

Quectel L26-DR Module

Introduction

June, 2020

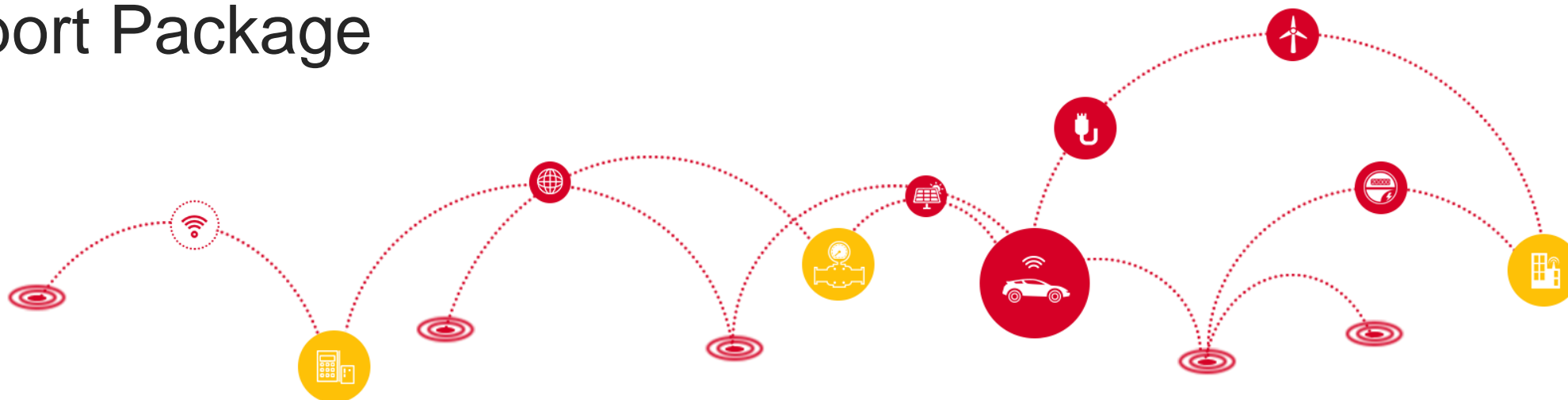
Product Overview

Technical Details

Performance (ADR)

Performance (UDR)

Support Package



Overview

Featuring dead reckoning, L26-DR gathers the tracks even under signal-challenging environments in which GNSS signals are blocked, such as tunnels and garages. L26-DR can also greatly improve the positioning performance when the GNSS signal is weak or intermittent.

To satisfy various application demands, this module series has been designed complying with automotive grade requirements. The module is pin-to-pin compatible and comes with the most popular 16.0 mm × 12.2 mm × 2.3 mm package in the market. As a result, it is very easy for customers to replace and test the module without PCB modification. For different application scenarios, the module has two dedicated software versions: ADR and UDR.

The ordering codes are as follows:

