UNIFIED STATES
INSTRUCTION
MANUAL

FREQUENCER®

model V2x

Acoustical airway clearance treatment

Ver. 22.02.19
SAFETY SYMBOLS

This manual uses the following safety symbols. They denote critical information. Please read them carefully.

⚠️ WARNING
Failure to abide by the information with a WARNING may result in serious injury and can be life threatening.

⚠️ CAUTION
Failure to abide by the information with a CAUTION may result in moderate injury and/or property or product damage.

❃ TYPE BF EQUIPMENT

☢️ ELECTROMAGNETIC RADIATION

🌡️ CONSULT INSTRUCTIONS FOR USE

🌡️ TEMPERATURE LIMITATION

💧 HUMIDITY LIMITATION

🚫 CLASS II DOUBLE INSULATED ELECTRICAL DEVICE

🚫 PROHIBITION

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# Table of Contents

[ 1 ] Indications for use 3  
[ 2 ] Contraindications 4  
[ 4 ] Description 5  
[ 4_a ] The components 5  
[ 4_b ] Control unit functionalities 7  
[ 4_c ] Control unit connections 8  
[ 5 ] Treatment in a controlled environment 8  
[ 6 ] Preparing for treatment 8  
[ 7 ] Treatment with the Frequencer® V2x 9  
[ 8 ] Cleaning 10  
[ 9 ] Maintenance 11  
[ 10 ] Storage 11  
[ 12 ] Disposal 12  
[ 13 ] Problem solving 12  
[ 14 ] Specifications 13  
[ 15 ] EMC requirements 14  
[ 16 ] ESD precautionary procedures 19  
[ 17 ] FREQUENCER® V2x, PARTS AND ACCESSORIES 20
Indications for use

The Frequencer® V2x provides airway clearance therapy and promotes bronchial drainage by inducing vibration in the chest walls. This device is intended to be a component of chest physiotherapy by providing a convenient method of external thorax manipulation.

It is intended for patients having respiratory ailments which involve defective mucociliary clearance, as is typical in patients suffering from cystic fibrosis as well as chronic bronchitis, bronchiectasis, ciliary dyskinesia syndromes, asthma, muscular dystrophy, neuromuscular degenerative disorders, post-operative atelectasis and thoracic wall defects. Indications for this form of therapy are described in the Clinical Practice Guidelines for Postural Drainage Therapy of the American Association for Respiratory Care (AARC) published in 1991. This particular device provides a gentler, less painful form of therapy from the traditional “clapping” method of postural drainage therapy, allowing it to be used on patients who cannot be treated by clapping.

The Frequencer® V2x is suitable for use in all patient-care environments including home health-care.

WARNINGS

- Use only original Frequencer® V2x parts or replacement parts sold by Dymedso. Do not substitute the power supply.

- If patient experiences any discomfort or pain while using the Frequencer® V2x, stop the treatment and consult a physician.

- This instruction manual is not intended to supersede established medical protocols.

- This device is not a form of life support.

- Repairs must be performed by the manufacturer, the manufacturer’s distributor or authorized agent. Do not open this equipment including the transducer or the power supply.

- This equipment is not suitable for use in the presence of a flammable anaesthetic mixture in combination with oxygen or air, or in the presence of nitrous oxide.

- To avoid electrical shock, disconnect the power cord before cleaning. Do not immerse the device in any fluids.
Contraindications

IT IS IMPORTANT TO READ AND UNDERSTAND THE FOLLOWING CONTRAINDICATIONS. IF YOU HAVE ANY QUESTIONS ABOUT YOUR CONDITION OR THE USE OF YOUR FREQUENCER® V2x, CONSULT YOUR PHYSICIAN.

