

# **Blood Pressure Monitor**



# Healthcare-Manager.com

Manufactured for Easy Healthcare Corporation Questions or comments? Please call toll-free: 1-855-822-6999 M-F 9 a.m.-5 p.m. CST E-mail: service@healthcare-manager.com

**EBP-095** 

**User Manual** 

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INTRODUCTION INTRODUCTION

# **♥** General Description

Thank you for selecting easy from arm type blood pressure Monitor (EBP-095). The monitor features blood pressure measurement, pulse rate measurement and the result storage. The design provides you with two years of reliable service.

Readings taken by the EBP-095 are equivalent to those obtained by a trained observer using the cuff and stethoscope auscultation method.

This manual contains important safety and care information, and provides step by step instructions for using the product.

Read the manual thoroughly before using the product.

#### Features:

- · 60mm\*80mm Digital LCD display
- · Maximum 60 records
- Measuring during inflation technology

#### **▼ Indications for Use**

The Blood Pressure Monitor is digital monitors intended for use in measuring blood pressure and heartbeat rate with arm circumference ranging from 22 cm to 32 cm (about 8%"-12½") or 22cm to 42cm(about 8%"-16½").

It is intended for adult indoor use only.

# ♥ Safety Information

The signs below might be in the user manual, labeling or other component. They are the requirement of standard and using.

| <b>(3)</b>  | Symbol for "THE OPERATION<br>GUIDE MUST BE READ"                          | ∱ | Symbol for "TYPE B APPLIED PARTS"   |
|-------------|---|---|---|
| ===         | Symbol for "DIRECT CURRENT"   | X | Symbol for "ENVIRONMENT<br>PROTECTION – Electrical waste                                  |
| $\triangle$ | Caution: These notes must be observed to prevent any damage to the device |   | products should not be disposed of with household waste. Please follow local guidelines." |
| SN          | Symbol for "SERIAL NUMBER"  | ₩ | Symbol for "MANUFACTURE DATE"   |



This device is intended for adult use only.

This device is intended for non-invasive measuring and monitoring of arterial blood pressure. It is not intended for use on extremities other than the wrist or for functions other than obtaining a blood pressure measurement.

Do not confuse self-monitoring with self-diagnosis. This unit allows you to monitor your blood pressure. Do not begin or end medical treatment without asking a physician for treatment advice. If you are taking medication, consult your physician to determine the most appropriate time to

If you are taking medication, consult your physician to determine the most appropriate time to measure your blood pressure. Never change a prescribed medication without consulting your physician.

If the cuff pressure exceeds 40 kPa (300 mmHg), the unit will automatically deflate. Should the cuff not deflate when pressures exceeds 40 kPa (300 mmHg), detach the cuff from the arm and press the START/STOP button to stop inflation.

To avoid measurement errors, carefully read this manual before using the product.

The equipment is not AP/APG equipment and not suitable for use in the presence of a flammable anesthetic mixture with air of with oxygen or nitrous oxide.

The operator shall not touch output of batteries/AC adapter and the patient simultaneously. Do not wind air tube in the neck

Please use ACCESSORIES and detachable partes specified/ authorised by MANUFACTURE. Otherwise, it may cause damage to the unit or danger to the user/patients.

Please note that Luer lock connectors are not used on the product and please DO NOT change any provided connectors.

Manufacturer will make available on request circuit diagrams, component parts list etc. WARNING: No modifications of this equipment is allowed.

This unit is not suitable for continuous monitoring during medical emergencies or operations. Otherwise, the patient's arm and fingers will become anaesthetic, swollen, and even purple due to a

Please use the device under the environment which was provided in the user manual. Otherwise, the performance and lifetime of the device will be impacted and reduced.

During use, the patient will be in contact with the cuff. The materials of the cuff have been tested and found to comply with requirements of ISO 10993-5:2009 and ISO 10993-10:2010. It will not cause any potential aleroic reaction or contact injury.

The device doesn't need to be calibrated within the two years of reliable service.

Please dispose of ACCESSORIES, detachable parts, and the ME EQUIPMENT according to the local guidelines.

When the device was used to measure patients who have common arrhythmias such as atrial or ventricular premature beats or atrial fibrillation, the best result may occur with deviation.

This device may provide contradictory results for any female subject who may be suspected of, or is pregnant. Besides providing inaccurate readings, the effects of this device on the fetus are unknown.

