



# VIRTUAL TRAINER™ USERS MANUAL & INSTALLATION GUIDE

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## **Zonar Systems Virtual Trainer™ Hardware Installation Tips for Professional Installers**

Zonar Systems' equipment will provide years of reliable service if properly installed and maintained. Zonar equipment is typically installed in heavy vehicle applications and is often subject to extreme temperatures, dust, dirt, vibration, and shock. Proper installation is the critical first step to equipment longevity and optimal performance.

This guide is meant to be a general guideline for the professional installer and technician. While we attempt to point out the most common installation questions and issues; common sense, good housekeeping procedures, attention to detail, safety adherence, and technical competence of the professional installer is critical for a successful installation.

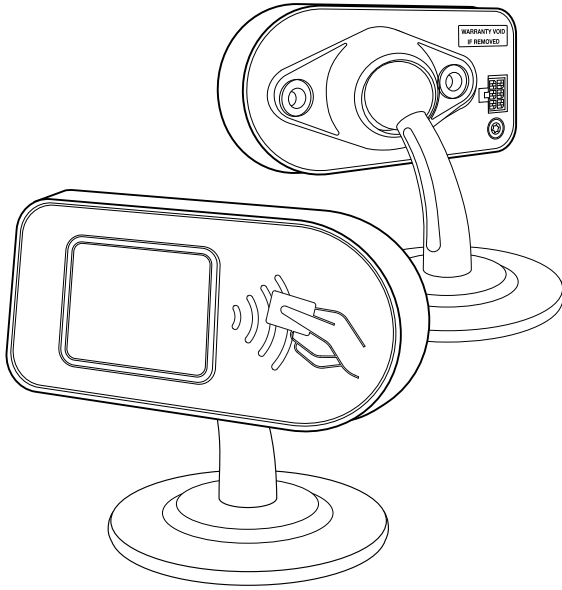
Please refer to your specific vehicle manufacturer guidelines for the installation of electrical components and wiring.

A professional team of Zonar support technicians and engineers are available to answer your installation questions. Contact Zonar at 1-877-843-3847 or by email at [customercare@zonarsystems.com](mailto:customercare@zonarsystems.com).

Thank you,

Jeff Wells  
Field Service Manager - Zonar Systems

As Zonar Systems is continuously improving the Product, Zonar may make changes to the Product at any time which may not be reflected in this document.