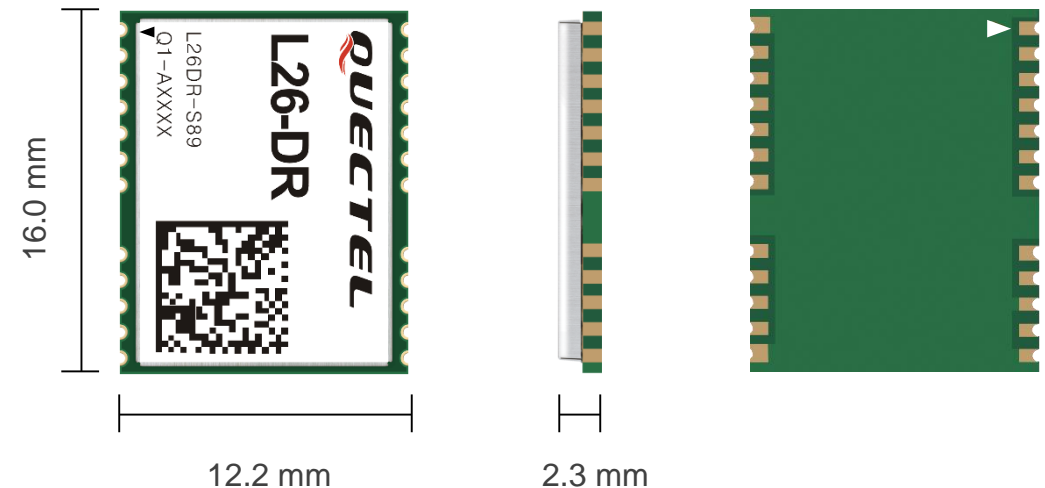
ADR/UDR Differentiated by OC

ADR OC: L26ADR-S89

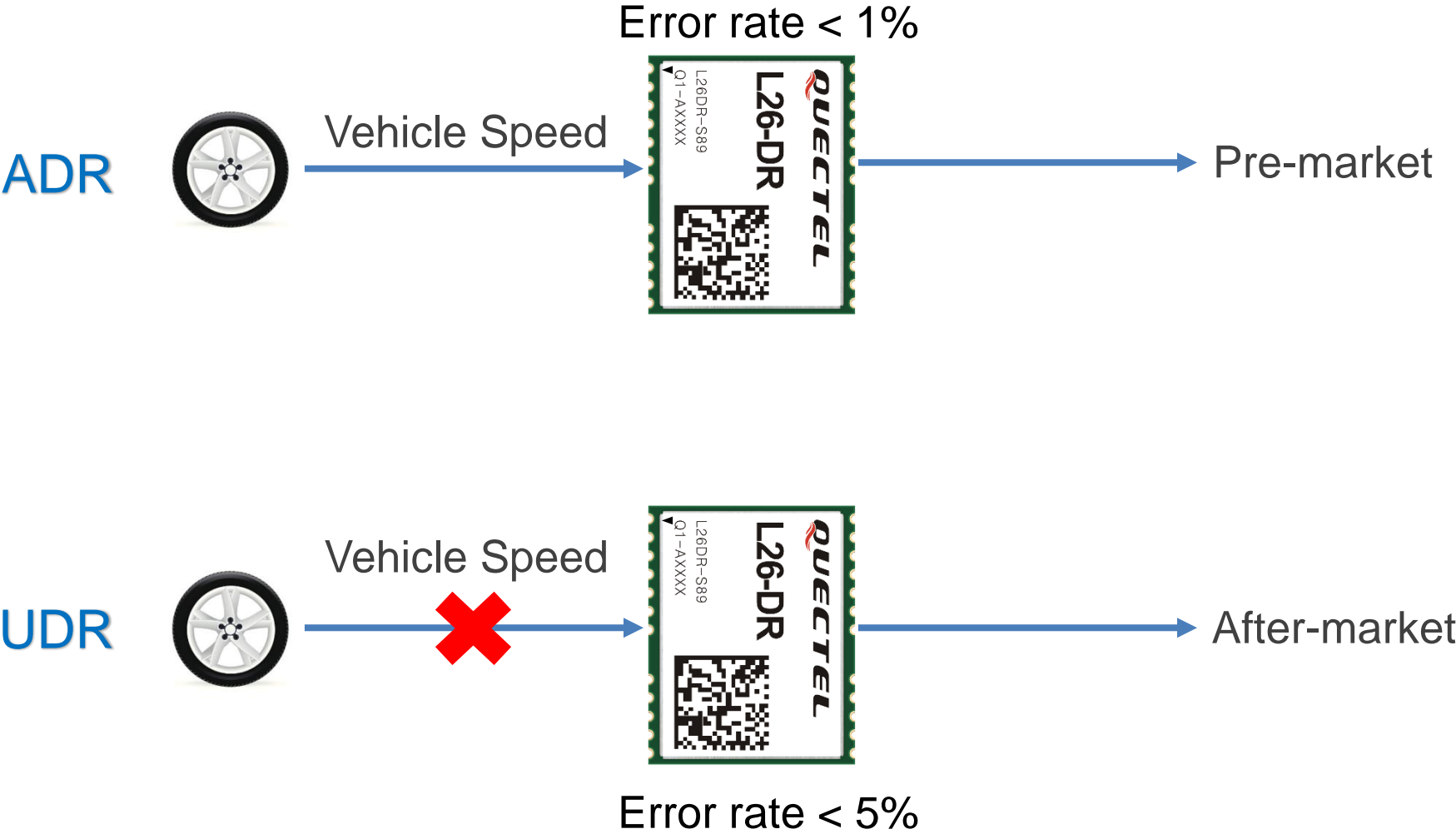
EVB Kit OC: L26ADREVB-KIT

UDR OC: L26UDR-S89

EVB Kit OC: L26UDREVB-KIT



UDR and ADR



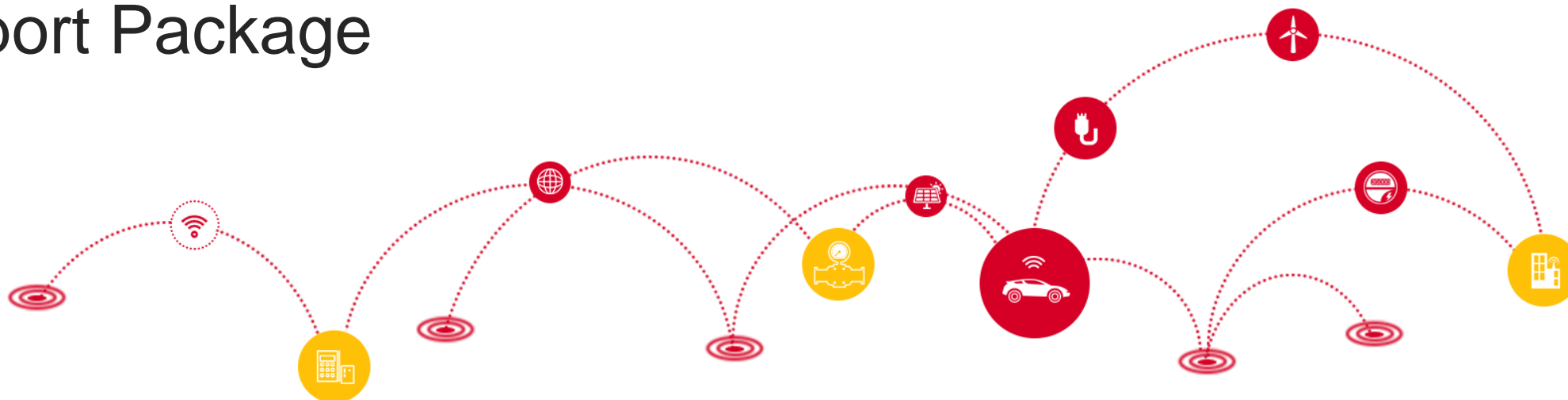
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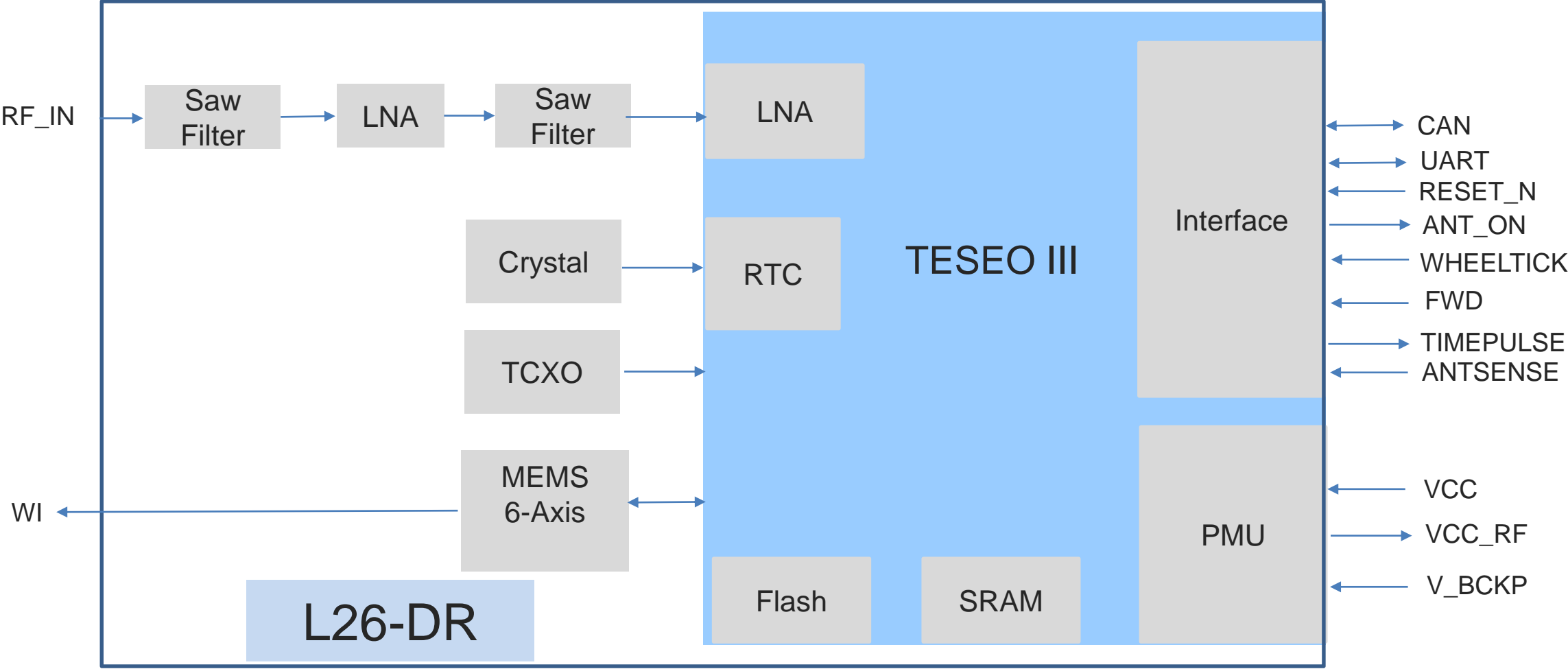
Performance (ADR)

Performance (UDR)