The device has been evaluated clinically using manual cuff/stethoscope auscultation as the reference. Blood pressure measurements determined with this device are equivalent to those obtained by a trained observer using the cuff/stethoscope auscultatory method, within the limits prescribed by the American National Standard, Manual, electronic, or automated sphygmomanometers."

If you have any problems with this device, such as setting up, maintaining or using, please contact the SERVICE PERSONNEL of easy from . Don't open or repair the device by yourself. Please report to easy from if any unexpected operation or events occur.

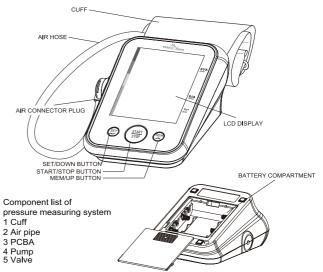
INTRODUCTION

# **♥** LCD Display Signal



| SYMBOL               | DESCRIPTION              | EXPLANATION  |
|----------------------|--------------------------|--|
| SYS                  | Systolic blood pressure  | High pressure result   |
| DIA                  | Diastolic blood pressure | Low pressure result  |
| Pul/min              | Pulse                    | Pulse/minute   |
|                      | Deflating                | CUFF air is exhausting of deflating                                      |
| ям( <u>88./.88</u> ) | Current Time             | Time(year:month:day:hour:minute)   |
| M <u>(88/88)</u>     | Memory                   | If "MEM" shows, the displayed measurement values is from the memory.     |
| κPa mmHg             | Measurement unit         | Measurement Unit of the blood pressure (1mmHg=0.133kPa) (1kPa=7.5mmHg)   |
| <u> </u>             | Low battery              | Batteries are low and need to be replaced                                |
|                      | Irregular heartbeat      | Irregular heartbeat detection  |
| 4                    | Grade                    | The grade of the blood pressure  |
| •                    | Heartbeat                | Heartbeat detection during measurement                                   |
| <u>~</u>             | Shocking reminder        | Shocking will result in inaccurate                                       |
| *                    | User 1                   | Start measurement for user 1 and save the measuring result automatically |
| <u>\$</u>            | User 2                   | Start measurement for user 2 and save the measuring result automatically |
| ્                    | Data Enquiry Mode        | Recall the records   |

# **♥** Monitor Components



#### **♥** List

1. Blood Pressure Monitor (EBP-095)



3. 4\*AA Batteries



2.Cuff (Type B applied part)



4. User manual



# **▼** The Choice of Power Supply

- **1.**Battery powered mode: 6VDC 4\*AA batteries
- 2.This unit has an optional AC Power adaptor which is available as an accessory.Only use AC adaptor with below specification (not included). Input: 100-240VAC 50/60Hz 0.3A Max Output: 6V === 1000mA ( Conforms to UL certificate ) Right picture is the hole in for power adaptor.



#### A CAUTION -

In order to get the best effect and protect your monitor, please use the right battery and special power adaptor.

## **▼ Installing and Replacing the Batteries**

- 1. Slide off the battery cover.
- 2. Install the batteries by matching the correct polarity, as shown.
- 3. Replace the cover.



Replace the batteries whenever the below happen

- •The lo+ shows
- The display dims
- The display does not light up

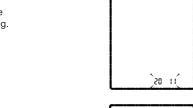
#### A CAUTION -

- Remove batteries if the device is not likely to be used for some time.
- The old batteries are harmful to the environment, so please do not dispose with other daily trash.
- Remove the old batteries from the device and follow your local recycling guidelines.
- Do not dispose of batteries in fire. Batteries may explode or leak.

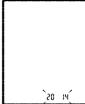
## **♥** Setting Date, Time and Measurement Unit

It is important to set the clock before using your blood pressure monitor, so that a time stamp can be assigned to each record that is stored in the memory. (year :2011—2050 time format:12 H)

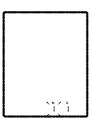
1.When the unit is off, hold "SET" for 3 seconds to enter the mode for year setting.



2. Press the "MEM" to change the [YEAR]. Each press will increase the numeral by one in a cycling manner.

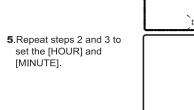


3.When you get the right year, press "SET" to confirm, and it will divert to the [MONTH] setting.

