

# **BPBIO210/220**

## **User's Manual**

### **BPBIO210/220 User's Manual for Measurement Guide and Setup**

Thank you for purchasing the BPBIO210/220. This user's manual describes all the features of the BPBIO210/220. Please read before use and keep it in a safe place. By following the manual instructions, you will be able to use the BPBIO210/220 more safely and effectively.

**Please note the important information below before reading this manual.**



**Warning**

Failure to comply with safety warnings and regulations can cause serious injury or death.



**Caution**

Failure to comply with safety cautions and regulations can cause injury or property damage.



**Note**

Referring to notes can help improve equipment use.



**Not MR safe**

Warnings and cautions described in the user's manual should be observed all times.

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Visit our website ([inbody.com](http://inbody.com)) to view and download additional information about the BPBIO220/210. InBody Co., Ltd. reserves the right to modify the appearance, specifications, etc. of this product to improve its quality, without prior notice.

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**Intended Use (Indications for Use):**

The BPBIO210/220 is a digital device intended for use in measuring blood pressure and pulse rate in user population with upper arm circumference ranging from 17cm to 42cm (7-inch to 17-inch). This device should be used by medical professionals. The systolic blood pressure and diastolic blood pressure shall be measured by the auscultatory method. Pulse rate will be shown on the LCD screen after the examination is finished. This device may provide useful clinical information about the current health status of not only the users who are diagnosed with hypertension but also those who are not diagnosed with hypertension. Warnings and cautions described in the user's manual should be observed at all times.

\* This device is designed for use in medical facilities only, such as hospitals, clinics, and physicians' offices. This device is not intended for use at home by non-medical professionals.



# BPBIO210/220

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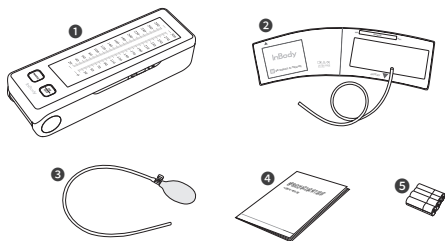
# 1. BPBIO210

## I. Introduction for the BPBIO210

This blood pressure monitor can be used by a medical professional to check blood pressure with auscultatory method by using the pressure indicator bar on the LCD screen. The back-light function allows blood pressure monitoring even under dark conditions.

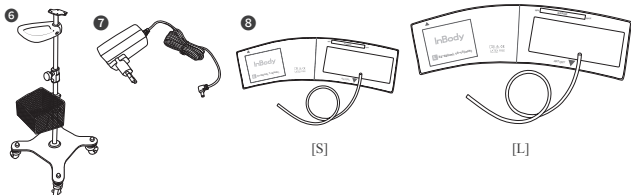
### A. Standard Components

- ❶ Main unit (1 EA)
- ❷ M-size cuff (1 EA) - for the use of 22 to 32 cm (9 to 13 in) in arm circumference
- ❸ Air bulb (1 EA)
- ❹ User's manual (1 EA)
- ❺ "AA" alkaline batteries 1.5V (4 EA)

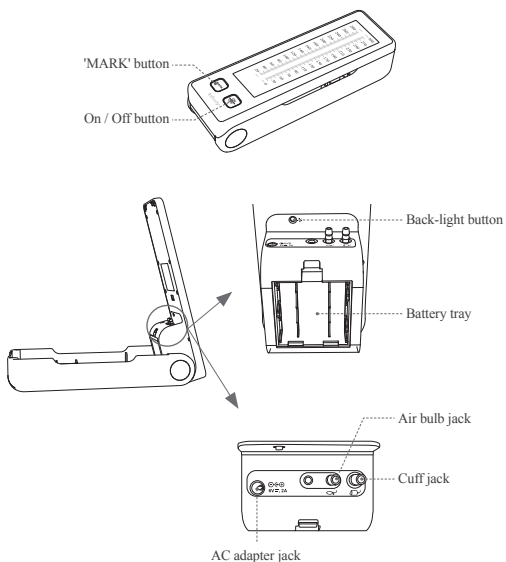


### \* Optional Components (Sold Separately)

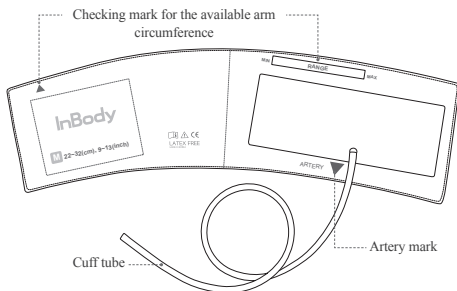
- ❻ Cart
- ❼ AC Adapter
  - Input Power: AC 100-240V, 50/60Hz, 0.32-0.19A
  - Output Power: DC 6.2V, 2.0A
- ❽ S, L size cuffs (S-size: Suitable for arm circumference between 17 to 22cm (7 to 9 in), L-size: for the use of 32 to 42cm (13 to 17 in) in arm circumference.



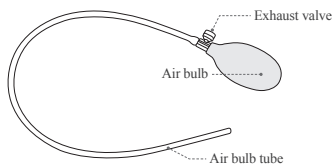
## \* Main Unit Parts



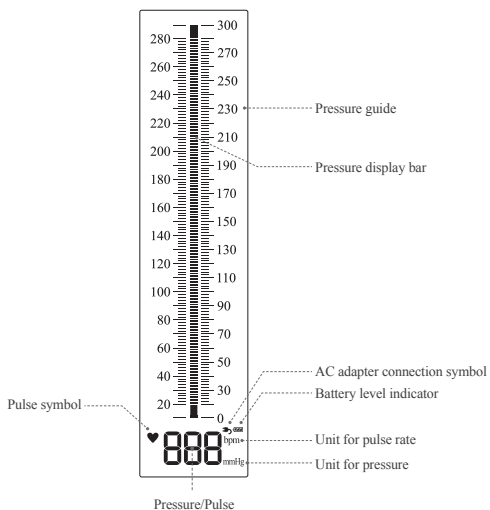
## \* Cuff Parts



## \* Air Bulb Parts



## \* Display Screen Parts



## B. Installation Environment

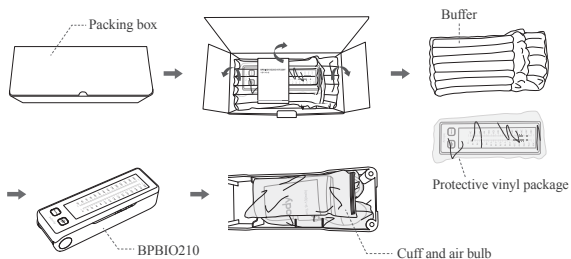
Please make sure the environment is appropriate for the BPBIO210 installation. This equipment is designed for indoor use. If installing the equipment outdoors, the following requirements must be met.

