



中華人民共和國香港特別行政區

HONG KONG SPECIAL ADMINISTRATIVE REGION OF THE PEOPLE'S REPUBLIC OF CHINA

立法會 LEGISLATIVE COUNCIL

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馬逢國 議員, 太平紳士 Hon. MA Fung Kwok, JP

傳真: 21210420

致: 立法會秘書處
草案委員會秘書
(經辦人: 楊少紅小姐)

加拿大工業部發現, 用以接收直達家庭廣播衛星訊號(Direct-to-Home broadcast satellite)的非法器材, 在使用過程中會干擾無線電訊號, 包括警方及救護部門使用的無線電頻譜。干擾會妨礙警方及救護部門接收報警或求救的訊息, 對公眾安全構成威脅。

加拿大工業部在網上發表報告(見附件), 測試顯示, 當利用非法接收器材接收直達家庭廣播的衛星電視訊號, 會影響其他無線電訊號, 導致上述的干擾。這些非法接收器材不符合技術標準, 干擾警方及救護車使用的無線電訊號。加拿大政府決定將擁有此類非法接收器刑事化, 違法者會被判罰款或監禁。

我認為當局需就上述資料, 澄清下列問題: 當局有無發現在本港有類似的非法接收器材或解碼器, 對其他無線電頻譜造成干擾? 如有, 這些干擾是否嚴重? 會否干擾重要的無線電系統(如警方所用的無線電)的正常運作?

根據現時的電訊條例, 管有或使用非法無線電通訊器材, 由於可能造成不當的干擾, 因此屬於刑事罪行。如果當局發現接收電視訊號的非法接收器會造成不當的干擾, 當局應否採取同樣的立法標準, 將擁有此類接收器刑事化呢?

我希望當局能就上述問題提供答案, 並且在下次會議中讓議員進行有關討論。

立法會議員

馬逢國

二零零四年二月二十四日

(助理 賴茵芳 代行)



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Backgrounder

Interference to Public Safety Radiocommunication Systems from Pirate Devices used in Direct-to-Home (DTH) Satellite Equipment

The Department of Industry has received several complaints of interference to public safety radiocommunication services across Canada.

The Department has made investigations at known interference sites and has conducted laboratory tests of suspect equipment. These analyses have demonstrated that certain devices used to defeat conditional access systems of DTH broadcast satellite receivers will, when used in conjunction with such receivers, cause the emission of radio frequency signals of sufficient strength that interference is caused or is likely to be caused to radiocommunication, including that used for law enforcement and search and rescue. For example, these excessive emissions have interfered with the communications of law enforcement agencies and emergency response teams.

All television receivers and appliances, including satellite television decoders, must meet applicable technical standards that limit the emission levels of radiated signals that could cause interference.

Pirate cards are manufactured or imported in an underground black market. Manufacturers or importers typically do not test these devices to determine whether or not they conform to the applicable technical standards.

Generic 'AVR' pirate cards substitute the legitimate smart card used in satellite television receivers in order to receive satellite television programming without payment of subscription fees. The cards are typically in the form of a circuit board, a portion of which remains outside the receiver card slot because it has one or more computer chips on the card. They may also have a connector for a computer cable to connect the AVR card to a personal computer and they may include a separate slot for the legitimate smart card.

Both Bell ExpressVu and Star Choice receivers were found not to cause interfering signals when used in an legitimate manner by a subscriber.

Apart from the interference issue, it should also be noted that in any case unauthorized decoding is prohibited under the Radiocommunication Act.

The following photos are examples of typical AVR cards. AVR cards that are named on the "List of Models of Equipment Subject to a Determination of Interference" may look slightly different and have different components.

AVR3



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Questions and Answers - Interference to Public Safety from Pirate Devices

1. Why is Industry Canada so concerned about this particular interference problem?

Public safety and Search and Rescue agencies are critically dependent on their radiocommunication systems to provide services to the public. When their radio systems are interfered with, the ability to protect and serve the public is impaired, leaving human lives and property at risk.

2. What is causing the interference?

When manufacturers produce devices such as satellite television receivers, their devices must be tested to ensure that they comply with specific technical standards. The purpose of these standards is to prevent the devices from interfering with other radio systems. The manufacturers ensure compliance by enclosing their devices in specially shielded cases, which limit interfering radio signals from escaping, or leaking, out of the device.

There are a variety of non-standard attachments, generically known as AVR cards, that can be purchased for use with Bell ExpressVu satellite television receivers. These AVR cards are designed solely for the purpose of stealing satellite television programming. Combining them with a compliant satellite receiver defeats its shielding and permits radio signals to "escape" from the receiver, spread through the air, cause interference to nearby radio receivers and mask the detection of signals from emergency locator beacons.

3. How serious is this interference?

It can be *very* serious.

In one case, the interfering signals prevented a police dispatcher from receiving a request for help from an officer on patrol.

In another case, the interfering signals led Search and Rescue personnel to believe that an aircraft had crashed. They immediately launched a search and rescue mission that was not only costly and unnecessary, but it tied up critical limited resources that might have been needed at a real crash site elsewhere.

