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Introduction

This handbook is for installers of the 9350 Automatic Tuning Whip Antenna. It assumes that you have experience in installing antennas.

This handbook contains the following sections:

Section 1 Overview—provides an overview of the antenna, connectors, and general information
Section 2 Installing the antenna—provides guidance on how to position, install, and earth the antenna
Section 3 Specifications—provides the common operational, environmental, and physical specifications of the antenna
Section 4 Accessories—lists the accessories available for the antenna
Appendix A Compliance—provides compliance information and safety notices for your antenna
Appendix B Definitions—explains the terms and abbreviations used in this handbook

There is an index at the end of this handbook.
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1 Overview

This section contains the following topics:

General (4)
Care and safety instructions (5)
Connectors (5)
General

The 9350 Automatic Tuning Whip Antenna is designed to provide continuous tuning for vehicle-mounted transceivers that scan multiple frequencies. It is designed to withstand extreme environmental and physical conditions. When tuning, the antenna seeks the optimum tuning point, ensuring that the best communications possible are achieved.

The 9350 Automatic Tuning Whip Antenna comprises:

- a 1.6 m (63 in) fibreglass primary whip, or a 1.65 m (65 in) or 1.2 m (48 in) emergency stainless steel whip
- a spring
- an antenna tuner with connectors, base plate and earth strap

Figure 1: 9350 Automatic Tuning Whip Antenna
Care and safety instructions

You should unscrew the fibreglass or stainless steel whip from the antenna base when the antenna is not in use.

When travelling in scrub or undergrowth, avoid overhanging branches. Codan recommends that you carry the emergency stainless steel whip with you in case the fibreglass whip is damaged.

Connectors

There are two connectors at the base of the antenna as shown in Figure 2.

Figure 2: Connectors on the antenna
Figure 3: Front view of the antenna control connector

Table 1: Pinouts for the antenna control connector

<table>
<thead>
<tr>
<th>Pin no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>+12 V DC</td>
</tr>
<tr>
<td>B</td>
<td>Earth</td>
</tr>
<tr>
<td>C</td>
<td>Tune</td>
</tr>
<tr>
<td>D</td>
<td>Scan</td>
</tr>
<tr>
<td>E</td>
<td>Tune status indicator</td>
</tr>
<tr>
<td>F</td>
<td>Not used</td>
</tr>
</tbody>
</table>
2 Installing the antenna

This section contains the following topics:

Disclaimer (8)
What you need to consider (8)
Installing a 9350 Automatic Tuning Whip Antenna (15)
Installing an NVIS kit with a 9350 Automatic Tuning Whip Antenna (18)
Disclaimer

The antenna should be installed by a suitably-qualified technician, to the relevant standards and approvals.

WARNING
While the following instructions are intended to assist with installation, it is the purchaser’s responsibility to ensure that the antenna is installed with due regard to pedestrian and vehicle-occupant safety, particularly in the event of a vehicle accident. Codan accepts no responsibility or liability in the event of injury to pedestrians or vehicle occupants or any other damage due to insecure or otherwise unsafe or inappropriate installation of the antenna.

What you need to consider

The antenna is a critical element in an HF communications system. Correct installation of the antenna provides efficient operation over the frequency range of the transceiver. A good installation ensures the antenna provides optimum output power during transmission and clear reception of weak signals.

When installing the antenna you must consider:

• the location and mounting of the antenna
• how to provide a good earth plane for the antenna
• the routing of the coaxial and control cable
Location

To obtain optimal radiation efficiency from your antenna, and optimal reception at your antenna, it must be mounted in a location that:

• is clear of surrounding body work
• supports a good earth plane
• supports the RF earthing required for correct tuning and loading
• does not obscure the driver’s vision
• does not obscure number plates or vehicle lights
• does not interfere with engine or car openings
• allows for best radiation (open and clear of all metal obstructions)
• clears electric power lines, overhanging trees, bridges etc
• does not breach vehicle-licensing regulations

A mounted antenna must have:

• a strong anchorage for the base of the antenna
• a sound electrical connection to the vehicle chassis
Installing the antenna

Possible mounting locations that provide good electrical performance of the 9350 Automatic Tuning Whip Antenna are shown in the following photographs.

