

ImageReader GS

Full Page Gray Scale Scanner

User's Guide

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The Info Technician

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Chapter 1

Introduction

Welcome

Thank you for purchasing an Info ImageReader Scanner. This product is the result of our efforts to develop high technology computer peripherals that are easy to use, affordably priced, and that enhance your computing experience.

Using this manual

This manual includes complete instructions for scanner installation, use, and maintenance. Note that "use," in this context, refers to scanner operation independent of tasks performed in conjunction with application software. This guide is organized in a "do as you read" format. For best results, perform the tasks as they are presented.

This manual assumes that you have a basic understanding of the DOS and Windows operating system. As a convention, this guide presents all references to guide names or sections in *italics*, and commands you must type at a command line are presented in a **different** typeface.

Assistance

If you experience difficulties and cannot find solutions within this guide, contact Info's Technical Support Department at (408) 538-2510, Monday through Friday, between 8:00 am and 4:30 pm, Pacific time. If you wish, you may fax questions to (408) 538-2577. Provide a fax number for return contact. We maintain a BBS at (408) 538-2580 that contains the latest updates to our software, as well as a web site at infocconnection.com.

If all of our technicians are occupied, please leave your name and phone number on our voice mail system. This system is intended to avoid excessive "on hold" waiting. You and your questions are important to us and we will respond as quickly as possible. After hours calls are returned the following working day.

What is TWAIN?

TWAIN is the interface that links the scanner with scanning software applications. TWAIN is an industry standard that enables you to use the ImageReader with any TWAIN-compliant software application.

With the introduction of Windows 95, the TWAIN specification has been overhauled to take advantage of the 32-bit architecture. When you install our scanner driver under Windows 95, you will have two TWAIN sources – one for 16-bit applications and one for 32-bit applications. Use the following as a guide to select the appropriate source.

16-bit applications are legacy Windows 3.x programs that you are running under Windows 95.

32-bit applications are programs specifically designed for Windows 95, to take advantage of performance enhancements provided by the new architecture.

You may experience scanning problems if you do not use the appropriate source.

There is no change to the TWAIN source for Windows 3.x users. Only the 16-bit TWAIN source is installed.

A note about application software

The scanner hardware by itself is not very useful. It takes a combination of the scanner hardware and application software to perform any task. Before you begin scanning, you need to choose the appropriate application to use for the task at hand. Please read this section to gain an understanding of the types of scanning software there are.

Scanning software generally falls into two groups, Graphics (image editing), or OCR (Optical Character Recognition). Each type has specific features designed to address the technical challenges faced in the scanning of graphics or of text.

Graphics: Software in this category provides the user with image editing tools for performing extensive modifications to art, photographs, or other continuous tone images. While having the

ability to scan text, it is not designed to specifically identify individual characters as does OCR software. Any image scanned using a graphics program can only be saved in a graphics file format. It cannot be saved as an editable text file.

OCR: Software in this category is designed to recognize alphanumeric characters in preparation for export to word processing and desktop publishing applications. In other terms, it creates text files. OCR software will not provide image editing capabilities. If there is no intention of editing a given piece of text (with or without graphics), it may be simpler to scan and save it as a graphic.

Additional types of applications are available that offer solutions for special or unique tasks. These include document storage, form scanning, fax utilities, copy utilities, custom screen saver creation, photo album creation, and so on. If applications are intended to link directly to the scanning device, look for the TWAIN-compliant specification. If compliant, they are compatible with Info ImageReader scanners.

Package contents

Please verify that all materials have been received before setting up and using your scanner. This package contains:

- ImageReader GS scanner
- 8-bit interface card
- 25-pin interface cable
- Quick Start Guide
- Info Technician driver installation disks
- This User's Guide
- Calibration sheet
- Scanner registration card
- Application software (listed in the Quick Start Guide)

System requirements

System requirements are largely dependent on the "work" performed. By work, we are referring to the task or operation performed using the scanner in conjunction with application software.

Because scanners are capable of inputting large amounts of data in relatively short periods of time, they commonly push computer systems to the limits of their capabilities. Before beginning any scanning task or operation, carefully consider the system's processing capabilities, especially processor speed, RAM, and available hard disk space. OCR processes, fax operations, and the processing of simple black and white graphics are least demanding. High resolution scanning of large images in true gray scale creates more demand for processor time and memory.

