



Industry Canada Industrie Canada

CUTTING THROUGH... TELEVISION INTERFERENCE

This information is available in a series of brochures, a videocassette and a CD-ROM. The Industry Canada Internet site <http://strategis.ic.gc.ca>, under the heading *Marketplace Services* includes useful information and advice for solving interference problems.

Aussi disponible en français.

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CUTTING THROUGH...TELEVISION INTERFERENCE

Television interference can come from several sources and take various forms. Before describing the characteristics of each type, let's run through the basic checks.

BASIC CHECKS

- Check connections.
- Disconnect all accessories.
- Perform the equipment substitution test.
- Check with neighbours.

For these tests, refer to the brochure:
**CUTTING THROUGH...
RADIO INTERFERENCE.**



After making sure equipment is installed in accordance with the relevant standards, subscribers to cable television or direct-to-home satellite service should contact their supplier.

IF THE PROBLEM PERSISTS...

1. INTERFERENCE FROM ELECTRICAL SOURCES

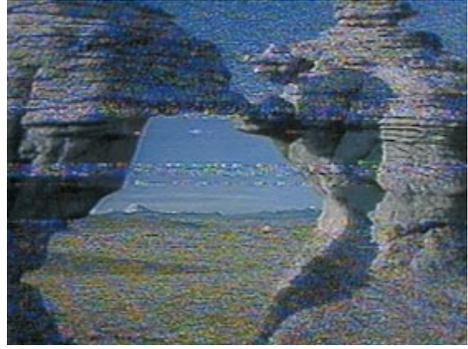
Many electrical devices, such as electrical motors, tools and appliances, can cause interference. The types of interference differ greatly from one electrical device to another. Interference caused by a computer, for example, is not the same as that produced by a household appliance.

Thermostats on heating equipment, rheostat (dimmer) switches, fluorescent lights, neon lights, electric heating pads and blankets and doorbell transformers are also in this category.

These lines and bright spots, which vary in intensity, are often accompanied by crackling and buzzing noises, and can also affect AM and FM radio reception.



Normal picture



Interference caused by a thermostat

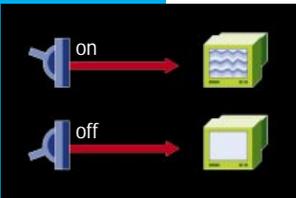


Interference caused by a computer



Interference caused by a motor

This sporadic interference generally occurs when an electrical accessory or appliance starts up or is operating.



How do I find the source of the interference?

The breaker test helps in locating the source of interference inside the home and is explained in detail in the brochure: Cutting through... radio interference.

IF THE PROBLEM PERSISTS...

The source of interference is probably outside your home.

Check with your closest neighbours. The place where the interference is the most intense may indicate the source of the disturbance. If one of your neighbours has a similar problem, ask him, or her, to run the breaker test to try to locate the faulty equipment. A household appliance or electrical device rarely causes interference that extends beyond a few houses.

IF THE PROBLEM PERSISTS...

The interference may come from electrical power lines. The power grid that supplies your neighbourhood is often a source of interference.

■ Electrical power lines



Normal picture



Electrical power line

If this type of disruption appears and varies in intensity depending on weather conditions (dry or damp weather, or wind), and if the breaker test excludes a source inside the home, the interference may be caused by faulty components associated with the electrical power lines near your home.

This type of interference can also affect AM, and sometimes FM, radio reception.

Contact your electrical utility to resolve the problem.

2. OTHER TYPES OF INTERFERENCE

If your equipment is not picking up the desired signals clearly enough, or if it is picking up unwanted signals, interference problems will appear.

■ Poor signal reception

(See pictures on the following page)

The problem of a weak signal appears when you are too far from the transmitter of the station you want to pick up or when there are obstacles between the antenna and the transmitter. The effect will be the same if the antenna is faulty or is not pointed in the right direction.

The television picture is much more likely to be affected than the sound. The sound will only be affected when the signals are extremely weak.



Normal picture



Weak signal

POSSIBLE SOLUTIONS

- Check and repair the antenna and the antenna lead wire.
- Install a higher or more directional (higher gain) antenna
- Install a signal booster.



For more information, refer to the brochure:
CUTTING THROUGH... VARIOUS SOLUTIONS TO INTERFERENCE.

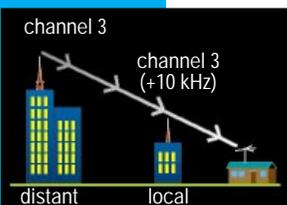
- **Interference caused by simultaneous reception of two television signals**



Normal picture



Reception of two simultaneous signals



When the television receives two different signals at the same time, there may be interference.