WARNING: Tests with the Frequencer® V2x were performed with patients in a sitting or slightly reclined position. Use of the Frequencer® V2x is contraindicated in the following cases:

- subcutaneous emphysema
- recent epidural spinal infusion or spinal anesthesia
- recent skin grafts, or flaps, on the thorax
- burns, open wounds, and skin infections of the thorax
- subcutaneous pacemaker
- tuberculosis of the lungs
- lung contusion
- bronchospasm
- osteomyelitis of the ribs
- osteoporosis
- coagulopathy
- complaint of chest-wall pain

WARNING: When postural drainage is used, postural drainage therapy is generally contraindicated if any of the following conditions are present:

- intracranial pressure (ICP) > 20 mm Hg
- recent head and/or neck injury
- acute spinal injury or active hemothysis
- esophageal surgery
- recent spinal surgery (eg, laminectomy) or acute spinal injury
- recent neurosurgery, aneurysms, or eye surgery
- surgical wound or healing tissue
- active hemorrhage with hemodynamic instability
- emphysema
- bronchopleural fistula
- pulmonary edema associated with congestive heart failure
- large pleural effusions
- pulmonary embolism
- intolerance of position changes
- rib fracture, with or without flail chest
- uncontrolled hypertension
- distended abdomen
- recent gross hemothysis
- related to recent lung carcinoma treated surgically or with radiation therapy
- uncontrolled airway at risk for aspiration (tube feeding or recent meal)

If you are uncertain about any of the information, consult your physician.

The Frequencer® V2x is to be used only as described in this manual and only as prescribed by a physician. Failure to do so could result in serious injury or death.

We recommend that, before you begin using the Frequencer® V2x for in-home use, you use it in a supervised setting such as a physician’s office or at home under the guidance of a trained care-giver.

Close supervision is necessary throughout the treatment when the Frequencer® V2x is used by children or patients with limited mobility or reduced cognitive abilities.

This instruction manual is designed to help you use the Frequencer® V2x. If you have any questions about the effectiveness of the Frequencer® V2x, or about the frequency level, treatment intensity and duration of the treatments, please consult your physician.

Read this manual carefully before using the Frequencer® V2x for the first time.

[4] Description

[4_A] THE COMPONENTS

The Frequencer® V2x includes a basic module to control frequency level and treatment intensity (control unit), a transducer which emits acoustic waves, a power supply, an electrical cable and a user manual.
THE FREQUENCER® V2x
ACCESSORIES INCLUDE:
Refer to page 20 for Frequencer® V2x parts and accessories

1_The transducer adapters

The transducer operates with single patient-use disposable adapters with filter. They come in 4 sizes.

- Has a 1-inch diameter opening and is for very small children,
- Has a 2-inch diameter opening and is for children,
- Has a 3-inch diameter opening and is used for young adults, and
- Has a 4-inch diameter opening and is for adults.

Always use the adapter with the largest opening as long as the opening is sealed when placed on the treatment area. An adapter with filter can be reused for treatments to the same patient. A new adapter with filter needs to be used in between different patients.

2_A Roll stand

The base of the Frequencer® V2x is equipped with a fixation plate that enables the device to be attached to a roll stand. The roll stand is sold separately and is recommended for hospital use.

3_Carrying case

A foam padded carrying case with rollers can also be used to store and protect the Frequencer® V2x. The carrying case is sold separately.

4_Flexible extension hose

For situations in which the weight of the transducer causes patient discomfort, a 72 inch flexible extension hose may be affixed to a 1 inch adapter.

5/Instruction manual

WARNING: The use of ACCESSORIES, transducers and cables other than those specified, with the exception of transducers and cables sold by Dymedso as replacement parts, may result in increased EMISSIONS or decreased IMMUNITY of the Frequencer® V2x.
[4_B] CONTROL UNIT FUNCTIONALITIES

The interface on the control unit includes a touch screen which offers the following functions:

1. **START** function to start treatment... PAUSE function appears when the START function is pressed.

2. **PAUSE** to temporarily suspend treatment.

3. **TREATMENT INTENSITY** slide UP and DOWN to increase and decrease intensity of treatment.

4. **FREQUENCY LEVEL** slide UP and DOWN to increase and decrease the frequency level.