When you are scanning with the TWAIN interface, the number labeled image size (calculated in bytes) provides the working file size that is the result of the selected scanning mode, resolution, and image size. Take careful note of this information.

Minimum and recommended system requirements are:

- 386 processor or 100% compatible; 486 or higher recommended
- DOS 5.0 or later
- Windows 3.x, Windows 95 or later
- 4 MB RAM; 8 MB RAM recommended
- 10 MB available hard disk space; 50 MB recommended
- VGA/SVGA monitor with at least 256 color capability recommended
- Available 8-bit expansion slot

Chapter 2

Scanner Installation and Info Technician

Installation

Installation of the scanner is comprised of few steps and designed to be as easy as possible. The following instructions walk you through installing the interface card into your PC, and connecting the scanner and cable. It is important to note that both the scanning hardware and its supporting software (e.g. Info Technician and the included applications) must be installed in order for the scanner to operate.

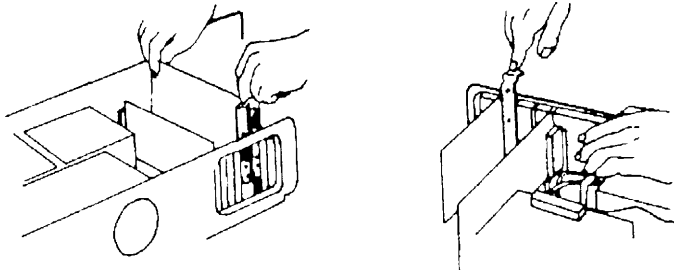
Installing the interface card

The installation of the scanner's interface card is a simple process. Because your PC is designed with room for additional peripherals, the manual that was provided with your computer contains complete guidelines for case removal and expansion card installation. The graphic and instructions provided here are intended to supplement that information.

Caution! The power to the computer and all peripheral equipment should be off and disconnected from the power source. Follow all safety precautions and instructions provided in your system's manual.

To install the interface card:

1. Remove the computer's housing.
2. On the computer's mother board, select an available 8-bit ISA expansion slot, and remove its rear access cover. The slot must be free of dust and dirt to ensure a good connection.
3. Holding the scanner interface card by the upper edge, align the gold-striped connector with the expansion slot. Press the card firmly into the slot as displayed in the diagram the next page.



4. Use the slot cover's screw to retain the interface card. Replace the housing and secure all screws.
5. Reconnect the power source to your computer and any other peripheral equipment.

Connecting the scanner

Attach the female connector of the interface cable to the port on the scanner. Place the scanner unit in the desired location, and route the interface cable to the computer in such a way as to assure it is safe from possible damage due to pinching or crimping. Insert the male connector on the cable into the port on the interface card. The cable can only be inserted one way – do not force a connection.

Important: The scanner will not function until the device driver is installed. Power for scanner operation is delivered from the interface card, which is controlled by the device driver. This is loaded when you run the Info Technician, described in the next section.

The Info Technician

The Info Technician is an automatic installation utility that edits and installs the scanner's device and TWAIN drivers. These drivers provide the link between the scanning hardware, the scanning application, and the computer's operating system.

Installing the device driver

Run the Info Technician to install the scanner drivers. To do so:

1. Insert disk 1 of the Info Technician into the computer's floppy drive.

2. In Windows Program Manager, select the Run command from the File menu. If you are using Windows 95, select Run from the Start menu on the desktop.
3. Type **A:\SETUP** at the command line and click OK. Substitute the appropriate drive letter if the disk is not in the A drive.
4. Follow the on screen directions.

The scanner's device driver is installed in the proper directory, along with the TWAIN driver.

5. Reboot the computer after the installation is complete to activate the scanner drivers.

Calibration

The scanner must be calibrated for it to perform accurate scans. The calibration sheet is the small strip with the gray and black bars, included in the package.

To calibrate the scanner:

1. Open the calibration utility by double-clicking the Calibrate Scanner icon in Windows Program Manager. If you are using Windows 95, select Programs>Infotech>Calibrate Scanner from the Start menu.
2. Place the calibration sheet in the scanner face up, lengthwise. Nudge the sheet until the scanner grabs it. The top, white portion should enter first, followed by the black bar and then the gray bar.
3. Click OK.

