Improve Muscle Performance & Pain Relief

Electronic Pulse Stimulator

Model: S3

Instruction Manual

Please Read Before Using

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1. Introduction

Electronic Pulse Stimulator delivers electric pulses generated to the user's skin through the electrode pad. The portable and compact device has two modes of different pulse frequencies, mode 1 uses Powered Muscle Stimulation (PMS) technology for muscle training and mode 2 uses Transcutaneous Electrical Nerve Stimulation (TENS) technology to temporary relieve pain. It includes operating elements of Power ON/OFF button, intensity increase"+" button, and intensity decrease"-" button and Mode selection button, and could be attached and detached to the electrode pad through the snap-on connector.

1.1 Indications for Use

Mode 1 (PMS):

To be used for stimulating healthy muscles in order to improve and facilitate muscle performance.

Mode 2 (TENS):

To be used for temporary relief of pain associated with sore and aching muscles in the shoulder, waist, back, neck, upper extremities (arm), lower extremities (leg), abdomen and bottom due to strain from exercise or normal household work activities

2. Safety Precautions

Please first read the safety precautions carefully before you use the Electronic Pulse Stimulator. These precautions are to ensure the operation of the product is correct and safe, to prevent you from personal injuries or property damage, and please make sure to follow them.

2.1 Contraindications

- DO NOT use this device on patients who have a cardiac pacemaker, implanted defibrillator, or other implanted metallic or electronic device, because this may cause electric shock, burns, electrical interference, or death.
- DO NOT use this device on patients whose pain syndromes are undiagnosed.

2.2 Warnings

- Persons with the following conditions must consult the doctor before using this device:

1) Acute disease
2) Malignant tumor
3) Infectious disease
4) Pregnancy
5) Cardiac dysfunction
6) High fever
7) Abnormal blood pressure
8) Skin sensory disorders or skin problems
9) No ability to express their own consciousness
10) Receiving medical treatment, especially those feeling discomfort; It may cause an accident or ill health.

- DO NOT use this device near the heart, above the neck, on the head, around the mouth or on diseased skin. It may cause an accident or ill health.

1) Severe spasm of the laryngeal and pharyngeal muscles may occur and the contraction may occur and the contractions may be strong enough to close the airway or cause difficulty in breathing.

- DO NOT use this device on your chest (thorax) or the upper back because the introduction of electrical current into the chest rhythm disturbances to your heart or increase the risk of cardiac fibrillation, which could be lethal.
- DO NOT use this device simultaneously with other therapeutic device or in combination with ointments including spray type ointments. It may cause discomfort or ill health.

1) Simultaneous connection of a PATIENT to a h.f. surgical EQUIPMENT may result in burns at the site of the STIMULATOR electrodes and possible damage to the STIMULATOR.
2) Operation in close proximity (e.g. 1m) to a shortwave or microwave therapy EQUIPMENT may produce instability the STIMULATOR output.

- DO NOT use this device for purpose other than the treatment indicated in this MANUAL. It may lead to accident, problems, or failure of the device.
- DO NOT use this device in places where are high heat, inflammables and electromagnetic radiation.
- DO NOT disassemble or remodel this device. It may cause fire, trouble, or accident.
- The long-term effects of chronic electrical stimulation are unknown.
- The device should not be applied:

1) Over the carotid sinus nerves, particularly in patients with a known sensitivity to the carotid sinus reflex
2) Transthoracically and transcerebrally
3) Over swollen, infected, or inflamed areas or skin eruptions
4) Over, or in proximity to, cancerous lesions

- The device should not be applied transthoracically in that the introduction of electrical current into the heart may cause cardiac arrhythmias.
- The device should not be applied over swollen, infected, or inflamed areas or skin eruptions, e.g., phlebitis, thrombophlebitis, varicose veins, etc.
- The device contains the lithium battery. If internal battery short or overheating of the device occurred the charging or use, stop the charging or operation immediately and report to the after-sales service.
- Safety of powered muscle stimulators for use during pregnancy has not been established.
- Caution should be used for patients with suspected or diagnosed heart problems.
- Caution should be used for patients with suspected or diagnosed epilepsy.
- Caution should be used in the presence of the following:

a. Over the menstruating or pregnant uterus; and
b. Over areas of the skin which lack normal sensation.

