State Police Disinfection Efficacy Results

Build With Robots
New Mexico State Police
September 8, 2022

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Synopsis

Build With Robots (BWR), a GBAC Advocate, partnered with New Mexico State Police (NMSP) to determine the efficacy of fogging a cohort of response vehicles with a Green Clean certified and EPA List N and List Q certified disinfectant. Breezy Blue Response provides a robust, consistent, and quick disinfection solution and can be easily implemented in hard-to-reach spaces and locations that have limited accessibility. We want to prioritize the safety of our essential officers who strive to serve our community.

Testing Protocol

The correlation curve linking measured hydrogen peroxide concentration to pathogen kill rate shows:
≥ 97 mg/L : > 99.9% pathogen elimination rate

- Location: New Mexico State Police, Albuquerque, NM
- Disinfectant: Breezy Biocare RTU
- Disinfectant Equipment: BWR Stationary Fogger
- H_2O_2 test strips were placed in 5 high touch areas of the squad car and 7 locations throughout the mobile command post.
- Car # 277 was fogged from the driver door towards the passenger side for 5 seconds and through the trunk towards the K-9 area for 5 seconds. The doors were closed immediately after fogging.
- The mobile command post was fogged from the center towards the front for 10 seconds and towards the back for 10 seconds. The door was closed immediately after fogging.
- Dwell time: 15 minutes.