The sheet is scanned and a calibration file is created. If the scanner doesn't scan the calibration sheet, refer to Appendix A and B for troubleshooting information. Your scanner may need to be configured differently.

Installing the application software

When the hardware and device driver software are installed, install the application software as described in their respective manuals. The *Quick Start Guide* also contains information about installing these programs.

Chapter 3

Using your scanner

Scanning features and controls

Before scanning images, it is important to understand the scanner's basic hardware features as well as the software controls.

Hardware features

Power

Power is provided to the scanner through the interface card and cable from your computer. There is no on/off power switch on the unit.

When the computer is turned on, power is available to the scanner.

The scanner is activated when paper is inserted.

Eject

Paper can be ejected at any time by pressing the Eject button on the scanner. Jammed paper can be removed by dragging the paper out of the feeder.

Paper loading

Place the document to be scanned *face up* at the right edge or center of the feed tray. A paper sensor engages the scanner's motor, and the paper advances about a quarter of an inch. It remains in the standby position until scanning is initiated from the application software. If the paper does not contact the paper sensor, the scanner will not engage. The paper is automatically ejected if scanning is not initiated in approximately 5 minutes.

Paper size

The scanner will handle documents ranging in size from that of a business card (2" x 3") to a legal size document (8.5" x 14"), including A4 size. It is possible to scan smaller documents with the aid of a document carrier (described on the next page).

Paper thickness

Laser and copy paper is easily scanned. Thinner paper may need to be placed in a document carrier (explained later). Card stock and photographs, including Polaroid photos, can be scanned as well.

Document carrier

A document carrier, available at any office supply store, consists of two thin sheets of clear plastic. Use a document carrier for:

- Folded, wrinkled or torn paper
- Thin paper (under 16 lbs.)
- Hole-punched or perforated paper
- Transparent paper
- Small images or documents (less than 3" x 2")
- Taped, pasted or damp paper

Paper condition

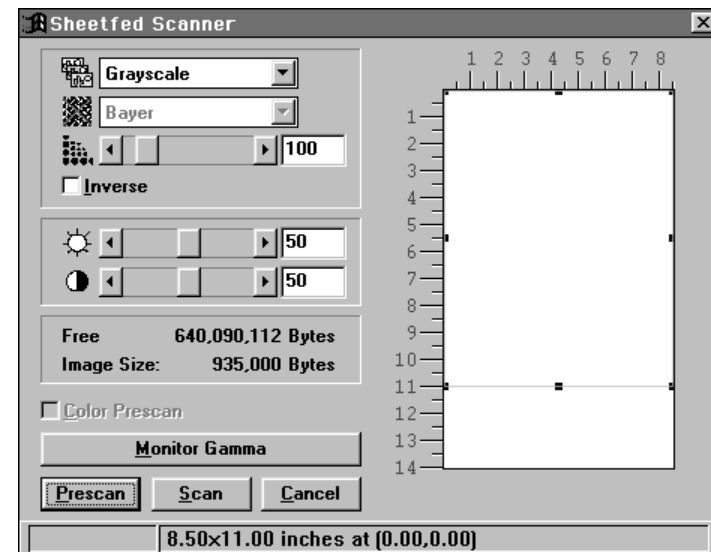
If the sheet to be scanned has any of the following conditions, please take the following precautions before inserting.

- Remove paper clips, pins or staples
- Flatten if flexed or bent
- Let wet paper dry first
- Straighten any folded edges and corners to ensure a better feed
- Avoid scanning documents with correction fluid (dry or otherwise)

Software controls

The Info Technician loads a TWAIN-compliant driver. This driver functions as a "user interface" linking the scanning hardware and application software.

Scanning is initiated from within the application software. All scanning activities are controlled from the user interface window titled Sheetfed Scanner. This window's Prescan command is used to adjust the scanning area, contrast, and intensity before executing the actual "working" scan. The actual scan is then placed into the application software for viewing, editing, printing, or storage. In this section, the components and controls of this TWAIN interface window are explained.



Preview Window

The interface window's right side displays Prescan images. The Crop Box around the perimeter is used to select the area you want to scan. Position the pointer over a square, click, hold, and drag the border to adjust the scanning area.