2.3 Precautions

- Some patients may experience skin irritation or hypersensitivity due to the electrical stimulation or electrical conductive medium. The irritation can usually be reduced by using an alternate conductive medium, or alternate electrode placement.
- Powered muscle stimulators should be kept out of the reach of children.
- Portable powered muscle stimulators should not be used while driving, operating machinery, or during any activity in which involuntary muscle contractions may put the user at undue risk of injury.
- Do not use when there is tendency to Hemorrhage following acute trauma or fracture.
- Do not use following any recent surgical procedure when muscle contraction may disrupt the healing process.
- If the device is not functioning properly or you feel discomfort, please immediately stop using this device.
- If you want to move the Electrode Pad to another region or your body during treatment, be sure to turn off the power.
- Do not try to attach the Pads to any other person during the treatment.
- Do not start treatment while wearing an electronic device.
- Do not use this device on infants or people not capable of expressing their intentions.
- Do not use this device in places with high humidity such as bathrooms or while taking a bath or shower.
- Do not use this unit while sleeping.
- Do not use this unit while driving.

- Do not leave the Electrode Pad attached to the skin after treatment. Prolonged attachment may cause skin irritation or infection.
- Be careful not to allow any metal object, such as a belt buckle or necklace to come into contact with the Electrode Pad during treatment.
- Do not use cellular phones or other electronic devices near this device.
- Do not use this device to treat one region for a long time (more than 30 minutes).

2.4 Special Population

The Electronic Pulse Stimulator is suitable for use only in adults.

2.5 Adverse Reactions

Some users may experience skin irritation or burns beneath the electrode pads. Please stop using the device and consult a doctor.

2.6 Environmental Condition for Normal Operation, Transportation and Storage

Operating: Temperature Range: 5~40℃
Humidity: 15%~90%RH
Storage: Temperature Range: -25~70℃
Humidity: 0~90%RH
Atmospheric Pressure: 700~1060hPa

2.7 Conformity Standards

- IEC 60601-1-2 Medical Electrical Equipment –Part 1: General Requirements for Basic Safety and Essential Performance
- IEC 60601-1 Medical Electrical Equipment –Part 1-2: General Requirements for Basic Safety and Essential Performance –Collateral Standard: Electromagnetic Disturbances –Requirements And Tests
- IEC 60601-1-11 Medical Electrical Equipment –Part 1: General Requirements for Basic Safety and Essential Performance –Collateral Standard: Requirements for Medical Electrical Equipment and Medical Electrical Systems Used in the Home Healthcare Environment
- IEC 60601-2-10 Medical Electrical Equipment -- Part 2-10: Particular Requirements For The Basic Safety And Essential Performance Of Nerve And Muscle Stimulators
- ISO 10993-5 Biological Evaluation of Medical Devices –Part 5: Test for In Vitro Cytotoxicity
- ISO 10993-10 Biological Evaluation of Medical Devices –Part 10: Test for Irritation and Skin Sensitization

2.8 Symbol Interpretation

Information essential for proper use shall be indicated by using the corresponding symbols. The following symbols may be seen on the device and its labellings.

Symbol	Meaning
LOT	Lot number, composed of manufacturing date and batch LOT XXXXXXXXX *Batch (start from 001)* *Month (double-digit, for example 08, it mean August)* *Year (four-digit, for example 2018, it mean 2018 year)*
	Manufacturer
	Date of manufacture
	Caution

Symbol	Meaning
	Type BF applied part
	Class II equipment
IP22	Waterproof level
	Follow instructions for use
	"WEEE (Waste Electrical and Electronic Equipment)". The waste products should be handled legally.