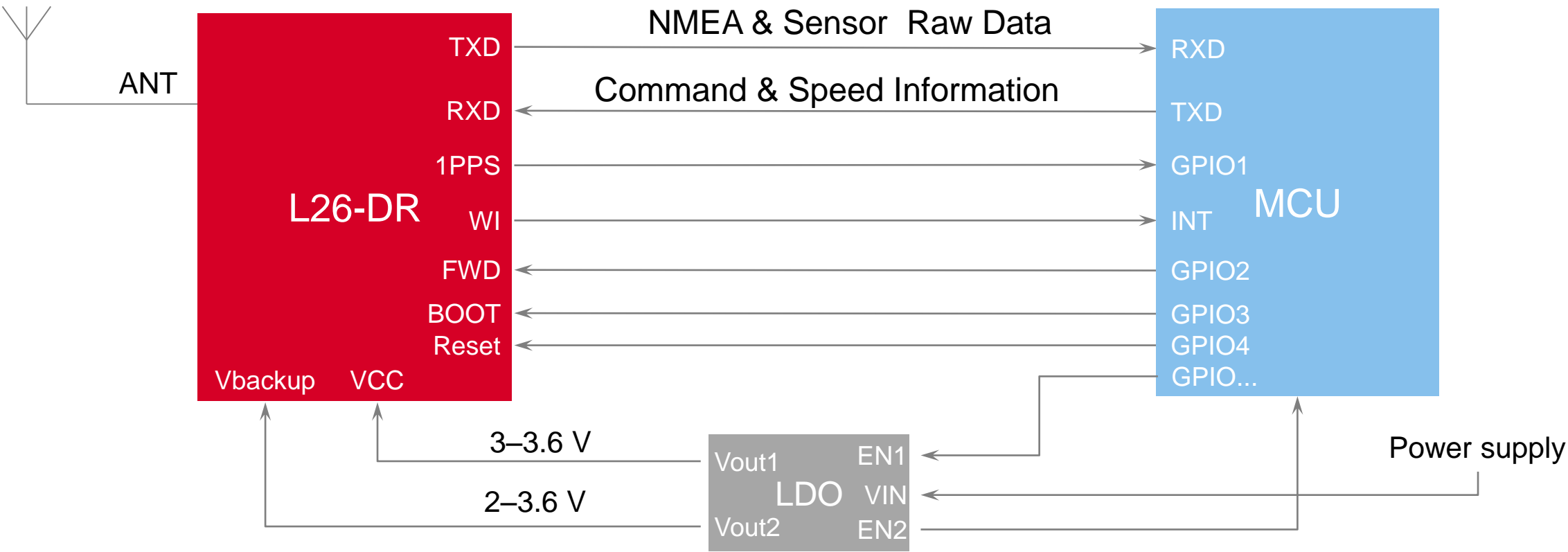
Support Package



Hardware Diagram



Application Diagram



Note: UDR version requires no speed and direction input.

Features

- Speed information that can be obtained via UART, WHEELTICK or CAN bus interfaces (L26-ADR)
- Dead reckoning algorithm
- Transfer of the sensor's raw data together with the NMEA message
- Additional WI signal to wake up the host
- Active antenna detection function
- Short calibration time (less than 3 min. during evaluation stage) without the need for calibration during the production
- Flexible installation angle

Note: Please refer to related technical documents, such as [Quectel_L26-DR_Hardware_Design](#) for details.

Specifications

Items	Specifications	
Multi-Constellation GNSS	<ul style="list-style-type: none"> • GPS L1 C/A • GLONASS L1 • BeiDou (BDS) B1 • QZSS L1 • Galileo (GAL) E1 	
SBAS	WAAS, EGNOS, MSAS, GAGAN	
Channels	48 (Tracking)/ 2 (Fast Acquisition)	
Horizontal Position Accuracy	Autonomous	1.5 m CEP
Velocity Accuracy	Without Aid	< 0.1 m/s
Acceleration Accuracy	Without Aid	0.1 m/s ²
Timing Accuracy	1PPS	< 100 ns CEP
TTFF @ -130 dBm (with AGNSS)	Cold Start	< 13 s
TTFF @ -130 dBm (without AGNSS)	Cold Start	< 32 s
	Warm Start	< 25 s
	Hot Start	< 2 s

Items	Specifications	
Sensitivity	Acquisition	-145 dBm
	Tracking	-162 dBm
	Reacquisition	-152 dBm
Supply Voltage Range	3.0–3.6 V, typical 3.3 V	
Operation Temperature	-40 °C to +85 °C	
Dimensions	(16.0 ±0.15) mm × (12.2 ±0.15) mm × (2.3 ±0.20) mm	
Weight	Approx. 0.9 g	
Low Power Consumption	Acquisition: 72 mA @ 3.3 V	
	Tracking: 58 mA @ 3.3 V	
Power Saving Modes	17 µA	
UART	<ul style="list-style-type: none"> • UART port: UART_TX and UART_RX • 115200–921600 bps baud rate (115200 bps by default) • Used for NMEA/PSTN transmission and firmware upgrade 	

