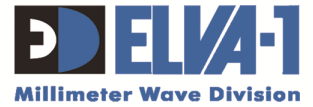


SDM360-76RM Road Monitoring 76 GHz Radar Sensor



Obstacles detection and
surface monitoring for highways




Highway surface monitoring for foreign objects is important for several reasons.

- First, it can help to avoid accidents and traffic jams.
- Second, it can protect drivers and their cars from damage.
- Third, it can improve the efficiency of highway operations, provide excellent real-time accuracy and low false alarm rate.

Installing a radar system to monitor the highway surface increases the capacity of roads because of the rapid response of road services to dropped objects and other unexpected obstacles.

This will give highway authorities full situational awareness of any potential hazards on the road, increasing safety and efficiency.

Helping to keep the roads safe at any weather



SDM360-76RM radars work in all weather and light conditions, in fog, smog and dust
24 hours a day, 365 days a year



The importance of detecting large debris or dropped cargo is to increase motorists' safety and prevent unexpected maneuvers in this area.



The radar improves road user safety by reducing secondary accidents and collisions by quickly informing the control center and lane closures.



A stopped car on the highway endangers the safety of road users, while the signal from the radar will allow the control center to decide on the situation.



Radar helps alert the control center of unexpected pedestrians or large animals on the road that may be hit by a car.



The SDM360-76RM radar sensor is a vital part of increasing road capacity without compromising safety. It provides the traffic control center with accurate and reliable vehicle tracking data and debris detection, no matter what the weather or lighting conditions are like.

The SDM360-76RM is intended to detect and subsequently notify of incidents including stopped cars, debris (FOD), collisions, passers-by people, and animals in the highway lanes and hard shoulder. It improves motorists' safety by allowing smart signs and connected vehicles (including unmanned ones) to be integrated, delivering alerts straight to drivers and road safety personnel.

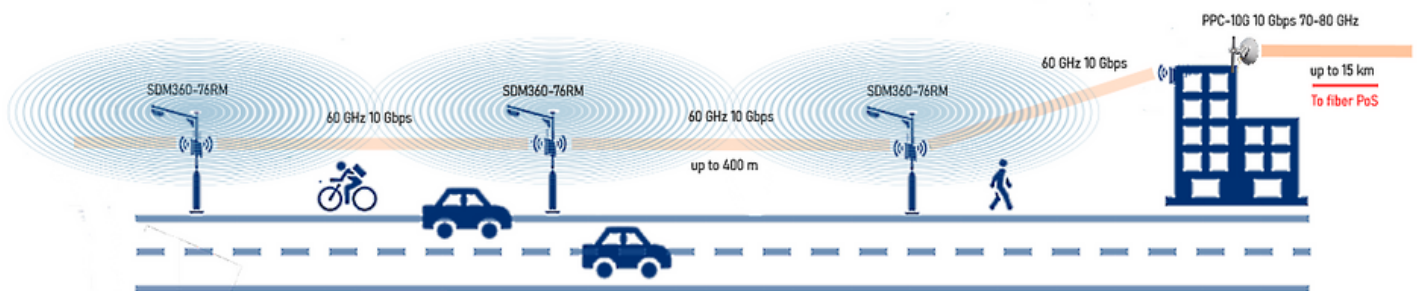
Reliable and easy connection of radars to the traffic control center



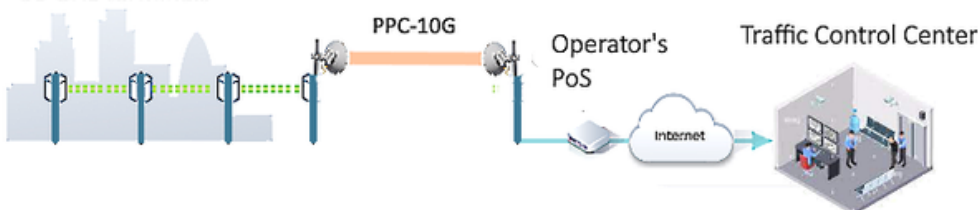
10GE PPC-10G 70-80 GHz radio

Our SDM360-76RM radars and surveillance cameras can be easily connected to a traffic control center, even in remote areas, using ELVA-1 radio links.

The radars and cameras can be interconnected using 1GE/10GE 60 GHz terminals for typical distances of 400 m, and our backbone 10GE PPC-10G 70-80 GHz radio delivers data from the radars to the telecom operator's nearest fiber node (also known as PoS, point of service or point of presence) at a range of up to 15 km over any terrain. For longer distances, the chain of PPC-10G can be used.