These "leaking" radio signals may also mask legitimate signals transmitted by distress beacons, preventing Search and Rescue personnel from detecting them.

4. How did Industry Canada establish that "AVR cards" were responsible for the interference?

Industry Canada's radio equipment testing laboratory evaluated several "off the shelf" Bell ExpressVu satellite television receivers. All receivers were found to be compliant with the appropriate technical standards and free of radio signals escaping into the environment. The standard is the Broadcast Equipment Technical Standard No. 7 (BETS-7).

The same receivers were subsequently tested after being fitted with AVR cards. The combined devices transmitted excessive radio signals, some of which fell on channels used by Police and Search and Rescue agencies.

Removal of the AVR cards subsequently eliminated the interfering radio signals.

5. What is Industry Canada doing to resolve this interference problem?

In the first phase, the Minister of Industry has made a determination that AVR cards are causing or likely to be causing interference and has taken steps to give notice of this determination to persons who are likely to be causing interference to radiocommunication.

These steps include a Gazette Notice which can be found at:

<http://strategis.ic.gc.ca/SSG/sf05730e.html>

The next steps could include prosecution of persons who fail to comply with the *Radiocommunication Regulations* or the *Radiocommunication Act*.

6. Where does the Minister of Industry get the authority to take such action?

Section 50 of the *Radiocommunication Regulations*, as established by Parliament, states:

"50. (2) Where the Minister, taking into account the factors mentioned in subsection (5), determines that a model or several models of equipment cause or are likely to cause interference to radiocommunication or suffer from or are likely to suffer from adverse effects of electromagnetic energy, the Minister shall give notice of the determination to persons who are likely to be affected thereby.

(3) No person shall manufacture, import, distribute, lease, offer for sale, sell, install or use equipment in respect of which a notice referred to in subsection (2) has been given.

(5) A determination pursuant to subsection (2) shall include the consideration of the following factors:

(a) the electromagnetic environment in which the equipment is being used;

(b) the circumstances under which it is being used;

(c) the technical characteristics of the devices being interfered with or being adversely affected by electromagnetic energy; and

(d) the technical characteristics of the devices causing interference or the adverse effects of electromagnetic energy."

7. Do users of AVR cards realize that they can cause this interference?

In most cases, they probably do not. That is why Industry Canada has initiated this information campaign. Interfering with radiocommunication is an offence under section 9(1)(b) of the *Radiocommunication Act*.

8. Are there penalties for people who ignore the prohibition and continue selling or using AVR cards?

Yes. Section 10-(1)(d) of the *Radiocommunication Act* provides penalties for failure to comply with the regulation. Individuals, convicted under this section, may be liable for fines of up to \$5,000 a day and/or periods of imprisonment of up to one year. Corporations who ignore the prohibition are liable for fines of up to \$25,000 upon summary conviction.

The *Contraventions Act* is also applicable in some provinces which permits Industry Canada Inspectors to issue tickets or Summons to Appear in Court.

Moreover, any material related to the offence may be seized and held as evidence until the case has been heard in court. This includes all the hardware associated with the DTH satellite receiving system. Forfeiture could also be

ordered.

9. I have heard of black market devices being used to pick up satellite DTH signals. Are these the same thing?

Black market decoders are designed to circumvent the DTH signal scrambling (encryption) systems so that pay-TV or other channels can be viewed without paying the required subscription fee to the lawful distributor. AVR cards are one of the many black market devices currently available.

10. What is the government's position on the use of black market satellite television decoders?

The Government's position is that manufacturing, importing, distributing, leasing, selling, installing, modifying or possessing devices designed to circumvent DTH encryption systems is *illegal*.

11. What could happen to me if I own or use one of these devices?

Federal Inspectors have the authority to take the necessary steps to resolve the interference, including search and seizure of DTH equipment. Should that be required, prosecution could result in fines and/or imprisonment as well as forfeiture of the DTH equipment. (See Question 8.)

Updated: 2003-09-26

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Notice No. DGRB-002-02

Department of Industry

Radiocommunication Act, S.C. 1985, c. r-2

Notice No. DGRB-002-02 — Determination of Interference for Equipment that defeats the conditional access system of Broadcast Satellite (Direct-to-Home or DTH) Receivers (section 50 Radiocommunication Regulations)

Introduction

The Department of Industry has received several complaints of interference to public safety radiocommunication services across Canada.

The Department has made investigations at known interference sites and has conducted laboratory tests of suspect equipment. These analyses have demonstrated that certain devices used to defeat conditional access systems of DTH broadcast satellite receivers will, when used in conjunction with such receivers, cause the emission of radio frequency signals of sufficient strength that interference is caused or is likely to be caused to radiocommunication, including that used for law enforcement and search and rescue. For example, these excessive emissions have interfered with the communications of law enforcement agencies and emergency response teams.

