



User Manual

USER'S MANUAL FOR GRAND MULTICOM



MULTIPLEX COMMUNICATION EQUIPMENT,
Model; GM-900M

Maytel Co., Ltd

1. General Information

1.1 Introduction

The "GRAND MULTICOM" is the most advanced multiplex communication equipment, providing up to 10 user talks simultaneously with hands-free solution. The "GRAND MULTICOM" combines reliable performance, quality and versatility into a compact and easy to use with state-of-the-art technology.

1.2 Main Feature

- Any 10 users out of unlimited users per Group talking simultaneously with fully hands free while rest members are listening
- Advanced CODEC protocol minimized the impact of terrestrial interference and super dynamic range of noise cancellation more than 95dB
- Long enough direct talk range 1.2Mile / 1,800, for 900Mhz version.
- Secure way of isolated PIN encryption per Group and powerful OLED display indicating Group & ID on one screen at the same time
- Heavy duty and robust mechanical design and fully fulfilled water proof

IP67 including detachable Antenna system

- Convenient drop-in charge, individual USB charge, and replaceable battery system

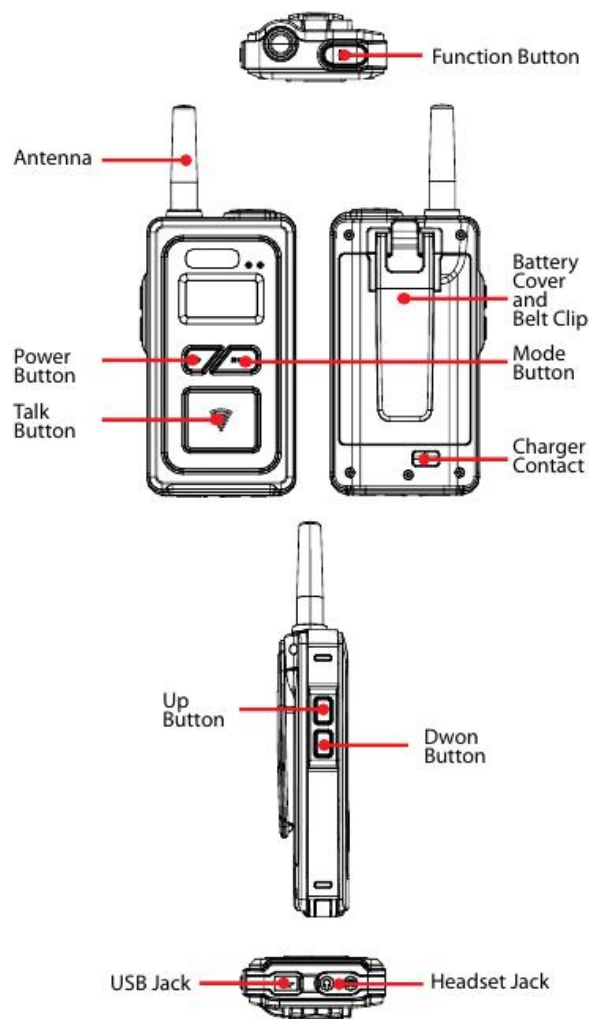
1.3 Accessories

- Headset Boom Microphone
- USB Charging Cable
- User's Manual

1.4 Optional Accessories

- CC-01GM; Leather Carrying Case
- TEM-01G; Air tube ear phone and hi-sensitive Lapel microphone
- SM-100G; Left ear type sports ear set boom microphone
- TM-01MG; Throat microphone together with air tube earphone including mute on/off slide switch
- CS-05GB; Drop in charging station for 5 Grand Multicom & 5 Detachable battery
- CB-05GM; Carrying suit case for 5 units
- CB-10GM; Carrying suit case for 10 units
- GM900AD; Dipole antenna for longer talk range in 900Mhz

2. Controls and Indicators



Power Button

Press and hold the Power button longer than 2 seconds to turn the device power on/off

Mode Button

Select Group number, ID number, Side Tone on/off, Talk on/off, Microphone sensitivity level, and Audio output level

Up Button

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

Down Button

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

Talk Button

Talk On/Off in Group mode
Mute On/Off in Team mode

Function Button

It varies in usage depending on the firmware

Headset Jack

3.5mm headset contact

Antenna

Detachable antenna

USB Jack

USB port for firmware upgrade

Drop in charge Contact

Drop in charge contact for recharging battery

3. How to use

3.1 Power On/Off

Press and hold the "Power" button longer than 2 seconds to turn the device power on/off.

3.2 Volume Up/ Down

Press "▲" button to control volume up and "▼" button for volume down after turn the device power on.