Temperature range	10 to 40°C (50 to 104°F)
Relative humidity	30 to 85% RH
Atmospheric pressure range	70 to 106kPa

## C. Installation Instructions

### (1) Unboxing the BPBIO210



After opening the BPBIO210 packaging box, take out the BPBIO210 from the buffer and the protective vinyl package. Open the BPBIO210 and take out the cuff and the air bulb from the protective vinyl package.

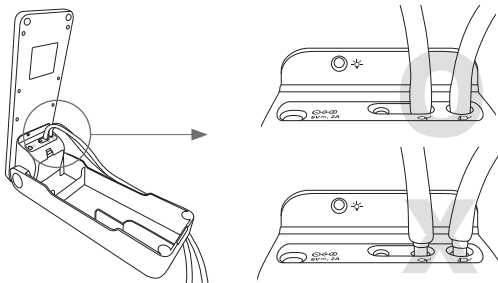


### ⚠ Caution

- Do not inflict excessive force when opening the BPBIO210.
- The main unit cannot be bent over a certain angle. Opening the BPBIO210 with excessive force may damage the device.

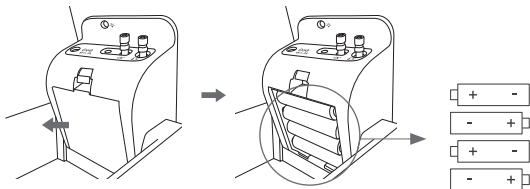
## (2) Connecting cuff and air bulb

1. Plug the cuff tube into the cuff jack of the main unit. (  ).
2. Plug the air bulb tube into the air bulb jack of the main unit. (  ).
3. Push the tubes all the way in to the end.



## (3) Inserting / replacing batteries

1. Remove the battery cover.
2. Insert four (4) "AA" batteries in the right direction as indicated below.
3. Close the battery cover.



### **Warning**

- Use the "AA" size alkaline or manganese batteries.
- Do not mix new and used batteries. Replace four batteries with all of the same brand and the same model new batteries.
- Do not insert batteries with wet hands.
- Make sure that the polarities (+) and (-) are correct.

- Remove the batteries from the battery compartment when it will not be in use for long period.
- Dispose used batteries only in designated locations.
- Improper use of batteries may cause degradation of the performance of BPBIO210 and may cause fire.

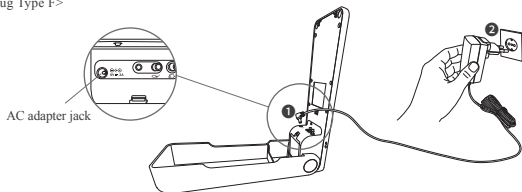
#### (4) Use of the AC adapter (Optional)

\* Input Power: AC 100–240V, 50/60Hz, 0.32–0.19A

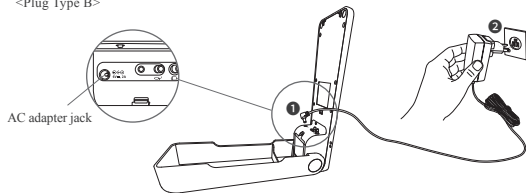
Output Power: DC 6.2V 2.0A

- 1 Insert the AC adapter plug into the AC adapter jack on the side of the main unit as shown in the image below.
- 2 Plug in the AC adapter to an electrical outlet.

<Plug Type F>



<Plug Type B>



### **Warning**

- Do not connect or disconnect the AC adapter with wet hands.
- Do not put heavy objects on the AC adapter cable.
- Do not use the AC adapter if it is damaged.

### **Caution**

- Plug the AC adapter into the electrical outlet securely.
- When unplugging the AC adapter, grasp the body of the adapter and pull out.
- To disconnect the AC adapter, unplug the AC adapter from the electrical outlet first and then remove the AC adapter from the main unit.
- Do not apply excessive force to the AC adapter body and the plug.
- Keep the adapter away from foreign objects.
- Use only the AC adapter provided by InBody.
- Do not use the AC adapter for any other purposes other than for the operation of BPBIO210.

### **Note**

- The AC adapter is sold separately.

## D. Features and Functions

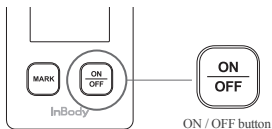
### (1) Automatic power off

- The BPBIO210 will automatically shut down after 5 minutes has elapsed without pressing any buttons.
- The BPBIO210 will not shut down if it is connected to the AC adapter.

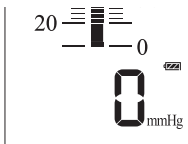
Main unit will switch off automatically if idle for more than 5 minutes to prevent battery drain. Main unit will not switch off automatically if connected to the AC adapter.


The automatic power off function can be turned off by following the settings below.

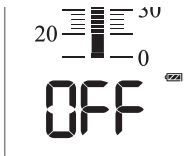
- ❶ Press the  button to turn on the power.



- ❷ When the image below is displayed on the LCD, the power is on.



- ❸ Press and hold the  button for about 5 seconds. If 'OFF' is displayed on the screen as shown below, the automatic power off function is disabled.



- ❹ You can turn the automatic power off function back on by repeating the steps above.

(2) Protection from excessive pressurization

- If the pressure applied to the cuff exceeds 320mmHg, the BPBIO210 will automatically exhaust the pressure from the cuff to protect the patient.

(3) Residual air detection

- If there is any remaining air left in the cuff, the error code 'E1' will appear on the screen when the product power is switched on.
- For accurate measurement result, exhaust the air in the cuff entirely before switching the power on.


(4) Pulse measurement

- Pulse is detected when the pressure applied to the cuff is greater than 50mmHg. The pulse rate is measured only when the pulse is detected at least 5 times.
- If deflation is performed too quickly, pulse may not be detected. Deflate at the rate of 2 to 4mmHg/sec. to detect the pulse.
- The measured heart rate will be displayed when the pressure is less than 20mmHg.
- If pulse is not detected or is not constant, “- -” will be displayed.