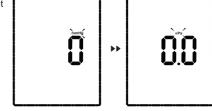


BEFORE YOU START MEASUREMENT

**4**.Repeat steps 2 and 3 to set the [MONTH] and [DAY].



**6.**Repeat steps 2 and 3 to set the [MEASUREMENT UNIT].



30 08

8M 15 : 00

••

••

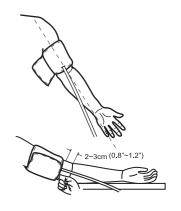
10 15

am 12:)00

7.After the [MEASUREMENT UNIT] is set,the LCD will display "dOnE", and then turn off.

# **▼** Tie the Cuff

- 1. Tie the cuff on your upper arm, then position the tube off-center toward the inner side of arm in line with the little finger.
- 2.The cuff should be snug but not too tight. You should be able to insert one finger between the cuff and your arm.
- **3**.Sit comfortably with your arm resting on a flat surface.
- **4** Patients with Hypertension should sit with correct posture.
- Bare your arm or wear tights only when starting measurement.
- Sit comfortably with legs uncrossed, feet flat on the floor, back and arm supported. The center of the cuff should be at the same level as the right atrium of the heart.
- Rest For 5 minutes before measuring.
- Wait at least 3 minutes between measurements. This allows your blood circulation to recover.
- For a meaningful comparison, try to measure under similar conditions. For example, take daily measurements at approximately the same time, on the same wrist, or as directed by a physician.





#### **♥** Start the Measurement

Before you start the measurement, please press the SET button to choose either User 1 or User 2 as the User ID. When the desired User ID is shown, press START/STOP button to confirm the User ID.

1.After selecting the user, press the "START/STOP" to start measurement, and it will finish the whole measurement for the selected user. Take User 1 for example.

LCD display

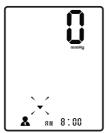


Inflating and measuring.



2.Press "SET", "MEM" or "START/STOP" button to power off, otherwise it will turn off within 1 minute.

Adjust the zero.



Display and save the results. The corresponding backlight shows according to the grade of blood pressure.



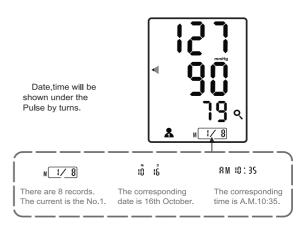
#### ♥ Recall the Records

 When the monitor is off, please press the "MEM" to show the average value of the latest three records.





2. Press MEM button or SET button to rotate the records. Up to 60 records will be stored under each user ID.



3. If you want to check another user's records, press START/STOP button to turn off the monitor when it is in the memory recall mode. Then press SET button, the user icon will be shown, press "SET" button to select the desired user ID, press "MEM" button to review the selected user's records.



Press the START/STOP button to turn off the monitor.
 Otherwise, the monitor will shut off within 1 minute after last operation.

#### **⚠**CAUTION

The most recent record (1) is shown first. Each new measurement is assigned to the first (1) record. All other records are pushed back one digit (e.g., 2 becomes 3, and so on), and the last record (60) is dropped from the list.

#### ♥ Delete the Records

If you did not get the correct measurement, you can delete all results or the latest result for the selected user by the following steps below.

- 1.If you want to delete all the results, hold "MEM" for 3 seconds when the monitor is in the memory mode ,then "dEL ALL" will show.
- OR
  If you want to delete
  the latest result, hold
  "SET" for 3 seconds
  when the monitor is
  in the memory
  mode ,then "dEL
  OnE" will show.



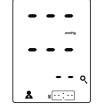


2.Press "MEM" to confirm deleting and the monitor will turn off.



- 3.If you don't want to delete the records, press "STRAT/STOP" button or "SET" button to escape.
- If there is no record. the right display will show when recalling the record





# **▼** Tips for Measurement

Measurements may be inaccurate if taken in the following circumstances.





Wait at least 20 minutes after taking a bath



In a very cold environment



When talking or moving your fingers



When you want to discharge urine

#### ♥ Maintenance

In order to get the best performance, please follow the instructions below.



Put in a dry place and avoid the sunshine



Avoid intense shaking and collisions



Use wet cloths to remove dirt



Avoid touching water, clean it with a dry cloth in case.



Avoid dusty and unstable temperature environment



Avoid washing the cuff

#### **♥** What are systolic pressure and diastolic pressure?

When ventricles contract and pump blood out of the heart, the blood pressure reaches its maximum value in the cycle, which is called systolic pressure. When the ventricles relax. the blood pressure reaches its minimum value in the cycle, which is called diastolic pressure.