Figure 4: Rear-mount location on sedan vehicle

Figure 5: Rear-mount location on off-road vehicle
Mounting bracket

The antenna must be mounted on a sturdy metal plate (10 mm (½ in) thick), strengthened by a support bracket on at least one side. The mounting bracket and fixing should be able to withstand any vibrations induced from the vehicle travelling over an off-road surface. A strong metal plate that is large enough to support the antenna will also provide efficient earthing. The plate must have a 17 mm (0.67 in) hole to accept the mounting screw.

The mounting bracket should be located such that the top half of the antenna tuner shroud, or more, sits above any adjacent horizontal metal plane on the vehicle (for example, a trunk lid, hood, or roof).

NOTE
You should consider any overall height restrictions that are relevant to your vehicle.

The bracket should be located so that any flexing of the antenna assembly does not damage the panels of the vehicle.

CAUTION
If the antenna is front-mounted, it should be mounted on the side opposite to the driving position.
The installed antenna should enable easy access to the connectors.

**Earthing**

Most mobile antennas are considerably shorter than a quarter wavelength at HF, and can exhibit an extremely low radiation resistance. Consequently, their efficiency is reduced compared with the quarter-wave radiator that they represent. This can be improved by good installation practices, and most importantly, by the provision of a low-impedance earth return for the antenna.

Due to the relatively poor earth plane surrounding a mobile HF antenna, best use should be made of what is available. A reduction in any losses can increase antenna current and radiation. This can often be achieved by providing a good earth connection from the base of the antenna to nearby bodywork. An earth strap is provided for this. Connections to the vehicle chassis are not as effective because many 4WD vehicles have insulating mountings from body to chassis.

A strong metal plate that is large enough to support the antenna will provide efficient earthing. The plate should be welded to the chassis or some other part of the vehicle’s frame.

The mounting bracket and plate must be free of rust and paint to allow metal-to-metal contact between the base of the antenna and the mounting bracket. This electrical bond is the basis for effective RF earthing. RF currents flow on the conductor surface, therefore good RF earthing requires conductors with large surface areas.

**NOTE** Conductive grease should be used on the touching surfaces to help prevent corrosion.
The RF earth differs from the DC earth required by the battery and the vehicle’s electrics. For more information on power supply factors and earthing the transceiver see the Reference Manual provided with the transceiver.

**Cabling**

The coaxial cable between the antenna and the transceiver should be installed as far as possible from other vehicle wiring, especially high-tension ignition wiring or the engine management computer.

The cabling must be in a position that:

- is away from the driver’s feet
- is secured and concealed as much as possible
- ensures the control and coaxial cables are separated from the DC power cable by at least 200 mm (8 in) (except over short distances, for example, to pass through the same hole in a bulkhead)
- is secured behind protective metalwork (only if the cables run under the vehicle)

Keep cables in the engine compartment away from:

- heat, for example, exhaust, air-conditioning systems, and water pipes
- oils and corrosive liquids, for example, engine oil, battery fluid, and brake fluid

Protect all the cables from sharp edges and mechanical abrasions. Cables that pass through body panels or internal bulkheads must be protected by rubber grommets. Holes in the bulkhead need only be large enough to allow the end of the cable with the smaller connector to pass through. Removing a connector should be a last resort.

**CAUTION**  Removal of factory-fitted connectors may cause cable or connector faults.
Installing the antenna

**CAUTION**

Crimp-style coaxial connectors are not suitable for vehicle installations because they are susceptible to mechanical damage and are not weatherproof.

**NOTE**

Any cabling under carpet or floor mats should be clear of foot traffic.
Installing a 9350 Automatic Tuning Whip Antenna

To install the antenna on a vehicle:

- Attach the mounting bracket to the vehicle in a manner that complies with the relevant safety standards and approvals.
- Clean the mounting surface of all dirt, rust, and paint.

**NOTE** Codan recommends that conductive grease is applied to the mounting surface.

- Remove the M16 nut and all washers from the M16 mounting stud at the base of the antenna.
- Insert the mounting stud into the hole on the mounting bracket, then locate the flat washer, spring washer, and nut onto the mounting stud.
- Tighten the nut until the spring washer is compressed.
- Connect an earth strap to a convenient bolt on the bodywork.