5. **MENU** button offers additional features:
   - **LANGUAGE** offers a choice of language on the Interface.
   - **3-MINUTE BEEP** (YES or NO) emits a beeping sound every 3 minutes.
   - **DEFAULT SETTINGS** offers a choice of default settings of Baby Level (frequency at 40 Hz and treatment intensity at 10%) or Child Level (frequency at 40 Hz and treatment intensity at 50%).
   - **LOCK SETTINGS** (YES or NO) limits frequency level changes to 1 Hz and treatment intensity to 1% using + or - buttons only.
[4_C] CONTROL UNIT CONNECTIONS

A_ Plugging in the power supply.
B_ On/Off Push Button.

[5] Treatment in a controlled environment

The Frequencer® V2x should not be used when the temperature exceeds 104° F (40° C) or goes below 41° F (5° C). If the device was exposed to an extreme temperature for a prolonged period (e.g. after a long car ride) let it return to operating temperature before using.

The Frequencer® V2x should not be used when the humidity exceeds 93% (non-condensing) or goes below 15%. If the device becomes damp, wait until it dries completely before using it.

WARNING: The Frequencer® V2x should not be stacked with other equipment. If such placement becomes necessary, the Frequencer® V2x should be closely observed to ensure normal operation.

WARNING: The ventilation openings should never be obstructed.

[6] Preparing for treatment

Before using the Frequencer® V2x for the first time, please ensure the device has been cleaned as indicated in section 8.

STEP 1: Ensure you have all the components (see section 4_A).
STEP 2: Connect the power supply to the control unit.
STEP 3: Plug the electrical cable into the power supply.
STEP 4: Plug the electrical cable into a proper AC electrical outlet.

WARNING: INSPECT THE POWER CORD OFTEN FOR ANY SIGNS OF DAMAGE. REPLACE A DAMAGED CORD IMMEDIATELY.

WARNING: DO NOT PLACE THE FREQUENCER® CONTROL UNIT IN A POSITION THAT MAKES IT DIFFICULT TO DISCONNECT FROM THE MAIN POWER SUPPLY.
TREATMENT WITH THE FREQUENCER® V2X

STEP 1: Select the correct adapter (i.e., the largest adapter that will form a complete seal when applied to the chest area). Tightly affix the adapter onto the transducer. (Refer to [4_a], The components, for more info on adapters).

⚠️ WARNING: Always make sure that there is an adapter on the transducer before pushing the START button. Do not substitute or modify the adapters supplied by Dymedso; it could seriously damage the transducer.

STEP 2: Patient should be in a sitting or slightly reclined position. The operator can be beside the patient to administer the treatment.

⚠️ WARNING: Do not eat or drink during a therapy session. Doing so could cause a choking hazard.

STEP 3: Push power switch on the back of the Frequencer® V2x control unit to turn on device. A green light will illuminate on the top of the control unit. It may take from 35 to 40 seconds for the control unit interface to activate. By default, frequency level is set at 40 Hz and treatment intensity at 50%. (Refer to [4_b], Control unit functionalities, to change default settings).

STEP 4: Before starting treatment, reset treatment intensity to better suit patient’s size and condition.

⚠️ WARNING: The decision on the final treatment intensity is the responsibility of the patient’s qualified treating clinician, physician, respiratory therapist or physiotherapist.
STEP 5: With your hand holding the top part (cover) of the transducer, place transducer on chest wall and press START.

STEP 6: Adjust frequency level one Hz at a time until vibration is felt on back or other part of chest cavity. At the right frequency level, there should be a vibration in patient’s voice when transducer is applied to the upper lobes.

A. Frequency level will most likely be within a 35-42 Hz range.

B. If patient is able to huff or actively breathe, it may assist with airway clearance.

STEP 7: Apply transducer to chest areas for 2 minutes each. Starting in the lower right and left lobe and working upward on each side. (see page 09). Duration of treatment with the Frequencer® V2x should not exceed 12 minutes.

