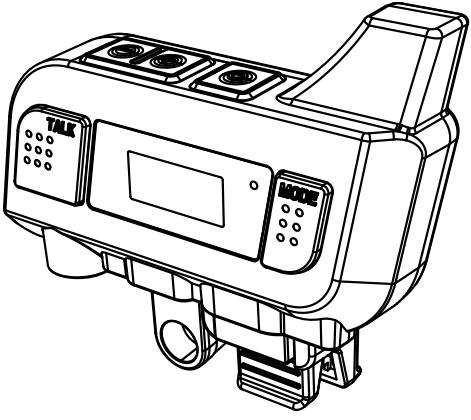
User Manual

USER'S MANUAL FOR HELMET CLIP INTERCOM

Ver.10503MJB



Perfect wireless Intercom solution for
Helmet-wearing workers

Maytel Co., Ltd.

TABLE OF CONTENTES

1. General Information

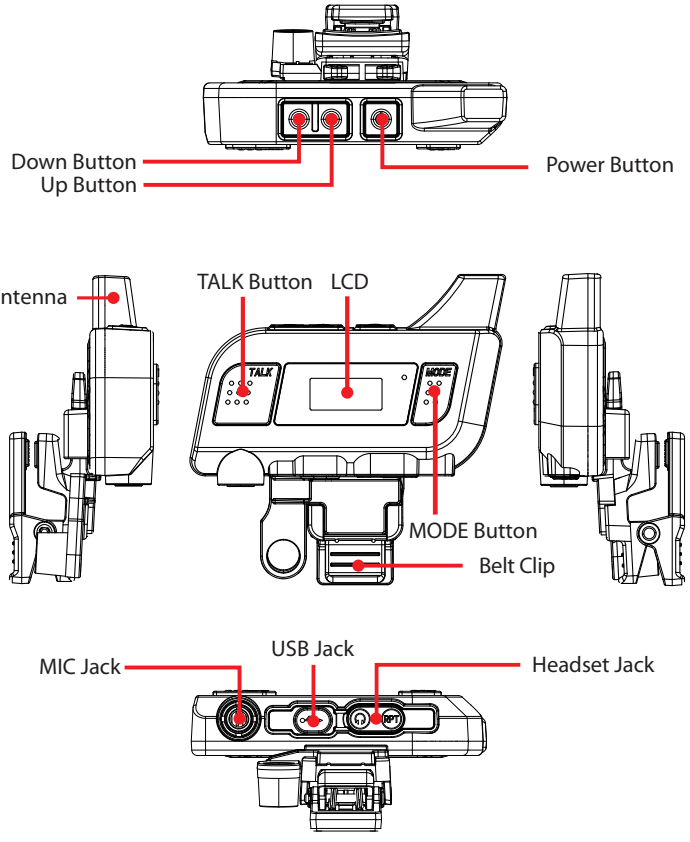
1.1 Introduction

"HELMET CLIP INTERCOM" is the most advanced and compact hands-free wireless intercom device that can be equipped to the helmet, which frees the users' hands and provides reliable full-duplex communication allowing up to 10 users to speak simultaneously.

1.2 Main Feature

- Support 2 professional modes and directly select the optimized mode according to the environment of the field.
- Worldwide compatible ISM band.
- Realized communication between maximum 9 fixed users + Any one out of unlimited participants
  - Any-one participant can participate into the communication by pressing TALK button while the rest members are listening
  - Another participant who desires to talk can participate by pressing TALK button only when the prior speaker has released the button.
- Crystal clear sound quality, loud enough audio output and super dynamic noise cancellation more than 95dB.
- Long enough talk distance through 2 professional operating modes that can be directly selected in the field.
- Individual PIN encryption that can be set up by each group and clear LCD display showing Channel & ID number on the same screen.
- Fully met IP54 waterproof including strong and rugged mechanism.
- Separable clip for installation to the helmet.