**NOTE** Ensure a good electrical connection is made.

- If you are connecting the antenna to:
  - an NGT Transceiver see the cable connections provided in Table 2
  - a 2110 Manpack Transceiver see the Fitting Instructions provided with the mounting cradle and or equipment
Installing the antenna

Table 2: 9350 to NGT connections

<table>
<thead>
<tr>
<th>Codan part number</th>
<th>Cable type</th>
<th>From antenna connector...</th>
<th>To RF unit lead...</th>
</tr>
</thead>
<tbody>
<tr>
<td>08-05627-xxx</td>
<td>Multicore, 6 m (19 ft)</td>
<td>6-way antenna control</td>
<td></td>
</tr>
<tr>
<td>08-01503-xxx</td>
<td>50 Ω coaxial RG58, 6 m (19 ft)</td>
<td>RF</td>
<td></td>
</tr>
</tbody>
</table>

NOTE

These cables are available in a number of lengths (see page 23, Accessories).

Do not cut the control or coaxial cable. If the cables are too long, coil the excess neatly and secure it out of the way with cable ties.

WARNING

Do not bunch the control and coaxial cables together.

☐ Protect any cables passing through metal panels with rubber grommets.

☐ Tape the connectors on the antenna, and approximately 25 mm (1 in) of each cable, with two layers of self-amalgamating PIB tape (Rotunda 2501) or EPR tape (3M Scotch™ 23).

☐ Cover the self-amalgamating tape with two layers of high-quality electrical tape (3M Scotch™ 33+, or similar) to minimise aging of the self-amalgamating tape.

☐ Screw the stainless steel whip, or the fibreglass whip with spring, onto the antenna stud.

Do not exert greater than 25 Nm (18 lb-ft) on the stud. Tighten the whip using a spanner with one hand positioned as close as possible to the antenna to minimise any mechanical advantage.

WARNING
Test the installed antenna (with connected transceiver) as described in the Reference Manual provided with your transceiver.

**NOTE** Troubleshooting for an antenna and how to install a transceiver are provided in the Reference Manual.
Installing an NVIS kit with a 9350 Automatic Tuning Whip Antenna

An NVIS kit (Codan part number 15-00323) is available for attaching to a 9350 antenna. For information on installing this kit with the antenna see the instructions provided with the kit.

The NVIS kit is designed to improve the performance of short to medium-range HF communications for the 9350 antenna by increasing the high-angle radiation characteristics. Typically, these communication distances are 20–500 km (12–310 mi). The operating frequency range when using the NVIS kit is 1.6–12 MHz.

The vertical radiation pattern from a short vertical whip antenna is very poor. As such, HF communications over short distances may be difficult or non-existent from such an antenna. The NVIS kit replaces the whip section of the 9350 antenna. The NVIS whip is longer and positioned horizontally to improve the vertical radiation efficiency.

Figure 7: 9350 antenna with NVIS kit
### 3 Specifications

#### General

**Frequency range**

Transmit

<table>
<thead>
<tr>
<th>9350</th>
<th>2 to 30 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>(stainless steel whips will tune down to 2.5 MHz)</td>
<td></td>
</tr>
</tbody>
</table>

| 9350 with NVIS kit | 1.6 to 12 MHz |

Receive (scan or free-tune receiver mode)

| 0.25 to 30 MHz |

**Power rating** 125 W PEP voice

**Power consumption**

- Static 150 mA
- Tuning 1 A

12 V DC nominal supplied from the transceiver

**Input impedance** 50 Ω

VSWR 1.5:1 (typical)
## Specifications

### Tuning speed

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Full range</td>
<td>5.5 s</td>
</tr>
<tr>
<td>Subranges</td>
<td></td>
</tr>
<tr>
<td>3 to 7 MHz</td>
<td>2 s (typical)</td>
</tr>
<tr>
<td>7 to 22 MHz</td>
<td>2 s (typical)</td>
</tr>
</tbody>
</table>

### Connectors

| Antenna control | 6-way connector |
| RF              | UHF socket      |

### Cables

| Antenna control                  | Pre-assembled multicore cable available in a number of lengths (see page 23, Accessories) |
| Coaxial                         | RG58 cable available in a number of lengths (see page 23, Accessories) |

### Environmental

**Operating temperature**

\[-40 \text{ to } 60^\circ \text{C} \]

\[(-40 \text{ to } 140^\circ \text{F})\]
## Specifications

### Physical

#### Mounting

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base plate</td>
<td>110 mm × 110 mm (4.3 in × 4.3 in)</td>
</tr>
<tr>
<td>Mounting screw</td>
<td>M16 × 2 threaded, plated-steel</td>
</tr>
<tr>
<td></td>
<td>stud, 60 mm (2.4 in) long</td>
</tr>
<tr>
<td>Antenna stud</td>
<td>M14, maximum tightening torque of</td>
</tr>
<tr>
<td></td>
<td>25 Nm (18 lb-ft)</td>
</tr>
</tbody>
</table>