NOTE: To avoid contact directly with the skin, the transducer can be placed on top of a thin garment fabric.

If treatment needs to be suspended, pressing PAUSE will hold treatment until START is pressed again.

STEP 8: Do not apply any pressure on the transducer when placed on the chest. Ensure complete seal. Transducer is easier to hold while patient is in a slightly reclined position.

STEP 9: After treatment, push PAUSE button and turn power switch off before unplugging.

NOTE: Following treatment, redness is not uncommon in the area or areas treated by the Frequencer® V2x.

⚠️ CAUTION: ALWAYS FOLLOW THE PHYSICIAN’S INSTRUCTIONS.

⚠️ CAUTION: Pause the Frequencer® V2x for at least 5 minutes between treatments in multi-patient settings.

🚫 NEVER USE THIS DEVICE ON THE EARS.

[8] Cleaning

There are no special procedures or products for cleaning the Frequencer® V2x. Do not use harsh chemicals on any part of the device. We recommend cleaning the Frequencer® V2x with a damp cloth. To remove stubborn stains, use hot water and mild soap, and wipe off the soap with a clean, dry cloth.
CAUTIONS

Do not immerse or rinse any part of the Frequencer® V2x. If you accidentally spill liquid on the device, disconnect the unit from the power source. Contact your Biomed Department or Dymedso directly regarding the continued safety of the unit before placing it back in operation.

Do not spray cleaning agents or other liquids in the front opening of the transducer.

Do not use disinfectants that contain phenol. Do not autoclave or clean the Frequencer® V2x or its accessories with strong aromatic, chlorinated, ketone, ether, or ester solvents, sharp tools or abrasives. Never immerse electrical connectors in water or other liquids.

To avoid electrical shock, disconnect the power cord before cleaning. Do not immerse the device in any fluids.

[9] Maintenance

No special maintenance is required. However, the Frequencer® V2x contains a lithium battery to display the time and date which should work for many years. If it stops working, you must return the unit to the manufacturer, the manufacturer’s distributor or authorized agent to have it replaced.

[10] Storage

CAUTIONS

When not in use, put all the components in the carrying case and store in a dry place at a temperature between 41°F (5°C) and 104°F (40°C). If the device must be exposed to extreme temperatures for a prolonged period of time (e.g. during a long car ride), let it return to the operating temperature before using it. If the device gets wet, let it dry completely before use.


If, for any reason, you do not think the device is working properly, the troubleshooting list below can help you find the cause of the problem. If you cannot solve the problem, contact DYMEDSO Customer Service at 1-877-DYMEDSO (396.3376) or info@dymedso.com. Do not attempt to repair or disassemble the device. This will void the warranty. Under no circumstances should you modify the cable or transformer. Only use products sold by DYMEDSO. Otherwise you could damage your device and void the warranty.
## Disposal

When necessary, dispose of the Frequencer® V2x and its accessories in accordance with local regulations. Please note the device houses a lithium battery.

## Problem solving

<table>
<thead>
<tr>
<th>PROBLEM SOLVING</th>
<th>POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>The control unit does not start after pressing the POWER SWITCH button.</td>
<td>1. The power supply is not plugged into the device. Verify that the connectors are plugged in.</td>
</tr>
<tr>
<td></td>
<td>2. Verify that the power supply is plugged into a proper power outlet.</td>
</tr>
<tr>
<td></td>
<td>3. There is no voltage power in the wall outlet. Verify that the outlet is working by plugging in another device (lamp, clock).</td>
</tr>
<tr>
<td>The control started up but there is no noise coming from the transducer.</td>
<td>Make sure the control is not on PAUSE and the treatment intensity is higher than 0%.</td>
</tr>
<tr>
<td>The transducer works but I cannot adjust the frequency level.</td>
<td>Contact DYMEDSO Customer Service.</td>
</tr>
<tr>
<td>The transducer works but I cannot adjust the treatment intensity.</td>
<td>Contact DYMEDSO Customer Service.</td>
</tr>
</tbody>
</table>