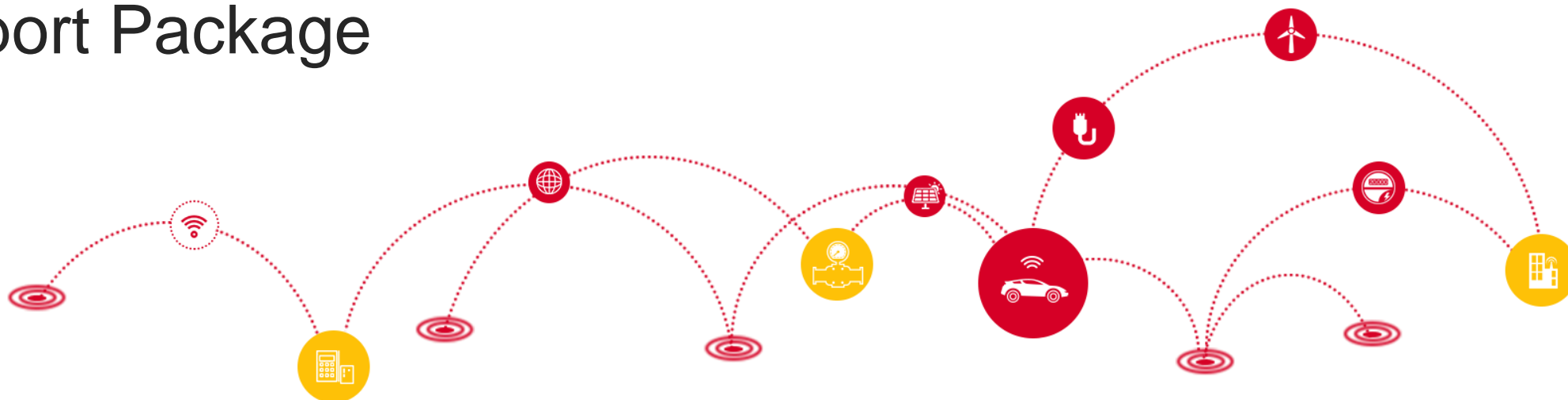
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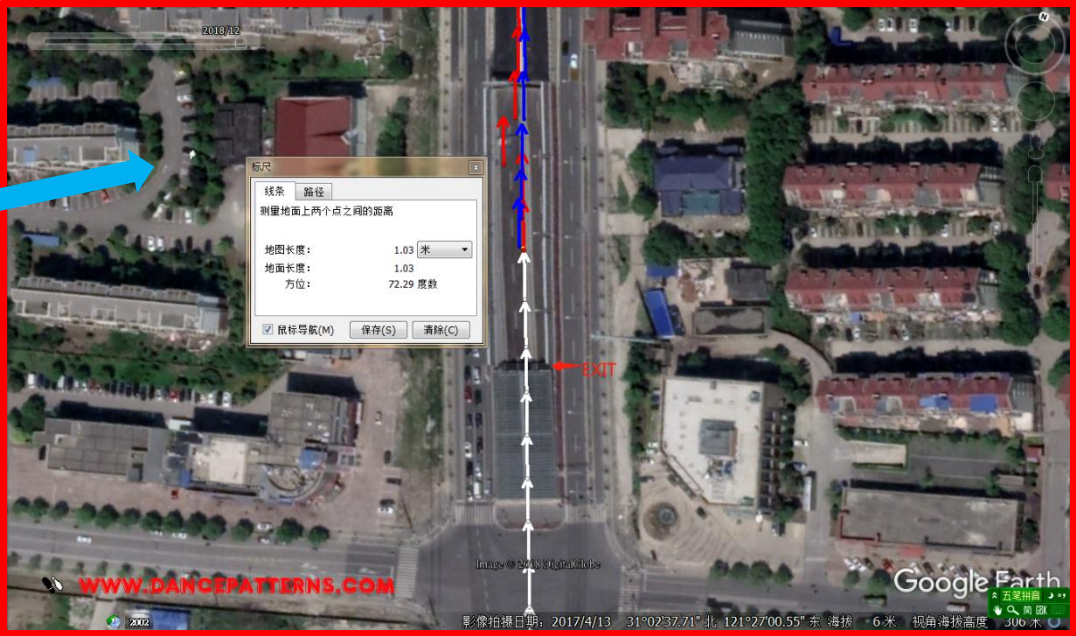
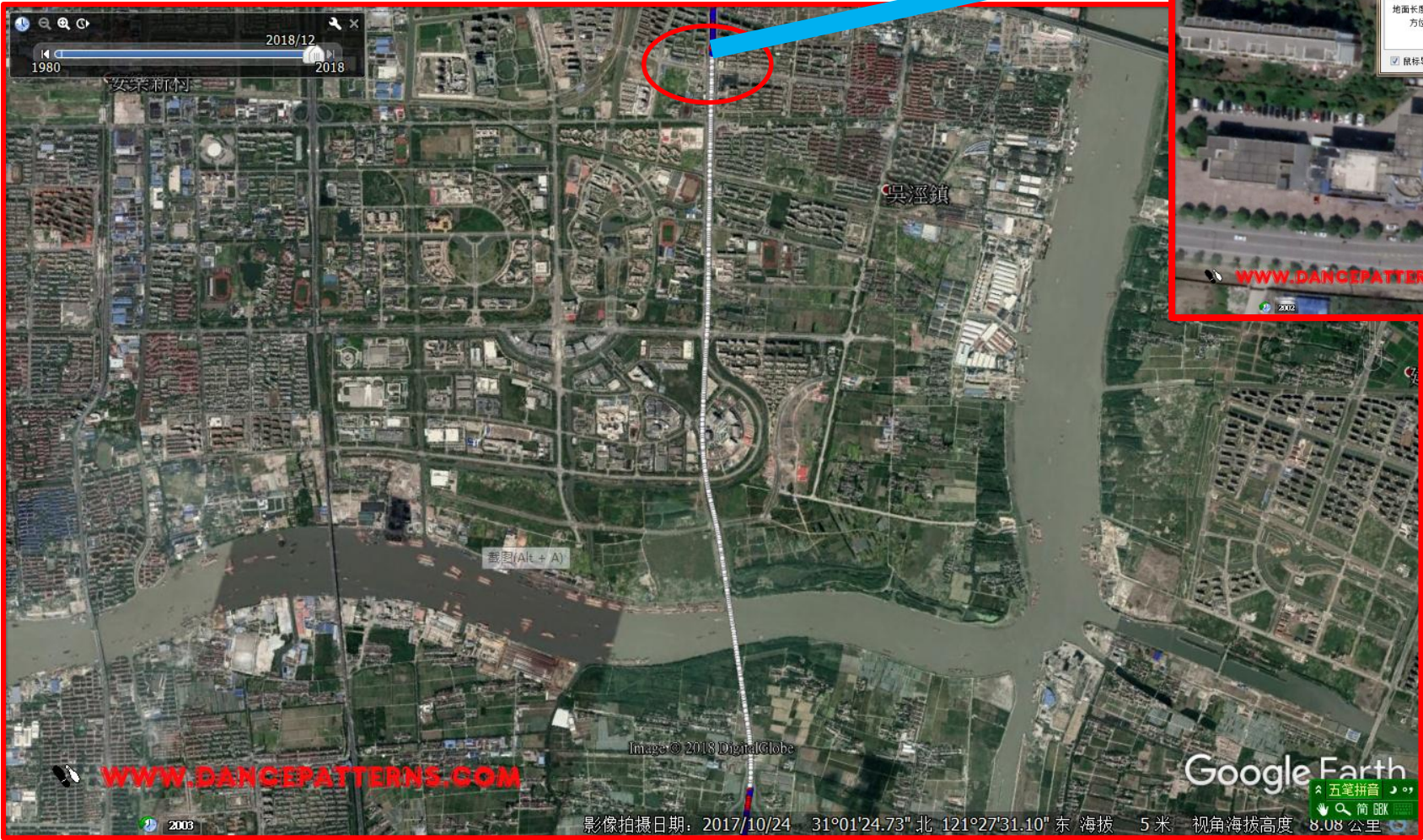
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Support Package