#### Size

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>770 mm (2.5 ft)</td>
</tr>
<tr>
<td>Diameter</td>
<td>54 to 110 mm tapered (2.1 to 4.3 in)</td>
</tr>
<tr>
<td>Spring</td>
<td>130 mm (5.1 in)</td>
</tr>
<tr>
<td>Fibreglass whip</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>1600 mm (63 in)</td>
</tr>
<tr>
<td>Stainless steel whips</td>
<td></td>
</tr>
<tr>
<td>Length</td>
<td>1650 mm (65 in)</td>
</tr>
<tr>
<td></td>
<td>1200 mm (48 in)</td>
</tr>
</tbody>
</table>
## Specifications

### Weight

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight (kg)</th>
<th>Weight (lb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>4.4</td>
<td>9.7</td>
</tr>
<tr>
<td>Spring</td>
<td>1.0</td>
<td>2.2</td>
</tr>
<tr>
<td>Whip</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fibreglass</td>
<td>0.4</td>
<td>0.9</td>
</tr>
<tr>
<td>Stainless steel (1.65 m)</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Stainless steel (1.2 m)</td>
<td>0.1</td>
<td>0.2</td>
</tr>
</tbody>
</table>
## Accessories

### Table 3: Accessories for the 9350 Automatic Tuning Whip Antenna

<table>
<thead>
<tr>
<th>Codan part number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>08-01503-002</td>
<td>Cable, coaxial, waterproof (2 m)</td>
</tr>
<tr>
<td>08-01503-006</td>
<td>Cable, coaxial, waterproof (6 m)</td>
</tr>
<tr>
<td>08-01503-008</td>
<td>Cable, coaxial, waterproof (8 m)</td>
</tr>
<tr>
<td>08-01503-030</td>
<td>Cable, coaxial, waterproof (30 m)</td>
</tr>
<tr>
<td>08-05140-001</td>
<td>Spring</td>
</tr>
<tr>
<td>08-05627-006</td>
<td>Cable, control, NGT–9350 (6 m)</td>
</tr>
<tr>
<td>08-05627-008</td>
<td>Cable, control, NGT–9350 (8 m)</td>
</tr>
<tr>
<td>08-05627-030</td>
<td>Cable, control, NGT–9350 (30 m)</td>
</tr>
<tr>
<td>15-00323</td>
<td>NVIS kit</td>
</tr>
<tr>
<td>78-23007-003</td>
<td>Whip, fibreglass</td>
</tr>
<tr>
<td>78-23025</td>
<td>Whip, stainless steel (1.2 m)</td>
</tr>
<tr>
<td>78-23056</td>
<td>Whip, stainless steel (1.65 m)</td>
</tr>
</tbody>
</table>
This page has been left blank intentionally.
Appendix A—Compliance

This section contains the following topics:

Introduction (26)
European Radio and Telecommunications Terminal Equipment Directive (27)
Electromagnetic compatibility and safety notices (28)
FCC compliance (30)
Register of hazardous substances (31)
Compliance

Introduction


This section also contains the requirements for FCC compliance.
European Radio and Telecommunications Terminal Equipment Directive

The 9350 Automatic Tuning Whip Antenna has been tested and complies with the following standards and requirements (articles of the R&TTE Directive):

- Article 3.1b: ETSI EN301489-1 V1.4.1
- Article 3.1b: ETSI EN301489-15 V1.2.1
- Article 3.1a: EN60950-1

Product marking and labelling

Any equipment supplied by Codan that satisfies these requirements is identified by the 

Declarations of Conformity

The CE Declaration of Conformity for the product is listed on page 37, Associated documents. This document can be made available upon request to Codan or a Codan-authorised supplier.
Electromagnetic compatibility and safety notices

Non-ionising radiation safety

To ensure optimal transceiver performance and to avoid exposure to excessive electromagnetic fields, the antenna system must be installed according to the instructions provided.

**WARNING**

High voltages exist on the antenna during transmission and tuning. Do not touch the antenna during these activities. RF burns may result.

**WARNING**

Install the earthing system or counterpoise as directed to prevent RF burns from any metal part of the transceiver.

