



TraffiClair Monthly Updates

2025.06

Kevin Gu

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ClairWav-T24 Radar Family Got FCC Approval

TCB

GRANT OF EQUIPMENT
AUTHORIZATION
Certification
Issued Under the Authority of the
Federal Communications Commission
By:

TCB

SGS North America, Inc.
620 Old Peachtree Road NW Suite 100
Suwanee, GA 30024

Date of Grant: 06/24/2025

Application Dated: 06/24/2025

TraffiClair Technology Co., Ltd.
The 4th floor, Building No.4, Xiangshan South
Road 105#, Shijingshan, Beijing
BEIJING, 100144
China

Attention: Kevin Gu ,

NOT TRANSFERABLE

EQUIPMENT AUTHORIZATION is hereby issued to the named GRANTEE, and is VALID ONLY for the equipment identified hereon for use under the Commission's Rules and Regulations listed below.

FCC IDENTIFIER: 2BPE4CLAIRWAV-T24
Name of Grantee: TraffiClair Technology Co., Ltd.
Equipment Class: Part 15 Low Power Communication Device
Transmitter
Notes: Microwave Radar Traffic Detector

Grant Notes

FCC Rule Parts
15C

Frequency Range (MHz)	Output Watts	Frequency Tolerance	Emission Designator
24000.0 - 24250.0			

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons. Co-location of this module with other transmitters that operate simultaneously are required to be evaluated using the FCC multi-transmitter procedures. End-Users must be provided with transmitter operation conditions for satisfying RF exposure compliance.

SGS

Report No.: KSCR250400075801
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TEST REPORT

Application No.: KSCR2504000758AT
FCC ID: 2BPE4CLAIRWAV-T24
Applicant: TraffiClair Technology Co., Ltd.
Address of Applicant: The 4th floor, Building No.4, Xiangshan South Road 105#, Shijingshan, Beijing
Manufacturer: TraffiClair Technology Co., Ltd.
Address of Manufacturer: The 4th floor, Building No.4, Xiangshan South Road 105#, Shijingshan, Beijing
Factory: TraffiClair Technology Co., Ltd.
Address of Factory: The 4th floor, Building No.4, Xiangshan South Road 105#, Shijingshan, Beijing

Equipment Under Test (EUT):
EUT Name: Microwave Radar Traffic Detector
Model No.: ClairWav-T24L; ClairWav-T24S; ClairWav-T24LC; ClairWav-T24SC
Trade Mark: TraffiClair
Standard(s): 47 CFR Part 15, Subpart C 15.249
Date of Receipt: 2025-04-18
Date of Test: 2025-04-19 to 2025-05-27
Date of Issue: 2025-05-27

Test Result: Pass*

* In the configuration tested, the EUT complied with the standards specified above.

SGS

Report No.: KSCR250400075801
Page: 1 of 10

1 Cover Page

RF Exposure Evaluation Report

Application No.: KSCR2504000758AT
FCC ID: 2BPE4CLAIRWAV-T24
Applicant: TraffiClair Technology Co., Ltd.
Address of Applicant: The 4th floor, Building No.4, Xiangshan South Road 105#, Shijingshan, Beijing
Manufacturer: TraffiClair Technology Co., Ltd.
Address of Manufacturer: The 4th floor, Building No.4, Xiangshan South Road 105#, Shijingshan, Beijing
Factory: TraffiClair Technology Co., Ltd.
Address of Factory: The 4th floor, Building No.4, Xiangshan South Road 105#, Shijingshan, Beijing
Equipment Under Test (EUT):
EUT Name: Microwave Radar Traffic Detector
Model No.: ClairWav-T24L; ClairWav-T24S; ClairWav-T24LC; ClairWav-T24SC
Trade Mark: TraffiClair
Standard(s): FCC Rules 47 CFR §2.1091
Date of Receipt: 2025-04-18
Date of Test: 2025-04-19 to 2025-05-27
Date of Issue: 2025-05-27
Test Result: Pass*

* In the configuration tested, the EUT complied with the standards specified above.

We are pleased to announce that the ClairWav-T24 Microwave Radar Family has received formal FCC certification. This milestone follows its CE approval in 2024, marking the product family's full readiness for global market deployment.

