

AliveCor® Heart Monitor User Manual AliveECG Mobile App for Android

NOTE: For the current information on your product please visit www.alivecor.com/manuals

© 2011-2013 AliveCor, Inc. All rights reserved. US Patent No: 8,301,232 and Patents Pending. AliveCor is a trademark and trade name of AliveCor, Inc. in the United States and other countries.

Android is a trademark of Google Inc.

09LB08 Revision A | October 2013



Contents

1.	PRODUCT DESCRIPTION	3
2.	INDICATIONS FOR USE	3
3.	INTENDED USER	3
4.	GENERAL SAFETY PRECAUTIONS	3
5.	STORAGE AND HANDLING	4
6.	WARNINGS	4
7.	MAINTENANCE	5
8.	PREPARE THE HEART MONITOR FOR USE	5
9.	RECORD ECG RHYTHMS USING THE HEART MONITOR	6
10.	ECG HISTORY	7
11.	REVIEW ECG RECORDINGS	7
12.	VIEW AN ECG RECORDING ON THE ALIVECOR SERVER	8
13.	REPLACE THE BATTERY IN YOUR HEART MONITOR	8
14.	TROUBLESHOOTING	9
15.	ALIVECOR HEART MONITOR SPECIFICATIONS	. 11
16.	INTERNATIONAL AVAILABILITY	. 12
17.	ALIVECOR CONTACT INFORMATION	. 12
18.	EUROPEAN AUTHORIZED REPRESENTATIVE	. 12
19.	ELECTRICAL SAFETY	. 13
20.	SYMBOLS USED SYSTEM OR PACKAGE LABELING	. 17



1. PRODUCT DESCRIPTION

The AliveCor® Heart Monitor (Heart Monitor) is a mobile, clinical-quality electrocardiogram (ECG) recorder for use by both physicians and patients. The duration of the ECG recording is customizable from 30 seconds to continuous. The software application can store thousands of recordings on your compatible mobile device, and these recordings are also accessible to you on secure AliveCor, Inc. (AliveCor) servers. The device consists of three components:

- 1. The Heart Monitor, which attaches to your compatible mobile device and contains electrodes and electronics used to collect and transmit ECG rhythms.
- 2. The *AliveECG* mobile application (*AliveECG* App) used to collect, view, save, and wirelessly transmit ECG recordings to the AliveCor server.
- 3. A user-supplied mobile device operating a compatible operating system.

This Heart Monitor enables the physician or patient to:

- Collect and view single-channel ECG rhythms using the mobile device.
- Store ECG recordings on the mobile device.
- Wirelessly transmit ECG recordings to the AliveCor server.
- Access ECG recordings stored on the AliveCor server from anywhere in the world.
- Print the recordings or save a digital copy for future reference.

2. INDICATIONS FOR USE

The Heart Monitor is intended for use by licensed medical professionals or patients to record, display, store and transfer single-channel electrocardiogram (ECG) rhythms.

There are no known contraindications for the Heart Monitor, although care should be taken when considering using the device according to the warnings and precautions below.

CAUTION: Federal (USA) law restricts the sale of this device to or on the order of a physician.

3. INTENDED USER

The device is intended to be used by licensed medical professionals or by a patient under the care and supervision of a physician.

4. GENERAL SAFETY PRECAUTIONS

- The device should not be used in conjunction with water, or in a wet environment.
- Do not sterilize this unit with an autoclave or glass sterilizer.
- Audio and video products and similar equipment may cause interference. Please stay away from such equipment when you are recording.
- Disperse any static electricity from your body before using the unit.
- Do not take recordings in a moving vehicle.
- Do not expose the unit to strong shocks or vibrations.
- Do not disassemble, repair, or modify the unit.
- Do not insert battery with polarity reversed.
- Do not use batteries of a type other than that specified for use with the device.
- Do not take a recording if the electrodes are dirty. Clean them first.
- Do not use for any purpose other than obtaining an electrocardiogram.
- Do not take recordings in a location where the unit will be exposed to strong electromagnetic forces, such as near an arc welder, high-power radio transmitter, etc.