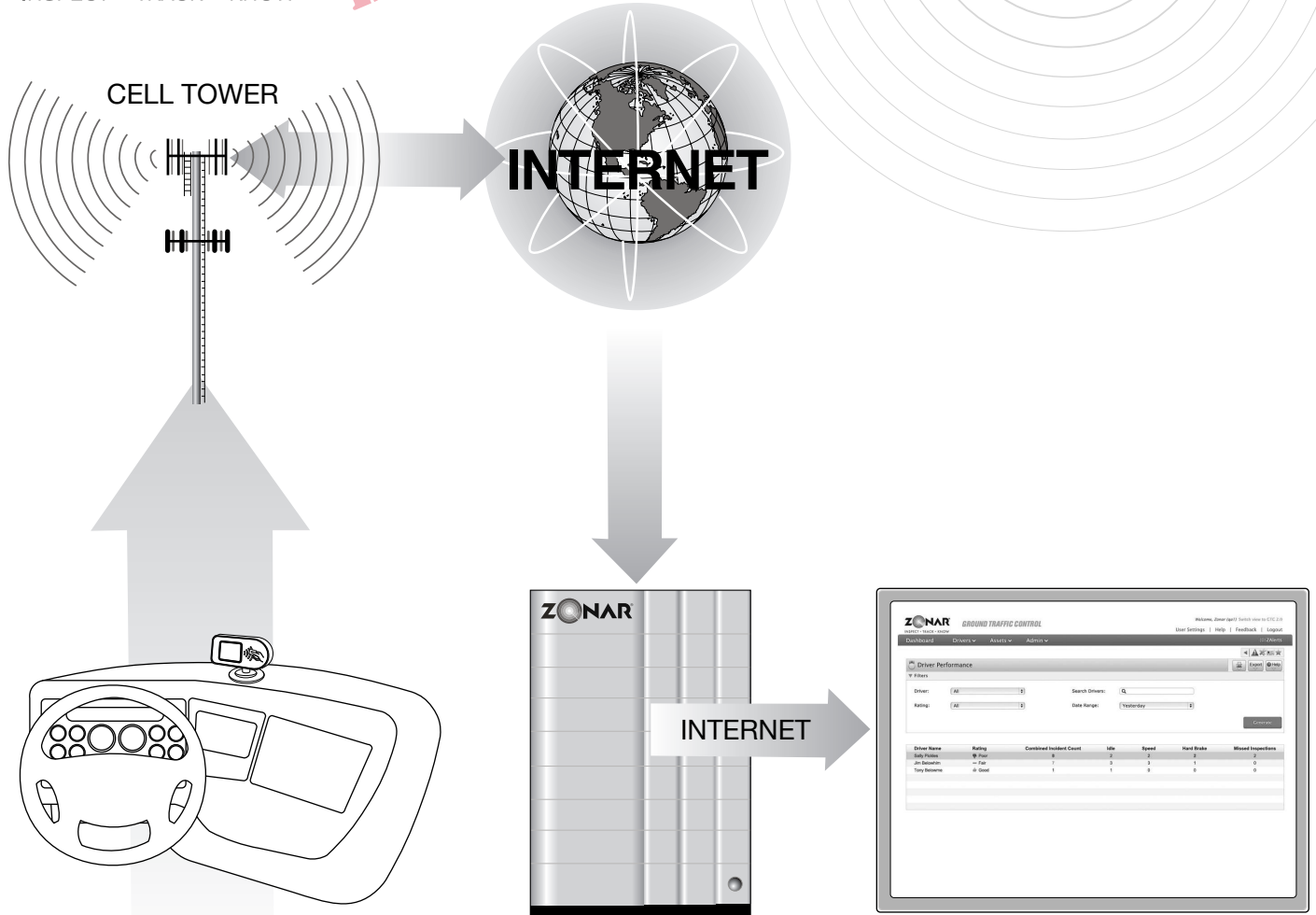
## Virtual Trainer™

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Products and services protected by one or more of the following US patents: 6,671,646; 6,804,626; 7,557,696; 7,117,121; 7,362,229; 7,564,375; 7,680,595; 7,776,499; 7,808,369; 7,944,345; 8,106,757, plus EP 2756504.3 and the AU.

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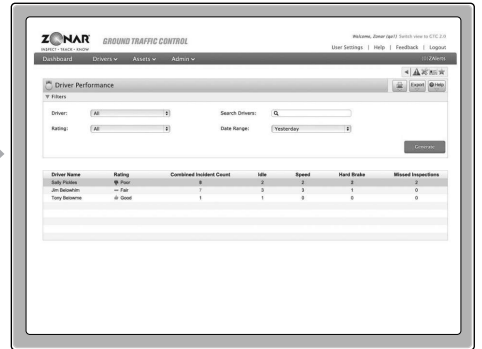
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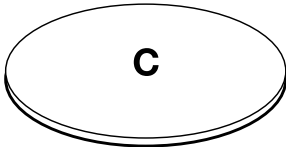
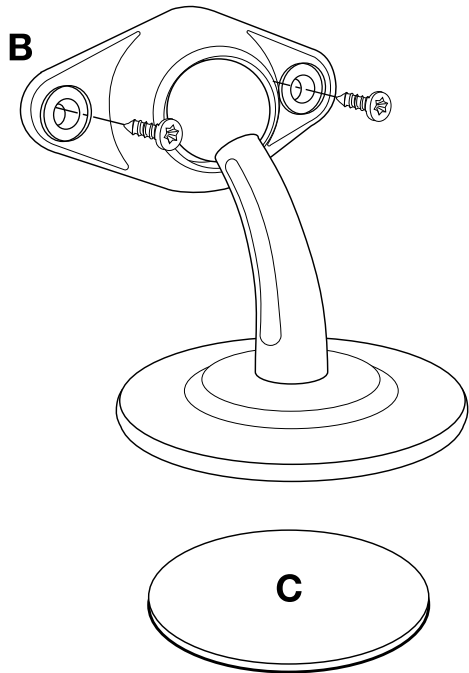
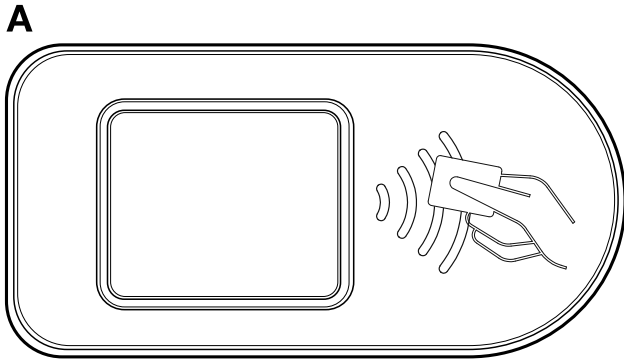
- RFID to log drivers into vehicle
- Displays warnings and alerts to improve driver performance
- Track driver performance over time