TO REACH US
1 877.DYMEDSO (396-3376)
INFO@DYMEDSO.COM
## Specifications

### PRODUCT USE:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>5 to 40°C</td>
</tr>
<tr>
<td>Humidity</td>
<td>15 to 93%, non-condensing</td>
</tr>
<tr>
<td>Atmospheric pressure</td>
<td>700 hPa to 1060 hPa</td>
</tr>
</tbody>
</table>

### TRANSPORT & STORAGE:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>-25°C (without RH control) to +70°C (at an RH of up to 93%, non-condensing)</td>
</tr>
<tr>
<td>Humidity</td>
<td>15 to 93%, non-condensing</td>
</tr>
<tr>
<td>Standards compliance</td>
<td>IEC 60601-1 3rd edition</td>
</tr>
<tr>
<td>Mode of operation</td>
<td>Continuous</td>
</tr>
<tr>
<td>AC power consumption</td>
<td>100-240Vac. 50/60Hz, 2A</td>
</tr>
<tr>
<td>Type of protection against electric shock</td>
<td>Class II Double insulated electrical device</td>
</tr>
<tr>
<td>Applied part degree of protection against electric shock</td>
<td>Type BF, floating isolated applied part</td>
</tr>
<tr>
<td>International protection rating</td>
<td>IP21, Protected against access to hazardous parts by fingers or similar objects. Protected against ingress of dripping water when tilted up to 15°</td>
</tr>
</tbody>
</table>
GUIDANCE AND MANUFACTURER’S DECLARATION - ELECTROMAGNETIC EMISSIONS

The Frequencer® V2x should be used in the electromagnetic environments specified below. The user of the Frequencer® V2x should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>EMISSION TEST</th>
<th>COMPLIANCE</th>
<th>ELECTROMAGNETIC ENVIRONMENT - GUIDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF emissions CISPR 11</td>
<td>Group 1, Class B</td>
<td>The Frequencer® V2x uses RF energy only for its internal function. Therefore its RF emissions are very low and are not likely to cause interference with nearby electronic equipment.</td>
</tr>
<tr>
<td>RF emissions CISPR 11</td>
<td>Group 1, Class B</td>
<td>The Frequencer® V2x is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network which supplies buildings used for domestic purposes.</td>
</tr>
<tr>
<td>Harmonic emissions IEC 61000-3-2</td>
<td>Class A None</td>
<td>None</td>
</tr>
<tr>
<td>Voltage fluctuations/ Flicker emissions IEC 61000-3-3</td>
<td>Compliant None</td>
<td>None</td>
</tr>
</tbody>
</table>
**GUIDANCE AND MANUFACTURER’S DECLARATION - ELECTROMAGNETIC IMMUNITY**

The Frequencer® V2x is intended for use in the electromagnetic environment specified below. The user of the Frequencer® V2x should ensure it is used in the appropriate environment.

<table>
<thead>
<tr>
<th>IMMUNITY TEST</th>
<th>IEC 60601 TEST LEVEL</th>
<th>COMPLIANCE LEVEL</th>
<th>ELECTROMAGNETIC ENVIRONMENT GUIDANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD)</td>
<td>±6 kV contact</td>
<td>±6 kV contact</td>
<td>Floor should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>IEC 61000-4-2</td>
<td>±8 kV air</td>
<td>±8 kV air</td>
<td></td>
</tr>
<tr>
<td>Electrical fast transient/ burst IEC 61000-4-4</td>
<td>±2 kV for power supply lines ± 1 kV for input/ output</td>
<td>±2 kV for power supply lines ± 1 kV for input/ output lines</td>
<td>Mains power should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>Surge IEC 61000-4-5</td>
<td>±1 kV line(s) to line(s) ± 2 kV line(s) to earth</td>
<td>±1 kV line(s) to line(s) ± 2 kV line(s) to earth</td>
<td>Mains power should be that of a typical commercial or hospital environment.</td>
</tr>
</tbody>
</table>

