure 7)



Installing Hand Strap

Thread the strap into the hole at the back of the radio and fasten it.



Attaching the Audio Accessory

- 1. Remove the screw on the accessory jack cover, open the accessory jack cover as figure show below.
- 2. Align the plug with the accessory jack.
- 3. Tighten the screw on the plug.



Removing the Accessory

To remove accessories, loosen the screw as figure shown below.



Attaching and Removing

15. Accessory Screw

20. Charging Contacts

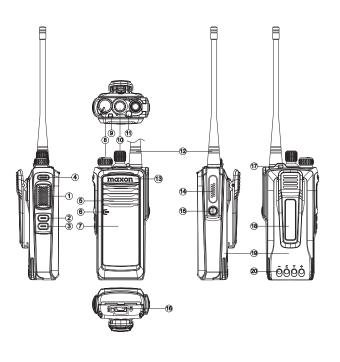
16. Battery Latch

17. Strap Hole

18. Belt Clip

19. Battery

Radio Overview



- 1. Push-To-Talk (PTT Key)
- 2. Side Key 1 (SK1)
- 3. Side Key 2 (SK2)
- 4. Side Key 3 (SK3)
- 5. Speaker
- 6. Microphone
- 7. Unit Case
- 8. Radio On-Off/Volume Control Knob
- 9. LED Indicator
- 10. Channel Selector Knob
- 11. Top Key (TK)
- 12. Antenna
- 13. Nameplate
- 14. Accessory Jack

LED Indicator

The top LED indicator will help you easily identify current radio status.

LED Indicator	Radio Status
LED flashes green.	Powering on
LED glows red.	Transmitting
LED glows green.	Receiving
LED flashes orange.	Scanning

Programmable Keys

For enhanced convenience, you may request your dealer to program the keys **SK1**, **SK2**, **SK3**, **and TK** as shortcuts to the functions listed below:

No.	Shortcut Keys	Description	
1	None	No feature will be assigned.	
2	Zone Down	To select a desired zone quickly	
3	Zone Up	To select a desired zone quickly	
4	Scan	To receive signals on other channels	
5	Nuisance Temporary Delete	To temporarily ignore unwanted channel activity	
6	Emergency On	To summon help in emergent situations	
7	Emergency Off	Emergency function is off	
8	Adjust Power Level	To adjust power level	
9	Adjust Squelch Level	To adjust the squelch threshold required for the speaker to unmute	
10	One Touch Call 1	To transmit a call quickly	
11	One Touch Call 2	To transmit a call quickly	
12	One Touch Call 3	To transmit a call quickly	
13	One Touch Call 4	To transmit a call quickly	

LED Indicator

Radio Overview

No.	Shortcut Keys	Description	
14	One Touch Call	To transmit a call quickly	
15	Squelch Off Momentary	To momentary open the speaker	
16	Squelch Off	To always open the speaker	
17	Monitor	To adjust the condition for incoming signal match	
18	Talk Around	To directly communicate with other radios	
19	Scramble/Encrypt	Scramble: To encrypt your voice so as to guarantee privacy of your communication Encrypt: To encrypt your voice and message so as to guarantee privacy of your communication	
20	VOX	To enable or disable the VOX function	

Note: (1) Long and short press of a key can be assigned with different functions by your dealer.

(2) The TK is programmed as the Emergency Key by default, and is programmable by your dealer.

Basic Operations

Turning the Radio On/Off

Rotate the Radio On-Off/Volume Control knob clockwise/ counter-clockwise until a click is heard to turn the radio on/off.



Adjusting the Volume

After turning the radio on, rotate the Radio On-Off/Volume Control knob clockwise to increase the volume, or counterclockwise to decrease the volume.



Selecting a Zone

A zone is a group of channels exhibiting the same property, and is programmed by your dealer. The radio supports up to 64 zones, each with a maximum of 16 channels. You may select a zone through the function keys - You may quickly toggle to your desired zone by pressing the programmed Zone Up or Zone Down key.