# ♥ What is the standard blood pressure classification?

The chart on the right is the standard blood pressure classification published by American Heart Association (AHA).

#### AHA Home Guideline for Upper Limit of Normal BP

| SYS | 135 mm Hg |
|-----|-----------|
| DIA | 85 mm Hg  |

| 1 | This chart reflects blood pressure categories defined by American Heart Association. |        |  |                           |     |                            |
|---|--|--------|--|---------------------------|-----|----------------------------|
|   | Backlight on BPM   |        |  | Systolic<br>mmHg (upper#) |     | Diastolic<br>mmHg (lower#) |
|   | Blue   | Green  | Normal   | less than 120             | and | less than 80               |
|   | Blue   | Green  | Prehypertension                                | 120-139                   | or  | 80-89                      |
| , | Yellow   | Yellow | High Blood Pressure<br>(Hypertension) Stage 1  | 140-159                   | or  | 90-99                      |
|   | Red  | Orange | High Blood Pressure<br>(Hypertension) Stage 2  | 160 or higher             | or  | 100 or higher              |
|   | Red  | Red    | Hypertensive Crisis<br>(Emergency care needed) | Higher than 180           | or  | Higher than 110            |

Only a physician can tell your normal BP range. Please contact a physician if your measuring result falls out of the range. Please note that only a physician can tell whether your blood pressure value has reached a dangerous point.

#### ▼ Irregular Heartbeat Detector

An irregular heartbeat is detected when a heartbeat rhythm varies while the unit is measuring the systolic and diastolic blood pressure. During each measurement, this equipment records the heartbeat intervals and works out the standard deviation. If the calculated value is larger than or equal to 15,the irregular heartbeat symbol appears on the symbol when the measurement results are displayed.



The appearance of the IHB icon indicates that a pulse irregularity consistent with an irregular heartbeat was detected during measurement. Usually this is NOT a cause for concern. However, if the symbol appears often, we recommend you seek medical advice. Please note that the device does not replace a cardiac examination, but serves to detect pulse irregularities at an early stage.

# ♥ Why does my blood pressure fluctuate throughout the day?

 Individual blood pressure varies multiple times everyday. It is also affected by the way you tie your cuff and your measurement position, so please take the measurement under the same conditions

2. If the person takes medicine, the pressure will vary more.

3. Wait at least 3 minutes for another measurement

♥ Why do I get a different blood pressure at home compared to the hospital? your blood pressure at home:

The blood pressure is different even throughout the day due to weather, emotion, exercise etc. Also, there is the "white coat" effect, which means blood pressure usually increases in clinical settings.

♥ Is the result the same if measuring on the right arm?

It is ok for both arms, but there will be some different results for different people. We suggest you measure the same arm every time.



What you need to pay attention to when you measure

If the cuff is too tight or too loose. If the cuff is tied on the upper arm. If you feel anxious.

Taking 2-3 deep breaths before beginning will be better for measuring. Advice: Relax yourself for 4-5 minutes until you calm down.



This section includes a list of error messages and frequently asked questions for problems you may encounter with your blood pressure monitor. If the products not operating as you think it should, check here before arranging for servicing.

| PROBLEM          | SYMPTOM                    | CHECK THIS  | REMEDY   |
|------------------|----------------------------|---|--|
|                  | Display is dim or          | Batteries are exhausted.                                  | Replace with new batteries   |
| No power         | will not light up.         | Batteries are inserted incorrectly.                       | Insert the batteries correctly   |
|                  |                            | AC adaptor is inserted incorrectly.                       | Insert the AC adaptor tightly  |
| Low<br>batteries | Show on the display        | Batteries are low.  | Replace with new batteries   |
|                  | E 1 shows                  | The cuff is not secure.                                   | Refasten the cuff and then measure again.  |
|                  | E 2 shows                  | The cuff is very tight                                    | Refasten the cuff and then measure again.  |
|                  | E 3 shows                  | The pressure of the cuff is excess.                       | Relax for a moment and then measure again.   |
| Error<br>message | E 10 or E11<br>shows       | The monitor detected motion while measuring.              | Movement can affect the measurement.Relax for a moment and then measure again.   |
|                  | E20 shows                  | The measurement process does not detect the pulse signal. | Loosen the clothing on the arm and then measure again  |
|                  | E21 shows                  | The treatment of the measurement failed.                  | Relax for a moment and then measure again.   |
|                  | EExx,shows on the display. | A calibration error occurred.                             | Retake the measurement.If the problem persists, contact the retailer or our customer service department for further assistance. Refer to the warranty for contact information and return instructions. |