The two pictures are different and are superimposed.

This type of interference can be caused by unusual atmospheric conditions that allow signals from a distant transmitter that uses the same channel to be picked up. In this case, you should wait for conditions to improve, because this is a short-lived phenomenon.

If this is a recurrent problem because of the location of your home, you should consider installing a directional antenna. The antenna will allow better reception of signals in the direction of the desired station.

Do not confuse this type of interference with so-called "ghost images."

If there is a cable television system installed in the neighbourhood, your antenna may pick up signals from a leak in the cable system and cause interference. The presence of this type of interference can be checked by tuning in to a channel where there is usually no signal. If a signal is present, notify the cable operator.



Reception of two simultaneous signals



■ Ghost images



Normal picture



Ghost image

This interference occurs when the television signal is reflected by an obstacle, such as a building or mountain, or when the antenna or antenna lead wire is in poor condition. The pictures are then superimposed, because the main signal and the reflected signal do not arrive at the receiver at quite the same time. The reflecting obstacle can be located in any direction from the antenna. Simply rotating the



antenna may solve the problem. If reflected signals are coming from behind the television antenna, the ghost image could be reduced or eliminated by using a Yagi antenna or a rear-screen antenna. Poor installation of an antenna can also cause reflected ghost images.

In some cases, the phenomenon may persist regardless of the type of antenna used, because the obstacles are too large.

For more information, refer to the brochure:
CUTTING THROUGH...VARIOUS SOLUTIONS TO INTERFERENCE.



■ Interference caused by a radio transmitter

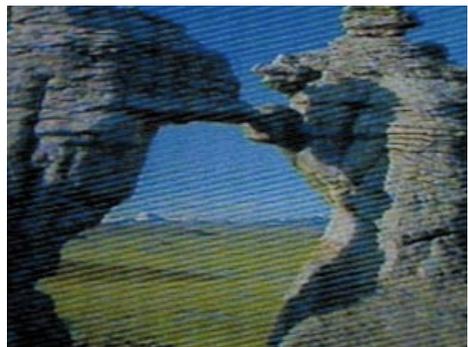


Normal picture



Radio transmitter (channel 2 to 13)

When this type of interference appears on the screen, or when voices can be heard, the set is experiencing interference from GRS (better known as CB) transmissions, amateur radio transmissions or other radio transmissions from a transmitter located nearby. Interference appears when the radio operator is speaking.



Interference caused by a radio transmitter (cable, channel 17 to 22)

This phenomenon generally affects VHF channels 2 to 13 and channels 17 to 22 if you are a cable subscriber. Check out your neighbourhood to identify the potential source of the interference, then contact the operator involved who will likely be willing to assist you in solving the problem.

High-pass filters or notch filters, may help to eliminate this interference.

For more information, refer to the brochure:
CUTTING THROUGH...VARIOUS SOLUTIONS TO INTERFERENCE.



■ Audio rectification

Unwanted voices or sounds can be heard.

This interference affects television, radio, telephone or various other electronic instruments or devices in the home such as intercoms, organs or microphones.

Audio rectification is a common phenomenon in which an electronic circuit, usually an amplifier, is suddenly affected by unwanted external radio signals. If the equipment is surrounded by an intense radio signal, the wiring or one of the circuit components may act as an antenna and pick up an unwanted signal. This is not necessarily the result of a technical fault in the transmitter. The entry point of the unwanted signal must be located. This can be done by disconnecting all accessories to isolate the culprit. Proper filters and shielding can solve the problem.

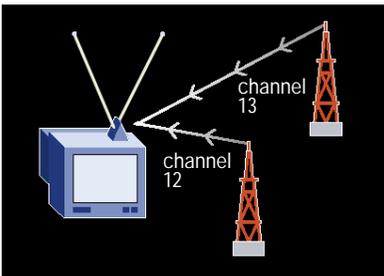
For more information on filters and shielding, refer to the brochure:
CUTTING THROUGH...VARIOUS SOLUTIONS TO INTERFERENCE.