Scan Mode

Your scanning mode options are Gray Scale, Halftone, and Line Art. These selections indicate the amount of data you want to capture for the image. Follow these guidelines when selecting a scan mode:

Gray Scale: What is referred to as black and white photographs are actually gray scale images. Different shades of gray are used to make up the whole picture. When you scan these types of images, you want to scan using the gray scale mode. Also use this mode to convert color photographs to black and white. Scanning a color photograph in gray scale will capture the continuous tones.

Halftone: This mode uses a scheme called "dithering" to simulate gray tones while scanning in black and white. Dithering uses a combination of size and spacing variations for each pixel in the image. For example, light areas of an image are composed of small black pixels spaced farther apart. Dark areas are composed of larger black pixel spaced tightly together. The scanned images look similar to photos printed in newspapers. Use this mode when you want a simulated gray scale image with a small file size.

Line Art: This mode captures black and white only. Use this mode when scanning single color (usually black) images, such as drawings or sketches, business logos, or text.

Pattern

When scanning using the Halftone mode, there are different patterns used in the dithering method. Depending on the contrast in the original image, different patterns used will yield different results. When scanning in halftone mode, experiment with this setting to determine the best pattern to use with your scans.

Resolution

Resolution is measured in dots per inch (dpi). The higher the resolution is set, the more detail in your image is captured. There are some guidelines you should follow when determining the resolution to scan at.

On-line graphics: If you are scanning an image to be used on-line, such as the Internet, a BBS or in a multimedia presentation, you needn't scan any higher than 100 dpi. This is because a monitor's resolution is either 72 dpi (Mac), or 96 or 120 dpi (PC), and is not capable of displaying a higher resolution. Images scanned at 300 dpi and viewed on a monitor will appear three times as large as the actual image. This enlargement results because your monitor displays

images in a 1:1 ratio of pixels (or dots), meaning one dot in the image equals one dot on-screen. At 300 dpi, the image contains 3 times as many dots when displayed on the monitor.

Printed images: If you plan to print the images you scan, set the scanning resolution no higher than equal to the resolution of your printer, typically 300 dpi or 600 dpi. This will avoid sizing distortions in your printed image.

Faxing images: Any image you intend to fax from a PC-based fax modem should be scanned at 200 dpi. Fax machines only receive images at 200 dpi, and some programs may fault if you try to scan at higher resolutions.

Inverse

This command reverses an image's display. Black pixels will be white, and white pixels will become black. The resulting image is like a photo negative of the original.

Brightness and Contrast

These controls adjust the brightness and contrast of the image you are about to scan. Increasing the contrast will sharpen the image, but cause it to look dark. Increase the brightness to lighten the image and compensate for the contrast selection. Experiment with these controls to determine the look you prefer. Usually these controls are adjusted together in a 2:1 ratio of brightness to contrast.

Information

Displays information regarding the image to be scanned such as file size (image size) and available disk space (Free). Dimensions are displayed in inches at the bottom of the window. Use this as a guide when determining what scan mode and resolution you want to scan at. Dimensions, resolution, and scan mode directly effect the file size of your scanned image.

Monitor Gamma

This control allows you to change the RGB channels in color images. Since this is a gray scale scanner, this control only lightens and darkens the image. The RGB channels should be balanced so the box

within the box is indistinguishable. If this still does not achieve the desired results, adjust the channels as needed. These changes are effective immediately, and show in your prescanned image.

Prescan

A prescan is a low resolution scan of your image displayed in the TWAIN interface window only. You do a prescan to make your selections for size, and to make contrast and intensity adjustments.

Scan

A scan is the actual image captured at the selected settings. The scan does not appear in the preview window, it is displayed in the application's workspace.

Scanning images

Scanning images with your ImageReader scanner is a relatively simple process. The steps below walk you through selecting the appropriate TWAIN source to use, and then scanning an image or document. If you experience problems during any of these steps, please refer to the appendices at the end of this manual, Changing the I/O address and Troubleshooting. You may need to modify the configuration.

Select the TWAIN source

Before you can scan with your ImageReader, you need to tell the application what scanner you are using. The scanner is referred to as the "source," and you need to select the appropriate source for the application you are using.