Accordingly, the Minister of Industry has, under section 50 of the *Radiocommunication Regulations*, made a Determination of Interference (through investigations and laboratory analyses) for several models of equipment used to defeat conditional access systems. Conditional access systems are used by direct-to-home (DTH) broadcasters to protect their transmissions from unauthorized reception. The decoding of encrypted subscription programming signals from direct-to-home (DTH) broadcast satellite facilities must be performed under and in accordance with an authorization from a person who has a lawful right in Canada to transmit the signal and to authorize its decoding. Various types of equipment, such as pirate smart cards or modules, may be employed to gain unauthorized access to satellite television signals. Equipment of this type has also been found to adversely affect the technical performance of the broadcast satellite receiver with respect to radio frequency emissions.

This Determination, as specified in the following notice, will assist in safeguarding radiocommunication services, including those used by police and search and rescue, from interference.

In accordance with section 50 of the Regulations, when there is a determination that a model or several models of equipment cause or are likely to cause interference to radiocommunication, the Minister shall give notice of the determination to persons who are likely to be affected thereby: in this case, persons who manufacture, import, distribute, lease, offer for sale, sell, install or who use equipment referred to in this notice.

For further details respecting the applicable models of equipment please refer to the Annex of this notice and to the "List of Models of Equipment Subject to a Determination of Interference (s.50 Radiocommunication Regulations)" published by the Department. The list of the models of equipment subject to this notice may be amended from time to time and is available at the following

website: <http://strategis.ic.gc.ca/direct-to-home>

Hard copies of the documents are available, for a fee, from DLS, St. Joseph Print Group Inc., 45 Sacré-C.Aur Boulevard, Hull, Quebec K1A 0S7, 1-888-562-5561 (Canada toll-free telephone), 1-800-565-7757 (Canada toll-free facsimile), (819) 779-4335 (Worldwide telephone), (819) 779-2833 (Worldwide facsimile).

Notice

Notice is hereby given, that the Minister of Industry has, under section 50 of the *Radiocommunication Regulations*, made a determination that the models of equipment listed in the Annex to this notice cause or are likely to cause interference to radiocommunication. The list may be amended from time to time and the most recent version can be found at the following Industry Canada Web page: <http://strategis.ic.gc.ca/direct-to-home>. Effective the date of publication of this notice, persons who manufacture, import, distribute, lease, offer for sale, sell, install or use the listed equipment are subject to section 50 of the *Radiocommunication Regulations*.

In accordance with subsection 50(3) of the Regulations, no person shall manufacture, import, distribute, lease, offer for sale, sell, install or use equipment in respect of which notice has been given. Persons who do not comply with section 50 of the Regulations may also be in breach of other applicable provisions of the *Radiocommunication Act* and Regulations or other statutes, such as the *Criminal Code*.

Failure by a person to comply with the Minister's notice, issued pursuant to section 50, is an offence under the *Radiocommunication Act*. Section 10(1)(d) of the *Radiocommunication Act* provides for sentencing of up to \$5000 and/or one year in prison for individuals and fines up to \$25,000 for corporations. Under section 10(3) of the *Radiocommunication Act* a person may be convicted for a separate offence for each day on which the offence is committed or continued. The *Contraventions Act* is also applicable in those provinces where it is in force.

Any inquiries regarding this notice should be directed to the local Industry Canada District Office, which is listed in the government blue pages of the telephone directory under "Radio Licensing" or on Industry Canada's Strategis web site, at <http://strategis.ic.gc.ca/epic/internet/insmt-gst.nsf/vwGeneratedInterE/sf01742e.html>

31 May 2002

Jan Skora
Director General
Radiocommunications and Broadcasting
Regulatory Branch

R.W. McCaughern
Director General
Spectrum Engineering

Annex

(section 50 of the Radiocommunication Regulations)

Equipment used to defeat Conditional Access Systems of Satellite Broadcast Receivers

| Card type : | Markings found on the card : |
|-------------|----------------------------------------------------|
| AVR3 | A305T Rel. 01 |
| AVR4 | S500 REL 01 |
| AVR Wafer | ZEUS-X TECHNOLOGIES LMV305 R5 MADE IN CANADA |
| AVR6 | VCT E44 Made in Canada |

| | |
|--------------|----------------------------------------------------------------|
| AVR6 | AUTOROLL AVR6 |
| AVR6 | PP21012000 AVR-006 an L-shaped Logo, followed by 5 94V 0 |
| AVR8 | XTREME AVR8 AUTO ROLL - 2 X 4 MEG. |
| ATmega Wafer | EFA ATmega Card 1.0d |

Notes :

The public may wish to consult the following technical standards and technical notes pertaining to this Notice of Determination. These are published by Industry Canada, and are posted on the Department's web site at <http://strategis.gc.ca/spectrum> for the English version and <http://strategis.gc.ca/spectre> for the French version.

Technical Standards and Requirements for Radio Apparatus Capable of Receiving Broadcasting(BETS-7)

Investigative Report on Satellite Broadcast Receivers Employing Encryption Defeating Conditional Access Modules

[Amended List of Models of Equipment Subject to a Determination of Interference](#)

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