(5) Back-light

- The back-light is automatically turned on or off depending on the brightness of the surrounding environment.
- The back-light function can also be manually operated by pressing the back-light button.
- If the back-light is operated manually with the back-light button, the back-light will not turn on or off automatically. When the product is turned off and on, the back-light automatically turns on or off again depending on the brightness of the surrounding environment.

(6) Mark

- Mark function allows to display the measured value on the screen momentarily once the  button is pressed.
- Up to five marks can be displayed.

## II. Blood Pressure Measurement

### A. Precautions before Measurement

#### **Caution**

- The BPBIO210 must be operated by those who are well trained of the auscultatory method of measuring the blood pressure.
- Do not operate the BPBIO210 immediately if it has been left for a long period of time in an environment where the temperature is lower than 10°C (50°F) or higher than 40°C (104°F).
- Do not use the BPBIO210 in a highly humid environment.
- Do not use the BPBIO210 near any equipment which generates strong magnetic fields, electrostatic, or high frequency.
- Patients with artificial heart or lungs may obtain inaccurate results.

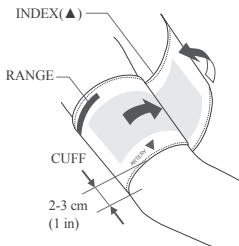
#### **Warning**

- Do not wrap the cuff on an injured arm. Injury may worsen or can be infected.
- Do not wrap the cuff in an arm with the intravenous injection or IV plugged in.
- Please consult a doctor before using the blood pressure monitor if you have any cardiovascular diseases.
- Do not wrap the cuff around your neck.
- Do not wrap the cuff tube around your neck.
- Do not wrap the air bulb tube around your neck.

## B. Measurement Instructions

### (1) How to wear the cuff

- 1 Wrap the cuff around the arm, about 2-3 cm (1 in) above the elbow.
- 2 Make sure that the index (▲) on the cuff is located within the RANGE bar. Replace the cuff with the right size if the index deviates from the RANGE.
- 3 Place the cuff so that the artery mark (▼) is located on the artery.
- 4 Do not wrap the cuff too tightly. Leave a margin of a finger to get the best result.



### Caution

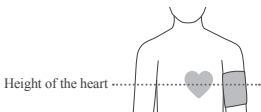
- For correct measurement, please wear the cuff properly.
- If the cuff is too loosely wrapped, the measured blood pressure values may not be correct.

### Note

- The cuff provided will be M-sized cuff which is suitable for individuals with an arm circumference of 22 to 32cm (9 to 13 in). If the arm circumference exceeds 32cm (13 in), use the L-size cuff. If the arm circumference is smaller than 22cm (9 in), use the S-size cuff.
- L-size or S-size cuff is sold separately.

### (2) Proper measurement posture

- 1 Place the arm so that the middle of the cuff is at the patient's heart position.
- 2 Be relaxed during the measurement.

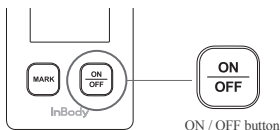


### Caution

- The measurement posture may affect the blood pressure values.
- Please keep the proper measurement posture for accurate measurement.


### (3) Turning the power on

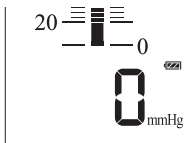
- 1 Press the  button to turn on the power.






- 2 The symbols on the screen and the back-light will be turned on and off with a beeping sound.
- 3 When there are no changes detected in the pressure within the cuff, number "0" will be displayed on the screen, which means it's ready for measurement. If the pressure of the cuff is not stabilized within 20 seconds, the error code 'E1' will be displayed in the pressure/pulse display column on the screen.

### (4) Battery level indicator

- 1 The remaining battery level can be checked in the bottom right corner of the screen while using the blood pressure monitor.
- 2 When using the AC adapter, the battery level is not displayed, instead the AC adapter connection symbol (  ) appears.

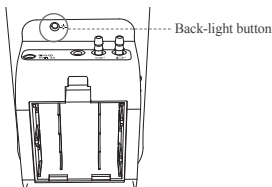


-  : The capacity of the batteries is sufficient.
-  : Battery level is low.
-  : Battery is exhausted.  
Please replace with new batteries.

\* Refer to "Inserting / Replacing Batteries" on page 12.

#### (5) Adjusting the back-light

- 1 The back-light is automatically turned on or off depending on the brightness of the surrounding environment.
- 2 The back-light function can also be manually operated by pressing the back-light button.




#### (6) Pressurization

- 1 Rotate the exhaust valve clockwise to close the valve completely.
- 2 Squeeze the air bulb repeatedly to pressurize.
- 3 The current pressure value is immediately displayed in the pressure bar on the screen in units of 1 step / 2 mmHg, and is displayed as a number in the Pressure/pulse display column on the screen.
- 4 Stop pressurization when it reaches the targeted inflation pressure.

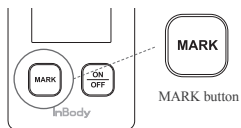
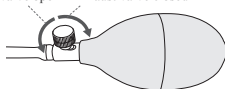
\* The maximum pressurization can be up to 320mmHg, and if pressurized at a higher rate, it will depressurize automatically and '---' will be displayed in the Pressure / Pulse Rate Display on the screen.

#### (7) Depressurization

- 1 Rotate the exhaust valve counterclockwise to open the valve. Continue the blood pressure measurement at a proper exhaust rate.
- 2 If the  button on the main unit is pressed, a bar symbol will be displayed on the pressure display bar.

\* Marking is displayed up to 5 times cumulatively, and if you mark more than 5 times, it will be erased sequentially from the first mark in the past.

Exhaust valve open    Exhaust valve closed



(8) Completing the measurement

- ❶ When the blood pressure measurement is completed, open the exhaust valve and completely exhaust the air in the cuff.
- ❷ When the pressure drops below 20mmHg, the pulse rate will be displayed in the pressure/pulse display on the screen.

The pulse rate is measured when the pressure is reduced at a rate of 2 to 4 mmHg/sec.

If the pulse is not detected or unstable, '- -' is displayed on the screen.

