

# LA CROSSE®

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# TECHNOLOGY

## DIGITAL ATOMIC WALL CLOCK

Indoor Temperature/Humidity

Outdoor Temperature

Moon Phase

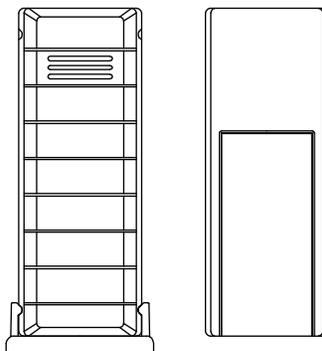
Model KWS-8140U-IT | Instruction Manual

The digital atomic wall clock features radio-controlled time, date, alarm, indoor temperature and humidity, and moon phase. Wireless outdoor temperature range (open air) up to 200 feet (60.96 meters).

### Atomic Wall Clock



### Outdoor Temperature Transmitter: TX40U-IT



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KWS-8140U-IT  
2-AA Alkaline batteries  
9.17" x 1.16" x 8.30"  
(233 x 29.4 x 210.8 mm)

TX40U-IT  
2-AAA Alkaline batteries  
1.27" x 0.55" x 3.40"  
(32.4mm x 14.1 x 86.5mm)



## Features

- Wireless outdoor temperature (°F or °C)
- Monitors indoor temperature (°F or °C)
- Monitors indoor humidity
- 12 moon phases
- Atomic time and date with manual setting
- Automatically updates for Daylight Saving Time (on/off option)
- 12/24 hour time display
- Perpetual calendar
- Time zone setting
- Time alarm with snooze
- Time display: hours, minutes, seconds
- Wall hanging or free standing

## Setup Instructions Step-By-Step

### Step 1:

- Slide the battery cover down and lift off the back of the transmitter.
- Insert 2 NEW AAA batteries (not included) into the TX40U-IT transmitter. Observe the correct polarity.

### Step 2:

- Remove battery cover from atomic wall clock: insert a solid object in the space provided at the lower-central position of the battery cover, then push up and pull out on the battery cover.
- Insert 2 NEW AA batteries (not included) into the back of the atomic wall clock. Observe the correct polarity (see marking inside the battery compartment). The atomic wall clock will display time and indoor temperature.
- Within 3 minutes the outdoor temperature should be displayed.
- Keep the atomic wall clock and transmitter within 10 feet of each other during setup (15 minutes).
- **Do Not Mix Old and New Batteries**
- **Do Not Mix Alkaline, Standard, Lithium or Rechargeable Batteries**

## 915MHz Reception for Outdoor Transmitter

The atomic wall clock will receive the temperature data within 4 seconds. If the temperature data is not being received 2 minutes after set up (or the display shows "--"), then please check the following points:

1. The distance of the atomic wall clock or outdoor temperature transmitter should be at least 6 feet (2 meters) away from any interfering sources such as computer monitors or TV sets.
2. Avoid placing the receiver onto or in the immediate proximity of metal window frames.
3. Using other electrical products such as headphones or speakers operating on the same signal frequency (915MHz) may prevent correct signal transmission and reception.
4. Neighbors using electrical devices operating on the 915MHz signal frequency can also cause interference.

**Note:** When the 915 MHz signal is received correctly, do not re-open the battery cover of either the outdoor temperature transmitter or atomic wall clock, as the batteries may spring free from the contacts and force a false reset. Should this happen accidentally then reset all units (see **SETUP** above) otherwise transmission problems may occur.

The maximum transmission range is 220 feet (60 meters) from the outdoor temperature transmitter to the atomic wall clock (in open space). However, this depends on the surrounding environment and interference levels. If no reception is possible despite the observation of these factors, all system units have to be reset (see **SETUP**).

## WWVB Radio-controlled Time Signal

The NIST radio station, WWVB, is located in Ft. Collins, Colorado and transmits the exact time signal continuously throughout the United States at 60 kHz. The signal can be received up to 2,000 miles away through the internal antenna in the atomic wall clock. However, due to the nature of the Earth's Ionosphere, reception is very limited during daylight hours. The atomic wall clock will search for a signal every night when reception is best.