Note: In some cases, an application's User Guide may direct you to use the application's custom "ImageReader" driver. In these cases, the instructions provided below are inappropriate for that application. Refer to that application's user guide for scanning instructions.

- 1 Start the image editing application software in Windows.
- 2 Choose Select Source from the File menu.

- 3 Follow the appropriate instructions for the Windows version you are running.

Windows 3.1 and 3.11

Select Sheetfed Scanner (16).

Windows 95 or later

Select either Sheetfed Scanner (16) or Sheetfed Scanner (32) from the Source list, depending on what type of application you are scanning into.

Note: If you are using a 16-bit application, and select Sheetfed Scanner (32) as your source, you may get a TWAIN error and not be able to scan. Be sure to select the correct source to use with 32-bit applications and 16-bit applications. Refer to Chapter 1, What is TWAIN for more information.

- 4 Click OK.

The application is now set to use your ImageReader to scan.

The scanning process

The initiation of the scanning process may vary from application to application. Consult the application's manual for more information if the steps below don't result in a scan. The instructions provided in these steps assume the application uses the most common process.

To scan an image:

- 1 Start the image editing application software in Windows.
- 2 Select Acquire from the File menu. This displays the TWAIN interface window.
- 3 Place the image face down in the scanner. Click Prescan.

The prescanned image displays in the Prescan window.

- 4 Adjust the image as you desire. Make your selections for scan mode, resolution, etc., and use the crop box in the Prescan window to select the area you want to scan. Follow the guidelines described in the previous section to make your selections.

Note: If the image is not as large as the Crop box, the additional blank area is also scanned, creating an unnecessarily large file size. Be sure to adjust the Crop box to fit the exact area you want to scan. To do so, simply click and drag one of the anchor squares.

5. When you are satisfied with the selected settings, place the image in the scanner and click Scan.

The image is scanned using the selected settings, and transferred into the application's workspace.

6. Click Cancel to close the TWAIN interface window.

You are returned to the application, and the scanned image is displayed in the workspace. You may now manipulate, save, print, or fax the image.

Other scanning features

Your ImageReader scanner is capable of scanning all types of documents and images. The scanning instructions provided here are to ensure the installation is complete and your scanner is working properly. For more detailed instructions about manipulating images once they are scanned, or for using your scanner for OCR, document archiving/retrieval, and faxing, refer to those applications' manuals.

Appendix A

Changing the I/O address

The scanner is integrated into your computer system through its interface card. The interface card functions through the system via "communication pathways" called IRQ's (interrupt requests), DMA channels (direct memory access), and I/O addresses (input/output). Info scanners are designed to function without specific IRQ and DMA settings – an I/O address, however, is necessary. Within a computer system, the scanner must not share an I/O address with another device. If two devices share the same address, one or both will malfunction.

If you experience difficulties with your scanner, it is most likely due to an I/O conflict. Examples of what may happen are the paper won't feed into the scanner, or an error message displays asking you to insert paper into the scanner (even if paper is already there).

To correct this problem, you need to specify a different address for the scanner to use. This involves changing jumpers on the interface card, and changing the specified I/O address in the device statement your system reads. The following sections provide instructions for performing these modifications.

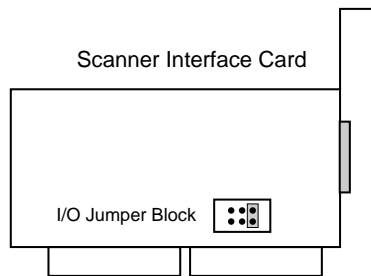
Setting jumpers on the interface card

The I/O address is established by positioning "jumper(s)" on a "jumper block" located on the scanner's interface card. An I/O address is established by connecting two pins on the jumper block. There are eight possible choices. The factory default setting is 270H (H3). If you need to change the address because your scanner does not function, use the table on the next page to select a new I/O address.

I/O Options

Pin # XA4	Pin # XA6	Pin # XA8	Address
On	On	On	220H (H0)
Off	On	On	230H (H1)
On	Off	On	260H (H2)
Off	Off	On	270H (H3)
On	On	Off	320H (H4)
Off	On	Off	330H (H5)
On	Off	Off	360H (H6)
Off	Off	Off	370H (H7)

Small printing next to the jumper block identifies the Pin number. The diagram below shows an interface card with the I/O address set to 270H, the default setting.