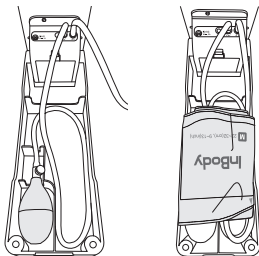
\* Please review 'B. Regarding the equipment - Pulse is not being measured' on page 39.

(9) Turning the power off

- ❶ Press the  button to switch off the power.

## C. Storage

- (1) Wipe any stains on the main unit with a smooth cloth.
- (2) Place the cuff and air bulb as shown below.



The BPBIO210 should be transported or stored under the following conditions.

Temperature range	-20 to 60°C (-4 to 140°F)
Relative humidity	10 to 85% RH (No Condensation)
Atmospheric pressure range	50 to 106 kPa



### Caution

- Use UV sterilizer to disinfect the cuff.



### Note

- If the cuff is contaminated and can no longer be used, please replace with a new cuff.
- Contact your local InBody representative to purchase the cuff.

## 2. BPBIO220

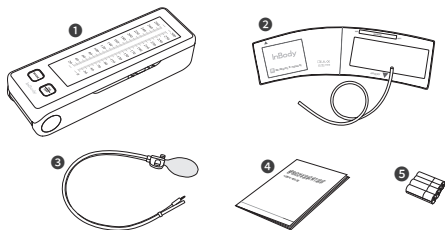
### I. Introduction for the BPBIO220

This blood pressure monitor can be used by a medical professional to check blood pressure with auscultatory method by using the pressure indicator bar on the LCD screen. The back-light function allows blood pressure monitoring even under dark conditions.

The user may control the speed of the exhaust by using the controller and mark the systolic and the diastolic blood pressure values on the pressure-bar display.

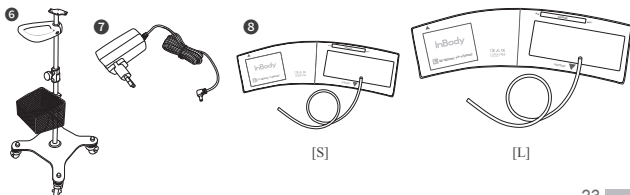
#### A. Standard Components

- ① Main unit (1 EA)
- ② M-size cuff (1 EA) - for the use of 22 to 32 cm (9 to 13 in) in arm circumference
- ③ Controller (1 EA)
- ④ User's manual (1 EA)
- ⑤ "AA" alkaline batteries 1.5V (4 EA)

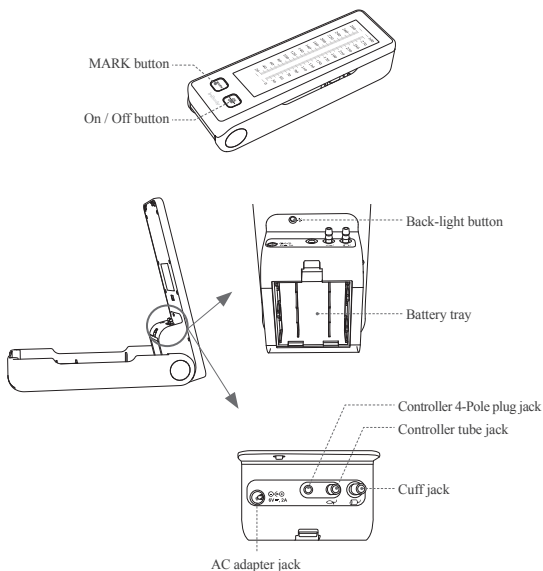


#### \* Optional Components (Sold Separately)

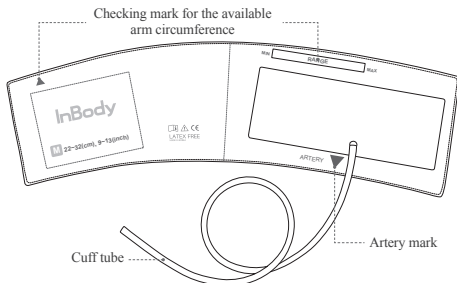
- ⑥ Cart
- ⑦ AC Adapter
  - Input Power: AC 100-240V, 50/60Hz, 0.32-0.19A
  - Output Power: DC 6.2V, 2.0A
- ⑧ S, L size cuffs (S-size: Suitable for arm circumference between 17 to 22 cm (7 to 9 in), L-size: for the use of 32 to 42 cm (13 to 17 in) in arm circumference.



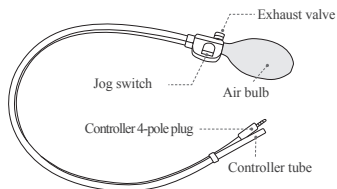
## \* Main Unit Parts



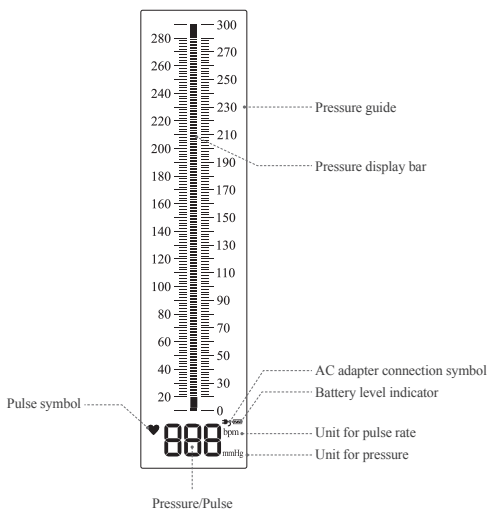
## \* Cuff Parts



## \* Controller Parts



## \* Display Screen Parts



## B. Installation Environment

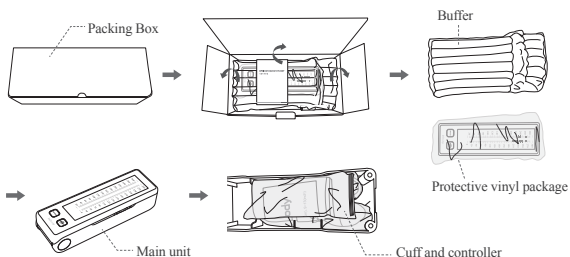
Please make sure the environment is appropriate for the BPBIO220 installation. This equipment is designed for indoor use. If installing the equipment outdoors, the following requirements must be met.