**ZONAR**  
Secure Servers  
Encrypted Data  
Transmissions

**CUSTOMER**  
On-Site Location



- A. VIRTUAL TRAINER
- B. VIRTUAL TRAINER Mounting Plate and Mounting Screws (Provided)
- C. Mounting Plate adhesive pad





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### System Specifications

#### VIRTUAL TRAINER™

- Operating Temp -40C to +85C
- Operating Humidity to 95%
- DC Input range, 5Vdc - Supplied from Host

#### Connector

- 6 pin Molex

#### RFID Reader

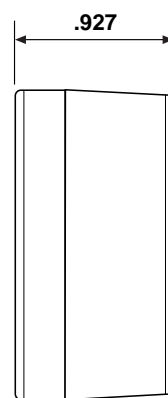
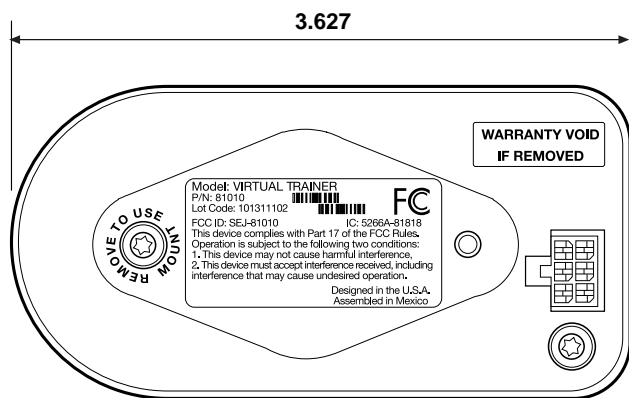
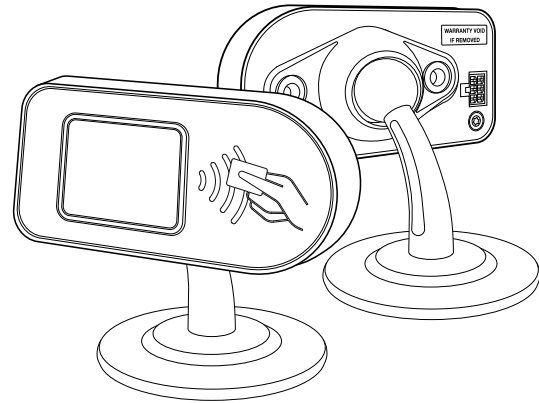
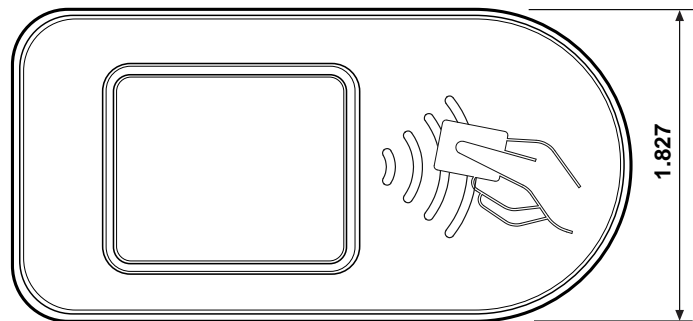
- Reads Driver Card from a range of at least 1/2 inch

#### Host Devices

- V2™, V2J™, VTECU™, V3™

### Important Notice

It is the Owner's sole responsibility to install and use the Zonar products in a manner that will not cause accidents, personal injury or property damage. For the purposes of this notice, "Owner", "you" and "your" means the party (including any person authorized by that party to use and/or install the Product) that has either: (a) purchased the Product; or (b) leased the Product from Zonar Systems, Inc or its related companies. The Owner of this product is solely responsible for observing safe driving practices. The choice, location, and installation of all components of the Product is critical. If installation is not correct, the Product may not perform at its designed potential or specifications. If in doubt, consult your vehicle's manufacturer.