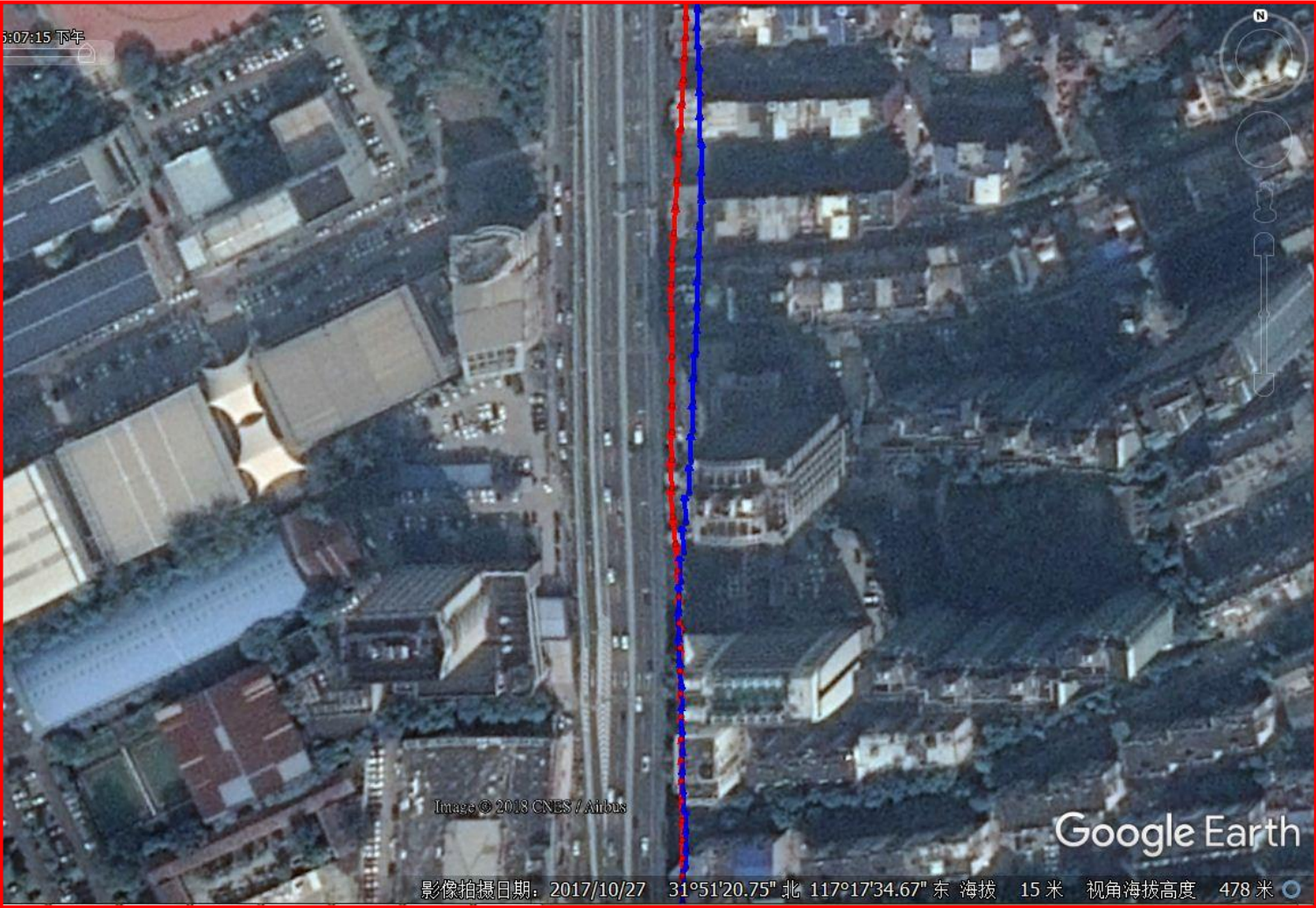
Drive Through Tunnel



Distance = 5.8 km
Drift: 1.3 m
Speed: 60 km/h

- GNSS + DR
- GNSS only
- DR only

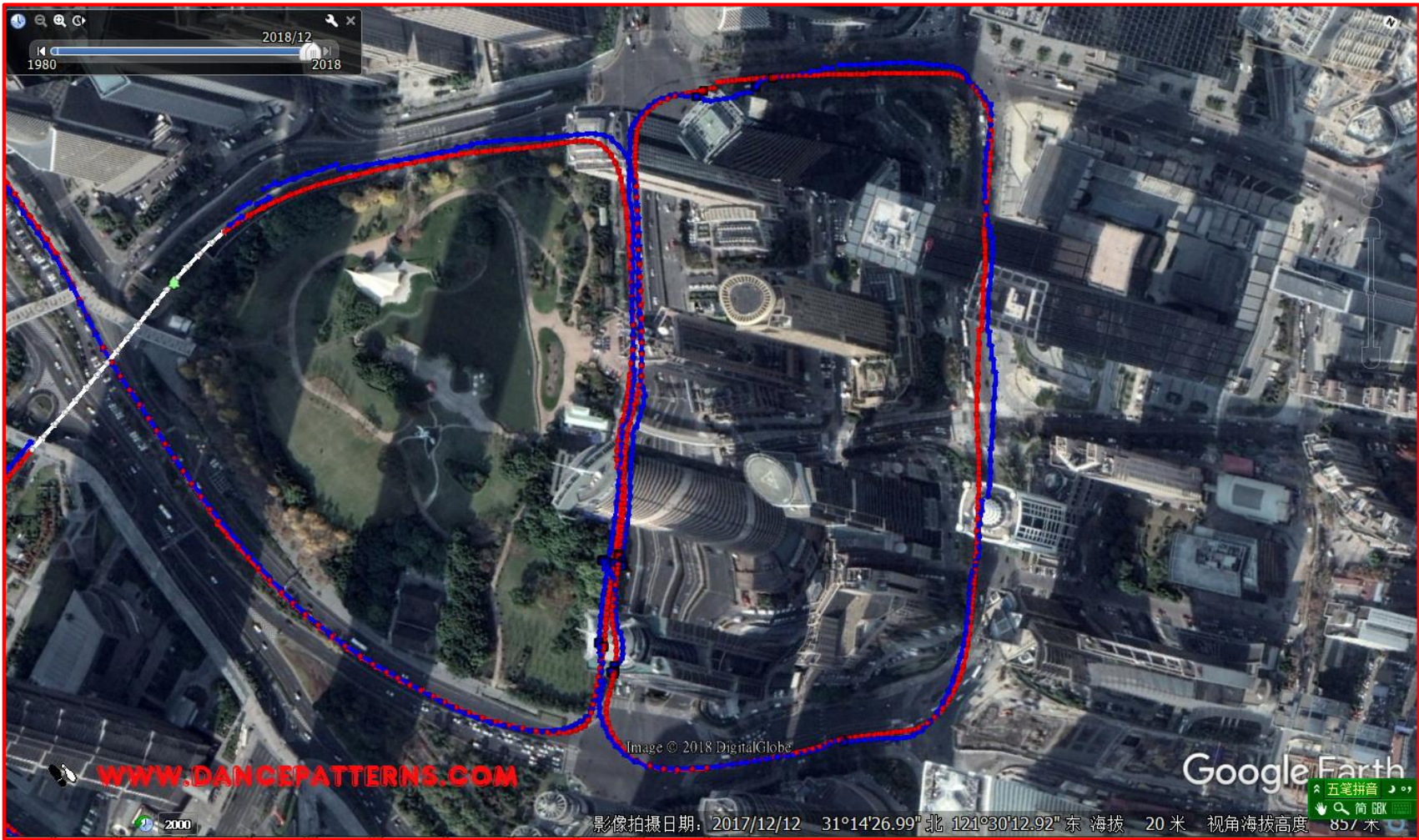
Under Elevated Highway



The track of L26-DR matches the real track better due to the correction of dead reckoning under elevated highways.

- GNSS + DR
- GNSS only
- DR only

Urban Center (with High-rise Buildings)

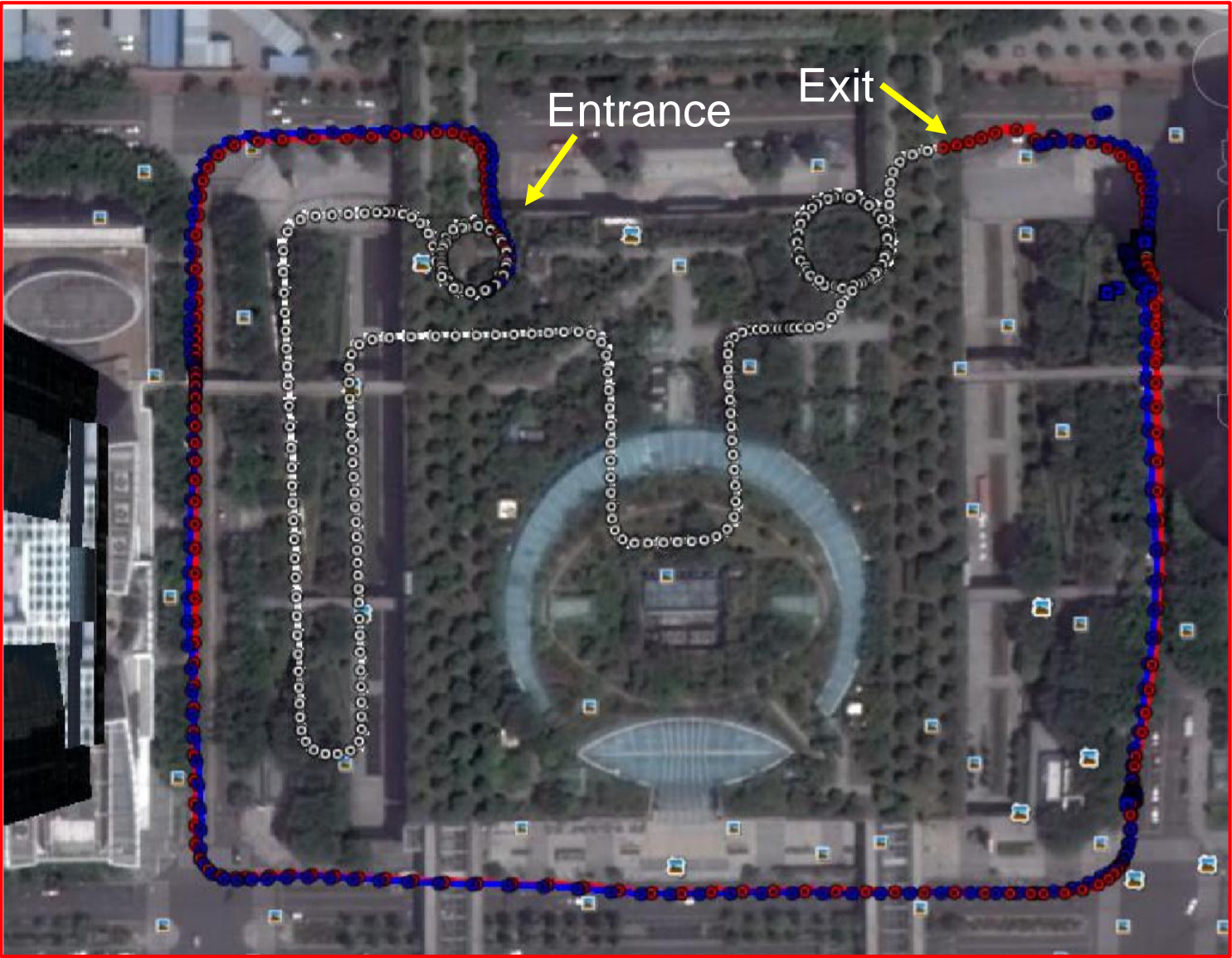


GNSS + DR

GNSS only

DR only

Multi-Layer Car Parking System



L26-DR's track matches the real track of a vehicle.