■ Interference from a neighbouring channel

(See picture on the following page)

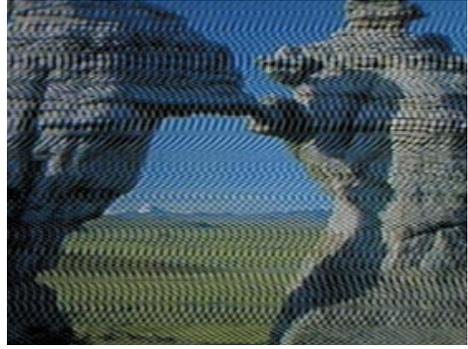
The transmitter of a television station in your area can cause problems with the reception of more distant stations transmitting on adjacent channels. If, for example, you are receiving both a weak channel 13 signal and a very strong channel 12 signal, the sound of the latter is likely



to cause a grainy picture on channel 13. To check this, tune another television to channel 12, if possible, while observing the interference on channel 13 of the original television set. If you are experiencing this type of interference, there will be a correlation between the interference



Normal picture



Neighbouring channel

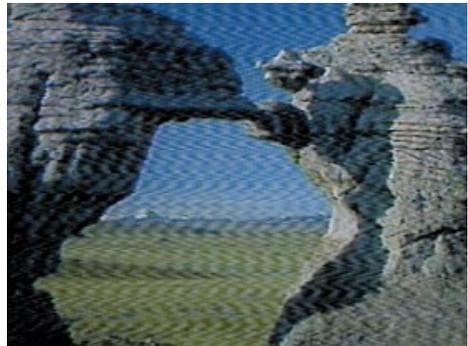
on channel 13 and the sound on channel 12. Repointing your antenna may eliminate this type of interference; if not, proper filters will be necessary. A higher-gain Yagi or rear-screen antenna may also prove effective.

Cable subscribers should not experience this type of problem since all television signals are maintained at similar levels.

■ Interference caused by an FM radio station



Normal picture



FM radio station

If an FM radio station transmitting antenna is located in the neighbourhood, interference may affect various electronic devices. Interference caused by an FM radio station often varies in accordance with the sound transmitted by the station. Unlike the interference caused by two-way radio transmitters that appears only when the radio operator speaks, this interference is continuous. This type of interference affects mainly channel 6 or VHF channels 2 to 13. In addition to the picture, sound on your set may also be affected.

To find the source, use a portable radio and adjust the tuner from one FM station to another to see if you can pinpoint the one transmitting the interfering signals that match the sounds affecting the television.

POSSIBLE SOLUTIONS

- Repoint the antenna.
- Install a notch filter.
- If this is a new FM station in your area, contact the broadcaster, which will undoubtedly co-operate to help you solve the problem.

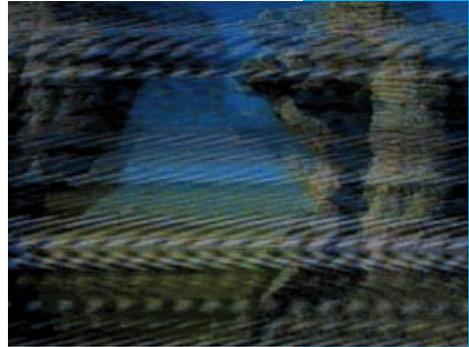
For more information, refer to the brochure:
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■ Industrial, scientific or medical (diathermic or heating) equipment



Normal picture



Industrial, scientific or medical (diathermic or heating) equipment

Interference can take several forms. For example, does your television have wavy lines across the screen that move from bottom to top? Some radio frequencies are used to produce heat in the food, plastics and wood industries and may cause this type of interference on channels 2 to 6. Diathermy is used in hospitals and medical clinics. Check whether this potential source of interference is located in the neighbourhood. To solve the problem, corrective measures must normally be applied to the device causing the interference. In some cases, installing a high-pass filter on the television set will reduce or eliminate the interference. Contact officials in the institution where the equipment in question is located.



For more information on choosing filters, refer to the brochure:
CUTTING THROUGH...VARIOUS SOLUTIONS TO INTERFERENCE.

■ Faulty signal booster



Normal picture



Faulty signal booster

Antennas equipped with faulty signal boosters can cause interference. A signal booster is a small, inexpensive device connected to the antenna, which boosts signals and helps improve reception quality.



When a signal booster is faulty, it can cause interference on television receivers in dozens of homes in the neighbourhood. The interference appears in various ways, mainly as more or less stable wavy lines or as horizontal bars. The screen may even go black for a few moments. This type of interference can take many forms.

A faulty signal booster can transmit unwanted signals that will vary in intensity and affect different television channels on receivers in the area, according to atmospheric conditions or the channels watched on the television to which it is connected.

SOLUTIONS

- Check the condition of your signal booster. Shut off power to the booster and connect your television directly to the antenna.
- If your booster is in good condition, you can find the faulty signal booster with the help of your neighbours by disconnecting the boosters in the area one at a time until the interference stops. If you have a directional antenna equipped with a rotor, you can determine the direction of the source of interference. (Note that some boosters are installed on the mast near the antenna.) The faulty signal booster will then have to be repaired or replaced.



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