DIMENSIONS IN INCHES

### Layout

- 1) V3 unit must be located a minimum of 8" from any person.
- 2) V3 has a temperature range of -40°C (-40°F) to +85°C (+185°F). Do not mount V3 in hot engine compartments or near hot exhaust components.
- 3) Lay all components out prior to installation to check for proper cable length and interference issues.
- 4) Avoid mounting Zonar equipment, antennas and wiring near other radio equipment (e.g., two-way radios), PA equipment and high energy electrical sources (e.g., cables, relays, amplifiers, etc.).

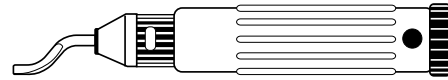


### Electrical

- 1) **Consult the vehicle's manufacturer for specific installation guidelines. (HIGHLY RECOMMENDED for Multiplex electrical systems)**
- 2) All power leads (Red and White Power leads) must be connected to the vehicles protected circuitry (e.g. fuse panel, circuit breaker panel, protected circuits). Never electrically connect Zonar equipment to unprotected circuits (e.g. directly to battery).
- 3) It is also required that all power leads (Red and White Power leads) be protected with a 3 to 5 amp fuse and inline fuse holder (included) for optimal system protection.
- 4) Electrical fuses should be installed as close as possible to the source of power.

### Drill Holes

- 1) Do not drill into the V3 unit. This will void the warranty.
- 2) Capture all drill chips during drilling operations. Do not allow chips to fall onto equipment, furnishings, etc.
- 3) Deburr all drill holes on both sides of drilled surface. Example deburr tool:



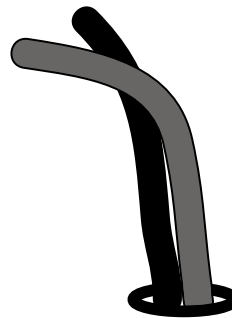
- 4) All drill holes must have a rubber grommet or similar anti-chaffing system installed to protect cable assemblies (e.g. plastic conduit).
- 5) Seal all penetration drill holes which may pass rain water.

### Cable Management

- 1) Strain relieve and support all cable installations.
- 2) Avoid sharp bends and tight radius installations of cables.
- 3) Avoid moving components (e.g. doors, steering shafts, handles, fans, etc.).
- 4) Provide an adequate "Service Loop" i.e. "cable slack" to allow for servicing of equipment.
- 5) Avoid routing cables thru doors, windows, and other pinch points.
- 6) Avoid routing cables in high personnel traffic areas.
- 7) Avoid routing antenna cables near radio and PA equipment.

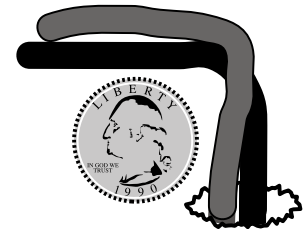
#### CORRECT

- Bend radius adequate
- Hole has grommet



#### INCORRECT

- Bend radius too tight
- Hole has sharp edges
- Hole has no grommet



### General Housekeeping

- 1) Capture all drill chips during drilling operations. Do not allow drill chips to fall onto electrical equipment, furnishings, heating ducts, etc. Magnets, sticky tape, vacuums, physical barriers, etc. may all be used to accomplish this task.
- 2) Remove excess sealant. Sealant should be debris/contaminant free (e.g. drill chips), consistent, and uniform in appearance.
- 3) Clip excess wire tie protrusions.

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**VIRTUAL TRAINER Mounting Plate & Unit**

- 1) Follow General Guideline on page 7.
- 2) Suggested mounting areas include horizontally atop dashboard. Verify placement acceptability with state DOT/law enforcement prior to installation. See Fig 7-1.
- 3) Mount onto interior surface large enough to accommodate mounting bracket footprint.
- 4) Do not install below windows or doors which open to the vehicles exterior to prevent water damage.
- 5) Avoid mounting equipment in difficult to access areas. Avoid mounting in areas which do not allow for direct viewing.
- 6) Avoid mounting Zonar Equipment, antennas and wiring near other radio equipment (e.g., two-way radios), PA equipment and high energy electrical sources (e.g., cables, relays, amplifiers, etc.).
- 7) Avoid mounting equipment in dirty, dusty, or damp areas (e.g. near floors and entrance ways).