Selecting a Channel

Rotate the Channel Selector knob to select a channel from CH01-CH16 according to the number shown at the bottom of the channel selector.

Digital/Analog Switch

Each channel can be programmed as either analog channel or digital channel, if the current zone includes both analog and digital channels, you may switch between digital and analog through the channel select knob.

Operations

Basic (

Private Call

In standby mode, pressing PTT key will transmit an individual call to the contact (a Private Call number) preset for the current

Note: Your dealer may preset a contact for each digital channel. The preset contact could be a Private Call number, a Group Call number or an All Call number.

Receiving and Responding to a Private Call

Responding to a Private Call, after a Private Call is received, you may press the PTT key within the preset time period to call

Group Call

In standby mode, pressing PTT key will transmit a group call to the contact (a Group Call number) preset for the current channel

Note: Your dealer may preset a contact for each digital channel. The preset contact could be a Private Call number, a Group Call number or an All Call number.

Receiving and Responding to a Group Call

Responding to a Group Call, after a Group Call is received, you may press the PTT key within the preset time period to call back.

All Call

Transmitting an All Call

Methods are the same as those in Transmitting a Group Call.

Making a Call

To make a call, hold down [PTT] key and speak into the microphone with normal voice. Please keep the microphone 1"(2.5-5cm) away from your mouth.

Note:

- 1. Hold down [PTT] key and the radio begins to transmit when LED glows red.
- 2. When the battery power is lower than normal battery power, the transmission is prohibited.

Scan On/Off

The function "Scan" allows you to listen to communication activities on other channels so that you can keep a close track of your team members. This function is enabled or disabled by pressing the shortcut key for scan. Contact your Authorized Maxon Dealer for more information.

This radio supports up to 64 zones. Contact your Authorized Maxon Dealer for more information.

LED

All LEDs: to enable /disable all LED indications.

TX LED: to set whether the Tx LED indicates during transmission.

RX LED: to set whether the Rx LED indicates during reception.

Scan LED: to set whether the Scan LED indicates in Scan mode.

Low Battery LED: to set whether the Low Battery LED indicates when the battery is low.

Carrier LED: to set whether Carrier LED indicates when receiving carrier.

Note: Please contact your Authorized Maxon Dealer for setting.

If enabled, the VOX function allows users to transmit every time the user speaks into the radio directly without pressing the PTT key.

Vibrate (Optional)

If vibrate is included, this option allows the user to enable/ disable the feature. Contact your Authorized Maxon Dealer for more information.

Talk Around (TA)

You can continue to communicate in DM mode by pressing the programmed Talk Around key. Contact your Authorized Maxon Dealer for more information.

TA Operation

Press the programmed Talk Around key to switch between DM mode and RM mode.

Monitor (Analog Only)

The monitor function bypasses the programmed signaling on a channel.

Monitor Operation

Press the programmed Monitor key to enable the feature. To disable the feature, press this key again.

Squelch Off Operation

Press the programmed Squelch Off key to enable the feature. Then the radio sounds background noise. To disable the feature, press this key again.

Press the programmed Squelch Off Momentary key to enable the feature. Then the radio sounds background noise. To disable the feature, release this key.

Busy Channel Lockout

If enabled via the programming software, this feature can prevent your radio from interfering with other radios transmitting on the same channel. If you hold down the PTT key while the channel is in use, your radio will sound an alert, advising you that transmission is prohibited. To stop alert, release the PTT key.

Time-Out Timer (TOT)

The purpose of TOT is to prevent any user from occupying a channel for an extended period. If the preset time expires, the radio will automatically terminate transmission and maintain the alert. To stop the alert, please release the PTT key. You must wait for a certain time period before you can press and hold down the PTT key to transmit again. If the pre-alert function is set, the radio will alert the TOT expiration in advance. Contact your Authorized Maxon Dealer for more information.

Note: This feature is null in Emergency mode.