2. Controls and Indicators



Power Button

Press and hold the Power button for a second to turn the device power On/Off

MODE Button

Select Channel number, ID number, Side Tone On/Off, Microphone sensitivity level, and Wireless alarm

Up Button

Increase Volume level, Channel number, and ID number etc. in each mode

Down Button

Decrease Volume level, Channel number, and ID number etc. in each mode

TALK Button

Talk and Mute On/Off

Headset Jack

3.5mm headset contact

MIC Jack

Microphone contact

LCD

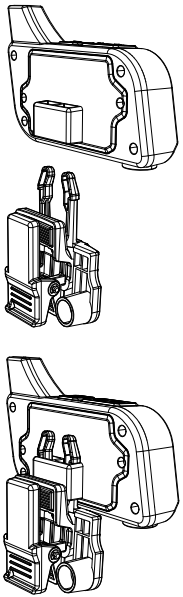
Indicate current status and setting

USB Jack

USB port for firmware upgrade (No USB charging function)

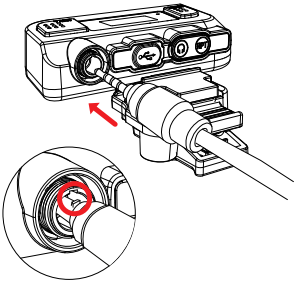
3. Accessories and How to Install

How to install Belt Clip

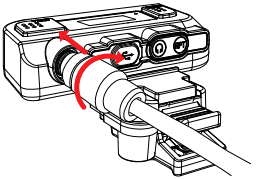


Push in the Belt Clip to the back side of HELMET CLIP INTERCOM until a clicking sound occurs

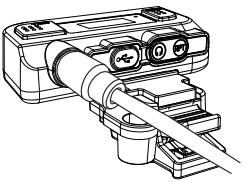
How to install Boom Microphone



1. Plug in the Boom Microphone to the MIC jack of HELMET CLIP INTERCOM. At this time, the connector and the groove of the plug must be properly fitted.



2. Put in the aluminum fixing equipment and turn it clockwise to finish installation.



4. RM Mode

RM operates as Main Master, Sub Master, and Slave depending on the ID setting of the device. Main Master sends beacon signals for group communication as shown in the Figure 1.
Sub Master receives the beacon signal from the Main Master and sends it back to Subgroup S. Slaves work in synchronization with beacon signals from the Main/Sub Masters.

Main Master relays the voice received from the Subgroup M to the Sub Master. Sub Master send this relayed voice to the Subgroup S.
Sub Master relays the voice received from the Subgroup to the Main Master. The Main Master sends this relayed voice to the Subgroup M.

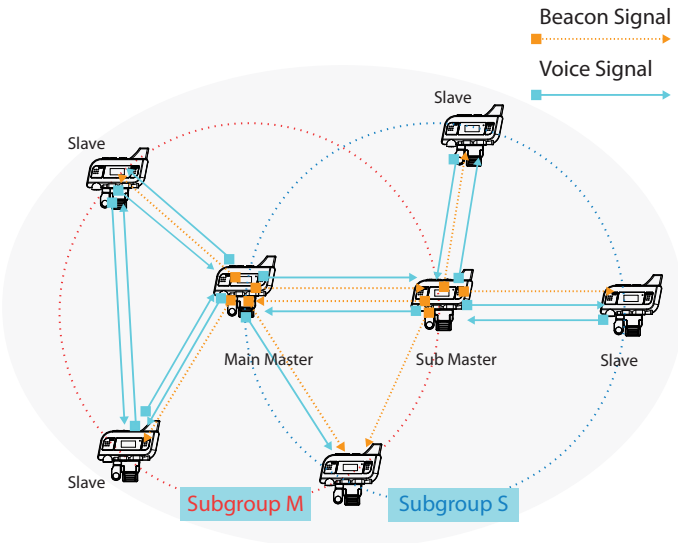


Figure 1 Transmission of beacon/voice signal from Master

Slave devices automatically switch between Subgroup M and Subgroup S to synchronize and send/receive voices.
As shown in the Figure 1, the voice relaying of the Main Master and Sub Master can expand the coverage distance of wireless communication.