- GNSS + DR
- GNSS only
- DR only

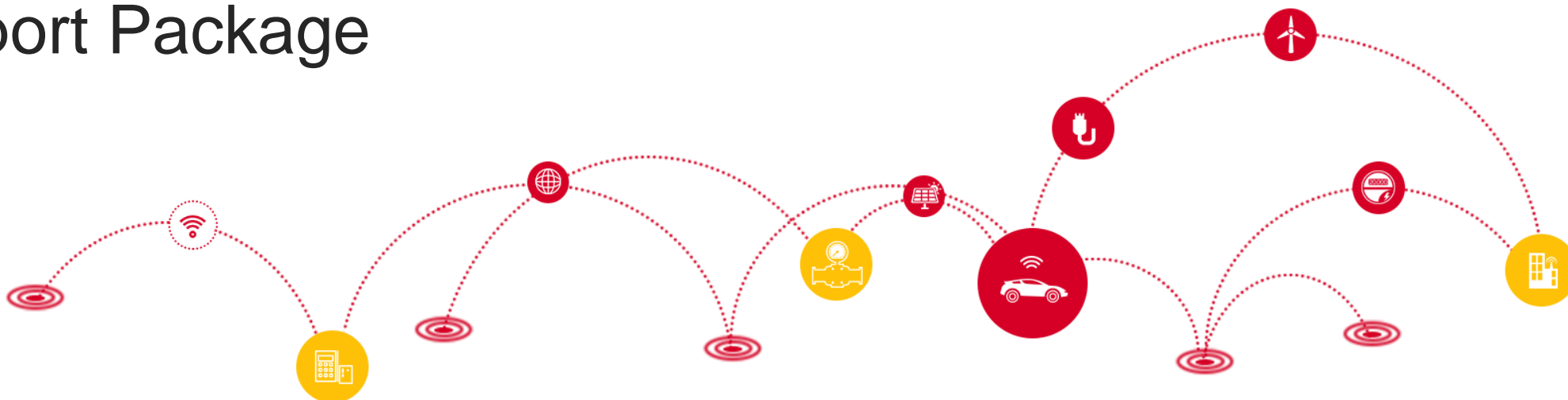
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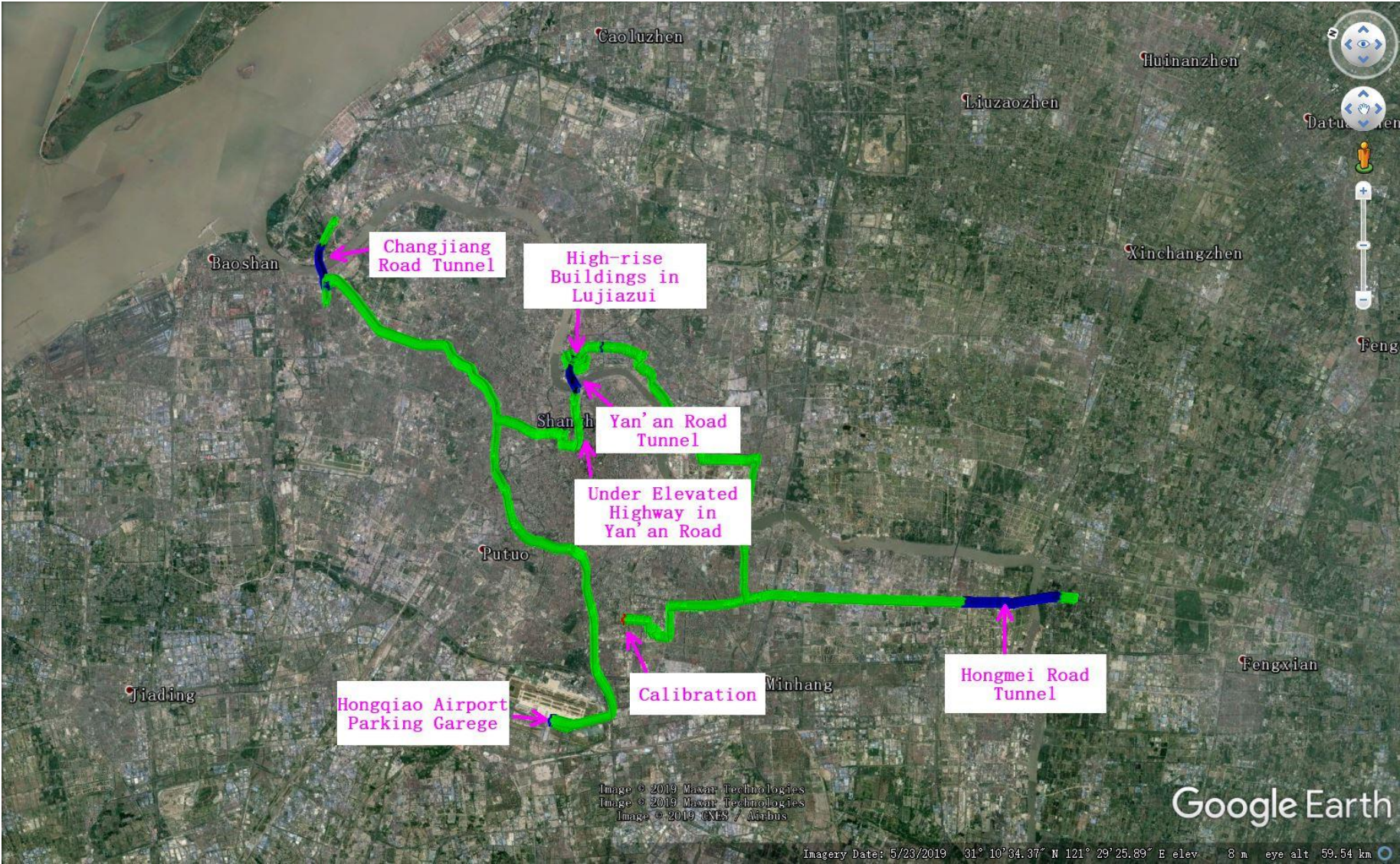
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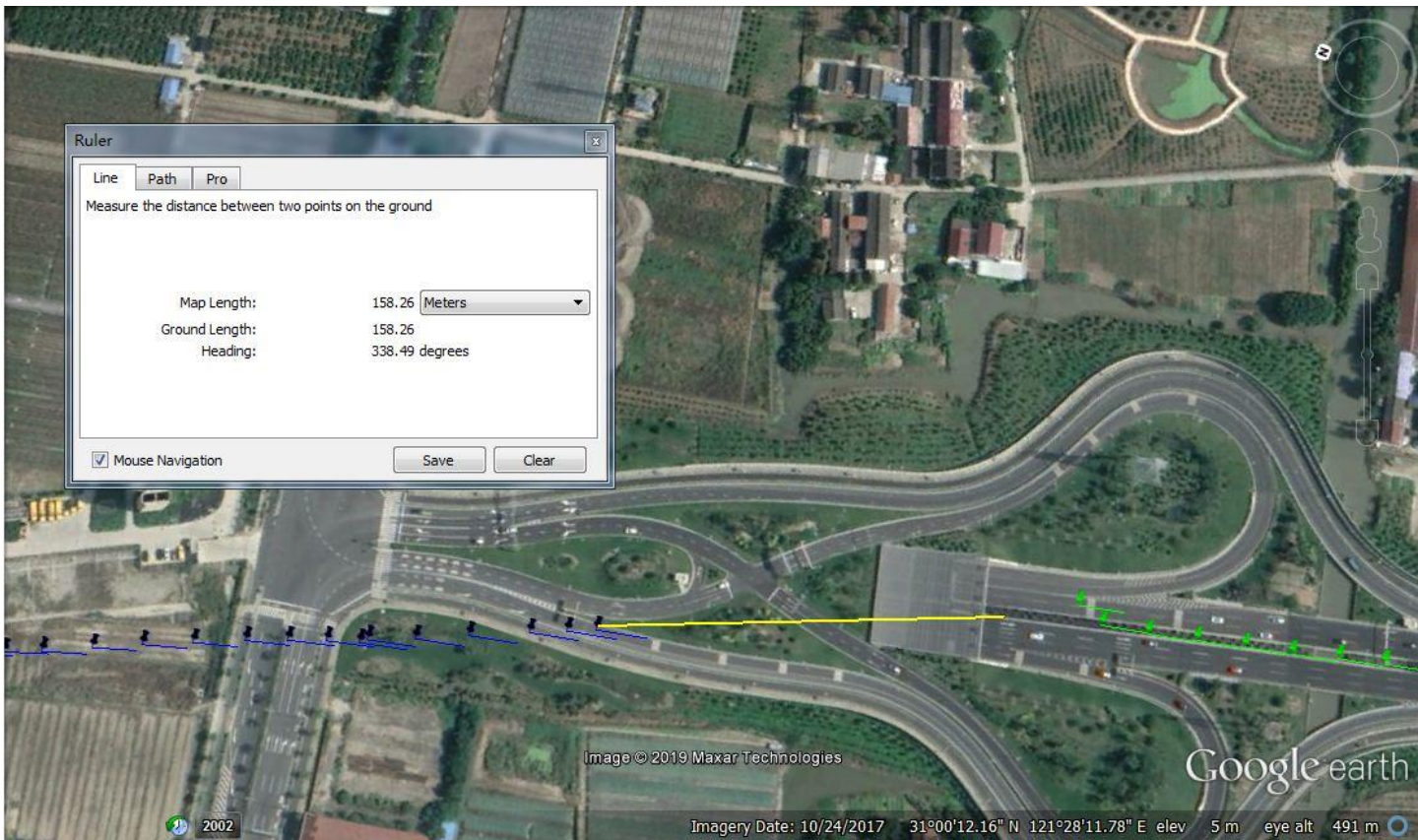
Support Package