**WARNING**

You should not transmit from your transceiver or tune the antenna unless people are beyond the safe working distance of 1.5 m (5 ft) of any part of a 9350 Automatic Tuning Whip Antenna.

Safe working distance is based on continuous exposure to CW-type transmissions, as set out in the ICNIRP Exposure Guidelines (1998) for occupational exposure. Safe working distance can be reduced with normal voice communication.
Electromagnetic compatibility

To ensure compliance with the EMC Directive is maintained, you must:

- Use the standard shielded cables supplied from Codan (where applicable).

Electrical safety

To ensure compliance with the European Low Voltage Directive is maintained, you must install the 9350 Automatic Tuning Whip Antenna in accordance with the instructions in this handbook, and operate the 9350 Automatic Tuning Whip Antenna in accordance with the instructions in the relevant Getting Started Guide and Reference Manual for your transceiver.
FCC compliance

FCC Part 15 compliance

Any modifications made to the 9350 Automatic Tuning Whip Antenna that are not approved by the party responsible for compliance may void your equipment’s compliance under Part 15 of the FCC rules.

The 9350 Automatic Tuning Whip Antenna has been tested and found to comply with the limits for a Class B 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 switching 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
### Register of hazardous substances

<table>
<thead>
<tr>
<th>零件项目 (Component Name)</th>
<th>有毒有害物质或元素 (Hazardous Substances or Elements)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9350 天线 (9350 Antenna)</td>
<td>铅</td>
</tr>
<tr>
<td>9350 主体结构 (9350 Main Assembly)</td>
<td>X</td>
</tr>
<tr>
<td>玻璃纤维鞭状天线 (Fibreglass Whip)</td>
<td>X</td>
</tr>
<tr>
<td>不锈钢鞭状天线 (Stainless Steel Whip)</td>
<td>X</td>
</tr>
<tr>
<td>弹簧 (Spring)</td>
<td>O</td>
</tr>
<tr>
<td>控制电缆 (Control Cable)</td>
<td>X</td>
</tr>
<tr>
<td>同轴电缆 (Coaxial Cable)</td>
<td>X</td>
</tr>
<tr>
<td>天线安装手册 (Antenna Installation Handbook)</td>
<td>O</td>
</tr>
</tbody>
</table>

表示该有毒有害物质在该部件的所有均质材料中的含量，均在 SJ/T 11363-2006 标准所定的限量要求以下。

Indicates that this toxic or hazardous substance, contained in all of the homogeneous materials for this part, is below the limit requirement in SJ/T 11363-2006.
X 表示该有毒有害物质在该部件的至少一种均质材料中的含量，超出
SJ/T 11363-2006 标准所规定的限量要求。
Indicates that this toxic or hazardous substance, contained in at least one of
the homogeneous materials used for this part, is above the limit requirement
in SJ/T 11363-2006.

怎么阅读制造日期 - 方法如下：
How to read the date of manufacture:
产品序列号中的第一个数字或字母表示该产品在 2000 年或以后的制造年份.
举例来说（数字 0-9）0=2000，1=2001... 之后接着以字母代表制造年份
A=2010，B=2011...
The first character of the serial number provides the year of manufacture starting
from the year 2000, that is, 0=2000, 1=2001...A=2010, B=2011...

产品序列号中的第二个数字或字母表示该产品的制造月份．举例来说（数字
1-9）1=一月份，2=二月份... 之后接着以字母 A, B, C 代表剩下的制造月份
A=十月份，B=十一月份，C=十二月份.
The second character of the serial number provides the month of manufacture, that
is, 1 to 9, A to C; A=10th month, B=11th month and C=12th month.
Appendix B—Definitions

Standards and icons

The following standards and icons are used in this guide:

**This typeface** Means...

*Italic* a cross-reference or text requiring emphasis

**This icon** Means...

- a step within a task
- the text provided next to this icon may be of interest to you
- proceed with caution as your actions may lead to loss of data, privacy or signal quality
- your actions may cause harm to yourself or the equipment
## Acronyms and abbreviations