Speed Sign Batch Delivery to Customer



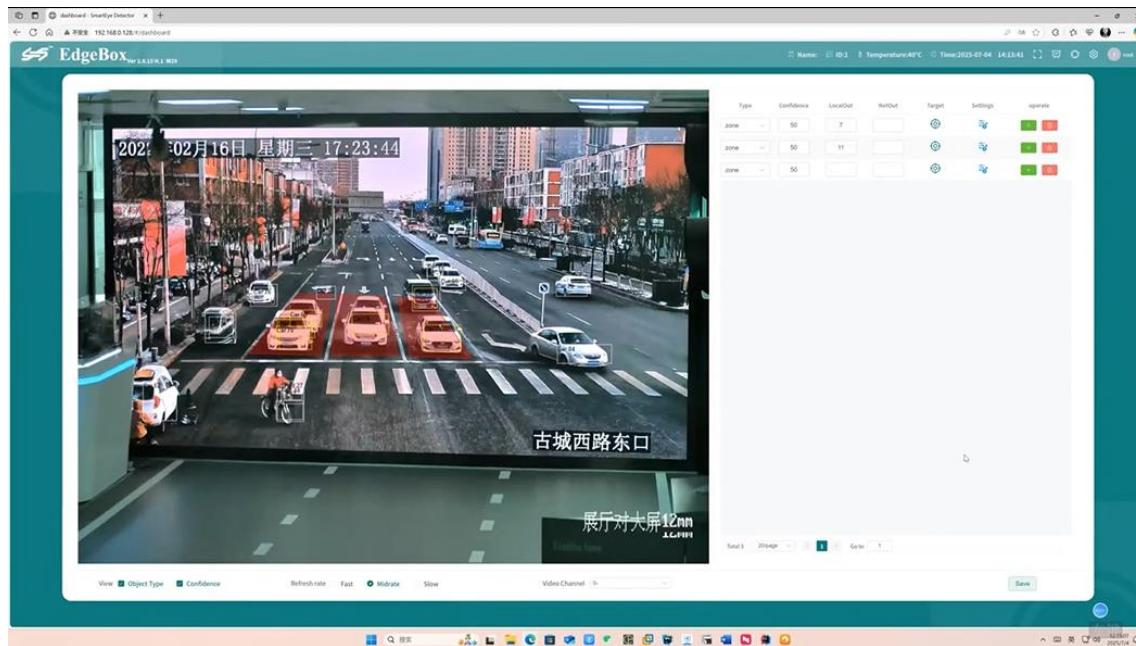
The first batch of speed signs is ready for delivery! We hope our customer will be satisfied with these high-quality LED displays. Excited to see them in action!



[Product Page](#)

Leveraging Existing Traffic Cameras

ClairBox-R Transforms Raw Video Streams into Actionable Insights



Traffic management is entering a new era of intelligence with ClairBox-R AI Box—an advanced video recognition device powered by cutting-edge AI. By leveraging existing traffic cameras (violation monitoring, incident detection, or surveillance feeds), ClairBox-R transforms raw video streams into actionable insights.

Smart Detection, Smarter Traffic

With real-time processing of up to 8×1080P video streams, ClairBox-R performs:

- ✓ Vehicle detection (stop bar, flow, occupancy)
- ✓ Road user classification (cars, trucks, bikes, pedestrians, etc.)
- ✓ Traffic event alerts (congestion, accidents, fog, illegal maneuvers)

Its AI-driven detection zone customization allows precise monitoring without additional hardware, enabling:

- ✓ Accurate traffic statistics
- ✓ Vehicle labeling & flow tracking
- ✓ Automated signal optimization

Beyond Detection: Adaptive Control

ClairBox-R doesn't just analyze—it optimizes. By processing real-time data, it generates adaptive signal timing (split, offset, cycle) and supports green waves, emergency preemption, and touchless pedestrian activation.

Watch our demo video to see how ClairBox-R turns ordinary camera feeds into a dynamic traffic management tool—reducing congestion and enhancing safety with AI.

[Product Page](#) [Youtube Video](#)

Jitter-Resistant Performance

ClairBox-R Solves Camera Jitter Problems in Smart Traffic Systems



Traffic detection cameras are critical for modern intersections, but vibration/jitter remains a major challenge. Strong winds, heavy trucks, or mechanical instability can cause false positives/missed detections due to shifted fields of view (FOV).