The display shows already set level 03 initially.

It is available to adjust the volume level 0~8.



3.3 Group selection

Press and hold the "Mode" button till "Setting Mode" is displayed.

Select the Group number "00"~"39" you desire by press the "▲" or "▼" button.

Long press the "Mode" button to keep the Group number you selected.
All equipment/belt packs must have the same Group number to communicate with each other within the group.

<Setting Mode>
1.GROUP 00

3.4 ID selection

In a group, every equipment/ belt pack needs to have each different ID per device from "00" to "99".
The ID "00" becomes a master device in a group and every group needs to have the ID "00" device without alternative.

Press and hold the "Mode" button till "Setting Mode" is displayed.
Short press the "Mode" button so "ID" is displayed in "Setting Mode".
Select each different ID number per device from "00" to "99" in a group by press the "▲" or "▼" button.
Long press the "Mode" button to keep the ID number you selected.

<Setting Mode>
2.ID 00

3.5 Side Tone On/Off

Press and hold the "Mode" button till "Setting Mode" is displayed.
Short press the "Mode" button two times so "SIDE TONE" is displayed in "Setting Mode".
Select the Side Tone "ON" or "OFF" by press the "▲" or "▼" button.
Long press the "Mode" button to keep the side tone on or off you selected.

<Setting Mode>
3.SIDE TONE ON

3.6 Microphone Sensitivity Level selection

Press and hold the "Mode" button till "Setting Mode" is displayed.
Short press the "Mode" button three times so "MIC GAIN" is displayed in "Setting Mode".
Select the Microphone Sensitivity

Level "1"~"5" by press the "▲" or "▼" button.

Long press the "Mode" button to keep the Microphone Sensitivity Level you selected.

<Setting Mode>
4.MIC GAIN 1

3.7 Security Code Selection

Press and hold the "Mode" button till "Setting Mode" is displayed.
Short press the "Mode" button four times so "SEC CODE" is displayed in "Setting Mode".
The security code consists of four digits and it is available for you to select "1"~"9", "A", "B", "C", "D", "E", "F" for each digit by press the "▲" or "▼" button.
Long press the "Mode" button to keep the security code you selected.

<Setting Mode>
5.SEC CODE 0000

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 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.
- 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 equipment 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 à 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 préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

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 environnement 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	Model	Max. Gain
Dipole Antennas	LSDP-9002D(B)	3.86 dBi
Dipole Antennas	HW-920H-MSMA	1.00 dBi
Yagi Antennas	PC-ANT-DIR906	6.00 dBi

Two types of dipole antennas are applied when the GM-900M is used as a portable device.

And two types of dipole antennas should not be used in other places than the waist.

So the GM-900M was evaluated for body worn SAR condition and it is not a hand-held device.

One type of Yagi antenna is applied when the GM-900M is used as a base-station for fixed use.

In case of using Yagi antenna, this device should be used at least 20cm away from the human body and requires controlled installation location by professional installer.

4. Specification

Dimension

122.7 x 23.5 / 31.0(With Belt Clip) x 67mm

Weight

180g

Frequency Range

ISM 903MHz ~ 926.5MHz

Modulation

FHSS

Voice Codec

16bit/8KHz

Tx Max Output Power

100mW

Rx Sensitivity

-95dBm

Headset Input / Output

Microphone: 3.5 mm phone jack with electret microphone bias, adjustable gain with 30dB range.

Headphone: 3.5 mm phone jack; 32 Ω load

External Controls

Side panel: Push button for Volume Up/Down

Front panel: Push buttons for Power On/Off, Talk On/Off, Mode select

Top panel: Push button for Talk On/Off

External Interfaces

4 Pole 3.5 mm Headphone Jack X 2 ea, Micro USB Jack for Battery Charging & Firmware update

Voice Latency

< 100ms

Num. of Frequency Channel

48 channels

Channel Spacing

500 KHz

Battery Type

Li-ion Battery @3.7V/ 2000mA

Antenna

Dipole(3.86dBi/1.00dBi), Yagi(6.0dBi)

Distance Range (LOS)

500M @ Class 1

Frequency response

50 Hz ~ 4 kHz

Maximum operation users

8 User include Master device

Indicators

OLED display for Group Number, ID, Volume Level, Battery status, Operational Mode, Talk On/Off

Battery Operational Time

20 Hours Typical

Battery Charing Time

3 to 5 Hours

Identification

FCC ID : YJH-GM-900M
Canada IC: 9066A-GM900M

Product reference

USA/Canada : GM-900M