Vehicle Types Tested

1. SUV

2. Dodge Charger

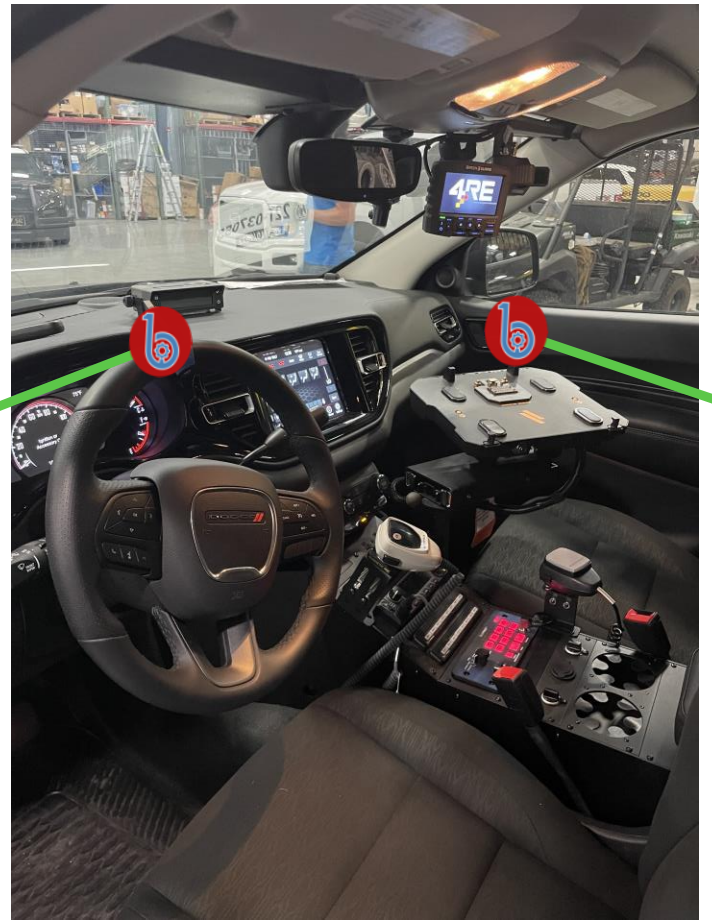
3. K-9 SUV

4. Mobile Command Post

1. Squad Car SUV

= Test Strip Locations

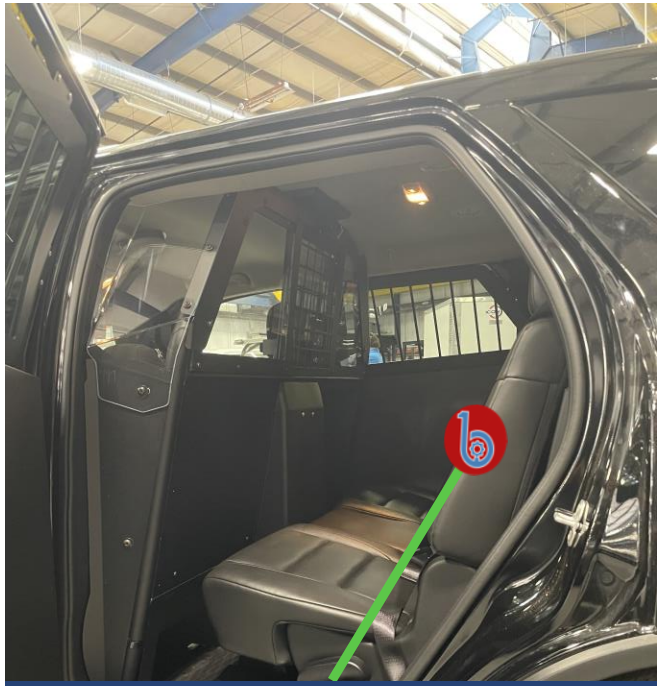
1. Steering Wheel
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination



2. Passenger Door Handle
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination

1. Squad Car SUV

= Test Strip Locations



3. Backseat
> 99.9 mg/L H_2O_2
99.9% Pathogen Elimination

4. Trunk
> 99.9 mg/L H_2O_2
99.9% Pathogen Elimination

5. Control*
< 20 mg/L H_2O_2
H_2O_2 detection out of range

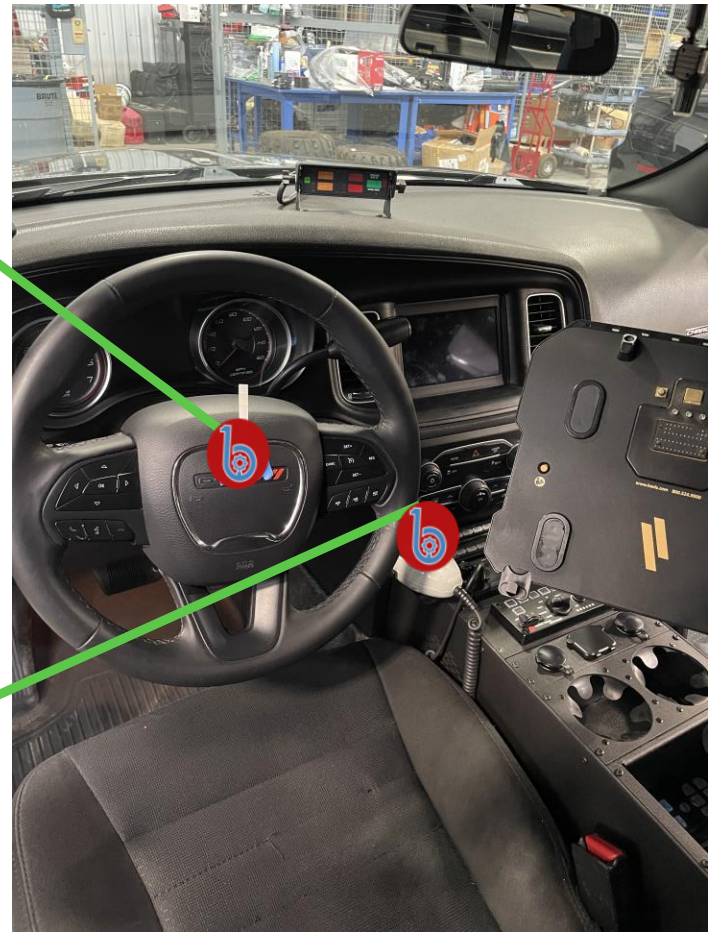
* A control test strip was used as a benchmark for the remaining test strips. It was placed outside of the vehicle and fogging area at the same time as the test strips in the vehicle being fogged. It is expected that the control strip should not show any presence of disinfectant.