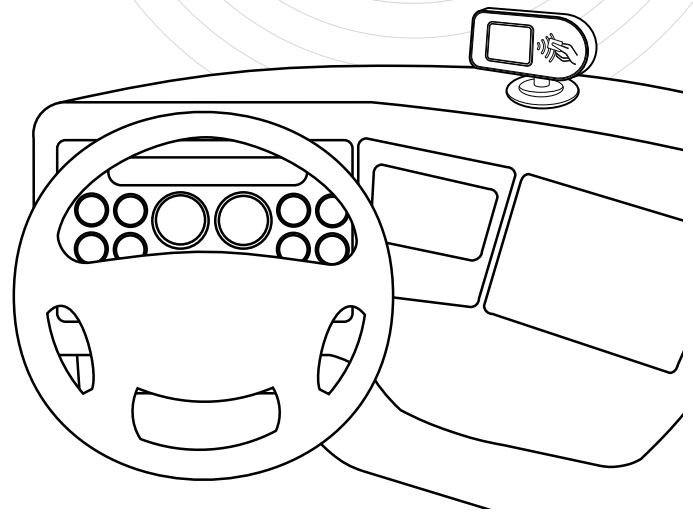


Fig 7-1

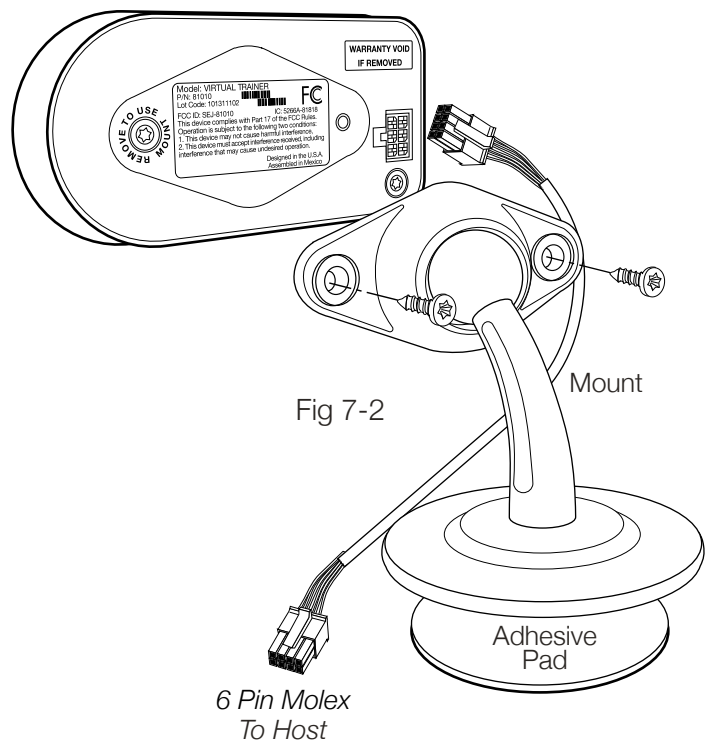


Fig 7-2





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Customer:	Yard:	Date:	Asset #:
Installer:	Location:	GPS ID:	
Vehicle Odometer Value:	Vehicle I.D. (e.g., Vin, Plate#, Make, Model, Year)		
Vehicle Hour Meter value (if monitoring engine hours)			

System Check	Yes/No	Notes
<b>General Layout</b>		
General condition - components level, even, straight, etc?		
System layout conforms to your established standard?		
Clearance check - Vehicle Mount to 2010 Hand Held?		
<b>Drilling and Cutting</b>		
All drill holes grommeted (or otherwise protected), deburred, sealed (weather penetrations only)		
All chips captured?		
Vacuumed and visually verified to be free of drill chips or other debris?		
<b>Cable Management</b>		
All cables properly ran (no tight radius, no interference, strain relieved, supported, service looped)?		
<b>Electrical</b>		
System hookup complies to your established standard?		
Red lead voltage verified? (12V constant)		
White lead voltage verified? Engine on-12V, engine off-OV, key-accessory position with engine off-OV		
Black lead continuity verified? (Grounded to vehicle chassis)		
Verify crimp integrity?		
<b>Post Job</b>		
Key accounted for?		
Vehicle secure?		
Lights, electrical off?		
All debris, refuse, chips removed?		