- Do not use this unit in locations subject to high or low temperatures or humidity. It should be used within the temperature and humidity range according to the product label.
- If the portion of the body where the electrode is applied has too much body fat, body hair or very dry skin, a successful recording may not be possible.
- Signal quality may degrade by detecting signals from other ultrasonic acoustic sources. Do not use the device in close vicinity to other equipment emitting ultrasonic acoustics such as espresso machines, some ventilation systems or another AliveCor Heart Monitor.
- The mobile device power adapter may degrade signal detection. Do not use the device while charging the mobile device.
- Some children and adults with very sensitive auditory ability may hear a high pitched hum or buzz emitting from the device when activated. This is due to normal device function.

5. STORAGE AND HANDLING

Do not store the unit in:

- Locations exposed to direct sunlight.
- Locations subject to high temperatures and high humidity.
- Wet or damp locations where water may get on the unit.
- Dusty locations.
- Near fires or open flames.
- Locations exposed to strong vibration.
- Locations exposed to strong electromagnetic fields.

6. WARNINGS

- This device is not designed or intended for complete diagnosis of cardiac conditions. This device should never be used as a basis for starting or modifying treatment without independent confirmation by medical examination.
- This device measures heart rate and heart rhythm only.
- This device does not detect or measure all heart rate, heart rhythm and heart waveform changes, especially those related to ischemic heart conditions.
- Do not attempt self-diagnosis or self-treatment based on the recording results and analysis. Self-diagnosis or self-treatment may lead to deterioration of your health.
- Patients should always consult their physician if they notice changes in their health, regardless
 of recording results.
- Do not use this device with a defibrillator.
- Do not use in the presence of flammable anesthetics, drugs or pressurized oxygen (such as in a hyperbaric chamber, ultraviolet sterilizer or oxygen tent).
- Do not use this device during an MRI scan.
- Keep out of reach of infants, small children, or anyone incapable of using the device properly.
- ECG reports viewed or printed at any magnification other than 100% may appear distorted and could lead to misdiagnosis.
- The device has not been tested for use on infants weighing less than 10kg. AliveCor does not recommend using on patients less than 10kg.
- It is not recommended to place a mobile phone directly next to a pacemaker on the chest.
- AliveCor does not recommend using on patients with a cardiac pacemaker, ICDs or other implanted electronic devices.



• Do not attempt ECG data acquisition while there is an external microphone plugged in to the mobile device.

7. MAINTENANCE

No maintenance of this system is required, except:

- The battery should be replaced when necessary.
- For best signal quality, the electrodes should be cleaned using alcohol-based hand sanitizer before each use.
- To prevent potential cross-infection of diseases between users, clean the device using alcohol prior to each use.

8. PREPARE THE HEART MONITOR FOR USE

8.1. Unpack the Heart Monitor

- Remove the Heart Monitor from the box.
- Place the Heart Monitor onto the back of your mobile device according to the instructions provided with your packaging.

8.2. Install the AliveECG App

- Using your mobile device, search for "AliveECG" in the Google Play Store.
- Download and install the *AliveECG* App. Note: there may be several available "*AliveECG*" applications available for download. Choose the appropriate application for your device.
- After Installing, the AliveECG icon will appear on your screen. Tap the icon to launch AliveECG.

8.3. Set up an AliveCor Account

You will use your AliveCor account to access, print and save your ECG recordings stored on the AliveCor server. Follow the instructions presented when you open the *AliveECG* App for the first time. You can go back later and change your information if necessary.

8.4. Configure Software Settings

To access the Settings in the AliveECG App, tap the "Menu" button and then select "Settings".