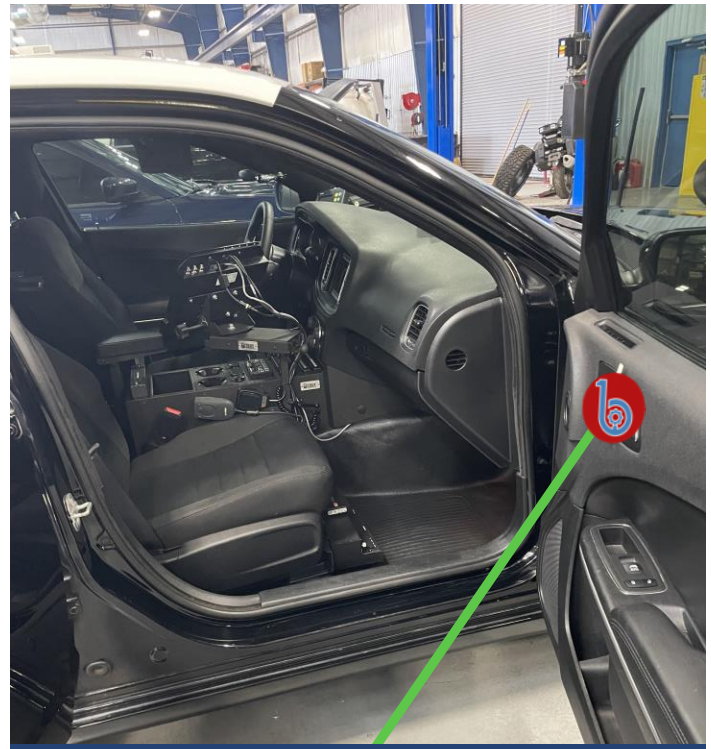
2. Squad Car Charger

= Test Strip Locations

1. Steering Wheel
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination

2. Radio
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination





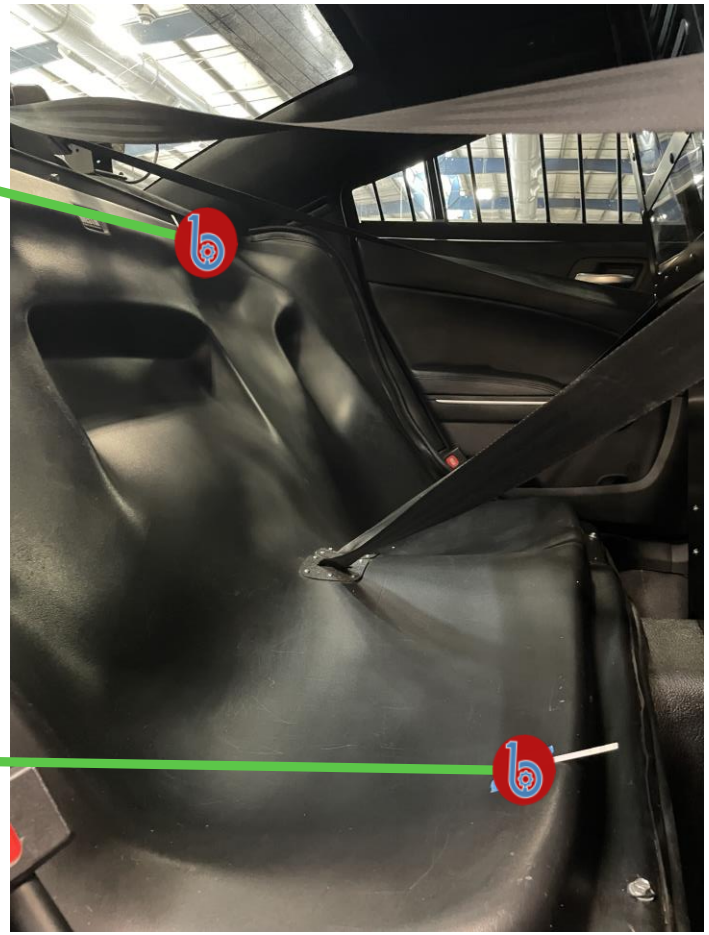
3. Passenger Door Handle
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination

2. Squad Car Charger

= Test Strip Locations

4. Middle Backseat
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination

5. Backseat Passenger Side
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination



6. Control*
< 20 mg/L H_2O_2
H_2O_2 detection out of range

* A control test strip was used as a benchmark for the remaining test strips. It was placed outside of the vehicle and fogging area at the same time as the test strips in the vehicle being fogged. It is expected that the control strip should not show any presence of disinfectant.