Once the outdoor temperature is displayed on the atomic wall clock, the WWVB tower icon in the atomic wall clock will flash the top of the LCD. This indicates that the atomic wall clock has detected a radio signal and is trying to receive it.

When the time code is received, the WWVB tower becomes permanently lit and the time will be displayed.

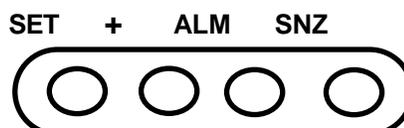
If the tower icon flashes, but does not set the time or the WWVB tower does not appear at all, then please take note of the following:

- Recommended distance to any interfering sources like computer monitors or TV sets is a minimum of 6 feet (2 meters).
- Within ferro-concrete rooms (basements, superstructures), the received signal is naturally weakened. In extreme cases, please place the unit close to a window and/or point its front or back towards the Fort Collins, Colorado..
- During nighttime, the atmospheric disturbances are usually less severe and reception is possible in most cases. A single daily reception is adequate to keep the accuracy deviation below 1 second.

**Note:** In case the atomic wall clock is not able to detect the WWVB-signal (disturbances, transmitting distance, etc.), the time can be manually set (please see **Program Menu**).

## Function Buttons

The atomic wall clock has four easy to use buttons:



- SET** Hold to enter into the set mode for the following functions: time zone, DST ON/OFF (daylight saving time), hour, minute, year, month, date, weekday, 12/24h time format display, °F/ °C temperature unit.
- +** Hold to change any values in manual set mode  
Press and release to toggle between the seconds, indoor, and outdoor display
- ALM** Hold to enter into the alarm set mode  
Press and release to activate/deactivate the alarm
- SNZ** Press and release to activate the snooze function during alarm  
Press and release to exit manual setting modes

## Program Menu

**Note:** If the atomic wall clock has already successfully received the WWVB time signal and displays the correct time and date, then the Manual settings can be skipped.

The SET button moves through the program menu. The + button changes a value. The following settings can now be programmed:

- Time zone setting
- DST ON/OFF
- Manual time setting (Hour, Minute)
- Year setting
- Month setting
- Date setting
- Weekday setting
- 12/24h time format display
- °F/°C temperature setting

### Time Zone

The time zone can be set between the +/-12-hour range. Hold the SET button for 5 seconds.

1. The time zone **-5 EST** will flash. Use the + button to select the desired time zone.  
Time zone settings: -12, -11, -10, ALA, PST, MST, CST, EST, ATL, EST, -4, -3, -2, -1, 0, +1, +2...+12. (Default: EST)
2. Press and release the SET button to enter the DST Setting.



A digital display showing 'EST' on the left and '- / 5' on the right, indicating the current time zone setting.

### DST (daylight saving time)

1. The **ON** digit will flash on. Select DST ON or OFF by pressing the + button.
2. Press and release the SET button to manually set the time.

**Note:** The DST default is "ON", meaning that the WWVB will automatically change the time according to Daylight Saving Time in the spring and fall. For areas that do not recognize DST changes (Arizona and Hawaii) turn the DST "OFF".



A digital display showing 'ON' in the top row and 'DST' in the bottom row, indicating that Daylight Saving Time is currently set to 'ON'.

### Time Set

1. The **hour** digits will flash.
2. Press and release the + button to set the hour.
3. Press and release the SET button to move to the minutes.
4. The **minute** digits will flash.
5. Press and release the + button to set the minutes. If the + button is held, the units will increase by 5.
6. Press and release the SET button to move to calendar set.

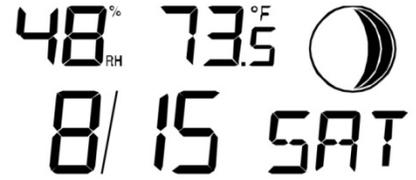


A digital display showing 'PM' on the left, '12:34' in the center, and a small icon on the right, indicating the current time is 12:34 PM.

## Calendar Set

The year can be selected sequentially from 2001 to 2029 and will then start over again (default setting 2009). The year will only appear in the manual set mode.

1. The **year** digits will flash(only last 2 digits).
2. Press and release the + button to set the year.
3. Press and release the SET button to move to the month.
4. The **month** digits will flash.
5. Press and release the + button to set the month.
6. Press and release the SET button to move to the numeric date.
7. The **date** digits will flash.
8. Press and release the + button to set the date.