- Recording Duration. Recording Duration is the maximum length of time the AliveECG App will
 record a single ECG recording. For example, if the recording duration is set to 30 seconds, the
 AliveECG App will automatically stop recording after 30 seconds of data has been collected.
 The recording duration can also be set to Continuous, where the system will record as long as
 the user maintains contact with the electrodes.
- Mains Filter. The Mains Filter removes any mains interference from the ECG; it should be set to match the frequency of the alternating current (AC) used in your location. For the United States, Canada and Mexico, this is 60 Hz; in most other countries, it is 50 Hz.
- **Printing:** Sets various options for the PDF report that you can View, Print, Email and share. These settings affect the PDF report only, not the ECG display on the device.
 - Paper Size: Sets the paper size of the PDF to Letter or A4 paper sizes.
 - **Sweep Speed:** Sweep speed of the ECG in the PDF report can be set to 12.5mm/s, 25mm/s, or 50mm/s.
 - Gain: Gain of the ECG in the PDF report can be set to 5mm/mV, 10mm/mV or 20mm/mV.



- Account:
 - **Sign In/Log out:** Allows you to setup an AliveCor account, or to log out if you are already logged in.
- Reference:
 - User Manual:
 - Terms of Service:
 - Privacy Policy:

9. RECORD ECG RHYTHMS USING THE HEART MONITOR

Before taking your first recording, read these instructions carefully and make sure you observe the following instructions each time you take a recording.

- Make sure the Heart Monitor is properly attached to your mobile device.
- Disconnect headphones, charger cables, or any other connected devices.
- Clean the two electrodes with alcohol-based hand sanitizer.
- Using your mobile device, launch the AliveECG App.
- For a Lead I ECG, hold the system using two hands; the left hand should contact the electrode closer to the top of the mobile device, and the right hand should contact the electrode closer to the bottom of the mobile device.
- For a Lead II ECG, the left knee should contact the electrode closer to the top of the mobile device and the right hand should contact the electrode closer to the bottom of the mobile device.
- For an Anterior Precordial Lead, the device can be placed on the lower left side of the chest, just below the pectoral muscle. The bottom of the mobile device should be pointing towards the center of the body.
- Recording will begin automatically when both electrodes make contact with skin. The green bars in the upper right corner of the *AliveECG* App indicate when there is a connection between the patient and the electrodes.

NOTE: The ECG rhythms will appear best when the Heart Monitor is held steady. It may be helpful to rest your arms on a flat surface to increase stability.

NOTE: Alternatively, the monitor can be used up to a distance of 30cm (1ft) from the mobile device. Using the monitor at a distance from the mobile device may decrease the signal quality.

 The AliveECG App will record ECG rhythms for the selected Recording Duration (see Configure Software Settings above). When the recording is complete, the recording will be saved to your mobile device. If you remove contact after 10 seconds but before the selected recording duration is complete, the ECG will be saved and you will be able to review it.

NOTE: If you remove contact before 10 seconds of recording has occurred, the ECG will not be saved, and you will not be able to review it.

- For patients only
 - Immediately after recording is complete, you will be prompted to save the ECG recording.
 Select your name or 'Other User' if you name is not listed. If you do not wish to save the recording, you can select 'Cancel'.



- After selecting your name, the ECG will be saved with your details and you will then be
 prompted to enter notes and select symptoms and activities. After entering these details,
 tap the "Save" icon in the upper right of the screen or cancel if you do not want to record
 any notes or symptoms.
- The ECG will then be displayed for reviewing. The review screen allows you to scroll through the ECG by swiping your finger across the screen, and you can pinch and zoom to scale the ECG.
 There are also options to edit the details and patient information, delete the recording, review previous or next recordings, and to view, email, print and share a PDF report.
- When you are finished reviewing the ECG recording, either press the 'Home' button to exit the app, or press the 'Back' button to return to the RECORD screen, where you can then record another ECG.

10. ECG HISTORY

- **To view your ECG History list:** Tap the ECG History tab or swipe the screen to see a list of all your saved ECG recordings.
- To view a recording in the list: Scroll the list and then tap the ECG recording you wish to view.
- To search for a recording: Tap the 'search' icon and enter the patient's first name, last name, ID, or notes. As you type the list will be filtered to only show matching items.
- To delete one or more recordings: Tap the checkboxes of the items you wish to select, then tap the 'Trash' icon to delete all selected ECGs.
- To email or share one or more recordings: Tap the checkboxes of the items you wish to select, then tap the 'Share' icon and select the appropriate option to email or share PDF reports of the selected recordings.