Our ClairBox-R AI Box tackles this problem with:

- **Automatic Sign & Road Marking Recognition**
 - AI identifies lane markings, stop lines, and traffic signs in real time
 - Compares positions against predefined detection zones
- **Dynamic Detection Zone Adjustment**
 - Auto-corrects camera FOV offsets caused by vibration
 - Ensures continuous accuracy without manual intervention
- **Jitter-Resistant Performance**
 - Maintains >95% detection accuracy even under:
 - High wind conditions
 - Heavy vehicle-induced vibrations
 - Long-term mechanical drift

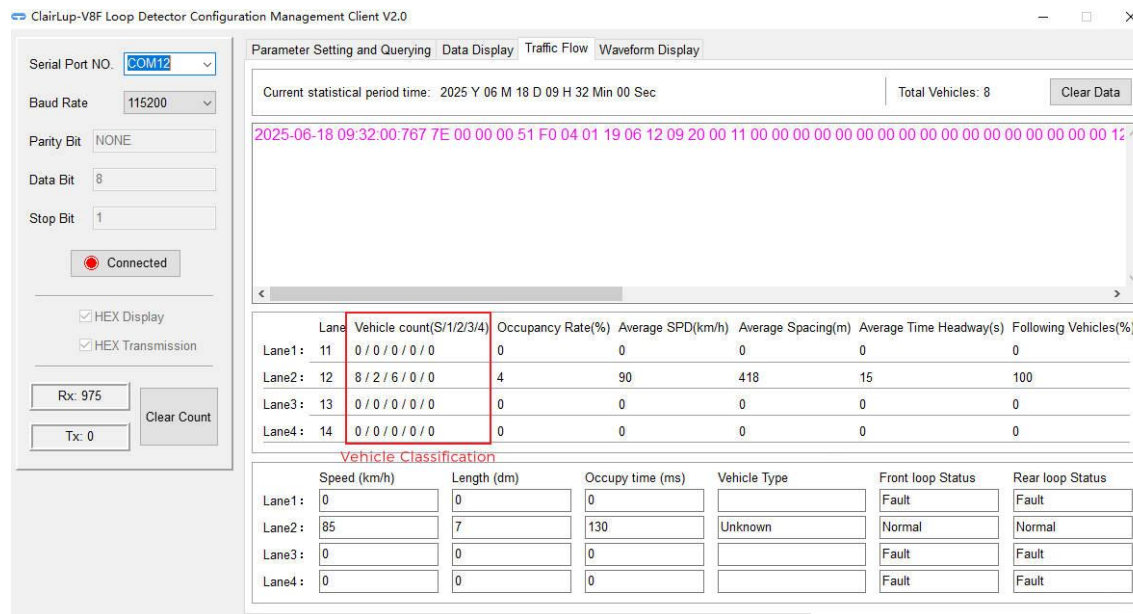
Why This Matters for Smart Cities

- Reduces maintenance costs by eliminating frequent recalibration
- Future-proofs intersections for autonomous vehicle infrastructure
- Works with existing cameras – no hardware replacement needed

[Product Page](#) [Youtube Video](#)

Advanced Flow Detection & Vehicle Classification

Enhance Traffic Monitoring with CLAIRLUP-V8F Loop Detector



Key Features of CLAIRLUP-V8F:

- ✓ High-Performance Architecture – Combines a 32-bit ARM core processor and FPGA for rapid processing, high accuracy, and robust anti-interference capabilities.
- ✓ Advanced Vehicle Classification – Supports 4 vehicle types for comprehensive traffic insights:
 - Type 1 (Unknown Vehicles) – Unclassified/unrecognized vehicles
 - Type 2 (Small Vehicles) – Passenger cars, SUVs, motorcycles, small trucks, tractors
 - Type 3 (Medium Vehicles) – Medium-duty trucks, medium buses
 - Type 4 (Large Vehicles) – Heavy-duty trucks, large buses, trailers, extra-large trucks
- ✓ Pure Hardware-Based Detection – Ensures fast response times and reliable performance in diverse environments.
- ✓ Wide Application Scope – Ideal for traffic flow monitoring, electronic police systems, and security checkpoints. With CLAIRLUP-V8F, traffic management systems gain real-time, high-accuracy data to improve decision-making, reduce congestion, and enhance road safety.