**ESSENTIAL PERFORMANCE OF THE FREQUENCER® V2x**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>MINIMUM</th>
<th>MAXIMUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generated Frequency</td>
<td>20 Hz</td>
<td>65 Hz</td>
</tr>
<tr>
<td>Sound Pressure Output</td>
<td>0 PSI</td>
<td>0.4 PSI</td>
</tr>
</tbody>
</table>
Voltage dips, short interruptions and voltage variations on power supply input lines
IEC 61000-4-11

<table>
<thead>
<tr>
<th>Voltage dip Level</th>
<th>5 cycles</th>
<th>25 cycles</th>
<th>5 seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;5% $U_T$</td>
<td>&lt;5% $U_T$</td>
<td>40% $U_T$</td>
<td>70% $U_T$</td>
</tr>
<tr>
<td>(&lt;95% dip in $U_T$)</td>
<td>(&gt;95% dip in $U_T$)</td>
<td>(60% dip in $U_T$)</td>
<td>(30% dip in $U_T$)</td>
</tr>
<tr>
<td>for 0.5 cycle</td>
<td>for 5 cycles</td>
<td>for 5 cycles</td>
<td>for 25 cycles</td>
</tr>
</tbody>
</table>

Mains power quality should be that of a typical home or hospital. If the user of the Frequencer® V2x requires continued operation during power mains interruptions, it is recommended that the Frequencer® V2x be powered from an uninterruptible power supply or battery.

Power frequency (50/60 Hz) Magnetic Field
IEC 61000-4-8

<table>
<thead>
<tr>
<th>Power frequency</th>
<th>3 A/m</th>
<th>3 A/m</th>
</tr>
</thead>
</table>

If the user experiences malfunctions with the Frequencer® V2x, it may be necessary to position the Frequencer® V2x further from sources of power frequency magnetic fields. The power frequency magnetic field should be measured in the intended installation location to ensure that it is sufficiently low.

Note: $U_T$ is the AC mains voltage prior to application of the test level.
Guidance and manufacturer's declaration - electromagnetic immunity

The Frequencer® V2x is intended for use in the electromagnetic environment specified below. The customer or the user of the Frequencer® V2x should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>IMMUNITY test</th>
<th>IEC 60601 TEST LEVEL</th>
<th>Compliance level</th>
<th>Electromagnetic environment - guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conducted RF</td>
<td>3 Vrms 150 kHz to 80 MHz</td>
<td>3 Vrms</td>
<td>Portable and mobile RF equipment should be used no closer to any part of the Frequencer® V2x, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</td>
</tr>
<tr>
<td>IEC 61000-4-6</td>
<td></td>
<td></td>
<td>Recommended separation distance</td>
</tr>
<tr>
<td>Radiated RF</td>
<td>3 V/m 80 MHz to 2.5 GHz</td>
<td>3 V/m</td>
<td>$d = 1.2 \sqrt{P}$</td>
</tr>
<tr>
<td>IEC 61000-4-3</td>
<td></td>
<td></td>
<td>$d = 1.2 \sqrt{P}$ 80 MHz to 800 MHz</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>$d = 2.3 \sqrt{P}$ de 800 MHz to 2.5 GHz</td>
</tr>
</tbody>
</table>

where $P$ is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and $d$ is the recommended separation distance in meters (m).

Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range.

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.

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 RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Frequencer® V2x is used exceeds the applicable RF compliance level above, the Frequencer® V2x should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Frequencer® V2x.

NOTE 2 Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Frequencer® instruction manual
It is recommended that all staff involved in the assembly and/or installation of the Frequencer® V2x receive an explanation of the ESD warning symbol and training in ESD precautionary procedures. Please refer to the section below on Minimum ESD Procedures.