4.1 Operation Mode

1. ID of the device is assigned from 0~9, 10(Listen Only).
2. ID 0 works as the Main Master as shown in Table 1.
   Must be only one in the group .
3. ID 1 works as the Sub Master as shown in Table 1.
   Must be only one in the group.
4. The rest of the IDs work as Slaves.
   IDs 0~8 should be only one in each group.
5. ID 9 is shared. It's number is unlimited.
6. ID 10 is Listen Only.
   Multiple Listen Only devices can exist in the group.

Table 1 Operation Mode

ID	Master/Slave	ID status	TALK Button
0	Main Master	TX/RX/Relay Voice	Change Talk State
1	Sub Master	TX/RX /Relay Voice	Change Talk State
2	Slave	Fixed TX/RX of ID 2	Change Talk State
3	Slave	Fixed TX/RX of ID 3	Change Talk State
4	Slave	Fixed TX/RX of ID 4	Change Talk State
5	Slave	Fixed TX/RX of ID 5	Change Talk State
6	Slave	Fixed TX/RX of ID 6	Change Talk State
7	Slave	Fixed TX/RX of ID 7	Change Talk State
8	Slave	Fixed TX/RX of ID 8	Change Talk State
9	Slave	ID 9 ; Shared	Change Talk State
10	Slave	Listen Only	-

- Press TALK button to toggle the Talk state, which means Talk Off when it is On, and Talk On when it is Off.
- Device ID 9 can send the voice by pressing the button when using the external PTT.

5. S9 Mode

S9 operates as Main Master, Sub Master, and Slave depending on the ID setting of the device.
Main Master sends beacon signals for group communication as shown in the Figure 2, and the Slaves operate in synchronization with beacon signals.
Voice channels in a group are assigned to the devices with ID 0~8.
Wirelessly transmitted voices from each device are received simultaneously at the terminal end from maximum of 9 channels.
These simultaneous voices are mixed within the device at the terminal end and heard as the final voice.

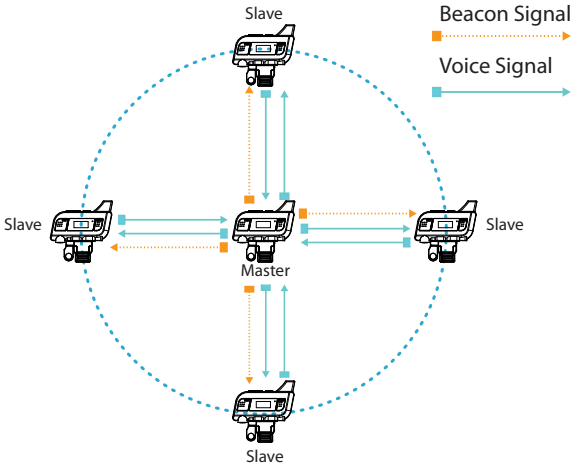


Figure 2 Transmission of beacon/voice signal from Master

As shown in the Figure 2, the Master relays the voice signal from a Slave to other Slaves. Therefore, the coverage distance of wireless communication can be expanded in the case where the Slaves are centered around the Master.

5.1 Operation Mode

1. ID of the device is assigned from 0~8, 9(Listen Only).
2. ID M works as the Main Master as shown in Table 2. Must be only one in the group.
3. The rest of the IDs work as Slaves. Devices with IDs 0~7 are fixed. Each should be only one in the group.
4. ID 8 is Shared. It's number is unlimited.
5. ID 9 is Listen Only. There can be multiple Listen Only devices in the group.