**Note:** The date can only be set in conjunction with the selected month. For example, it is not possible to set the date 30 if the month of February is selected.

9. Press and release the SET button to move to the weekday.
10. The **weekday** symbols will flash.
11. Press and release the + button to set the weekday.
12. Press and release the SET button to move to 12/24 hour time.

## 12/24h Time Format

The time format can be display in 12 or 24 (Default setting 12).

1. The digits **12** or 24 will flash.
2. Press and release the + button to select 12 hour or 24 hour time format.
3. Press and release the SET button to move to select °F or °C Temperature .



## °F or °C Temperature

The temperature setting can be set to either to °F or °C (Default setting °F).

1. The characters **°F** or °C will flash.
2. Use the + button to select °F for temperature display in degrees Celsius or °C for degrees Fahrenheit.
3. Press and release the SET button to exit the setting mode and switch back to the normal time display.



## Exit Manual Set Mode

- Press the SNZ button to return to the normal time display mode anywhere in manual setting mode.
- If no buttons are pressed for at least 15 seconds in setting mode, the atomic wall clock will automatically switch back to normal display mode.

## Display Modes (seconds counting)

This clock offers a feature of having seconds count on in place of the temperatures or weekday. This offers a variety of display options for your clock.

The **default** time display will show the lower display as:  
*indoor humidity/ indoor temperature/ Month& date/ Weekday/ outdoor temperature.*  
(no seconds)



1. Press the + button. The display should now show:  
*indoor humidity/ **seconds**/ Month& date/ Weekday/ outdoor temperature.*  
(Seconds replace indoor temperature).

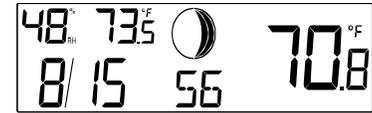


2. Press the + button a second time and the display will now show:

indoor humidity/ indoor temperature/ month & date/ weekday/ **seconds**.  
 (Seconds replace outdoor temperature).



- Press the + button a third time and the display will now show:  
 indoor humidity/ indoor temperature/ month & date/ **seconds**/ outdoor temperature  
 (Seconds replace weekday).



- Press the + button a fourth time and the display will return to the default time display.

## Alarm Set

To enter into the alarm setting mode:

- Hold the ALM button for 4 seconds. The hour digits start flashing.
- Press and release the + button to set the hour.
- Press and release the ALM button to set the minutes. The minute digits start flashing.
- Press and release the + button to set the minutes.
- Press and release again the ALM button to exit the Alarm setting mode or wait for 15 seconds automatic timeout.

## Deactivate Alarm

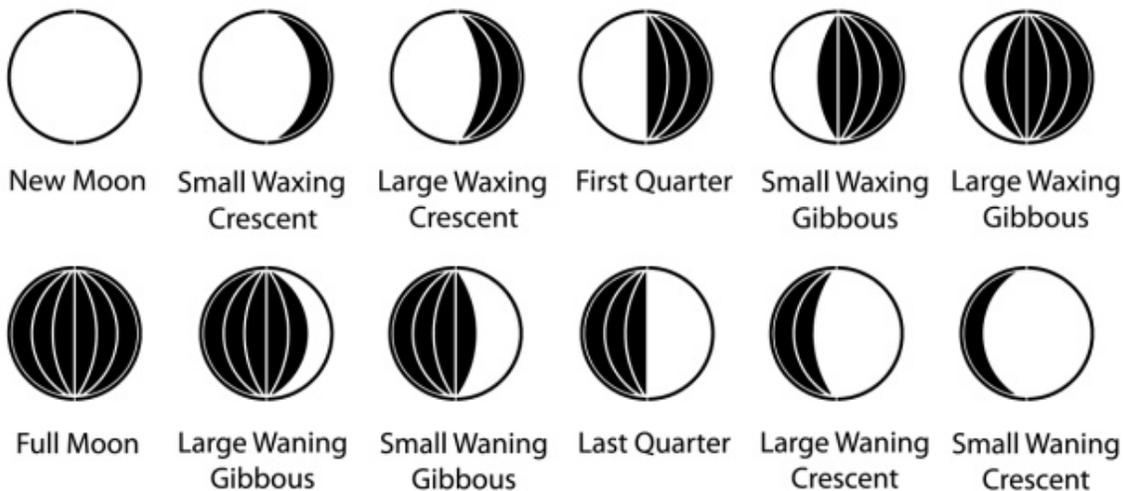
The alarm will be automatically ON when the alarm time is set. The alarm icon (☾) is visible after the minutes. To deactivate the alarm (OFF), press and release once the ALM button in normal mode display. The alarm icon will disappear, the alarm is now off.