Temperature range	10 to 40°C (50 to 104°F)
Relative humidity	30 to 85% RH
Atmospheric pressure range	70 to 106kPa

## C. Installation Instructions

### (1) Unboxing the BPBIO220



After opening the BPBIO220 packaging box, take out the main unit from the buffer and the protective vinyl package. Open the BPBIO220 and take out the cuff and the air bulb from the protective vinyl package.

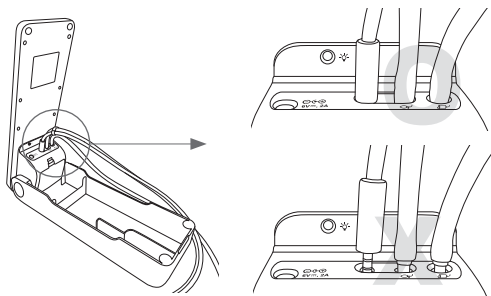


### ⚠ Caution

- Do not inflict excessive force when opening the BPBIO220.
- The main unit cannot be bent over a certain angle. Opening the BPBIO220 with excessive force may damage the device.

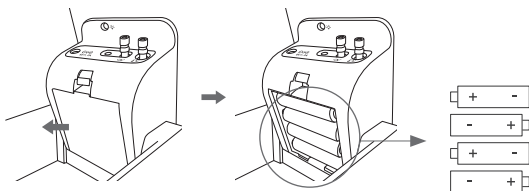
## (2) Connecting cuff and air bulb

1. Plug the cuff tube into the cuff tube jack of the main unit (  ).
2. Plug the controller 4-pole plug and the controller tube into the corresponding jack (  ) of the main unit.
3. Push the controller 4-pole plug and the controller tube all the way in to the end.



## (3) Inserting / replacing batteries

1. Remove the battery cover.
2. Insert four (4) "AA" batteries in the right direction as indicated below.
3. Close the battery cover.



### **Warning**

- Use the "AA" size alkaline or manganese batteries.
- Do not mix new and used batteries. Replace four batteries with all of the same brand and the same model new batteries.
- Do not insert batteries with wet hands.
- Make sure that the polarities (+) and (-) are correct.

- Remove the batteries from the battery compartment when it will not be in use for long period.
- Dispose used batteries only in designated locations.
- Improper use of batteries may cause degradation of the performance of BPBIO220 and may cause fire.

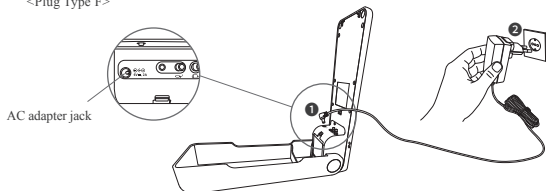
#### (4) Use of the AC adapter (Optional)

\* Input Power: AC 100-240V, 50/60Hz, 0.32-0.19A

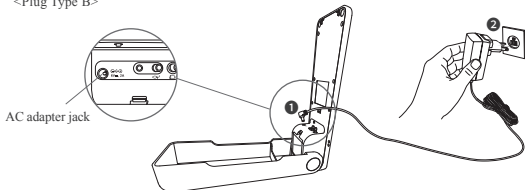
Output Power: DC 6.2V, 2.0A

- 1 Insert the AC adapter plug into the AC adapter jack on the side of the main unit as shown in the image below.
- 2 Plug in the AC adapter to an electrical outlet.

<Plug Type F>



<Plug Type B>



### **Warning**

- Do not connect or disconnect the AC adapter with wet hands.
- Do not put heavy objects on the AC adapter cable.
- Do not use the AC adapter if it is damaged.

### **Caution**

- Plug the AC adapter into the electrical outlet securely.
- When unplugging the AC adapter, grasp the body of the adapter and pull out.
- To disconnect the AC adapter, unplug the AC adapter from the electrical outlet first and then remove the AC adapter from the main unit.
- Do not apply excessive force to the AC adapter and the plug.
- Keep the AC adapter from foreign objects.
- Use only the AC adapter provided by InBody.
- Do not use the AC adapter for any other purposes other than for the operation of BPBIO220.

### **Note**

- The AC adapter is sold separately.

## D. Features and Functions

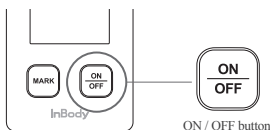
### (1) Automatic power off

- The BPBIO220 will automatically shut down after 5 minutes has elapsed without pressing any buttons.
- The BPBIO220 will not shut down if it is connected to the AC adapter.

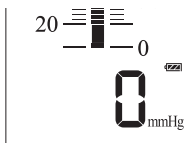
Main unit will switch off automatically if idle for more than 5 minutes to prevent battery drain. Main unit will not switch off automatically if connected to the AC adapter.


The automatic power off function can be turned off by following the settings below.

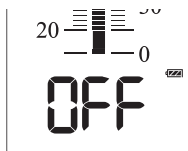
- ① Press the  button to turn on the power.




- ② When the image below is displayed on the LCD, the power is on.



- ③ Press and hold the  button for about 5 seconds. If 'OFF' is displayed on the screen as shown below, the automatic power off function is disabled.



- ④ You can turn the automatic power off function back on by repeating the steps above.

- (2) Protection from excessive pressurization
- If the pressure applied to the cuff exceeds 320mmHg, the BPBIO220 will automatically exhaust the pressure from the cuff to protect the patient.
- (3) Residual air detection
- If there is any remaining air left in the cuff, the error code 'E1' will appear on the screen when the product power is switched on.
  - For accurate measurement result, exhaust the air in the cuff entirely before switching the power on.
- (4) Pulse measurement
- Pulse is detected when the pressure applied to the cuff is greater than 50mmHg. The pulse rate is measured only when the pulse is detected at least 5 times.
  - If deflation is performed too quickly, heart rate may not be checked. Deflate at the rate of 2 to 4mmHg/sec. to detect the pulse.
  - The measured heart rate will be displayed when the pressure is less than 20mmHg.
  - If pulse is not detected or is not constant, “- -” will be displayed.
- (5) Back-light
- The back-light is automatically turned on or off depending on the brightness of the surrounding environment.
  - The back-light function can also be manually operated by pressing the back-light button.
  - If the back-light is operated manually with the back-light button, the back-light will not turn on or off automatically. When the product is turned off and on, the back-light automatically turns on or off again depending on the brightness of the surrounding environment.
- (6) One-hand mark function
- One-hand mark function allows display the measured value of the blood pressure on the screen momentarily when the jog switch is pressed during the measurement.
  - One-hand mark function allows display the measured value of the blood pressure on the screen momentarily once the  button is pressed.
  - Up to five marks can be displayed.
- (7) Exhaust speed control function
- If the jog switch is rotated clockwise while holding the air bulb, the exhaust speed will be accelerated. A downwards arrow symbol (▼) will appear each time the jog switch is rotated clockwise. If the jog switch is rotated counterclockwise, the exhaust speed will be decelerated, and the arrow symbol (▼) will disappear every time the jog switch is rotated counterclockwise.
  - To perform “rapid exhaust,” hold the jog switch clockwise while three arrow symbols (▼) are shown on the screen. To stop the “rapid exhaust,” rotate the jog switch counterclockwise.
  - Each arrow symbol indicates the speed of exhaust at 2mmHg per second. Accordingly, 2 arrow symbols represent 4mmHg/sec, 3 arrow symbols represent 8mmHg/sec.