2.9 EMC Statement

1) This product needs special precautions regarding electromagnetic compatibility (EMC) and needs to be installed and put into service according to the EMC information provided; although the product uses RF energy only for its internal function, its RF emissions are very low and are not likely to cause any interference nearby electronic equipment, it still needs to pay attentions to the following:

- The portable RF communications equipment including antennas can effect medical electrical equipment, and it is used to no closer than 30cm (12 inches) to any part of the ME equipment;
- Do not use the stimulation in the present of or close to several common RF emitters (RF emitters that are known sources of electromagnetic disturbance such as diathermy, electrocautery, and RFIDs, walk-through metal detectors, and security systems (e.g., electromagnetic anti-theft systems, and metal detectors), these RF emitters have not been evaluated for electromagnetic compatibility with the subject device and it may be a source of electromagnetic disturbance and affect the safety of the device.
- Do not apply stimulation in the presence of electronic monitoring equipment (e.g. cardiac monitor, ECG alarms), which may not operate properly when the electrical stimulation device in use.

2) Do not use a mobile phone or other devices that emit electromagnetic fields, near the unit. This may result in incorrect operation of the unit.
3) Caution: This unit has been thoroughly tested and inspected to assure proper performance and operation!
4) Caution: This machine should not be used adjacent to or stacked with other equipment and that if adjacent or stacked use is necessary, this machine should be observed to verify normal operation in the configuration in which it will be used.
5) The product meets the requirements of IEC60601-1-2:2014, no deviations from the collateral standard and allowances used.

Manual and manufacturer's statement details are in the end of the article (Annex I)

3. Description of the Device

3.1 Package Content

- Controller *1
- Remote control *1 (Optional)
- USB charging cable *1
- Electrode pad *1
- Protection board *1
- User Manual *1

Note 1: According to different simulation-needed bodies, users can choose the type of electrode pad based on their own situation. S3 Electronic Pulse Stimulator is suitable for the simulation-needed bodies including hips, arms and legs, abdomen, and feet. Each package is only equipped with one electrode pad by default, and the users can select and purchase the type of electrode pad according to their needs.

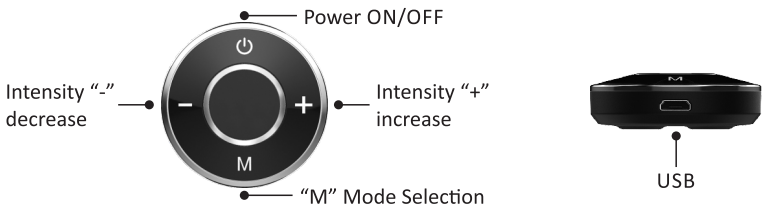
Note 2: Remote control is an optional component, and users can choose to purchase according to their needs.

3.2 Product Structure

Electronic Pulse Stimulator is mainly composed of controller, remote control (optional) and USB charging cable and electrode pad, and it powered by the built-in rechargeable battery.

3.3 Functions of the Electronic Pulse Stimulator

■ Controller (Main unit)



Power ON/OFF button

ON/OFF button is a toggle button and used to turn on/off the device.

With device off, short press the button to start up and the LED light turns to be blue entering Mode 1.

With device on, short press the button again to shutdown and LED light turns off.

(M) Mode Selection button

"M" button is a mode selection button to select 2 modes.

Short press the **(M)** button to select the mode between Mode 1 and Mode 2, the default mode is Mode 1 and LED light to be blue. When switch to Mode 2, the LED light turns to green from blue.

Treatment program of the S3 Series

Program Name	Treatment Time (min.)	Frequency (Hz)	Pulse Width (μs)
Mode 1	25 minutes	4-35	200μs
Mode 2	25 minutes	4-41	200μs

Intensity Adjustment button

Intensity Adjustment button is composed of intensity **(+)**/increase and **(-)**/decrease two buttons.

"+" button is an intensity level plus button. Short press the **(+)** button, the intensity level will be higher by one count, up to a maximum of 15, corresponding with a flashing.