## Snooze

When the alarm sounds press the SNZ button on the back of the clock to activate the snooze feature for 10 minutes..

## Moon Phase

The Moon Phase will show according to the calendar setting. There are total twelve Moon Phases that will display on LCD.



**Note:** With the moon shown against a light colored background, the phases will show **opposite** to a paper calendar. The segments that are highlighted portray the part of the moon that is lit. For instance, the moon will be blank during a new moon and dark during a full moon.

- Waxing** means growing or expanding illumination which occurs after a new moon.
- Waning** means decreasing illumination and occurs after a full moon.
- Crescent** refers to the moon being less than half illuminated. Crescents can be waning or waxing.

- **Gibbous** describes a moon phase when more than half is illuminated. Gibbous can be waxing or waning.
- **New Moon** occurs when the moon is between the earth and sun, so the illuminated portion of the moon is on the back side facing the sun and we cannot see it. After a new moon, the illuminated (visible) portion will increase or wax until the full moon occurs.
- **Full Moon** occurs when the earth, moon and sun are in approximate alignment with the moon and the sun on opposite sides of the earth. The illuminated portion of the moon faces the earth, giving us complete visibility of one side of the entire moon. After a full moon, the illuminated portion will decrease or wane until the new moon occurs.
- **First Quarter** and **Last Quarter** moons occur when the moon is at a 90 degree angle to the earth and sun. We see half of the moon illuminated and half is in shadow.

## Low Battery Icon

When the **RX** symbol appears behind the time, replace the batteries in the atomic wall clock.

When the **TX** symbol appears near the outdoor temperature, replace batteries in the outdoor transmitter.

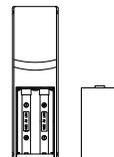
**Please help in the preservation of the environment and return used batteries to an authorized depot.**



## Install Batteries in the Outdoor Transmitter

The Outdoor Transmitter uses 2 x AAA, IEC, LR3, 1.5V batteries. To install and replace the batteries, please follow the steps below:

1. Slide the battery cover down and lift off the back of the transmitter.
2. Insert 2 NEW AAA batteries (not included) into the TX40U-IT transmitter. Observe the correct polarity.

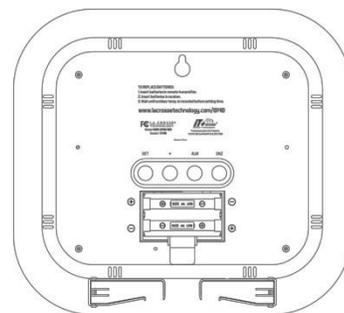


**Note:** When changing batteries in any unit, all units need to be reset by following the setup procedures. This is due to a random security code assigned by the transmitter at start-up. This code must be received and stored by the atomic wall clock in the first 3 minutes of power being supplied to the transmitter. If the atomic wall clock has been operating for more than 5 hours, remove batteries from the outdoor transmitter and the atomic wall clock for at least 15 minutes before completing a restart.

## Install Batteries in the Atomic wall clock

The atomic wall clock uses 2 x AA, IEC LR6 1.5V batteries. To install and replace the batteries, please follow the steps below:

1. Remove battery cover from atomic wall clock: insert a solid object in the space provided at the lower-central position of the battery cover, then push up and pull out on the battery cover.
2. Insert 2 NEW AA batteries (not included) into the back of the atomic wall clock. Observe the correct polarity (see marking inside the battery compartment). The atomic wall clock will display time and indoor temperature.
3. Within 3 minutes the outdoor temperature should be displayed.
4. Keep the atomic wall clock and transmitter within 10 feet of each other during setup (15 minutes).