## II. Blood Pressure Measurement

### A. Precautions before Measurement



#### Caution

- The BPBIO220 must be operated by those who are well trained of the auscultatory method of measuring the blood pressure.
- Do not operate the BPBIO220 immediately if it has been left for a long period of time in an environment where the temperature is lower than 10°C (50°F) or higher than 40°C (104°F).
- Do not use the BPBIO220 in a highly humid environment.
- Do not use the BPBIO220 near any equipment which generates strong magnetic fields, electrostatic, or high frequency.
- Patients with artificial heart or lungs may obtain inaccurate results.



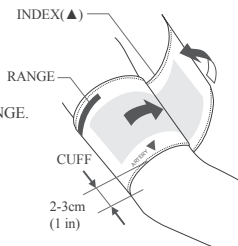
#### Warning

- Do not wrap the cuff on an injured arm. Injury may worsen or can be infected.
- Do not wrap the cuff in an arm with the intravenous injection or IV plugged in.
- Please consult a doctor before using the blood pressure monitor if you have any cardiovascular diseases.
- Do not wrap the cuff around your neck.
- Do not wrap the cuff tube around your neck.
- Do not wrap the air bulb tube around your neck.

## B. Measurement Instructions

### (1) How to wear the cuff

- 1 Wrap the cuff around the arm, about 2-3cm (1 in) above the elbow
- 2 Make sure that the index (▲) on the cuff is located within the RANGE bar. Replace the cuff with the right size if the index deviates from the RANGE.
- 3 Place the cuff so that the artery mark (▼) is located on the artery.
- 4 Do not wrap the cuff too tightly. Leave a margin of a finger to get the best result.



#### Caution

- For correct measurement, please wear the cuff properly.
- If the cuff is too loosely wrapped, the measured blood pressure values may not be correct.

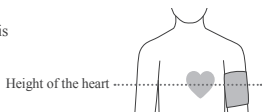


#### Note

- The cuff provided will be M-sized cuff which is suitable for individuals with arm circumference of 22 to 32cm (9 to 13 in). If the arm circumference exceeds 32cm (13 in), use the L-size cuff. If the arm circumference is smaller than 22cm (9 in), use the S-size cuff.
- L-size or S-size cuff is sold separately.

### (2) Proper measurement posture

- 1 Place the arm so that the center of the cuff is level with the patient's heart position.
- 2 Be relaxed during the measurement.

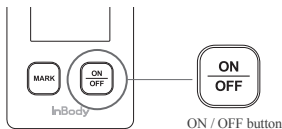


#### Caution

- The measurement posture may affect the blood pressure values.
- Please keep the proper measurement posture for accurate measurement.


### (3) Turning the power on

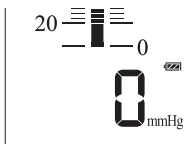
- 1 Press the  button to turn on the power.






- 2 The symbols on the screen and the back-light will be turned on and off with a beeping sound.
- 3 When there are no changes detected in the pressure within the cuff, number "0" will be displayed on the screen, which means it's ready for measurement. If the pressure of the cuff is not stabilized within 20 seconds, the error code 'E1' will be displayed in the pressure/pulse display column on the screen.

### (4) Battery level indicator

- 1 The remaining battery level can be checked in the bottom right corner of the screen while using the blood pressure monitor.
- 2 When using the AC adapter, the battery level is not displayed, and instead the AC adapter connection symbol () appears.

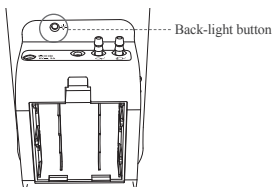


-  : The capacity of the batteries is sufficient.
-  : Battery level is low.
-  : Battery is exhausted. Please replace with new batteries.

\* Refer to "Inserting / Replacing Batteries" on page 27.

#### (5) Adjusting the back-light

- 1 The back-light is automatically turned on or off depending on the brightness of the surrounding environment.
- 2 The back-light function can also be manually operated by pressing the back-light button.



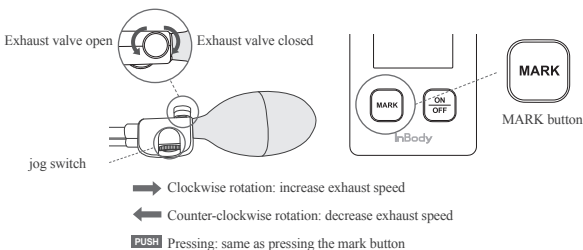
#### (6) Pressurization

- 1 Rotate the exhaust valve clockwise to close the valve completely.
  - 2 Press the air bulb repeatedly to pressurize.
  - 3 The current pressure value is immediately displayed in the pressure bar on the screen in units of 1 step / 2 mmHg, and is displayed as a number in the pressure/pulse display column on the screen.
  - 4 Stop the pressurization when it reaches the targeted inflation pressure.
- \* The maximum pressurization can be up to 320mmHg, and if pressurized at a higher rate, it will depressurize automatically and '---' will be displayed in the Pressure / Pulse Rate Display on the screen.

## (7) Depressurization

- 1 Rotate the exhaust valve counterclockwise to open the valve. Or you may adjust the exhaust speed by operating the jog switch. Maintain an adequate exhaust rate when conducting a blood pressure test.
- 2 When the systolic blood pressure and the diastolic blood pressure are examined by auscultation, and the jog switch or the **MARK** on the main body is pressed, marking will be displayed on the display bar corresponding to the instantaneous pressure value. The displayed bar does not disappear while the pressure drops.