"-" is an intensity level minus button. Press the **(-)** button, the intensity level will be lower by one count, down to the minimum of 1, corresponding with a flashing

LED indication status

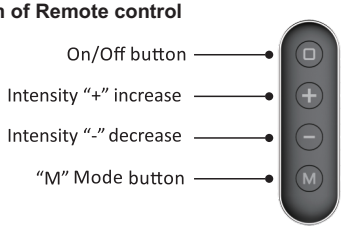
Function	Operation	LED Indication Status
Power ON/OFF	Press	ON (Blue)/OFF
Increase +	Press	Blink blue one time
Decrease -	Press	Blink blue one time
Mode selection	Press	Color change (Blue/Green)
Charging	/	Continuous blink white
Charging completion	/	Solid blue
Non-load	/	Blink blue for 30 seconds

■ Accessories

The following accessories are consumed parts, which are available from the after-sales:

Accessory	Quantity
Remote control	1 (Optional)
USB charging cable	1
Electrode pad	1
Protection board	1

The diagram of Remote control



User can direct use remote control to control the Electronic Pulse Stimulator, the button function operation is the same as the button on the main unit

3.4 Product Technical Specification

Product Name	Electronic Pulse Stimulator
Model	S3
Basic Unit Specifications	
Size (Controller)	Φ4.2cm×1.4cm
Weight (Controller, with battery)	14.5g
Power Supply	USB rechargeable battery, 3.7V
Number of channels	1 channel

Number of modes	2 modes
Intensity Level	15 level
Safety Category	BF type
Service Life (Use Life)	1 year
Output Specifications	
Waveform and Shape	Symmetrical rectangular
Maximum Output Voltage (±20%)	40V@ 500 Ω 64V@ 2k Ω 76V@ 10k Ω
Maximum Output Current (±20%)	80mA @ 500 Ω 32mA @ 500 Ω 7.6mA @ 10k Ω
Maximum Phase Charge	22.31μC@500Ω
Maximum Average Current	3.54mA@ 500 Ω
Maximum Current Density (mA/cm2@500Ω)	□ Hips pad: 0.079mA/ cm2 □ Arms and legs pad: 0.104mA/ cm2 □ Abdomen pad: 0.111mA/ cm2 □ Feet pad: 0.016mA/ cm2
Maximum Power Density (W/cm2@500Ω)	□ Hips pad: 0.0001 W/ cm2 □ Arms and legs pad: 0.0002W/ cm2 □ Abdomen pad: 0.0002W/ cm2 □ Feet pad: 0.00003W/ cm2
Pulse Duration (±5%)	200μs
Frequency	Mode 1: 4-35Hz Mode 2: 4-41Hz
Default Treatment Time (Auto Shut-off)	25minutes
Additional Features	
Environment for Operation	Temperature: 5~40℃ Humidity: 15%~90%RH Atmospheric pressure:700~1060hPa
Environment for Transportation & Storage	Temperature: -25~70℃ Humidity: 0~90%RH Atmospheric pressure:700~1060hPa

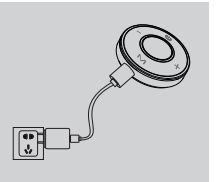
Specification of Remote Control	
Model	X5-02
Size (L×W×H)	100*30*10mm
Weight (Without battery)	17.5g
Power Supply	Button Cell Battery
Type of Wireless Technology	Radio Frequency (RF)
Operating Frequencies	433MHz
Operating Voltage	DC3V
Max. Output Power	7.5mW
Operating Distances and Ranges	<10 meters
Intended Use Environment	Home
Functions	- Turn on/off the device - Select mode and intensity of output
Specification of Electrode Pad	
Electrode Type	□ Hips pad □ Arms and legs pad □ Abdomen pad □ Feet pad
Service Life	- 30 times (applicable for Hips pad, Abdomen pad, Arm and leg pad) - 180 times (applicable for Feet pad)
Environment for Transportation & Storage	- Temperature: 5-40℃ - Humidity: 10%~85%RH
Conformity Standards	- ISO 10993-1 - ISO 10993-5 - ISO 10993-10
Supplier	Shenzhen Bestpad Technology Development Co., Ltd

3.5 How the Device works

The Electronic Pulse Stimulator has two modes, covering PMS and TENS. Mode 1 uses powered muscle stimulation (PMS) technology and mode 2 uses Transcutaneous Electrical Nerve Stimulation (TENS) to generate electrical current and transmit that through the skin to the targeted muscle area by electrode pads, to improve and facilitate muscle performance or temporary relieve pain.