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ClairWav-U24 Tunnel Radar

Product Presentation

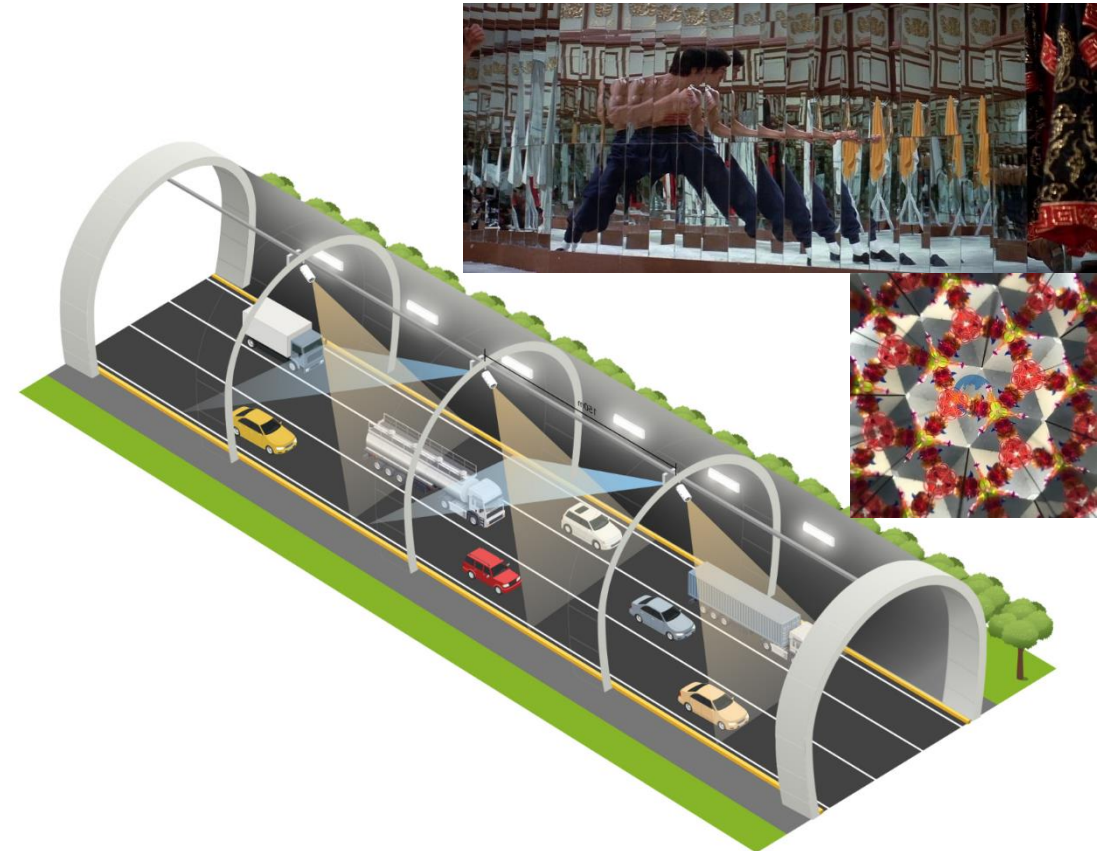
Tunnel Multipath Effect

Causes of Tunnel Multipath Effect

1. Reflection: Signals are repeatedly reflected by surfaces such as tunnel walls, ceilings, and floors, creating multiple propagation paths.
2. Refraction: Signals change direction when passing through different media (e.g., air and walls).
3. Scattering: Signals scatter in multiple directions when encountering irregular surfaces or obstacles.

Impacts of Multipath Effect

1. Signal Attenuation: The superposition of multipath signals may lead to partial signal cancellation, reducing the received signal strength.
2. Signal Distortion: Signals arriving at different times due to varying path lengths can cause inter-symbol interference or signal distortion.
3. Positioning Errors: In radar or positioning systems, the multipath effect may result in incorrect target location calculations.



How does tunnel radar overcome the “tunnel multipath effects”?

To combat these challenges, the ClairWav-U24 employs a combination of advanced technologies:

1. **MIMO Antenna Arrays:** The radar utilizes Multiple Input Multiple Output (MIMO) antenna arrays, which allow for the transmission and reception of multiple signals simultaneously. This technology enhances spatial resolution and improves the radar's ability to distinguish between direct and reflected signals, thereby reducing the impact of multipath interference.
2. **Super-Resolution Angle Estimation Algorithms:** These algorithms enable the radar to achieve highly accurate angle estimation, even in environments with significant signal reflections. By precisely determining the angle of arrival of signals, the radar can better differentiate between true target positions and ghost images created by multipath reflections.
3. **AI Machine Learning Algorithms:** The integration of AI and machine learning algorithms allows the radar to continuously learn and adapt to the specific characteristics of the tunnel environment. These algorithms can identify patterns in the radar data that are indicative of multipath effects and dynamically adjust the radar's processing to mitigate their impact. Over time, the system becomes more adept at filtering out false signals and enhancing the accuracy of target detection.