11. REVIEW ECG RECORDINGS

On the ECG review screen you may swipe your finger across the screen to scroll through the ECG recording, and pinch and zoom to scale the ECG. Additionally you can edit patient information, notes, and symptoms, invert the polarity of ECG recording, enable or disable the enhanced and original filter, print, email or view a PDF report of the recording or delete the recording.

- Edit recording details: Tap the 'Edit' icon to add or edit notes, symptoms and patient information. Tap 'Save' to save the details and return to the review screen. This information will be automatically synchronized and updated to your AliveCor account.
- Pinch and Zoom: Pinch the screen to zoom in and out on the ECG recording.
- **Enhanced Filter:** The enhanced filter supresses noise in the ECG. To enable or disable the enhanced filter, tap the review screen, then tap on the 'Enhanced Filter' switch to toggle the filter ON or OFF.
- **Invert the ECG Polairy:** In the event that the Heart Monitor was oriented improperly when the ECG was recorded, it may appear inverted. To change the polarity of the ECG, tap on the center of the review screen, then tap on the 'Invert' switch to toggle it ON or OFF.
- Next/Prev: Tap the left or right arrow icon to review the previous or next ECG.
- **View PDF**: You may view a PDF of the recording by tapping the 'View' icon and choosing your PDF viewer.
- Share PDF: You may print, email or share a PDF report of the recording by tapping the 'Share' icon choosing your appropriate option



- **Delete:** To delete the ECG recording, tap the 'Trash' icon and confirm that you want to delete the recording. This will also delete the recording from the AliveCor server.
- **Return to the RECORD Screen:** When you are finished reviewing the ECG recording, press the 'Back' button to return to the main RECORD screen, where you can record another ECG.

12. VIEW AN ECG RECORDING ON THE ALIVECOR SERVER

- On your web browser, go to http://www.alivecor.com and click on "My Account".
- Enter your email address and the password you created when you set up your AliveCor account. Click Sign In.
- The ECG recordings you collected were automatically synced to the AliveCor server and will appear in the ECG list for review. Roll over the transmission you would like to view and click on the "View PDF" button.
- Click the back button in your browser to return to your AliveCor account homepage.

13. REPLACE THE BATTERY IN YOUR HEART MONITOR

The battery in the Heart Monitor should last approximately one year or up to approximately 10,000 30 second ECGs; however the actual life will depend on how often you use the device.

- Remove your Heart Monitor from the mobile device.
- Using a small screwdriver (1.6mm), remove the screw and battery door from the center of the Heart Monitor.
- Remove the used battery and replace it with a new 3V coin cell battery matched to your model.
 Orient the battery with the positive terminal up, so that you can see the writing.

Model	Battery
AC-004	CR2032

NOTE: Replacement batteries are available for sale at most general stores.

- Replace the screw and battery door.
- Dispose of the used batteries according to the local law.



14. TROUBLESHOOTING

Problem	Solution			
I do not see an ECG signal in the <i>AliveECG</i> App.	Check that you have good contact with the electrodes. Clean the electrodes. Clean and moisten the skin preferably with alcohol-based hand sanitizer or water. Note: Some hand lotions will prevent good skin contact. Ensure the contact between the skin and the electrodes is not obstructed.			
	If the problem persists, replace the battery in your Heart Monitor. (See Replace the Battery in your Heart Monitor.)			
I have a lot of artifact,	Try the following tips for acquiring the best quality ECG recording:			
noise or interference in my recording.	Ensure that the "Enhanced Filter" is on by tapping the filter text on the main record screen			
	Clean the electrodes on the monitor with alcohol-based hand sanitizer before each use			
	If hands are very dry, use a water based little lotion before trying to record			
	When recording from the hands, relax the arms and hands to reduce muscle noise. Rest the forearms and hands on a flat surface and let the heart monitor rest on the hands. Do not squeeze the electrodes			
	Ensure that your mobile device is not charging/syncing and you are not using headphones with your mobile device during the recording			
	Make sure that both the mobile device and the user remain still during ECG recordings. Movement during recordings will cause noise in the tracing			
	Make sure Mains Filter is set appropriately for your geographical location. This can be adjusted under the <i>AliveECG</i> app Settings			
	Try recording from the chest, right under the pectoral muscles in the mid line			
The ECG rhythms appear upside down.	In the future, ensure that the left hand contacts the electrode closer to the top of the mobile device, and the right hand contacts the electrode closer to the bottom of the mobile device. To invert a recording on your mobile device, see Invert the ECG recording under Review ECG Recordings.			
I do not see the ECG recording on my AliveCor server account.	Ensure that you've downloaded the <i>AliveECG</i> App (not the <i>Veterinary AliveECG</i> App) on your mobile device. Launch the <i>AliveECG</i> App on your mobile device, tap the Settings icon, and then tap "AliveCor Account". Ensure that the correct email and password are entered into the corresponding fields. (See Configure Software Settings under Prepare the Heart Monitor for Use). Ensure that you are logging into www.alivecor.com (not www.alivecorvet.com).			