4 How the Device Uses

The following steps are used to guide the device operation, and the details about each step are listed in the following table

1st Step- Check the battery power for the Electronic Pulse Stimulator.	
Electronic Pulse Stimulator comes with a built-in rechargeable battery and could be used as received. If the battery icon is flashing when turned on, it means the battery is running out of power. Turn off and charge the controller with the enclosed USB charging cable. The LED light white during charging, and becomes solid blue when the controller is charged fully.	 Battery charging
2nd Step- Select and install the electrode pad onto the Electronic Pulse Stimulator	

Follow the schematic to install the pad included onto the back side of the Electronic Pulse Stimulator. This should be done prior to applying the device onto the skin of treatment areas.

Electrode pad installation

HIPs pad-installed

Arms and legs pad-installed

Abdomen pad-installed

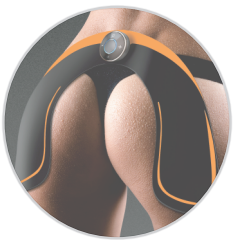
Feet pad-installed

3rd Step- Put the electrode pad-installed Stimulator on the stimulation-needed body area. According to different simulation-needed bodies, users can choose the type of electrode pad based on their own situation. S3 Electronic Pulse Stimulator is suitable for the simulation-needed bodies including hips, Shoulder, Low back, arms and legs, abdomen, and feet.

Place the pad-installed device onto the treatment areas.
Press down firmly and ensure a full and firm contact with the skin.
Note: Keep the skin clean before placing the pad.

Place the device on the body area

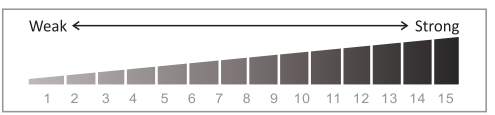
Hips diagram



Shoulder, Low back, Arms and legs diagram

Abdomen and Low back diagram

Feet diagram

4th Step- Press the Power "ON/OFF" to turn on the power Press the "ON/OFF" button once to turn on the controller/ (remote control) and the controller automatically starts at level 1 intensity. LED light turns to be blue showing Mode 1.	 ON/OFF
5th Step- Select the treatment intensity Press the (+) button to increase the stimulation intensity and press the (-) button to decrease the intensity. Intensity levels range from1 to 15	 Intensity change
 **Note:** With the increase of intensity, you may experience sensations like tingling, vibration, etc. Therefore, gradually increase the intensity, and stop increasing when a comfortable level is reached.	
6th Step- Mode switch Press (M) button to switch Mode 1 to Mode 2. LED light turns to be green from blue.	 Mode change
7th Step- Stay with the treatment Enjoy the treatment provided by the Electronic Pulse Stimulator, after the above mode and intensity were set up	/
8th Step- End the treatment Press the ON/OFF to turn off the power after done. Or Electronic Pulse Stimulator will automatically shut off up to 25 minutes when LED light continuously flashes 3 times. **Note:** When not in use, store the device and its accessories in a cool place, out of direct sunlight.	 ON/OFF

How to operate the remote control?

1) Open the battery cover behind the remote control.
2) Put the one Button Cell Battery (not included) into the battery cassette in correct polarities.
3) Close the battery cover.
4) The functions of buttons on the remote control are the same as those on the main unit (See for 3.3 details)

Pad aftercare

Please refer to the following use instruction for the electrode pads. Each pad is recommended about 30 (applicable for hips pad, abdomen pad, arm and leg pad) or 180 times (applicable for feet pad). When the service life of the pad is exhausted, please replace a new and purchase it from the manufacturer or the appointed supplier.

- Use Direction

1) Clean skin thoroughly prior to each application of electrode pads, which will not stick well if any lotion, make-up, or dirt is left on the body skin.
2) Ensure the device is off before applying the pad to it.
3) Apply the electrode pad-installed device firmly to the body skin.

- Removal and Storage

1) Turn the device off before removing the electrode pad from the body skin.
2) Grab the edge of the pad and remove from the body area.
3) When the surface of the pads is dirty, use water to clean it and dry it before using again.
4) When not in use, store the electrode pad in the re-sealable bag, out of direct sunlight.

Auto Functions

1) Automatic Shutdown

   For your safety, the automatic stimulation period is 25 minutes. After 25 minutes of stimulation, the controller will automatically switch itself off regardless of the level or mode selected.