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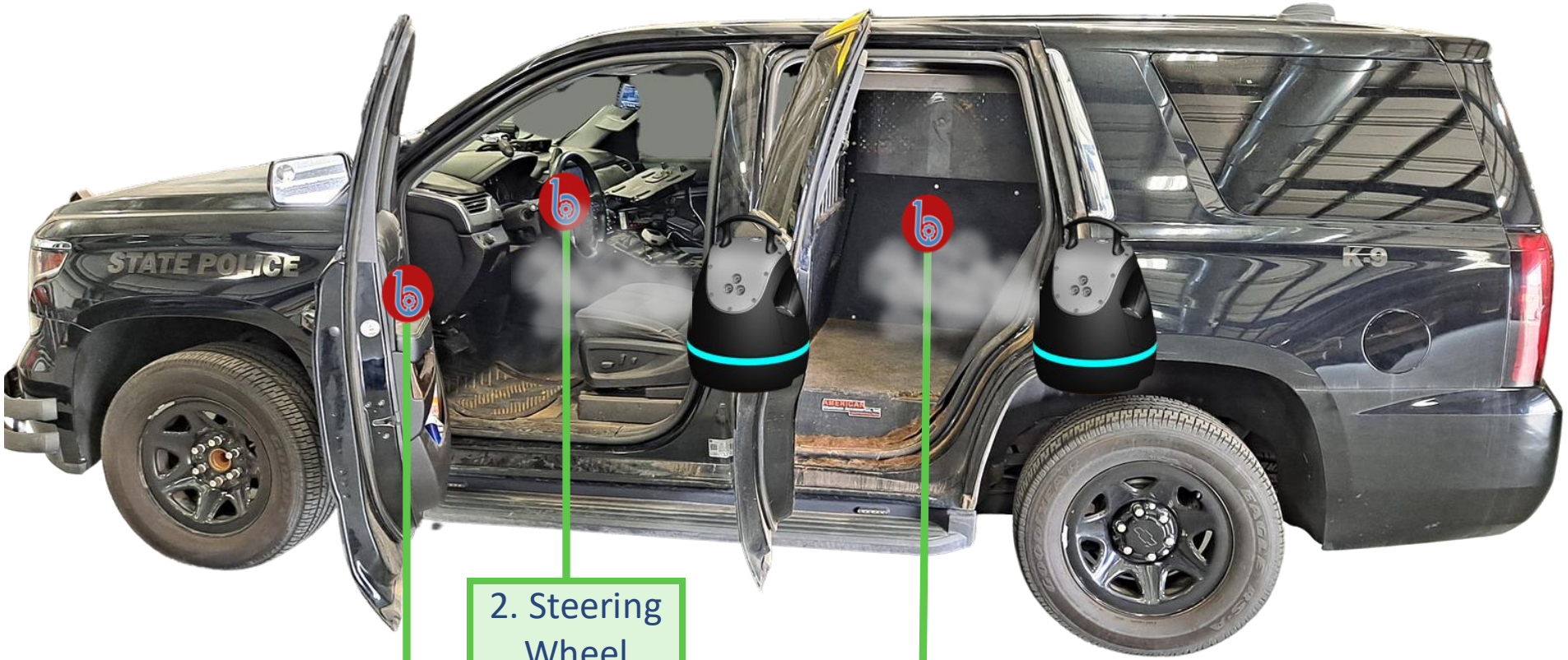
3. K-9 Squad Car