<table>
<thead>
<tr>
<th>This term...</th>
<th>Means...</th>
</tr>
</thead>
<tbody>
<tr>
<td>4WD</td>
<td>four-wheel drive</td>
</tr>
<tr>
<td>CW</td>
<td>continuous wave</td>
</tr>
<tr>
<td>DC</td>
<td>direct current</td>
</tr>
<tr>
<td>EPR</td>
<td>ethylene propylene rubber</td>
</tr>
<tr>
<td>ETSI</td>
<td>European Telecommunications Standards Institute</td>
</tr>
<tr>
<td>FCC</td>
<td>Federal Communications Commission</td>
</tr>
<tr>
<td>HF</td>
<td>high frequency</td>
</tr>
<tr>
<td>ICNIRP</td>
<td>International Commission on Non-Ionizing Radiation Protection</td>
</tr>
<tr>
<td>NVIS</td>
<td>near vertical-incidence skywave</td>
</tr>
<tr>
<td>PIB</td>
<td>poly isobutylene</td>
</tr>
<tr>
<td>R&amp;TTE</td>
<td>radio and telecommunications terminal equipment</td>
</tr>
<tr>
<td>RF</td>
<td>radio frequency</td>
</tr>
<tr>
<td>VSWR</td>
<td>voltage standing wave ratio</td>
</tr>
</tbody>
</table>
### Units

**NOTE**

Imperial dimensions are in United States Customary Units.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Unit</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>ampere</td>
<td>A</td>
</tr>
<tr>
<td>Frequency</td>
<td>hertz</td>
<td>Hz</td>
</tr>
<tr>
<td>Impedance</td>
<td>ohm</td>
<td>Ω</td>
</tr>
<tr>
<td>Length</td>
<td>metre (inch/feet)</td>
<td>m (in/ft)</td>
</tr>
<tr>
<td>Power</td>
<td>watt</td>
<td>W</td>
</tr>
<tr>
<td>Temperature</td>
<td>degrees Celsius</td>
<td>°C</td>
</tr>
<tr>
<td></td>
<td>(Fahrenheit)</td>
<td>°F</td>
</tr>
<tr>
<td>Time</td>
<td>second</td>
<td>s</td>
</tr>
<tr>
<td>Torque</td>
<td>newton-metre</td>
<td>Nm</td>
</tr>
<tr>
<td></td>
<td>(pound-foot)</td>
<td>(lb-ft)</td>
</tr>
<tr>
<td>Voltage</td>
<td>volt</td>
<td>V</td>
</tr>
<tr>
<td>Weight</td>
<td>gram (pound)</td>
<td>g (lb)</td>
</tr>
</tbody>
</table>
# Definitions

## Unit multipliers

Units are expressed in accordance with ISO 1000:1992 ‘SI units and recommendations for the use of their multiples and of certain other units’.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Name</th>
<th>Multiplier</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>mega</td>
<td>1000000</td>
</tr>
<tr>
<td>k</td>
<td>kilo</td>
<td>1000</td>
</tr>
<tr>
<td>m</td>
<td>milli</td>
<td>0.001</td>
</tr>
</tbody>
</table>
About this issue

This is the third issue of the Automatic Tuning Whip Antenna 9350 Installation Handbook. This issue includes the register of hazardous substances for the antenna.

Associated documents

This guide is one of a series of documents associated with the 9350 Automatic Tuning Whip Antenna. The other documents are:

- NGT Transceiver Getting Started Guide (Codan part number 15-04127-EN)
- NGT Transceiver Reference Manual (Codan part number 15-04126-EN)
- NGT ASR Transceiver Getting Started Guide (Codan part number 15-04137-EN)
- NGT ASR Transceiver Reference Manual (Codan part number 15-04138-EN)
- NGT CR Transceiver Getting Started Guide (Codan part number 15-04144-CH)
- NGT CR Transceiver Reference Manual (Codan part number 15-04145-EN)
- NGT MR Transceiver Getting Started Guide (Codan part number 15-04151-EN)
- NGT MR Transceiver Reference Manual (Codan part number 15-04150-EN)
- NGT SRx Transceiver Getting Started Guide (Codan part number 15-04140-EN)
- NGT SRx Transceiver Reference Manual (Codan part number 15-04141-EN)
- Manpack Transceiver 2110 series Getting Started Guide (Codan part number 15-04136-EN)
- Manpack Transceiver 2110 series Reference Manual (Codan part number 15-04135-EN)
Definitions

- Manpack Transceiver 2110M Getting Started Guide (Codan part number 15-04152-EN)
- Manpack Transceiver 2110M Reference Manual (Codan part number 15-04153-EN)
- Declaration of Conformity for the 9350 Automatic Tuning Whip Antenna (Codan part number 19-40124)
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