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ClairWav-U24 Tunnel Radar

This radar is specifically customized for highway tunnel environments, with three key advancements to combat multipath interference:

1. MIMO Antenna Design

Employs a MIMO (Multiple-Input Multiple-Output) architecture to extend the effective aperture, improving angular resolution and suppressing multipath effects in tunnels.

2. High-Precision Signal Processing

Incorporates super-resolution angle estimation algorithms in backend processing to further enhance angular measurement accuracy.

3. AI-Augmented Tracking Algorithm

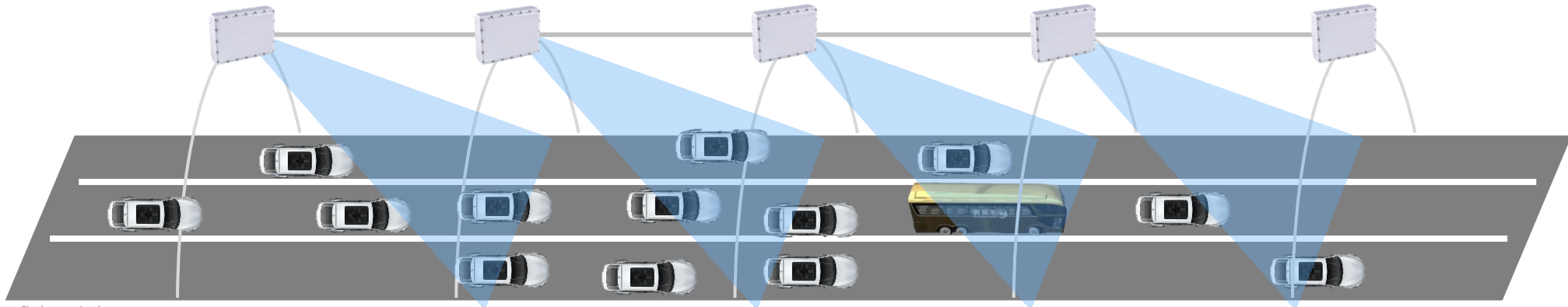
Combines classical Kalman filtering with AI/machine learning algorithms. After deployment, the system continuously improves detection accuracy through accumulated learning data.



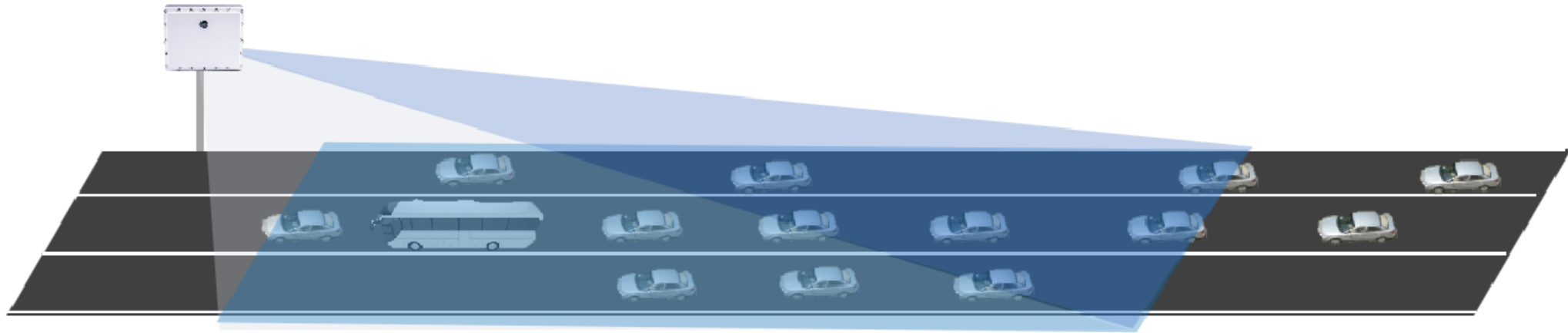
[Product Page](#)

Key Features

- Longitudinal detection distance: 400 m
- Lane positioning distance: 150 m
- Lateral detection range: Full tunnel width (all lanes)
- Detection target capacity: 128 objects
- Detection cross-sections: Up to 64 sections
- Functions: Trajectory tracking, vehicle detection, traffic flow statistics, incident detection, queue length statistics, etc.
- Applications: Highway tunnels, road tunnels