Rearrange the jumpers to set the new I/O address.

Modifying the device statement

The Info Technician places a device statement in your Windows system initialization file that specifies the I/O address being used by the interface card. The address set by the jumpers on the interface card and in the device statement must match. If they do not, your scanner will not function properly.

The Info Technician installs a configuration utility that automatically edits the device statement for you.

To change the I/O address:

1. Open the Info Configuration utility by double-clicking its icon in Windows Program Manager. If you are using Windows 95, select Programs>Infotech>Info Configuration from the Start menu.
2. Follow the on-screen instructions to select the appropriate I/O address.

Note: Be sure that the I/O address you select in this utility matches the setting on the interface card.

3. Restart Windows for the changes to take effect.

If you continue to experience problems with your scanner, check the manuals of the other devices installed in your system to verify you are not using an address that is assigned to another device.

Appendix B

Troubleshooting

Error message Cannot Create Cache or Cache Buffer Space, or Image Transfer Failed

This error message indicates that the selected scan settings have created a file size that exceeds available disk space. Reduce the dpi, image size or select a lower mode to reduce the file size.

Scanner does not turn on

Confirm that the scanner's cable is securely connected to the scanner interface card and not to the parallel port.

Scanner turns on but does not respond

If upon initiating a scan, the scanner either does nothing, or begins to scan and abruptly terminates, there is probably a conflict with another device. Confirm that the device driver CIS800N.386 and SCANFX_IO=270 (or the appropriate I/O address) are loaded in the Windows SYSTEM.INI file. Next, try another I/O address. The device driver must reflect the I/O address set on the interface card. Refer to *Changing the I/O address* in Appendix A.

TWAIN Errors

Be sure you have selected the appropriate source for the application you are scanning into. Most 32-bit applications require you use the Sheetfed Scanner (32) source, and 16-bit applications require you use the Sheetfed Scanner (16) source.

Grainy images

Check the video driver settings within Windows. The difference between 16 colors viewed and 256 colors viewed is dramatic. Select 256 Colors (or higher) if the system hardware supports such.

Streaky or poor scans

This problem occurs when the scanner has not been calibrated properly. Calibrate your scanner again to achieve better results.

Scanner care

Info ImageReader scanners are designed to provide years of trouble free service. To assist in realizing this end, follow the guidelines listed below.

1. Keep the scanner as dust free as possible. Dust particles are a scanner's worst enemy.
2. Do not scan documents with correction fluid. This will cause spotting on the scanner glass.
3. Do not scan documents with paper clips or staples. The lens may become scratched.
4. Do not scan documents joined together with sticky tape or glue.
5. Don't remove the scanner case. There are no consumer serviceable parts inside. There is a danger of electric shock, and your warranty will be void.
6. Don't move the scanner excessively or subject it to excessive vibration, as the lens focus may become distorted.
7. The scanner operates best in temperatures of 5°C to 40°C (41°F to 104°F).

Limited two year warranty

Info warrants this scanner to be free of manufacturing defects, both materials and workmanship, for a period of two years from the date of original purchase. This warranty applies only to the original purchaser. In the event of a defect, Info will repair this product free of charge, including parts, labor, and return postage.

This warranty does not cover damage, loss, abuse, misuse, unauthorized repair, shipping damage, natural phenomena, or effects of use other than intended. Info is not responsible for consequential damages, including but not limited to, lost profits, lost sales, loss of use, or injury to property.

For scanner service, contact us at (800) 775-7576, and request a Return Authorization (RA) number. Repackage the product in its original packing container (for protection), and return postage prepaid to:

Info Service Center
580 Division Street
Campbell, CA 95008

Include an address, phone number, the RA number, and a description of the scanner's defect. Enclose a copy of the original purchase receipt to verify warranty eligibility. Write the RA number legibly on the outside of the package.

FCC radio frequency interference statement

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 to an outlet on a circuit different from that which the receiver is connected.
- Shielded interconnect cables and shielded power cord which are supplied with this equipment must be employed with this equipment to ensure compliance with the pertinent RF emission limits governing this device.
- Consult the dealer or an experienced radio/TV technician for help if the conditions persist.
- Changes or modifications not expressly approved by the manufacturer or authorized service center could void the user's authority to operate this equipment.