   If you want to stop your stimulation before the end of the programmed time, press the ON/OFF on the controller or remote control, the controller to be turned off.

2) Automatic Setting

   For your convenience, the controller will enter the mode to be Mode 1 and the intensity level to be 1 when power-on.

   For your convenience, the controller will automatically turn the intensity level to be 1 if you change the mode.

Other Functions

1) Low Voltage Indication

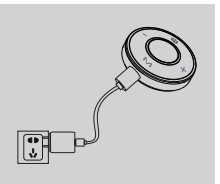
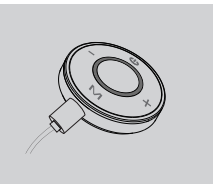
   When the device is in low power, its LED light will flash to remind you.

2) No-load Indication

   If there is no load, its LED light will flash and then to be turned off.

Battery charged

1) Plug in the controller through micro USB charging cable (included);
2) Connect the USB charging cable with AC/DC adapter (not included);
3) The LED light on the main unit will turn white while it's being charged.
4) LED light becomes solid blue when the controller is charged fully

5. Cleaning and Maintenance

Cleaning

1) When the controller is dirty, use dry soft cloth to wipe it.
2) Keep the surface of electrode pads clean, avoid dust, oily matter, viscous matter, or else the viscidity of electrode pads will lower. When the surface of the pads is dirty, use water to clean it and dry it before using again.

Storage

Keep the whole set of the product clean and store in a dust free and dry location under the condition: Storage temperature and humidity: -25~+70℃, 0~90%RH

Maintenance

In case of any problems or malfunction, please follow the "Section 7.Trouble Shooting" in this article. If your device does not still perform, please contact the authorized after-sales service.

DO NOT disassemble the device by yourself.

6. Disposal

DO NOT throw away the device with normal household waste at the end of its life, but hand it in to an official collection point for recycling (Contact your local town or city officials for recycling information). By doing this, you help to preserve the environment.

7. Trouble Shooting

If your device is not operating properly, please check below for common problems and suggested solutions. If the recommended action does not solve the problem, please contact our after-sales service

Problem	Possible Cause	Solution
The device fails to work	Is the battery low power or no power?	Recharge the battery.
The buttons fail to work	Are the buttons damaged or contact undesirable?	Make sure the device has enough power firstly;If the buttons fail to work under enough power, please contact our after-sales service for repair.
The LED fails to work	Is there no power or LED damaged?	Recharge the battery. If the LED fails to work under enough power, please contact our after-sales service for repair.
The device fails to be charged	Is the charging cable damaged or charge interface damaged?	If the charging cable fails to work, please replace a new one. You can purchase it from our after-sales service. If the charge interface fails to work, please contact our after-sales service for repair.

8. Warranty

The stimulator carries a limited warranty of a year from the date of delivery. The warranty applies to the stimulator only, and the accessories are not covered by this warranty.

During the warranty period, defective items will be repaired or replaced at no charge. Any evidence of misuse, abuse, alternations, or externally caused damage may have this warranty invalid.

For more information, please contact the manufacturer.

9. Contacts

Manufacturer: Shenzhen Leading Perfection Technology Co., Ltd

Address: 4th Floor, J Building, San Yi Dui Industrial Park, Zhoushi Road, Jiuwei, Hangcheng Street, Bao'an District, Shenzhen, China

Postal Code: 518101

After-sales service: Shenzhen Leading Perfection Technology Co., Ltd

Mailing Address: 4th Floor, J Building, San Yi Dui Industrial Park, Zhoushi Road, Jiuwei, Hangcheng Street, Bao'an District, Shenzhen, China

Hotline: 0755-29991449

Annex I Manufacturer's EMC Statement

1. All necessary instructions for maintaining BASIC SAFETY and ESSENTIAL PERFORMANCE with regard to electromagnetic disturbances for the excepted service life.
2. No ESSENTIAL PERFORMANCE as defined by manufacturer.
3. Guidance and manufacturer's declaration -electromagnetic emissions and Immunity.

FCC Caution：
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.

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

Note: 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 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.

The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.