Problem	Solution	
I forgot my password and I'm unable to reset it.	Ensure that you've downloaded the <i>AliveECG</i> App (not the <i>Veterinary AliveECG</i> App) on your mobile device. Similarly, ensure that you are logging into www.alivecor.com (not www.alivecorvet.com).	
	To reset your password, go to www.alivecor.com and click on "My Account" in the upper right corner and click on the "Forgot your password?" link below the Password field. On the Forgot Password screen, enter your email address and click Submit. You will receive the following message:	
	"PASSWORD SENT	
	We've sent password reset instructions to your email address.	
	You should receive instructions within a few minutes. If you do not receive an email within 5 minutes, please check your spam and junk filters. Otherwise, please try resending your request.	
	If you are still experiencing trouble, please visit our Customer Support page."	
	Follow the reset instructions in the email. Please note, the reset link contained in the email is only active for a short while.	



15. ALIVECOR HEART MONITOR SPECIFICATIONS

ECG Channel Single Channel Input Dynamic Range 10mV Peak-to-Peal Memory length Practically Unlimited Recording Format Continuous Shelf Life Estimated 2 years Circuitry Frequency Response 0.5 Hz to 40 H CMRR 76 di Input Impedance > 100 MOhn Differential Range +/- 5 mV A/D Sampling Rate 300 samples/second Resolution 16 bi DC Offset Correction +/- 300 mV
Memory length Practically Unlimited Recording Format Continuous Shelf Life Estimated 2 years Circuitry Frequency Response 0.5 Hz to 40 Hz CMRR 76 dE Input Impedance > 100 MOhn Differential Range +/- 5 mV A/D Sampling Rate 300 samples/second Resolution 16 bi
Recording Format Continuous Shelf Life Estimated 2 years Circuitry Frequency Response
Shelf Life
Circuitry Frequency Response
Frequency Response
CMRR
Input Impedance
Differential Range
A/D Sampling Rate
Resolution
DC Offset Correction+/- 300 m\
Output
ModulationFrequency Modulated Ultrasonic Audio Tone
Center Frequency19 kH
Frequency Deviation
Power Requirements
Battery Type 3V Coin Cel
Battery life min. 100 Hours Operational Time, 12 months typical use
Physical Characteristics
AC-004 with Attachment Plate27 grams89 x 50 x 7 mm
AC-004 with Galaxy S4 Case34 grams137 x 72 x 16 mm
Environmental Specifications
Operational Temperature+10 to +45 degrees 0
Operational Humidity10% to 95% (non-condensing
Operational Altitude based on your mobile device specification
Storage Temperature20 to +60 degrees 0
Storage Humidity10% to 95% (non-condensing
Standards Compliance
ANSI/AAMI EC38 IEC 60601-1 IEC 60601-2-47
ISO 10993 IEC 60601-1-2

Patient Interface

Two stainless-steel electrodes are exposed on the back of the Heart Monitor. These electrodes make contact with the patient's skin.



16. INTERNATIONAL AVAILABILITY

The AliveCor Heart Monitor is available for use by licensed medical professionals and by patients under the care and supervision of a physician in the USA. The Heart Monitor is available for use by any health conscious individual in the European Union. The AliveCor Heart Monitor is a non-notified medical device and approved for use in India.