Core Advantages



Wide Coverage & Multi-Target Tracking

- Longitudinal range: 400m
- Full tunnel lane coverage
- Tracks up to 128 targets simultaneously

High-Precision Multi-Parameter Detection

- Position & speed measurement
- Queue length detection
- Incident identification
- Zone-based statistical analysis

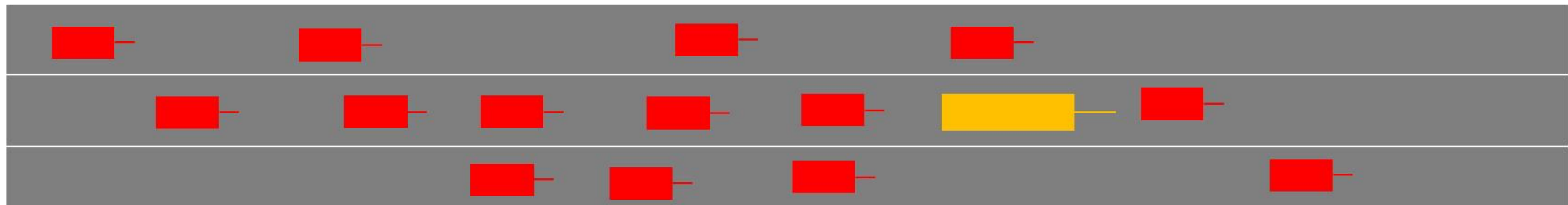
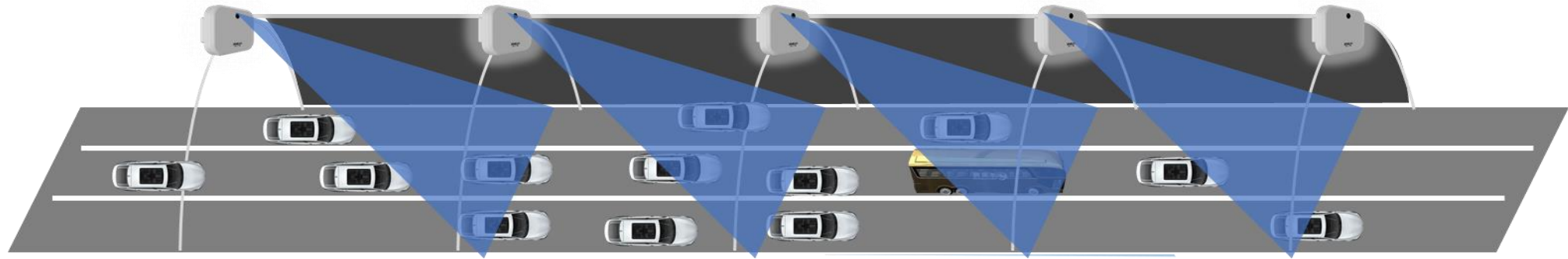
Durability & Maintenance

- Extended service life (>10 years)
- Simplified maintenance design
- Long-term reliability in tunnel environments

All-Weather High-Reliability MIMO Radar

- Immune to tunnel interference
- Unaffected by lighting conditions
- Stable performance in all environments