Overview



Test in Long Open-Area Tunnel

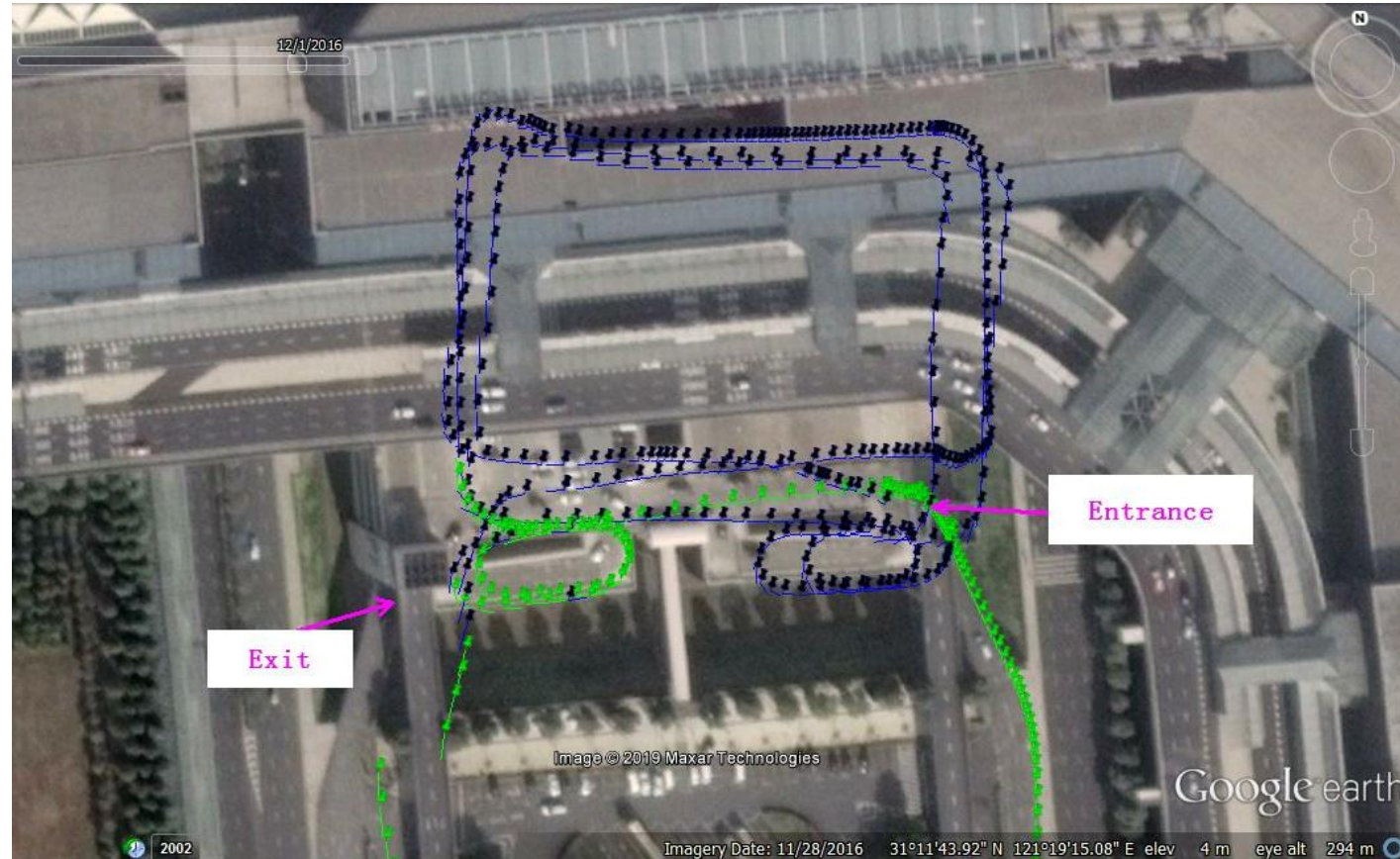


In the long open-area tunnel, L26-DR shows good performance.

Hongmei Road Tunnel (5260 meters)		
Example	Error Distance	Error Rate
L26-DR(UDR)-1#	158 m	3%
L26-DR(UDR)-2#	99 m	1.89%

Test in Multi-Layer Parking Garage (Shanghai Hongqiao Airport)

Under multi-layer parking system, L26-DR's performance is also good.