= Fogging Locations and Direction

= Test Strip Locations



1. Driver Door Buttons

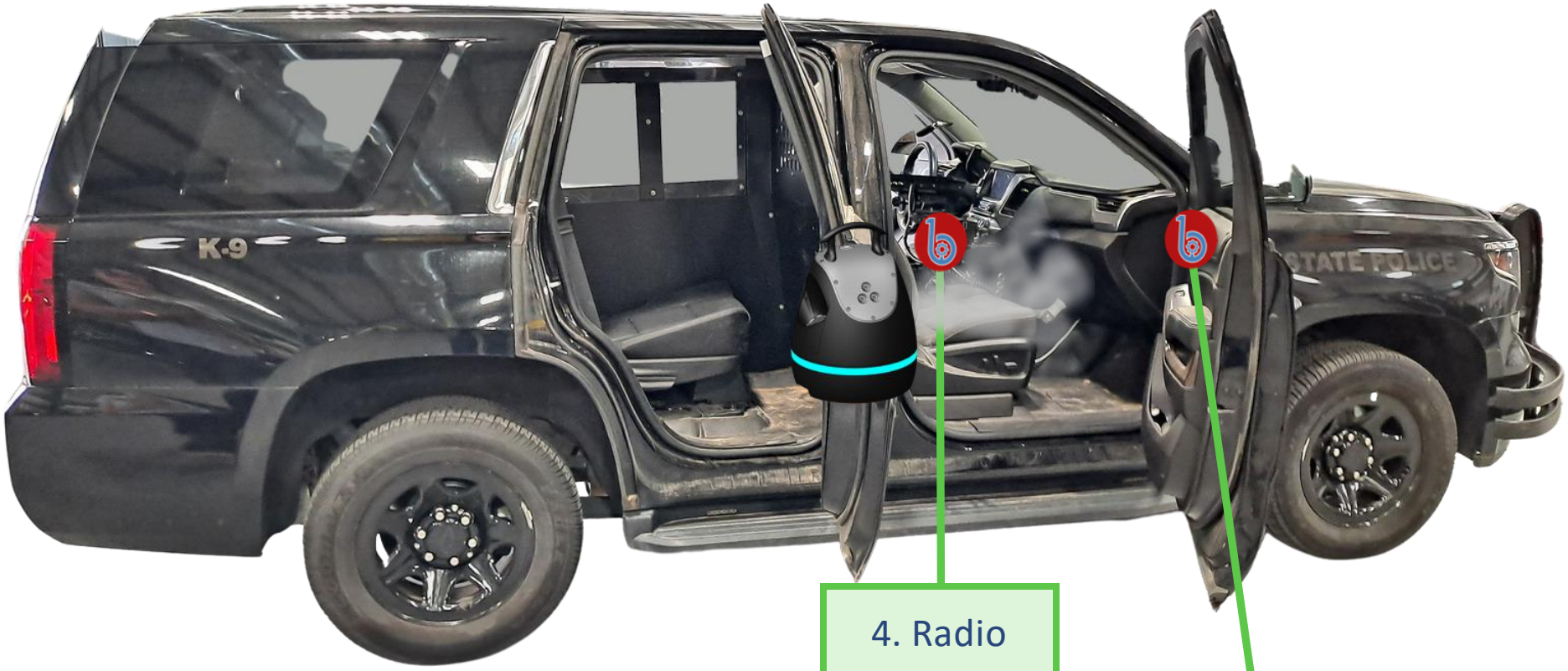
2. Steering Wheel

3. K-9 Area

3. K-9 Squad Car

= Fogging Locations and Direction

= Test Strip Locations



4. Radio

5. Passenger Door Handle

6. Control

1. Driver Door Buttons
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination

2. Steering Wheel
> 99.9 mg/L H_2O_2
99.9% Pathogen Elimination

4. Radio
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination

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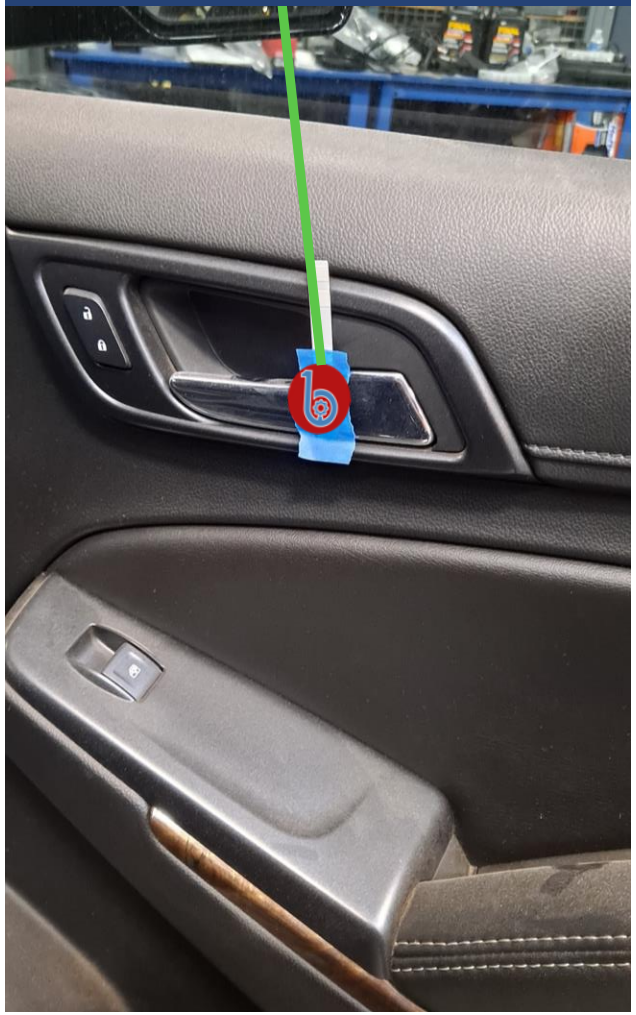
5. Passenger Door Handle

> 99.9 mg/L H_2O_2

99.9% Pathogen Elimination



3. K-9 Area

>99.9 mg/L H_2O_2

99.9% Pathogen Elimination

6. Control*

< 20 mg/L H_2O_2

H_2O_2 detection out of range

* A control test strip was used as a benchmark for the remaining test strips. It was placed outside of the vehicle and fogging area at the same time as the test strips in the vehicle being fogged. It is expected that the control strip should not show any presence of disinfectant.