Invalid Channel Indication

If current operating channel is an invalid channel, the radio will send a continuous alert tone, which means the current channel is unable to transmit or receive.

Squelch

Setting the squelch level decides how strong the signal is needed to un-mute the receiver. Setting range is 0~9, selecting "0" causes the squelch to open easily. The higher the squelch level, the harder to open the squelch. Your dealer preset a squelch level for analog channel.

Man Down (Optional)

With this feature (only in digital mode), your radio will alarm automatically when it is tilted to a certain gradient for a certain time period. Contact your Authorized Maxon Dealer for more information.

Transmission Management

This option defines the response from the transmitter upon PTT press on the current channel, in order to prevent the user transmitting on channels that are already in use.

In Analog mode, the options are listed below:

Always Allow: The user can transmit all the time.

Channel Free: The radio allows transmission only when the current channel is free. CTCSS/DCS Correct: The radio allows transmission upon CTCSS/DCS match.

CTCSS/DCS Incorrect: The radio allows transmission upon CTCSS/DCS not matched.

In Digital mode, the options are listed below:

Always Allow: The user can transmit all the time.

Channel Free: The radio can transmit only if the channel is free.

Color Code Free: The radio can transmit only when the channel is free or the color code is not matched.

Contact your Authorized Maxon Dealer for more information.

Optional Accessories

Optional accessories and replacement parts are available through your Authorized Maxon Dealer.

Those items include:

Programming Software

VHF antennas (with optional GPS) UHF antennas (with optional GPS) Batteries **Belt Clips** Audio Accessories Single unit chargers Six unit gang chargers Carrying cases Programming Cable

Troubleshooting Guide

Issue Analysis		Solution	
	The battery may be improperly installed.	Remove the battery and attach it again.	
The equipment can	The battery may run out.	Recharge or replace the battery.	
not be powered on.	The battery may suffer from poor contact caused by tarnished or damaged battery contacts.	Clean the battery contacts. If the problem cannot be solved, contact your dealer or authorized service center for inspection and repair.	
	The battery strength may be too low.	Recharge or replace the battery.	
During receiving signals, the voice	The volume may be set to a low level.	Increase the volume.	
is weak, discontinuous or	The antenna may be loose or improperly installed.	Power off the radio, and re-install the antenna.	
totally inactive.	The speaker may be blocked or damaged.	Clean surface of the speaker. If the problem can not be solved, contact your dealer or authorized service center for inspection and repair.	
	The frequency or signaling may be inconsistent with that of other members.	Set your TX/RX frequency and signaling to the same as that of other members.	
You can not communicate with other members.	The channel type (digital/analog) may be set inconsistently.	Make sure all members are on the same digital/ analog channel.	
	You may be too far away from the group members.	Move closer towards other members.	
Irrelevant communications or	You may be interrupted by radios using the same frequency.	Change the frequency, or adjust the squelch level.	
noises are heard on the channel.	The radio may not be set with any signaling.	Set signaling for all member radios to avoid interference at the same frequency.	

Appendix

Care and Maintenance

Care and Maintenance

To increase the life of your radio, please take note of the following:

- Do not hold or carry the radio by the antenna or external audio accessories.
- Do not throw, hit or vibrate the radio. This may cause damage to the inner IC or other elements and void the warranty.
- Use only original Maxon parts or accessories. Use of non-approved parts or accessories may cause damage to the radio and void the warranty.
- Use lint-free cloth to clean the LCD display.
- Cover the audio accessory jack when not using audio accessories.

Note:

All recommendations above also refer to your battery, charger and accessories.

• Use mild detergent or warm water (not corrosive chemicals) to clean the casing.

Warranty Statement

Maxon America, Inc. offers to the original end user:

Three (3) Year Limited Warranty on Maxon TPD-1000 Series radios (separate warranty period on accessories). One (1) Year Limited Warranty on Accessories (includes, but not limited to, batteries, antennas, belt clips, chargers, audio accessories, nylon cases, leather cases, etc.).