Table 2 Operation Mode

ID	Master/Slave	ID Status	TALK Button
0	Master	Fixed TX/RX of ID 0	Change Talk State
1	Slave	Fixed TX/RX of ID 1	Change Talk State
2	Slave	Fixed TX/RX of ID 2	Change Talk State
3	Slave	Fixed TX/RX of ID 3	Change Talk State
4	Slave	Fixed TX/RX of ID 4	Change Talk State
5	Slave	Fixed TX/RX of ID 5	Change Talk State
6	Slave	Fixed TX/RX of ID 6	Change Talk State
7	Slave	Fixed TX/RX of ID 7	Change Talk State
8	Slave	ID 8 ; Shared	Change Talk State
9	Slave	Listen Only	-

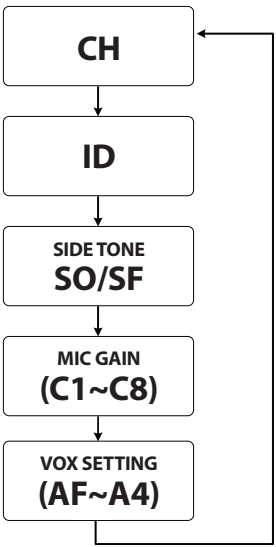
- Press TALK button to toggle the Talk state, which means Talk Off when it is On, and Talk On when it is Off.
- Device ID 8 can send the voice by pressing the button when using the external PTT.

6. How to Use

6.1 Functions

There are 2 modes in operation mode, NORMAL mode and SETTING mode. The default mode is NORMAL when turn on the power.
Short press the MODE button to view each setting value in NORMAL mode. Setting values are shown in the order of CH-> ID-> SIDE TONE-> MIC GAIN-> VOX as shown in Figure 3.

Figure 3 Order of the setting values in NORMAL mode when short press the MODE button



Long press MODE button to go to SETTING mode to change the setting values such as Channel and ID.

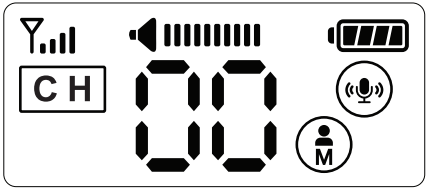
6.2 Power On/Off

Press and hold the "Power" button for a second to turn the device power on/off.

6.3 Volume Adjustment

Volume adjustment function to let the user to change the volume when needed.

- Volume Level appears on the top of the LCD screen when turn on the power.
- In NORMAL mode, adjust the volume to the desired level by pressing Up/Down button on the left side of the device.
- Volume can be set from 0 ~ 5 [Default Level: 3]

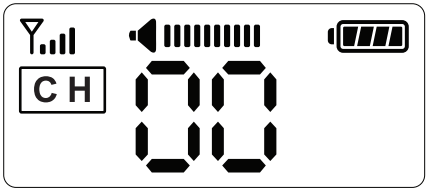


6.4 Channel Selection

Volume adjustment function to let the user to change the volume when needed.

- Turn on the power of the device.
- Long press the MODE button then the LCD screen becomes SETTING mode and CH blinks.
- Press Up/Down button on the left side of the device to set the desired Channel.

- Changed volume maintains even when the power is Off.
- Speaker is in Mute state with Level 0.
- Channel should be identical for all the devices to communicate in each group.
- Wireless communication does not work when changed to SETTING mode.

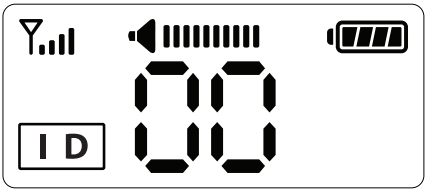


- Channel can be set from 0~39 .
- Long press the MODE button to finish the setting.

6.5 ID Selection

ID setting function to let the user to change ID when needed.