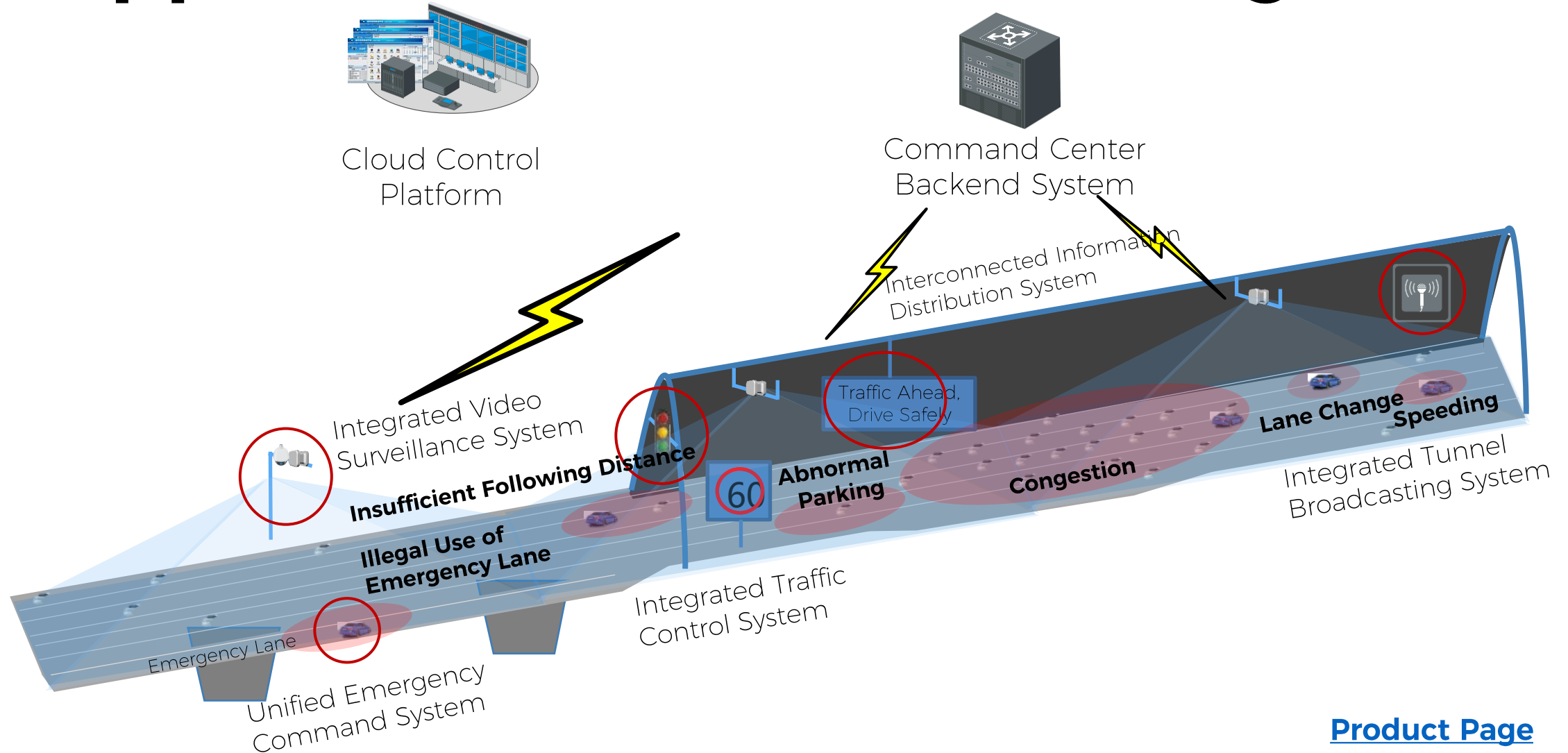
Application: Tunnel Vehicle Monitoring



Vehicle Coordinates | Vehicle Classification | Lane Status | Target Velocity | Trajectory Tracking