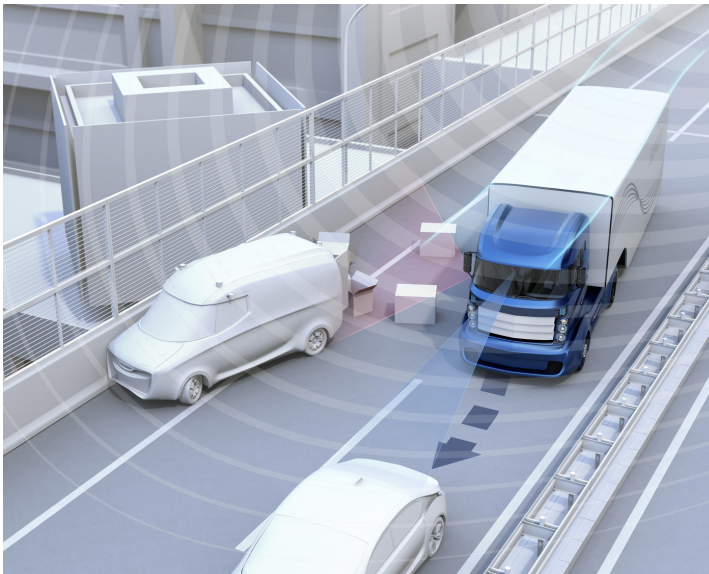


Radars connected by
60 GHz terminals



PPC-10G 70-80 GHz radios
datasheet to download

How FOD detection works on the roads



Radar instantly detects any obstacle, — for example, scattered cargo or an emergency vehicle. Information about this will be sent to the traffic control center to take an action and close the lane.

At the same time, information about the lane closure can be transmitted to unmanned vehicles, which can re-route and bypass the obstacle in time.

In all conditions, the system is highly effective. The system uses radar technology to provide exact incident detection and complete situational awareness; the SDM360-76RM system may be easily configured to fit customers' unique requirements while seamlessly integrating with existing systems. The solution is cost-effective as it requires minimal infrastructure investment while allows fast setup,

Objects falling out of a truck or lorry can cause accidents and traffic jams. Drivers can damage their cars when they hit these objects or collide with other vehicles when avoiding such an obstacle. The radar can quickly detect foreign objects and the traffic operator will take action to close the lane and send a crew to remove the debris from the road.

SDM360-76 Series Specifications

ROAD MONITORING RADAR SENSOR

Model	SDM360-76RM
Operating Range	200 m
Update Rate (Rotation Speed)	180 RPM

Specifications

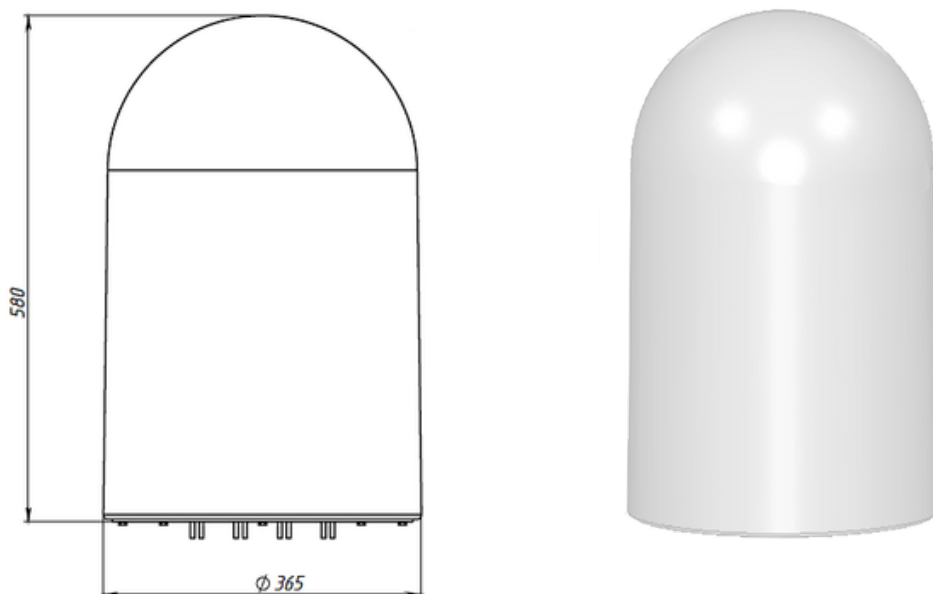
Parameters	Value
Operating Frequency	76.5 \pm 0.5 GHz (optional 80-81 or 94-95 GHz)
Range Resolution	0.15 m
Azimuth Beamwidth	2.0°
Elevation Beamwidth	15°
Modulation type	FMCW
Built-in antenna RPM	180
Field of View	360°
Data Connection	1000Base-Tx UTP Ethernet
Power Consumption	100 Watts
Power Supply	18-36 Volts DC or POE
Weight	6 Kg
Mounting Height	4 -5 metres
Safe Working Distance	0 cm from radome

Parameters	Value
Operating Temperature	-40°C to + 55°C
Environmental	IP 65, IP 67 optional Wind speed, not more than 150 km/h Humidity up to 100%
Additional Notes	Vibration frequency as tested: 5÷100 Hz
	Vibration acceleration as tested: 0.6g
	Shock acceleration effect duration as tested: 5÷40 ms
	Magnitude value of shock acceleration as tested: 2g
	Shock effect duration as tested: 20÷600 impact

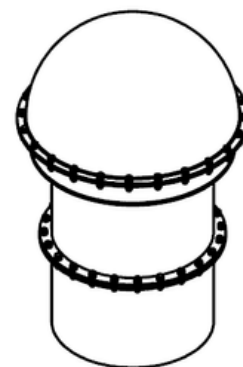
When the system detects a FOD object on the highway, an alarm message is automatically sent to the traffic control center.