- Turn on the power of the device.
- Long press the MODE button to go to SETTING mode.
- Short press MODE button to go to ID Setting screen. bd00ks..
- Press Up/Down button to set to the desired ID.
- RM mode ID setting
  - ID can be set to 00~10.
  - ID 0 is set as a Master ; Must be only one in a group.
  - ID 1 is set as a SubMaster ; Must be only one in a group.
  - IDs 2~8 are set as Slaves each assigned with fixed Channel ; Must not be overlapped within a group
  - ID 9 is Shared. It's number is unlimited.
  - ID 10 is set as Listen Only Slave. ; Multiple devices can be set as ID 9,10 in a group
- S1 mode ID setting
  - ID can be set to 00~09.
  - ID 0 is set as a Master ; Must be only one in a group.
  - IDs 1~7 are set as Slaves each assigned with fixed Channel ; Must not be overlapped within a group
  - ID 8 is Shared. It's number is unlimited.
  - ID 9 is set as Listen Only Slave. ; Multiple devices can be set as ID 8,9 in a group

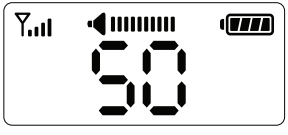


- Long press the MODE button to finish the setting.

6.6 Side Tone Selection

Side Tone can be turned On/Off

- Turn on the power of the device.
- Long press the MODE button to go to SETTING mode.
- Short press MODE button 2 times to go to Side Tone Setting screen.
- The user can turn Side Tone On(SO) or Off(SF) by Up/Down buttons.

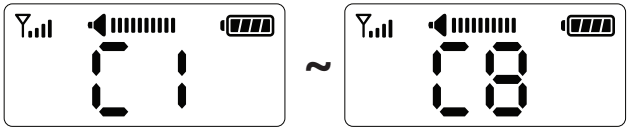


- Long press the MODE button to finish the setting.

6.7 Microphone Sensitivity Level Selection

MIC gain Level can be adjusted when using.

- Turn on the power of the device.
- Long press the MODE button to go to SETTING mode.
- Short press MODE button 3 times to go to MIC level setting screen.
- Adjust the MIC gain setting by Up/Down buttons.
  MIC gain level can be set from 1~8.

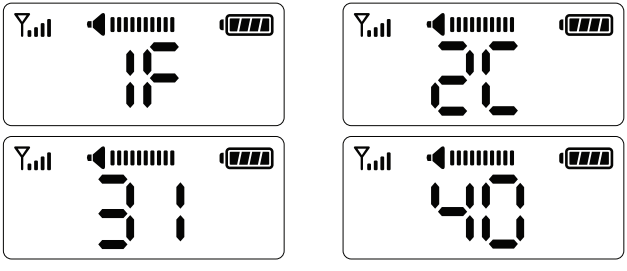


- Long press the MODE button to finish the setting.

6.8 Security Code Selection

Security Code can be modified by the user.

- Turn on the power of the device.
- Long press the MODE button to go to SETTING mode.
- Short press MODE button 4 times to go to MIC level setting screen.
- The user can change the Security Code by Up/Down buttons. Security Code is composed of 4 digits and each digit can be set as 0~9, A, b, C, d, E, F.
- Security Code can be set one digit by one digit. Short press MODE button to move to the next digit. 1, 2, 3, 4 on the left indicates which digit the code is located. The right indicates hexadecimal number.
- For example, to set the code as 0xFC10, it should be set in the following order:
  1F -> 2C -> 31 -> 40.



- Long press the MODE button to finish the setting.

6.9 Roaming Setting

Roaming function can be set by the user. It can be set as Auto Roaming, Manual Roaming, Master Fix, Sub master Fix.

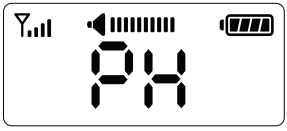
Roaming function	Description
H0	Auto Roaming
H1	Manual Roaming. Short press Power button to manually change connection between Master and Sub master
H2	Master Fix
H3	Sub master Fix

6.10 Operation Mode Selection

Operation Mode can be selected to boot the device with the selected one of the 2 applications.