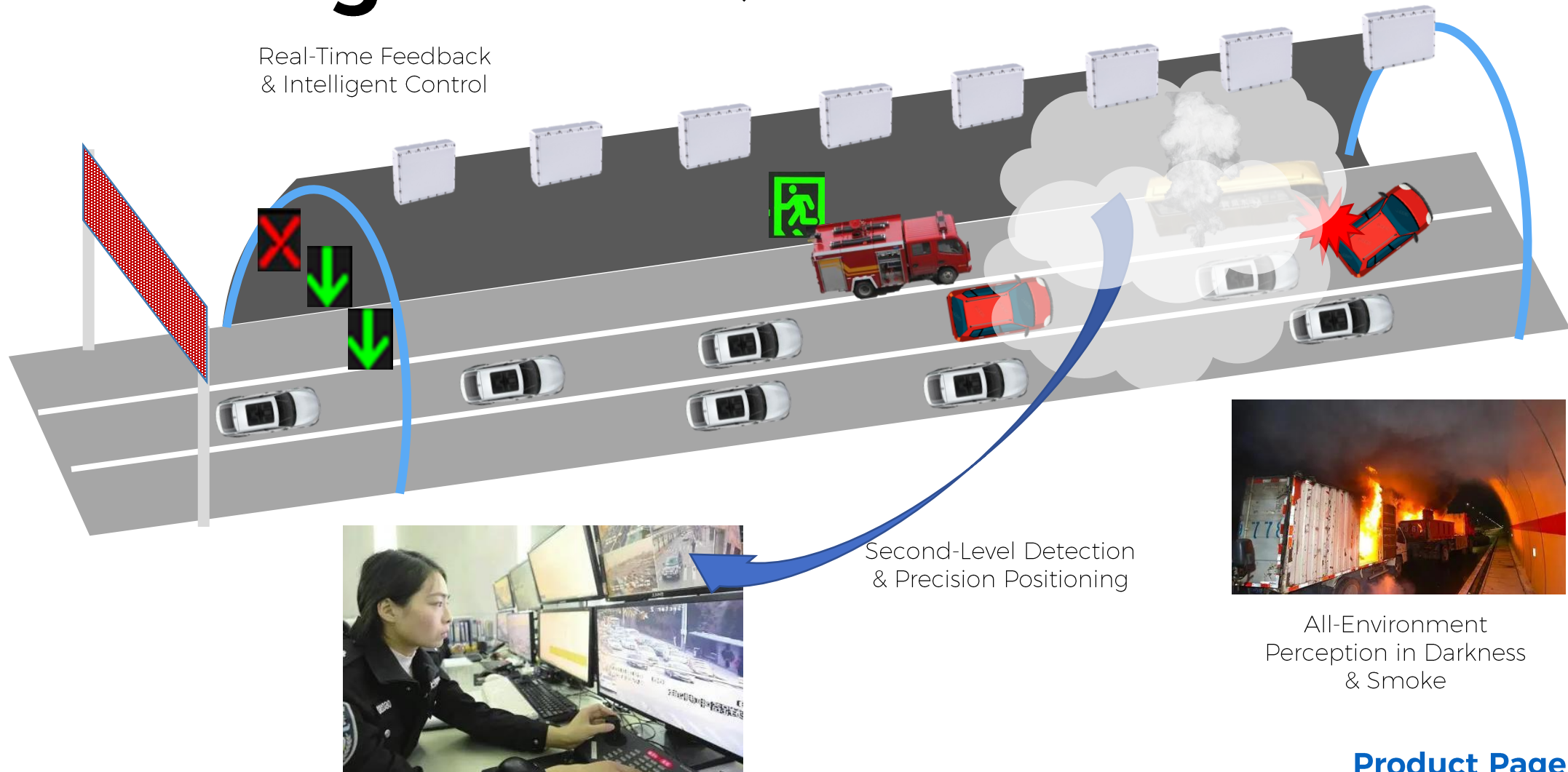
[Product Page](#)

Application: Event Monitoring



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Application: Traffic Accident Management & Rescue





Case: Datong Tunnel Hazardous Materials Monitoring Project



危化品车过隧道辨识跟踪及预警系统

18:36:20 2022年09月20日 星期二

关注危化品: ☒

当前用户: 隧道值班员

车牌号: 冀D7Q355 车辆速度: 64.80km/h 车辆位置: 176.80 车牌号: 豫U35029 车辆速度: 75.96km/h 车辆位置: 190.20

车牌	车速	位置
冀D7Q355	64.80km/h	173.90
豫U35029	76.32km/h	185.80

当天总通过车: 3005 辆

当天总危化品: 237 辆

隧道内实时车: 7 辆

隧道内危化品: 2 辆

隧道入口 (行车道)

隧道入口 (超车道)

2022-09-20 18:36:18 豫U35029 危化品车

2022-09-20 17:25:12 豫LN7152 危化品车 车辆进入隧道

2022-09-20 18:37:03 豫U62338 车速: 63.00km/h 位置: 3431.30

G55(二广高速) 山西晋城晋济段晋城分公司 K1084(200)上行 (拍盘隧道)

拍盘隧道 - 晋城--->济源

隧道入口

YK1080+730 YK1080+970 YK1081+210 YK1081+450 YK1081+690 YK1081+930 YK1082+170 YK1082+410 YK1082+650 YK1082+890 YK1083+130 YK1083+370 YK1083+610

Windows

18:36 2022/9/20

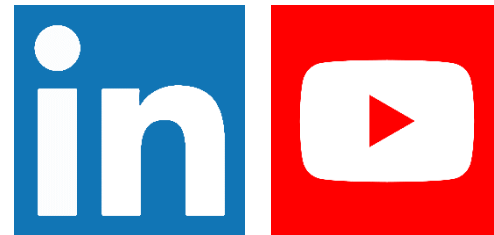
[Product Page](#)



<https://bit.ly/4lxVGVP>

Join the journey towards the future of mobility.

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[202503](#), [202504](#), [202505](#), [all previous issues...](#)



Thanks

sales@trafficclair.com