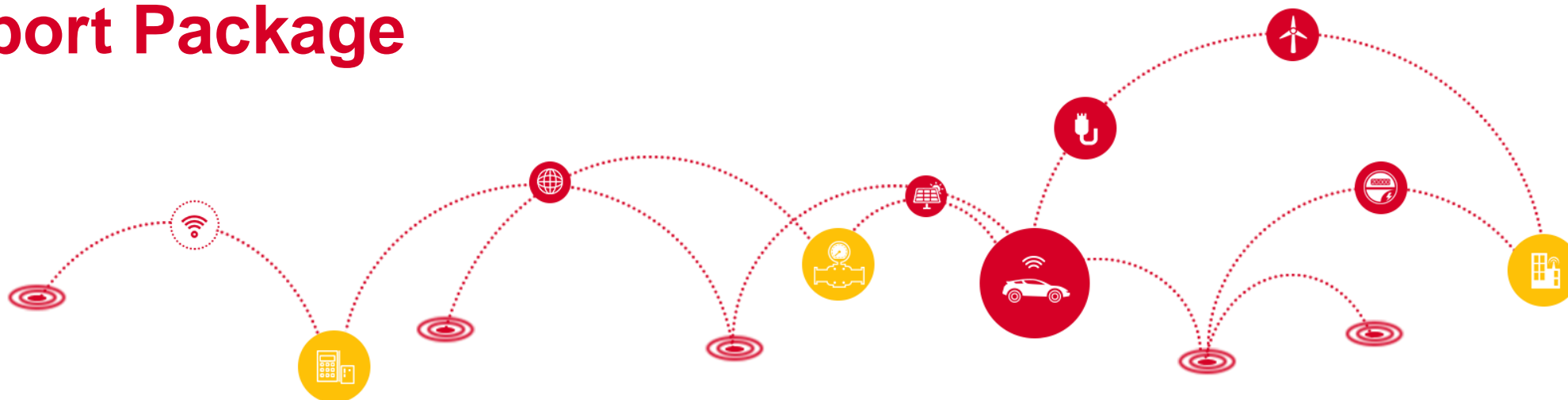
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Support Package – EVB and Technical Materials

L26-DR EVB Kit

➤ Interfaces

- Serial port
- Antenna interface
- Micro-USB interface
- OBD interface

➤ Accessories

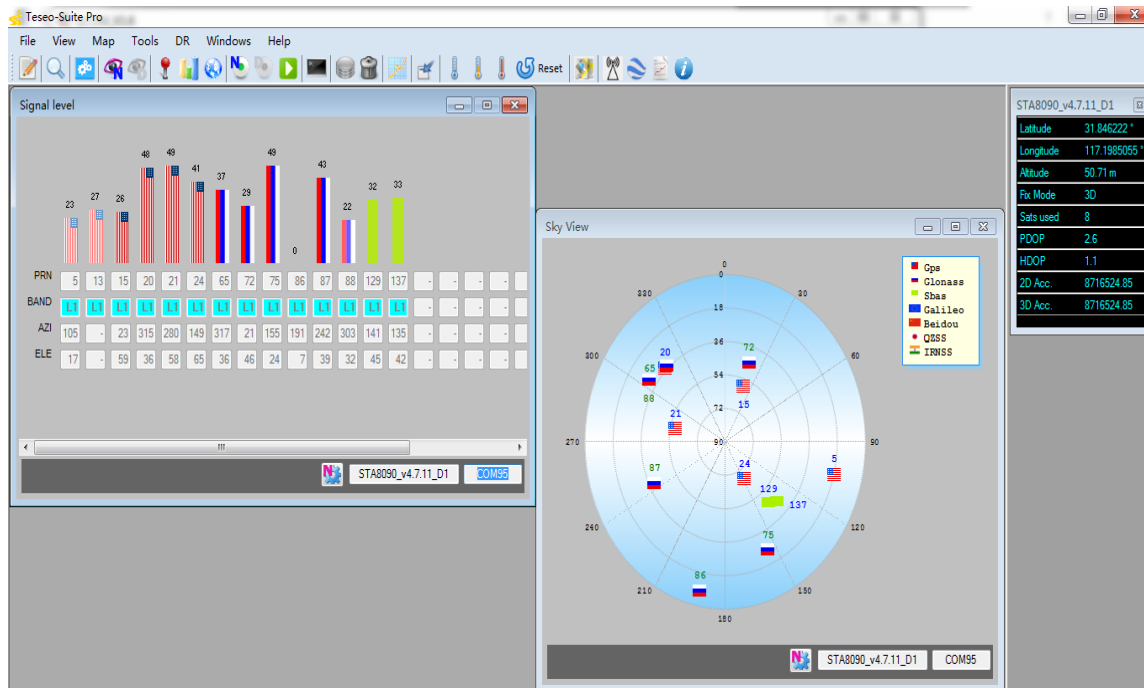
- Micro-USB cable
- Antenna
- OBD cable



Support Package – EVB and Technical Materials

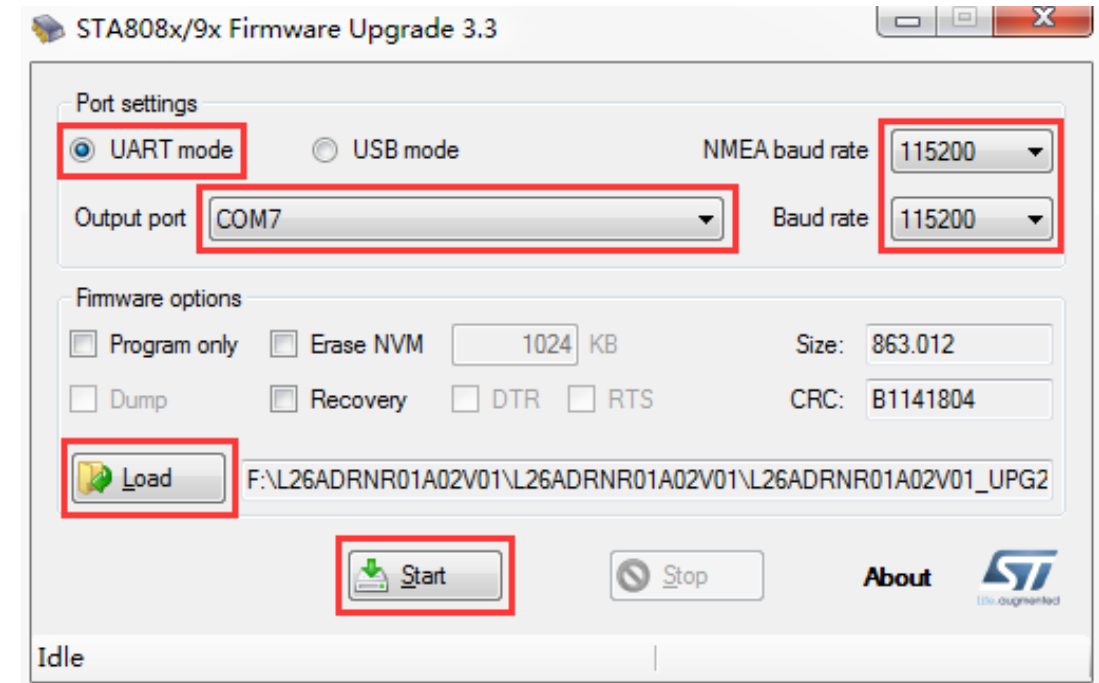
Technical Documents

- Hardware Design
- Reference Design
- Protocol Specification
- Evaluation Board User Guide
- Part&Decal in PADS and 3D File



PC Tools

- Teseo-Suite-multi-constellation testing tool
- STA808x-9x Firmware Upgrade



Thank you!

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