- Turn on the power of the device.
- Long press the MODE button to go to SETTING mode.
- Short press MODE button 8 times to go to Operation mode selection setting screen.
- Press Up/Down buttons to select the desired application.
  ; Operation Mode
  - PH: indicates RM Mode.
  - PS: indicates S9 Mode.
- Long press the MODE button to finish the setting.
- The power automatically goes Off once the Operation Mode is changed. The device will be booted with the changed application when turn on the power afterwards.

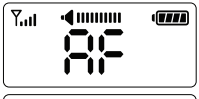
- Set the Side Tone in Talk sate. Side Tone is Off when the device is not in Talk state.
- Both CH and Securitv Code should match to enable the communication between the devices.

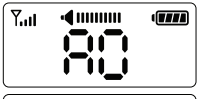


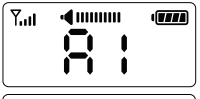
6.11 VOX Selection

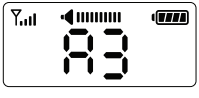
VOX can be set with this function.
VOX function operates on devices with ID 0 ~ ID 8

- Turn on the power of the device.
- Long press the MODE button to go to SETTING mode.
- Short press MODE button 9 times to go to Operation mode selection screen.
- Default setting of VOX function is Off.
- Adjust to the desired sensitivity by Up/Down buttons.
  - AF: Turns Off VOX function.
  - A0~A4: Indicates sensitivity. A0 is the most sensitive, and A4 is the least sensitive level.
- Long press the MODE button to finish the setting.



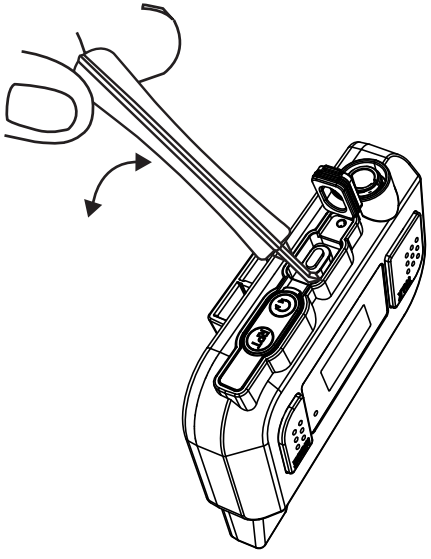






- Operation mode selection should be done after all the applications of 2 modes (RM, S9) are downloaded. If not, the device might not be booted properly.
- 2 applications are RM and S9. Refer to the manual of each application for detailed explanation.

7. Magnetic Charging Connector Remover



- Put the remover into the gap between the magnetic charging connector and the device.
- Move the remover for about 5 times with slight force, then the connector will be plugged out of the device.

* Beware; The remover might be broken when too much force is applied.

8. Specification

Dimension
100 x 69 x 32 mm

Weight
98g

Frequency Range
ISM 902.5MHz ~ 927 MHz

Radio Interface
GFSK Modulation

Voice Codec
16bit/8KHz

Tx Max Output Power
TBD mW

Rx Sensitivity
-95dBm

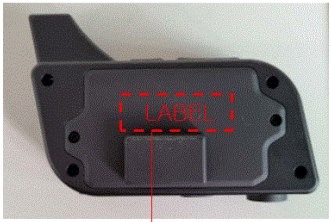
Environmental Rating
IP54

Power Supply
Li-ion Battery @3.7V/ 1,100 mA

Antenna
Internal

Distance Range(LOS)
TBD

Frequency response
TBD Hz ~ TBD kHz



The Label can be seen when the battery cover and battery areremoved

9. Warranty

Maytel will give 12 months warranty against failure made by the manufacturer from the date of purchase.
The warranty will not cover damage made by the user, the user opening the equipment, moist, dirt, heat or cold. The warranty will not cover lightning/overvoltage. Please, contact your dealer if a problem with the equipment arises.