\_\_\_\_\_  
INSTALLER SIGNATURE

\_\_\_\_\_  
Date

## Limited Warranty

**LIMITED WARRANTY:** Zonar warrants that the Hardware provided under this agreement is free from all material defects in workmanship under normal use and service. Zonar's warranty period for its Hardware is as follows:

V3 Product Line - 5 Years

EVIRTM - 3 Years

All Other Hardware - 1 Year

The above warranty periods run from the date of shipment. Provided that the Hardware is used and handled as intended, Zonar will replace any failed or functionally impaired Hardware with equivalent Hardware in terms of performance and functionality.

This warranty does not apply to any Hardware that has been misused, altered, willfully abused or that has been damaged due to improper installation by the customer.† Hardware installations must follow Zonar's equipment specific installation guidelines.† If product returned is determined to be damaged due to any of the aforementioned circumstances, the Customer will be charged the price of a refurbished unit plus shipping and handling.

CUSTOMER'S SOLE AND EXCLUSIVE REMEDY AND ZONAR'S ENTIRE OBLIGATION UNDER THESE LIMITED WARRANTIES for defective equipment is the repair and replacement of the equipment free of charge by Zonar. Zonar shall not be liable to Customer or any third party for any general, special, punitive, incidental, indirect or consequential damages, or any lost profits or business, arising out of Zonar's Subscription Agreement.



### **FCC Compliance Statement (Part 15.19) IC Compliance Statement (RSS-210)**

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada (IC). 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.



### **Warning: (Part 15.21)**

Changes or modifications not expressly approved by Zonar Systems could void the user's authority to operate the equipment.



### **Caution: RF Exposure (OET Bulletin 65)**

To comply with FCC RF exposure requirements for mobile transmitting devices, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm (8 Inches) from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

Use only supplied and approved antenna's. Use of unauthorized antenna's or modifications could impair signal quality, void your warranty and/or result in violation of FCC regulations.



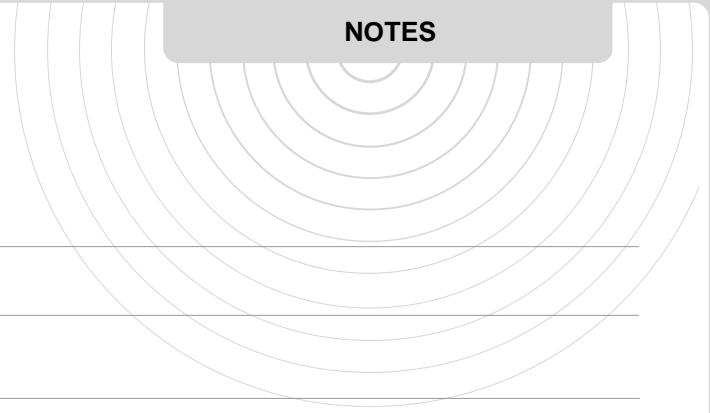
### **Industry Canada Compliance Statements**

"This device has been designed to operate with an antenna having a maximum gain of [5] dB. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is [50] ohms."

"To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication."

"The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada's website, [www.hc-sc.gc.ca/rpb](http://www.hc-sc.gc.ca/rpb)."

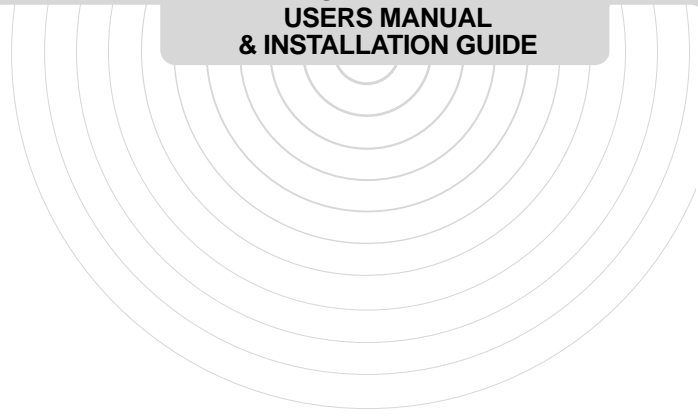
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