\* Marking is displayed up to 5 times cumulatively, and if you mark more than 5 times, it will be erased sequentially from the first mark in the past.



## (8) Completing the measurement

- 1 When the blood pressure measurement is completed, open the exhaust valve and exhaust the air compressed in the cuff completely.
  - 2 When the pressure drops below 20mmHg, the pulse rate will be displayed in the Pressure / Pulse Rate Display on the screen.
- The pulse rate is measured when the pressure is reduced at a rate of 2 to 4 mmHg/sec. If the pulse is not detected or unstable, ' - - ' is displayed on the screen.

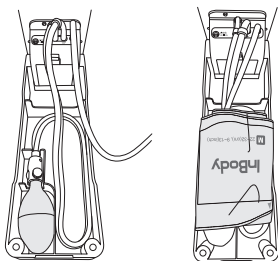
\* Please review 'B. Regarding the equipment - Pulse is not being measured' on page 39.

## (9) Turning the power off

- 1 Press the **ON/OFF** button to switch off the power.

## C. Storage

- (1) Wipe any stains on the main unit with a smooth cloth.
- (2) Place the cuff and controller as shown below.



The BPBIO220 should be transported or stored under the following conditions.

Temperature range	-20 to 60°C (-4 to 140°F)
Relative humidity	10 to 85% RH (No Condensation)
Atmospheric pressure range	50 to 106 kPa



### Caution

- Use UV sterilizer to disinfect the cuff.



### Note

- If the cuff is contaminated and can no longer be used, please replace with a new cuff.
- Contact your local InBody representative to purchase the cuff.

# 3. BPBIO210/220 Common

## I. FAQ

### A. Error code

	Cause	Solution
E1	Excess air detected in the cuff	Exhaust all the air from the cuff completely, and restart.
	Pressure sensor malfunction	If the same error message occurs continuously after exhausting the air from the cuff, the pressure sensor may be defective. Please contact Product Support.
E2	Detection of adapter abnormality	Use the AC adapter provided with the product after disconnecting the current adapter.
E3	AC adapter malfunction	Please contact Product Support.
Lo	Low battery level	Replace the batteries.

## B. Regarding the Equipment

Status	Cause	Solution
Power does not turn on.	Check the inserted batteries. Polarities may not be matching.	Check the battery polarities and reinstall the batteries to match with '+' and '-' marks. Refer to the User's Manual (page 10, page 26), (3) Inserting/replacing batteries.
	Batteries are exhausted.	Replace all batteries with new AA batteries.
The controller does not work, or it works abnormally.	The controller 4-pole plug is not connected properly.	Push the controller 4-pole plug all the way in tightly.
	The controller is damaged.	Please contact Product Support.
Pulse is not being measured.	Blood pressure is measured too rapidly.	Keep the exhaust speed at 2 to 4 mmHg/sec.
	Patient may be moving during the blood pressure measurement.	Make sure that the patient is relaxed and stable. Patient should refrain from talking during the measurement.
	Pulse may be irregular or very weak.	Impossible to measure the pulse. Please use another device to measure the pulse in these cases.







## II. Others

### A. Optional Equipment







Product Name	Explanation
AC adapter	Dedicated adapter
L-size cuff	For arm circumference of 32 to 42 cm (13 to 17 in)
M-size cuff	For arm circumference of 22 to 32 cm (9 to 13 in)
S-size cuff	For arm circumference of 17 to 22 cm (7 to 9 in)
Air bulb	Available for BPBIO210 Does NOT contain the jog switch
Controller	Available for BPBIO220 Contains the jog switch
Cart	Dedicated mobile cart

## B. Safety Information

### Safety Symbols

	Warning/Caution
	Note
	Power adapter connection terminal
	BF-type equipment
	The User's manual must be read
	CLASS II equipment (AC adapter)

### Other Symbols

	Disposal guidelines
	Manufacturer
	Serial number
	Authorized representative in the EUROPEAN COMMUNITY
	European conformity
	Unique Device Identification

\* MET symbols apply to products sold in the United States and Canada.



## Caution

### Storage

Do not store the blood pressure monitor in the following places:

- Where water or other liquids can reach
- Exposure to direct sunlight
- Strong vibration or shock
- Dust, salt, and sulfur content
- Hot and humid environment
- Any equipment which generates strong magnetic field, static, or high frequency
- Flammable objects or environment

### Maintenance

1. Clean the device with a dry cloth and do not use organic solvents.
2. The cuff cannot be washed. Be careful not to expose the cuff to any liquid.
3. Turn off the device completely by taking the batteries out or disconnecting the AC adapter if the device malfunctions.
4. For inspection / repairs, please contact the local InBody representative.
5. Do not disassemble or modify the equipment arbitrarily. Any disassembly or modification will void the warranty and may cause a fire.

### Disposal

When disposing any components of the device, follow the local regulations.

## C. Classification

- Type of Protection Against Electric Shock: Class-2 equipment or internal power source-typed equipment
- Level of Protection Against Electric Shock: BF-type
- Classification for Protection Against Electromagnetic Wave: Category 1 / Class B
- Level of Protection Against Flooding: General equipment (No special protection against external water infiltration)

## D. Specifications

Product name (Model name)	BPBIO210/220
Test Instructions	Auscultatory method
Measuring Part	Left or Right Upper Arm
Test Range	Pressure (Value): 0 to 320mmHg Pressure (Bar): 20 to 300mmHg Pulse: 30 to 240 bpm
Degree of Precision	Pressure (Value): $\pm 3$ mmHg Pressure (Bar): $\pm 4$ mmHg Pulse: Within $\pm 5\%$
Minimum Scale Unit	Pressure (Value): 1mmHg Pressure (Bar): 2mmHg
Cuff	Cuff for the Use of 22 to 32cm (9 to 13 in) in Arm Circumference (M size cuff)
Pressurization	Manual Pressurization Method by Air Bulb
De-pressurization	BPBIO210: Variable Exhaust Valve Method BPBIO220: Variable Exhaust Valve Method/Variable Jog Switch Method
Rated Power	DC 6.2V, 2A (four 1.5V AA-size batteries or AC adapter)
Rated Input (AC Adapter)	AC 100-240V , 50/60Hz, 0.32-0.19A
Operating Environment	Temperature 10 to 40°C (50 to 104°F), Humidity 30 to 85% RH, Pressure 70 to 106 kPa
Storage Environment	Temperature -20 to 60°C (-4 to 140°F), Humidity 10 to 85% RH, Pressure 50 to 106 kPa (No Condensation)
Electricity Protection	Internal Power Source-Typed Equipment BF Mounting (Mounting Unit: Cuff)
Weight	Approx 923g (Batteries excluded)
Dimension	320(L) $\times$ 98(W) $\times$ 73(H) mm 12.6(L) $\times$ 3.9(W) $\times$ 2.9(H) inch
Manufacturing Country	Republic of Korea
Manufacturing Company	InBody Co., Ltd.