| Power supply                           | Battery powered mode:<br>6VDC 4*AA batteries<br>AC adaptor powered mode:<br>(INPUT: 100-240VAC 50/60Hz 0.3A Max |
|--|---|
|  | OUTPUT: 6V=== 1000mA)(Not Included)   |
| Display mode                           | Digital LCD V.A.60mm*80mm (2.36"*3.15")   |
| Measurement mode                       | Oscillographic testing mode   |
| Measurement range                      | Pressure: 0mmHg~300mmHg(0kPa-40kPa) pulse value:(40-199)times/minute  |
| Accuracy                               | Pressure:<br>5℃-40℃(41°F-104°F)within±3mmHg(0.4kPa)<br>pulse value:±5%  |
| Normal working condition               | Temperature:5°C to 40°C(41°F to 104°F)<br>Relative humidity: ≤85%RH<br>Atmospheric pressure: 86kPa to 106kPa    |
| Storage & transportation condition     | Temperature:-20 C -60 C (-4°F to 140°F) Relative Humidity: 10%RH-93%RH Atmospheric Pressure: 50kPa-106 kPa      |
| Measurement perimeter of the upper arm | About 22cm~32cm (8¾-12½)<br>or 22cm~42cm (8¾-16½)   |
| Net Weight                             | Approx.388g(13.69oz)(Excluding the batteries)   |
| External dimensions                    | Approx.102mm*143mm*73mm(4.02"*5.63"*2.87")  |
| Attachment                             | 4*AA batteries, one storage bag, user manual  |
| Mode of operation                      | Continuous operation  |
| Degree of protection                   | Type B applied part   |
| Protection against ingress of water    | IPX0  |
| Software Version                       | V01   |

# **▼** Authorized Components

1. please use the easy frome authorized adapter. (Not Included)

2 Storage bag.





Adapter

Input: 100-240VAC 50/60Hz 0.3A Max

Output: 6V === 1000mA

( Conforms to UL certificate )

#### **♥** Contact Information

For more information about our products, please visit <code>Healthcare-Manager.com</code>, or call toll-free at 1-855-822-6999 M-F 9 a.m.-5 p.m. CST. We attend to all questions, concerns, and quidance about our resources.

# **♥** Complied Standards List

| Risk management  | ISO 14971:2007                                  |
|--|---|
| Labeling   | EN 980:2008                                     |
| User manual  | EN 1041: 2008                                   |
| General Requirements for Safety                        | IEC 60601-1: 2005                               |
| Electromagnetic compatibility                          | IEC 60601-1-2:2007                              |
| Non-invasive Sphygmomanometers<br>General Requirements | ASSI/AAMI<br>SP10:2002/A1:2003/A2:2006/ (R)2008 |
| Software Lifetime                                      | EN 62304:2006/AC:2008                           |

#### **▼** FCC Statement

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.

**EMC GUIDANCE** 

#### **▼** EMC Guidance

Table 1 Guidance and MANUFACTURER's declaration – ELECTROMAGNETIC EMISSIONS- for all ME EQUIPMENT and ME SYSTEMS

| Guidance and manufacturer's declaration – electromagnetic emissions   |            |   |  |  |  |
|---|------------|---|--|--|--|
| The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment. |            |   |  |  |  |
| Emissions test  | Compliance | Electromagnetic environment - guidance  |  |  |  |
| RF emissions<br>CISPR 11  | Group 1    | The device uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment. |  |  |  |
| RF emissions<br>CISPR 11  | Class B    |   |  |  |  |
| Harmonic emissions IEC 61000-3-2 Not applicable   |            |   |  |  |  |
| Voltage fluctuations/ flicker emissions IEC Not applicable 61000-3-3  |            |   |  |  |  |