It is recommended by Dymedso that all staff involved in the assembly and/or installation and/or repair of the Frequencer® V2x receive Explanation and Training in ESD Procedure.

**MINIMUM ESD PROCEDURES**

**DESIGN IN IMMUNITY** by designing products and assemblies to be as immune and reasonable from the effects of ESD.

**DEFINE THE LEVEL OF CONTROL** needed in your environment.

**IDENTIFY AND DEFINE** the electrostatic protected areas (EPA), the areas in which you will be handling sensitive parts.

**ELIMINATE AND REDUCE GENERATION** by reducing and eliminating static generating processes, keeping processes and materials at the same electrostatic potential, and by providing appropriate ground paths to reduce charge generation and accumulation.

**DISSIPATE AND NEUTRALIZE** by grounding, ionization, and the use of conductive and dissipative static control materials.

**PROTECT PRODUCTS FROM ESD** with proper grounding or shunting and the use of static control packaging and materials handling product.
RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND THE FREQUENCER® V2x FOR LIFE-SUPPORTING.

<table>
<thead>
<tr>
<th>Rated maximum output power of transmitter (W)</th>
<th>Separation distance according to frequency of transmitter (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 kHz to 80 MHz outside ISM bands</td>
<td>[d = \left(\frac{35}{V_1}\right)^{\sqrt{P}}]</td>
</tr>
<tr>
<td>150 kHz to 80 MHz in ISM bands</td>
<td>[d = \left(\frac{12}{V_2}\right)^{\sqrt{P}}]</td>
</tr>
<tr>
<td>80 MHz to 800 MHz</td>
<td>[d = \left(\frac{12}{E_1}\right)^{\sqrt{P}}]</td>
</tr>
<tr>
<td>800 MHz to 2,5 GHz</td>
<td>[d = \left(\frac{23}{E_1}\right)^{\sqrt{P}}]</td>
</tr>
<tr>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

For transmitters rated at a maximum output power not listed above, the recommended separation distance (d) in metres (m) can be determined 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 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 The ISM (industrial, scientific and medical) bands between 150 kHz and 80 MHz are 6.765 MHz to 6.795 MHz; 13.553 MHz to 13.567 MHz; 26.957 MHz to 27.283 MHz; and 40.66 MHz to 40.70 MHz.

NOTE 3 An additional factor of 10/3 has been incorporated into the formulae used in calculating the recommended separation distance for transmitters in the ISM frequency bands between 150 kHz and 80 MHz and in the frequency range 80 MHz to 2.5 GHz to decrease the likelihood that mobile/portable communications equipment could cause interference if it is inadvertently brought into patient areas.

NOTE 4 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.
FREQUENCER® V2x, parts and accessories

DYMV2x  Frequencer® V2x control unit
DYMPS   Power supply
DYMPC   Power cord

1. IN MULTI-PATIENT SETTINGS
(HOSPITALS, CLINICS, LONG TERM CARE FACILITIES)

A. THE TRANSDUCER

DYMV2XTRMP  The transducer

B. THE MULTI-PATIENT USE DISPOSABLE ADAPTER WITH FILTER

DYMFLT4  Adapter with a 4" (10,16 cm) diameter opening recommended for adult
DYMFLT3  Adapter with a 3" (7,62 cm) diameter opening recommended for women and young adult.
DYMFLT2  Adapter with a 2" (5,08 cm) diameter opening recommended for children.
DYMFLT1T Adapter with a 1" (2,54 cm) diameter opening recommended for very small children.
C. THE ROLL STAND

- **DYMRSN**: Roll stand with fixation plate, handle, 2 baskets and a power supply holder.
- **HARD171**: Post, 34" (86,36 cm)
- **HARD172**: Base with casters, 21" (53,34 cm)
- **HARD176**: Utility basket
- **HARD1710**: Handle
- **HARD1712**: Fixed mounting plate
- **HARD1714**: Power supply bracket

D. THE CARRYING CASE WITH ROLLERS

- **DYMCC**: Foam padded carrying case