\* Specifications are subject to change without notice.

\* This product is a medical device. Please read the guide and precautions before using this blood pressure monitor.

## E. EMC Declaration

Phenomenon	Basic EMC standard or test method	Operating mode	Port tested	Test Voltage	Test level/requirement
Mains terminal disturbance voltage	CISPR 11:2015 +A1:2016+A2:2019 EN 55011:2016 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Group 1, Class B
Radiated disturbance	CISPR 11:2015 +A1:2016+A2:2019 EN 55011:2016 +A1:2017	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Group 1, Class B
Harmonic Current Emission	IEC 61000-3-2:2018 +A1:2020 EN 61000-3-2:2014	Continuous operation mode	AC Mains	230 V, 50 Hz	Class A
Voltage change, Voltage fluctuations and Flicker Emission	IEC 61000-3-3:2013 +A1:2017 EN 61000-3-3:2013 +A1:2019	Continuous operation mode	AC Mains	230 V, 50 Hz	Pst: 1 Plt: 0.65 dmax: 4% dc: 3.3%
Electrostatic Discharge Immunity	IEC 61000-4-2:2008 EN 61000-4-2:2009	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	$\pm 8$ kV/Contact $\pm 2, \pm 4, \pm 8,$ $\pm 15$ kV/Air
Radiated RF Electromagnetic Field Immunity	IEC 61000-4-3:2020 EN 61000-4-3:2006 +A2:2010	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	3 V/m 80 MHz-2.7 GHz 80% AM at 1 kHz
Immunity to Proximity Fields from RF wireless Communications Equipment	IEC 61000-4-3:2020 EN 61000-4-3:2006 +A2:2010	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Table 9 in IEC 60601-1-2: 2014
Electrical Fast Transient/Burst Immunity	IEC 61000-4-4:2012 EN 61000-4-4:2012	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	$\pm 2$ kV, 100 kHz repetition frequency
			SIP/SOP	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	$\pm 1$ kV, 100 kHz repetition frequency
Surge Immunity	IEC 61000-4-5:2014 EN 61000-4-5:2014 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	Line to Line $\pm 0.5$ kV, $\pm 1$ kV Line to Ground $\pm 0.5$ kV, $\pm 1$ kV, $\pm 2$ kV
Immunity to Conducted Disturbances Induced by RF fields	IEC 61000-4-6:2013 EN 61000-4-6:2014	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	3 V 0.15-80 MHz
			SIP/SOP	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	6 V in ISM bands Between 0.15 MHz and 80 MHz 80% AM at 1 kHz

Power Frequency Magnetic Field Immunity	IEC 61000-4-8:2009 EN 61000-4-8:2010	Continuous operation mode	Enclosure	100 V, 50 Hz 100 V, 60 Hz 120 V, 60 Hz 220 V, 60 Hz 230 V, 50 Hz	30 A/m 50 Hz & 60 Hz
Voltage dips	IEC 61000-4-11: 2020 EN 61000-4-11:2004 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 240 V, 50 Hz 240 V, 60 Hz 220 V, 60 Hz	0 % UT: 0.5 cycle At 0°, 45°, 90°, 135°, 180°, 225°, 270° and 315° 0 % UT; 1 cycle and 70 % UT; 25/30 cycles Single phase: at 0°
Voltage interruptions	IEC 61000-4-11: 2020 EN 61000-4-11:2004 +A1:2017	Continuous operation mode	AC Mains	100 V, 50 Hz 100 V, 60 Hz 240 V, 50 Hz 240 V, 60 Hz 220 V, 60 Hz	0 % UT; 250/300 cycle

## Electromagnetic immunity

The BPBIO210/220 is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. Portable RF communications equipment should be used no closer than 30 cm (12 inches) to any part of the BPBIO210/220. Otherwise, degradation of the performance of this equipment could result.

Immunity test	Band a)	Service a)	Modulation b)	IEC60601 test level	Compliance level
Proximity fields from RF wireless Communications IEC61000-4-3	380 - 390 MHz	TETRA 400	Pulse modulation b) 18Hz	27 V/m	27 V/m
	430 – 470 MHz	GMRS 460 FRS 460	FM c) ±5 kHz deviation 1 kHz sine	28 V/m	28V/m
	704 – 787 MHz	LTE Band13, 17	Pulse modulation b) 217 Hz	9 V/m	9 V/m
	800 – 960 MHz	GSM800-900 TETRA 800 iDEN 820 CDMA 850 LTE Band 5	Pulse modulation b) 18 Hz	28 V/m	28 V/m
	1700 – 1990 MHz	GSM 1800 CDMA 1900 GSM 1900 DECT LTE Band 1,2,4,25 UMTS	Pulse modulation b) 217 Hz	28 V/m	28 V/m
	2400 – 2570 MHz	Bluetooth WLAN 802.11b/g/n RFID 2450 LTE Band 7	Pulse modulation b) 217 Hz	28V/m	28 V/m
	5100 – 5800 MHz	WLAN 802.11a/n	Pulse modulation b) 217 Hz	9 V/m	9 V/m

NOTE : If necessary to achieve the IMMUNITY TEST LEVEL, the distance between the transmitting antenna and the ME EQUIPMENT or ME SYSTEM may be reduced to 1m. The 1m test distance is permitted by IEC 61000-4-3.

a) For some services, only the uplink frequencies are included.

b) The carrier shall be modulated using a 50% duty cycle square wave signal.

c) As an alternative to FM modulation, 50% pulse modulation at 18 Hz may be used because while it does not represent actual modulation, it would be worst case.