In addition, Auto Pointing Cameras can be installed to obtain a visual image of the FOD. The operator can then confidently decide what action to take in the situation.

DIMENSIONS



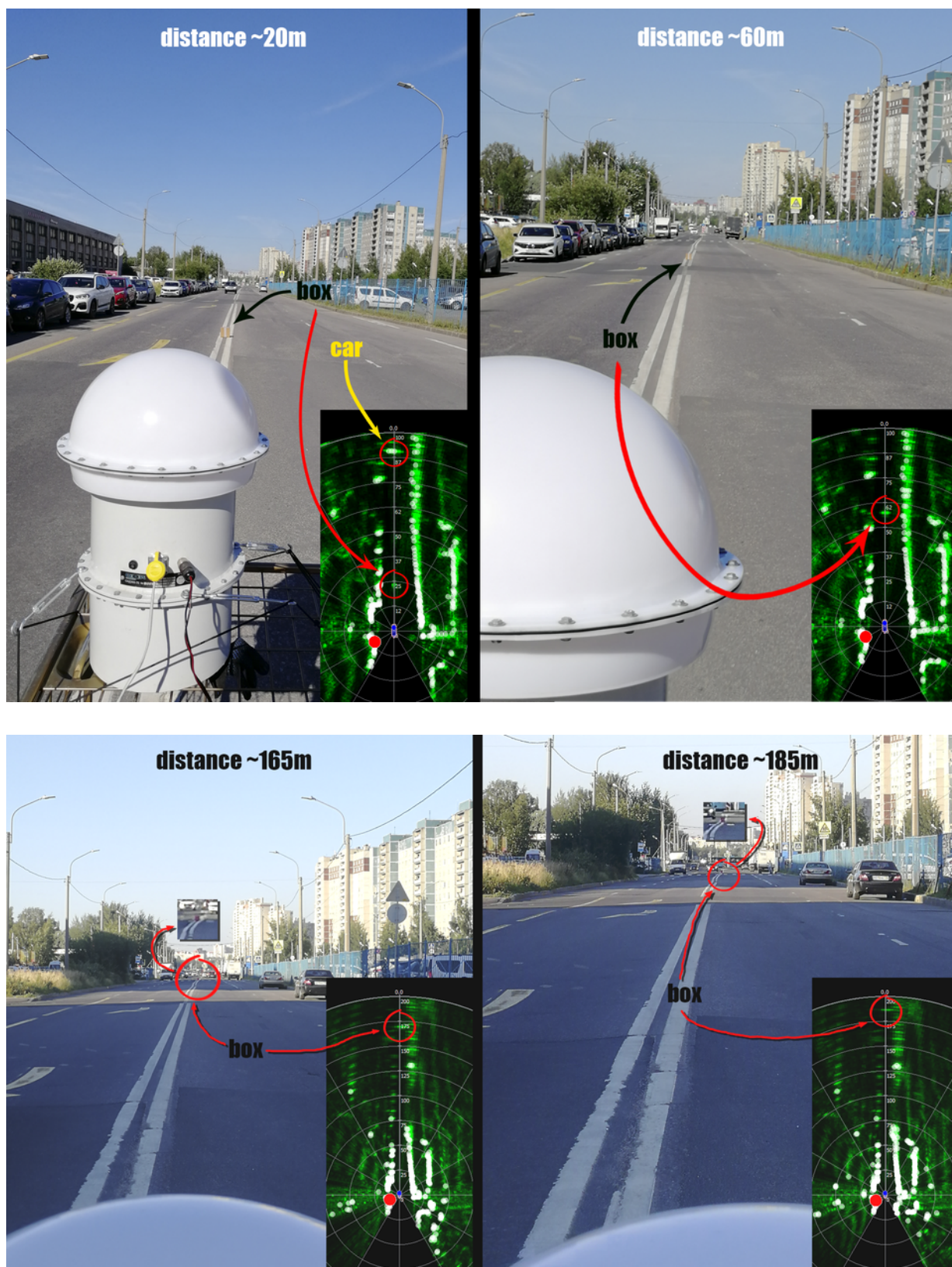
FOD detection of the test target by SDM360-76RM lab radar



The ELVA team conducted road tests on a nominal target using a laboratory version of the SDM360-76RM radar.

The lab radar has the features and characteristics of the production radar, but is more convenient for tests. For example, engineers could easily open the radome for adjusting the antenna.

Reliable foreign objects detection within 200 m



A test target with nominal dimensions is reliably detected by the radar at a distance of up to 200 m in either direction.