Maxon warrants each new radio product manufactured or supplied by it to be free from defects in material and workmanship under normal use and service for the time period stated, provided that the user has complied with the requirements stated herein. The warranty period begins on the date of purchase from an Authorized Maxon Dealer. This warranty is not assignable or transferable. This warranty is void if the product serial number is altered, defaced or removed. Maxon is not responsible for any equipment that is attached to or used in conjunction with our products.

During the warranty period, if the product fails to function under normal use, because of manufacturing defects or workmanship, it should be returned to the Authorized Maxon Dealer from which it was purchased. The Authorized Maxon Dealer will repair the product or return the product for repair to Maxon or its Authorized Repair Depot. The user is responsible for the removal of the product from a vehicle or any equipment attached to it, or other site of its use; transportation of the product to the Authorized Maxon Dealer; for the return of the repaired or replacement product to the site of its use and for the reinstallation of the product.

Maxon shall have no obligation to make repairs or replacement of product which results from normal wear and tear, or is necessitated by catastrophe, fault, or negligence of the user, improper or unauthorized alterations or repairs to the product, incorrect wiring, use for which it was not designed or by causes external to the product.

Statement Warranty

Maxon's sole obligation shall be to replace or repair the product covered by the warranty. Replacement is done at Maxon's discretion and may consist of a similar or higher featured product. Repair may include the replacement of parts with functionally equivalent new or reconditioned parts. All replaced parts and accessories are warranted for the balance of the original time period. All parts and accessories that are replaced become the property of Maxon America, Inc.

THE EXPRESS WARRANTIES CONTAINED HEREIN ARE IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

FOR ANY PRODUCT THAT DOES NOT COMPLY WITH THE WARRANTY SPECIFIED, THE SOLE REMEDY WILL BE REPAIR OR REPLACEMENT. IN NO EVENT WILL MAXON BE LIABLE FOR ANY DAMAGES. INCLUDING ANY SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR THE LOSS OF PROFIT, REVENUE OR DATA ARISING OUT OF THE USE OF OR THE INABILITY TO USE THE PRODUCT.

Appendix 1: Specification

Item	TPD-1116/1416
Frequency Range	VHF: 136~174MHz UHF: 400~470MHz
Channel Capacity	16
Modulation Type	FM/4FSK
Frequency Stability	≤±1.0ppm
Operating Temperature	-30°C~ +60°C
Antenna Impedance	50Ω
Operating Voltage	7.4V

Item	TPD-1116/1416
RF Output Power	UHF:4W/1W VHF:5W/1W
Audio Distortion	≤3%
Sensitivity	0.22μν
Max Audio Output Power	1.5W
Dimension (H×W×D)	130X55X34mm
Weight (with antenna & battery)	320g
Battery	2000mAh

Model:

Serial Number: Digital Zone:

Channel	Tx Frequency	Tx Contact	Rx Frequency	Rx Group List	Color Code
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

Appendix 3: Frequency Chart (Used to record the frequency.)

Model:

Serial Number: Analog Zone:

Channel	Tx Frequency	Tx CTCSS/CDCSS	Rx Frequency	Rx CTCSS/CDCSS	Optional Signaling
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					

2

25

FCC Caution

FCC Caution:

Any 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. This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radio and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Your Maxon 2-way radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) for human exposure to radio frequency electromagnetic energy. This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 50% transmitting and is authorized by the FCC for occupational use only. In terms of measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

Note: The approved batteries supplied with this radio are rated for a 5-5-90 duty factor (5% talk -5% listen -90% standby) even though this radio complies with the FCC occupational RF exposure limits and may operate at duty factors of up to 50% talk

Your Maxon 2-way radio complies with the following RF energy exposure standards and guidelines: United States Federal Communications Commission, Code of Federal Regulations; $47CFR \S 1.1.307, 1.1310,$

- 2.1091 and 2.1093
- American National Standards Institute(ANSI)/ Institute of Electrical and Electronic Engineers (IEEE) C95.1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95.1-1999 Edition