

Installation Fact Sheet

C-ITS Harmonisation Project

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Introduction

Welcome to the Co-operative Intelligent Transport Systems (C-ITS) project. This fact sheet provides essential information on the technologies that will be installed in your vehicle.

The installed technologies will provide real-time alerts to enhance road safety and traffic efficiency. It is important to understand the devices and how they will be integrated into your vehicle.

NOTE: This fact sheet only covers the installation of the in-vehicle hardware. For more details on the project and a detailed usage & troubleshooting guide of the system, please refer to the participant handbook or contact the participant manager.



1 C-ITS Vehicles

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1. What is C-ITS?

Co-operative Intelligent Transport Systems (C-ITS) is a technology that uses advanced sensing and communication technologies to enable vehicles and traffic infrastructure to communicate and share information in real-time for drivers to make better decisions, enhancing overall traffic efficiency and safety.

A C-ITS system has 3 key components, one of which will be installed into your vehicle. This component is generally referred to as the **On-Board Unit (OBU)**.

Key components:

Component	Location	Description
On-Board Units (OBUs)	In vehicles	<p>OBUs collect and transmit data such as vehicle speed, location, and status.</p> <p>OBUs receive alerts and information from roadside units (RSUs) and other vehicles to inform the driver of potential hazards or traffic conditions.</p>
Roadside Units (RSUs)	Intersections	RSUs communicate with OBUs to provide information about traffic signals, road conditions, and hazards.
Central Traffic Management Systems:	Cloud (online)	<p>These systems collect and analyse data from OBUs, RSUs and other traffic systems to monitor traffic conditions and manage traffic flow.</p> <p>Central systems can send alerts and instructions to vehicles to improve safety and efficiency.</p>

2. What will be installed?

The OBU system consists of 3 primary components:

- **The vehicle station.** A control unit typically installed out of the driver's view, typically under the driver's seat for standard vehicles.
- **The Human Machine Interface (HMI).** A touchscreen device attached to the dashboard/windscreen of the vehicle via suction cup, much like a typical aftermarket GPS system.
- **Antenna(s).** It enables the vehicle station to communicate wirelessly with other connected devices on the C-ITS network. There may be more than one antenna installed in your vehicle.

They will be installed by a qualified provider at cost to the university and will be removed at cost to the university either at the conclusion of the research or at the discretion of the vehicle owner.

3. Contact Information

For any questions or support regarding the installation of your OBU, please contact the Participant Manager at **[CITS-Harmonisation@unimelb.edu.au]**.

4. The Vehicle Station

The vehicle station is the main component of the OBU. It is responsible for collecting and transmitting vehicle data, as well as processing the relevant safety messages and alerts. The unit **does not** connect to your vehicle's onboard computers, all data will be collected via sensors within the vehicle station itself.

Power

12V is required for the vehicle station to operate. Other components of the OBU are powered by the vehicle station itself.

The vehicle station is generally powered via an adapter plugged into your vehicle's 12V cigarette lighter socket. If you need to use the socket for other purposes when an OBU is installed in your vehicle. A two-way splitter may have been installed in your vehicle to provide an additional socket to use. If this splitter is not installed in your vehicle, please contact the participant manager for assistance.

Location

Generally, the vehicle station will be installed under the driver's seat using Velcro strips or double-sided tape. This keeps the unit out of the driver's view and avoids any permanent damage to the vehicle. Depending on your vehicle type and availability of space, the unit may be installed in alternative locations, such as under the front passenger side seat.



3. Example of an installed vehicle station

5. The HMI

The HMI is a basic touchscreen device that allows the driver to interact with the OBU. It is similar in appearance to an aftermarket GPS system. The unit receives both power and data directly from the vehicle station.

Location

The HMI is generally mounted to the dashboard or windscreen of the vehicle using a built-in suction cup. If the HMI is difficult to see or obstructs your vision, it can be easily rotated via a lockable ball joint or repositioned via the suction cup.



4. Example of an installed HMI on standby mode

6. The Antenna(s)

Depending on the exact type of OBU kit installed in your vehicle, there may be one or more antennas. These connect directly to the vehicle station and allow it to receive both cellular service and enhanced precision GPS coverage.

Location

Depending on your installed OBU kit, the antenna may be installed on either the inside of your vehicle, attached to the dashboard/windscreen, or the outside of your vehicle, attached to the roof or the front bonnet.

To avoid permanently damaging the vehicle, double sided tape will be used to secure the antenna(s). As such, they cannot be easily repositioned once installed. If this is a point of concern for you, please discuss this with the participant manager prior to the installation.



5. Example of a pair of dashboard mounted antennas.