- **Do Not Mix Old and New Batteries**
- **Do Not Mix Alkaline, Standard, Lithium or Rechargeable Batteries**

**Note:** If the atomic wall clock does not display *indoor* temperature after 60 seconds, remove batteries and wait for at least 60 seconds before repeating the setup process.

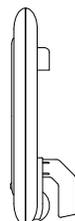
## Position the Atomic wall clock

The atomic wall clock provides the option of table standing or wall mounting. Before mounting, please check that the outdoor data can be received from the desired locations.

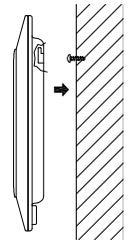
**Foldout stands:** Simply unfold the legs on the back and place the atomic wall clock on a desk or table.

**Wall mounted:**

1. Fix a screw (not supplied) into the desired wall, leaving the head extended out by about 0.2" (5mm).



- Place the atomic wall clock onto the screw, using the hanging hole on the backside. Gently pull the atomic wall clock down to lock the screw into place.
- Choose a location 6 feet or more from electronics such as cordless phones, gaming systems, televisions, microwaves, routers, etc.
- Place within range of the outdoor transmitter.
- The maximum transmitting range in open air is 200 feet (96 meters). Obstacles such as walls, windows, stucco, concrete, and large metal objects can reduce the range.
- For best WWVB reception, orientate the atomic wall clock with the front or the back facing Ft. Collins, Colorado and mount on an exterior wall.

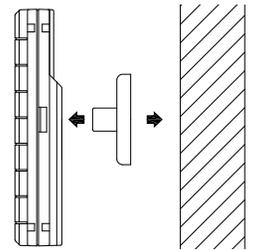


## Position the Outdoor Transmitter

To achieve a true temperature reading, mount in a shaded location. While the outdoor temperature sensor is weather resistant, avoid submersion in water or snow. We recommend that you mount the outdoor temperature sensor on an outside North-facing wall. The transmission range is 200ft(open air). Obstacles such as walls, concrete, and large metal objects can reduce the range. Place both units in desired location, and wait approximately 15 minutes before permanently mounting to ensure that there is proper reception.

### Wall Mount:

- Remove the mounting bracket from the outdoor temperature sensor .
- Place the mounting bracket in the desired shaded location (wall or table).
- Through the screw holes of the bracket, mark the mounting surface with a pencil.
- Screw mounting bracket onto the mounting surface. Ensure that the screws are flush with the bracket. Do not over-tighten.
- Insert the outdoor temperature sensor into the bracket.



**Note:** Mounting with adhesive tape is not recommended as a permanent mounting solution. Only use adhesive tape during set-up process.

## Care and Maintenance

- **Do Not Mix Old and New Batteries**
- **Do Not Mix Alkaline, Standard, Lithium or Rechargeable Batteries**
- Do not expose the atomic wall clock to extreme temperatures, vibration or shock.
- Keep atomic wall clock dry.
- Clean atomic wall clock with a soft damp cloth. Do not use solvents or scouring agents.
- The product is not a toy. Keep it out of reach of children.
- The product is not to be used for medical purpose or for public information, but is determined for home use only.
- The specifications of this product may change without prior notice.
- Improper use or unauthorized opening of housing will void the warranty.
- If the unit does not work properly, change the batteries.

## Specifications

### Temperature measuring range

Indoor:	14.5°F to 138°F with 0.5°F resolution (-9.5°C to +59.9°C with 0.5°C resolution) ("OF" displayed if outside this range)
Outdoor:	-39.8°F to 139.8°F with 0.2°F resolution (-39.9°C to 59.9°C with 0.1°C resolution) ("OFL" displayed if outside this range)
Indoor humidity:	20% to 95% with 1% resolution ("-" is displayed if outside the range) ("19%" is displayed below 20%; "96%" will be displayed above 95%)

### Temperature and humidity checking interval:

Indoor:	Every 8 or 16 seconds
Outdoor:	Every 4 seconds
Humidity:	Every 65 seconds

**Transmission distance:**

Maximum: 200 feet (60 meters) in open air

**Power consumption** (Alkaline batteries recommended)

Atomic wall clock: 2 x AA, 1.5V batteries

TX40U-IT Temp Sensor: 2 x AAA, 1.5V batteries

**Battery life:**

Atomic wall clock: approximately 24 months

TX40U-IT Temp Sensor: approximately 12 months

**Dimensions** (L x W x H)

Atomic wall clock: 9.17" x 1.16" x 8.30" (233 x 29.4 x 210.8 mm)

TX40U-IT Temp Sensor: 1.27" x 0.55" x 3.40" (32.4mm x 14.1 x 86.5mm)

**Warranty Information**

La Crosse Technology, Ltd provides a 1-year limited warranty on this product against manufacturing defects in materials and workmanship.