Table 2 Guidance and MANUFACTURER's declaration – electromagnetic IMMUNITY – for all ME EQUIPMENT and ME SYSTEMS

|  | led for use in the electromage user of the device should a  |  |   |
|--|---|--|---|
| IMMUNITY test  | IEC 60601 test level  | Compliance level   | Electromagnetic environment - guidance  |
| Electrostatic<br>discharge (ESD)<br>IEC 61000-4-2                                    | ±6 kV contact<br>±8 kV air  | ±6 kV contact<br>±8 kV air   | Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.   |
| Electrical fast<br>transient/burst<br>IEC 61000-4-4                                  | ±2 kV for<br>power supply lines<br>±1 kV for<br>input/output lines  | ±2 kV for power supply lines   | Mains power quality should<br>be that of a typical<br>commercial or hospital<br>environment.  |
| Surge IEC<br>61000-4-5   | ±1 kV line(s)<br>to line(s)<br>±2 kV line(s)<br>to earth  | ±1 kV line(s) to<br>line(s)  | Mains power quality should<br>be that of a typical<br>commercial or hospital<br>environment.  |
| Voltage dips, short interruptions and voltage variations on power supply input lines | <5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 0.5 cycle  40% U <sub>T</sub> (60% dip in U <sub>T</sub> ) for 5 cycles  70% U <sub>T</sub> (30% dip in U <sub>T</sub> ) for 25 cycles  <5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 5 s | <5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 0.5 cycle 40% U <sub>T</sub> (60% dip in U <sub>T</sub> ) for 5 cycles 70% U <sub>T</sub> (30% dip in U <sub>T</sub> ) for 25 cycles <5% U <sub>T</sub> (>95% dip in U <sub>T</sub> ) for 5 s | Main power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery. |
| Power frequency<br>(50/60Hz)<br>magnetic field<br>IEC 61000-4-8                      | 3A/m  | 3A/m   | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.   |

EMC GUIDANCE EMC GUIDANCE

Table 4 Guidance and MANUFACTURER's declaration – electromagnetic IMMUNITY – for ME EQUIPMENT and ME SYSTEMS that are not LIFE-SUPPORTING

Guidance and manufacturer's declaration - electromagnetic immunity

The device is intended for use in the electromagnetic environment specified below.

The customer or the user of the device should assure that it is used in such an environment.

| The customer or the user of the device should assure that it is used in such an environment. |                               |                     |   |  |
|--|-------------------------------|---------------------|---|--|
| IMMUNITY test  | IEC 60601<br>TEST LEVEL       | Compliance<br>level | Electromagnetic environment - guidance  |  |
|  |                               |                     | Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. |  |
|  | 3 Vrms                        |                     | Recommended separation distance   |  |
| Conducted RF<br>IEC 61000-4-6  | 150 kHz to<br>80 MHz          | 3 Vrms              | $d=1.167\sqrt{P}$   |  |
| Radiated RF<br>IEC 61000-4-3   | 3 V/m<br>80 MHz to<br>2.5 GHz | 3 V/m               | $d=$ 1.167 $\sqrt{P}$ 80 MHz to 800 MHz $d=$ 2.333 $\sqrt{P}$ 800 MHz to 2,5 GHz  |  |
|  |                               |                     | where <b>P</b> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <b>d</b> is the recommended separation distance in metres (m).  |  |
|  |                               |                     | Field strengths from fixed RF<br>transmitters, as determined by an<br>electromagnetic site survey, ashould be<br>less than the compliance level in each<br>frequency range. <sup>b</sup>  |  |
|  |                               |                     | Interference may occur in the vicinity of equipment marked with the following symbol: (((•)))   |  |

- NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
- NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
- <sup>a</sup> Field strengths from fixed transmitters, such as base stations for radio (cellular / cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed FR transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the device.
  Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

Table 6 Recommended separation distances between portable and mobile RF communications equipment and the ME EQUIPMENT or ME SYSTEM – for ME EQUIPMENT and ME SYSTEMS that are not LIFE-SUPPORTING

#### Recommended separation distances between portable and mobile RF communications equipment and the device.

The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmittlers) and the device as recommended below, according to the maximum output power of the communications equipment.

| Rated maximum output<br>power of transmitter<br>(W) | Separation distance according to frequency of transmitter (m) |              |                      |  |
|---|---|--------------|----------------------|--|
|   | 150 kHz to 80 MHz 80 MHz to 800 MHz 800 MHz to 2.5 GHz        |              |                      |  |
|   | $d = 1.167 \sqrt{P}$  | d = 1.167 √P | $d = 2.333 \sqrt{P}$ |  |
| 0.01  | 0.117   | 0.117        | 0.233                |  |
| 0.1   | 0.369   | 0.369        | 0.738                |  |
| 1   | 1.167   | 1.167        | 2.333                |  |
| 10  | 3.690   | 3.690        | 7.378                |  |
| 100   | 11.67   | 11.67        | 23.33                |  |

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80MHz and 800MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.