10. Waste Disposal

Electrical and electronic products can contain materials, parts and units that can be dangerous for the environment and human health. Products marked with the WEEE mark (shown below), shall not be disposed together with your normal household waste. Please inform yourself about the local rules and disposal collection system for electrical and electronic products. The correct disposal of your old product will help to prevent negative consequences for the environment and human health.
(WEEE = Waste of Electrical & Electronic Equipment)

Compliance to FCC US/CAN

- This device complies with Part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s).
- 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 of the device.

-This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

- However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user encouraged to try to correct the interference by one or more of the following measures :
  . Reorient or relocate the receiving antenna.
  . Increase the seperation 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.
- Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

WARNING !

FCC Radiation Exposure Statement :

This portable eauipment with its antenna complies with FCC's RF radiation exposure limit set forth for an uncontrolled environment. To maintain compliance follow the instruction below;

- This transmitter must not be colocated or operating in conjunction with any other antenna or transmitter.
- Avoid direct contact to the antenna, or keep it to a minimum while using this equipment.

This device complies with RSS-247 of the Industry Canada 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.

Ce dispositif est conforme a la norme RSS-247 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage prejudiciable, et (2) ce dispositif doit accepter tout brouillage recu, y compris un brouillage susceptible de provoquer un fonctionnement indesirable.

CAUTION

Users are recommended to wear this device only on a helmet, and to reduce communication interface, it is recommended that the front face be seperated by at least 10mm.

Radiation Exposure Statement

The product comply with the Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

Declaration d'exposition aux radiations :

Le produit est conforme aux limites d'exposition pour les appareils portables RF pour les Etats-Unis et le Canada etablies pour un environment non control. Le produit est sur pour un fonctionnement tel que decrit dans ce manuel. La reduction aux expositions RF peut etre augmentee si l'appareil peut etre conserve aussi loin que possible du corps de l'utilisateur ou que le dispositif est regle sur la puissance de sortie la plus faible si une telle fonction est disponible.

FCC regulations require that a person knowledgeable in electronics and trained in the correct installation of this device Professionally install this device.
Professional installer have a responsibility to comply with FCC part 15 rules on antenna limits and amplification.
Unauthorized modifications to the device could void the End-users authority to operate it.

This product has been certified with the following antennas, and may only be used with the same or less antenna gain.

Antenna	Max. Gain
Helical Antenna	3.83 dBi

This equipment complies with the essential requirements of EC Directive 2014/35/EU, 2014/30/EC and 2014/53/EU, as applicable. Declarations are available from your local representative.

This product has required the extraction and use of natural resources for its production. It may contain hazardous substances that could impact health and the environment, if not properly disposed.

In order to avoid the dissemination of those substances in our environment and to diminish the pressure on the natural resources, we encourage you to use the appropriate take-back systems for product disposal. Those systems will reuse or recycle most of the materials of the product you are disposing in a sound way.

The crossed out wheeled bin symbol informs you that the product should not be disposed of along with municipal waste and invites you to use the appropriate separate take-back systems for product disposal.

If you need more information on the collection, reuse, and recycling systems, please contact your local or regional waste administration. You may also contact your supplier for more information on the environmental performance of this product.

Replaceable battery

If an equipment is provided with a replaceable battery, and if replacement by an incorrect type could result in an explosion (for example, with some lithium batteries), the following:
- if the battery is placed in an OPERATOR ACCESS AREA, there shall be a marking close to the battery or a statement in both the operating and the servicing instructions;
- if the battery is placed elsewhere in the equipment, there shall be a marking close to the battery or a statement in the servicing instructions.

This marking or statement shall include the following or similar text:

CAUTION
RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.
DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.