This limited warranty begins on the original date of purchase, is valid only on products purchased and used in North America and only to the original purchaser of this product. To receive warranty service, the purchaser must contact La Crosse Technology, Ltd for problem determination and service procedures. Warranty service can only be performed by a La Crosse Technology, Ltd authorized service center. The original dated bill of sale must be presented upon request as proof of purchase to La Crosse Technology, Ltd or La Crosse Technology, Ltd's authorized service center.

La Crosse Technology, Ltd will repair or replace this product, at our option and at no charge as stipulated herein, with new or reconditioned parts or products if found to be defective during the limited warranty period specified above. All replaced parts and products become the property of La Crosse Technology, Ltd and must be returned to La Crosse Technology, Ltd. Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer. La Crosse Technology, Ltd will pay all expenses for labor and materials for all repairs covered by this warranty. If necessary repairs are not covered by this warranty, or if a product is examined which is not in need of repair, you will be charged for the repairs or examination. The owner must pay any shipping charges incurred in getting the La Crosse Technology, Ltd product to a La Crosse Technology, Ltd authorized service center. La Crosse Technology, Ltd will pay ground return shipping charges to the owner of the product to a USA address only.

The La Crosse Technology, Ltd warranty covers all defects in material and workmanship with the following specified exceptions: (1) damage caused by accident, unreasonable use or neglect (including the lack of reasonable and necessary maintenance); (2) damage occurring during shipment (claims must be presented to the carrier); (3) damage to, or deterioration of, any accessory or decorative surface; (4) damage resulting from failure to follow instructions contained in the owner's manual; (5) damage resulting from the performance of repairs or alterations by someone other than an authorized La Crosse Technology, Ltd authorized service center; (6) units used for other than home use (7) applications and uses that this product was not intended or (8) the products inability to receive a signal due to any source of interference.. This warranty covers only actual defects within the product itself, and does not cover the cost of installation or removal from a fixed installation, normal set-up or adjustments, claims based on misrepresentation by the seller or performance variations resulting from installation-related circumstances.

LA CROSSE TECHNOLOGY, LTD WILL NOT ASSUME LIABILITY FOR INCIDENTAL, CONSEQUENTIAL, PUNITIVE, OR OTHER SIMILAR DAMAGES ASSOCIATED WITH THE OPERATION OR MALFUNCTION OF THIS PRODUCT. THIS PRODUCT IS NOT TO BE USED FOR MEDICAL PURPOSES OR FOR PUBLIC INFORMATION. THIS PRODUCT IS NOT A TOY. KEEP OUT OF CHILDREN'S REACH.

This warranty gives you specific legal rights. You may also have other rights specific to the State. Some States do not allow the exclusion of consequential or incidental damages therefore the above exclusion of limitation may not apply to you.

**For warranty work, technical support, or information contact:**

La Crosse Technology, Ltd  
2817 Losey Blvd. S.  
La Crosse, WI 54601



Contact Support: 1-608-782-1610  
Product Registration:  
[www.lacrossetechnology.com/support/register](http://www.lacrossetechnology.com/support/register)

Online at:  
<http://www.lacrossetechnology.com/8140>

Protected under U.S. Patents:  
5,978,738  
6,076,044  
6,597,990

## FCC Disclaimer

### **RF Exposure mobile:**

The internal / external antennas used for this mobile transmitter must provide a separation distance of at least 20 cm (8 inches) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

### **Statement according to FCC part 15.19:**

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.

### **Statement according to FCC part 15.21:**

Modifications not expressly approved by this company could void the user's authority to operate the equipment.

### **Statement according to FCC part 15.105:**

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help

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