17. ALIVECOR CONTACT INFORMATION

AliveCor, Inc.
30 Maiden Lane, 6th Floor
San Francisco, CA 94108
United States
www.alivecor.com

18. EUROPEAN AUTHORIZED REPRESENTATIVE

Oregon Scientific Italia S.p.A

Centro Direzionale Colleoni
Viale Colleoni 3, Palazzo Taurus 2,

20041 Agrate Brianza (MI), Italy



19. ELECTRICAL SAFETY

13. EEEGT MORE SALETT			
Guidan	ce and manufac	turer's declaration - electromagnetic emissions	
The AliveCor Heart Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of the AliveCor Heart Monitor should assure that it is used in such an environment.			
Emissions test	Compliance	Electromagnetic environment - guidance	
RF emissions CISPR 11	Group 1	The AliveCor Heart Monitor 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 CISPR 11	Class B	The AliveCoulleant Maniton is suitable for use in all	
Harmonic emissions IEC 61000-3-2	N/A	The AliveCor Heart Monitor is suitable for use in all establishments other than domestic and those directly	
Voltage fluctuations / flicker emissions IEC 61000-3-3	N/A	connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.	



Guidance and manufacturer's declaration—electromagnetic immunity

The AliveCor Heart Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of the AliveCor Heart Monitor should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±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 transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions, and voltage variations on power supply input lines IEC 61000-4-11	<5 % U _T (>95 % dip in U _T) for 0.5 cycle 40 % U _T (60 % dip in U _T) for 5 cycles 70 % U _T (30 % dip in U _T) for 25 cycles <5 % U _T (>95 % dip in U _T) for 5 sec	<5 % U _T (>95 % dip in U _T) for 0.5 cycle 40 % U _T (60 % dip in U _T) for 5 cycles 70 % U _T (30 % dip in U _T) for 25 cycles <5 % U _T (>95 % dip in U _T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the AliveCor Heart Monitor requires continued operation during power mains interruptions, it is recommended that the AliveCor Heart Monitor be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.



Guidance and manufacturer's declaration—electromagnetic immunity

The AliveCor Heart Monitor is intended for use in the electromagnetic environment specified below. The customer or the user of the AliveCor Heart Monitor should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the AliveCor Heart Monitor, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = [\frac{3.5}{V_1}]\sqrt{P}$ $d = [\frac{3.5}{E_1}]\sqrt{P}$ 80 MHz to 800 MHz
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2.5 GHz	3 V/m	$d = [\frac{7}{E_1}]\sqrt{P} \ \ 800 \ \text{MHz} \ \text{to 2.5 GHz}$ 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, a should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: $\left(\left(\begin{smallmatrix} \bullet \\ \bullet $

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

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

^a 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 AliveCor Heart Monitor is used exceeds the applicable RF compliance level above, the AliveCor Heart Monitor should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the AliveCor Heart Monitor.



Recommended separation distances between portable and mobile RF communications equipment and the AliveCor Heart Monitor

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

	Separation distance according to frequency of transmitter m				
Rated maximum output power of transmitter	150 kHz to 80 MHz 80 MHz to 800 MHz		800 MHz to 2.5 GHz		
w	$d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$	$d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$	$d = \left[\frac{7}{E_1}\right]\sqrt{P}$		
0.01	0.12	0.12	0.23		
0.1	0.38	0.38	0.73		
1	1.2	1.2	2.3		
10	3.8	3.8	7.3		
100	12	12	23		

For transmitters rated at a maximum output power not listed above, the recommended separation distance *d* in meters (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—These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.



20. SYMBOLS USED SYSTEM OR PACKAGE LABELING

	Type CF Applied Part
<u> </u>	European Conformity Mark
Z	WEEE – Properly Dispose of Electronic Waste
[]i	Consult Instructions for Use / User Manual
~	Manufacturer
	Temperature Limits (Operational)
%	Relative Humidity Limits (Operational)
RxOnly	Prescription Use Only in The United States
REF	Model Number
SN	Serial Number
	Direct Current Power Source