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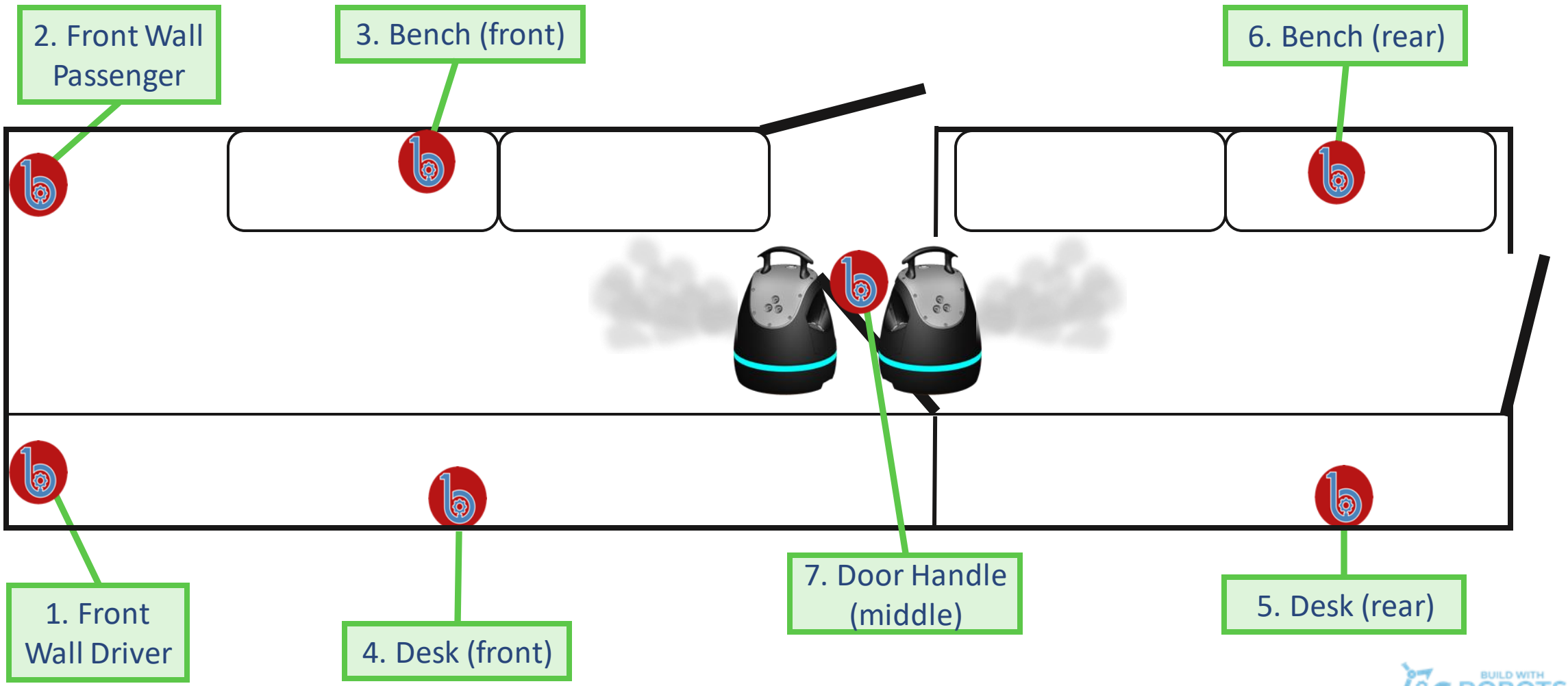
4. Mobile Command Post

= Fogging Locations and Direction

= Test Strip Locations




1. Front Wall Driver
>99.9 mg/L H_2O_2
99.9% Pathogen Elimination
2. Front Wall Passenger
> 99.9 mg/L H_2O_2
99.9% Pathogen Elimination

3. Bench (front)

> 99.9 mg/L H_2O_2

99.9% Pathogen Elimination

4. Desk (front)

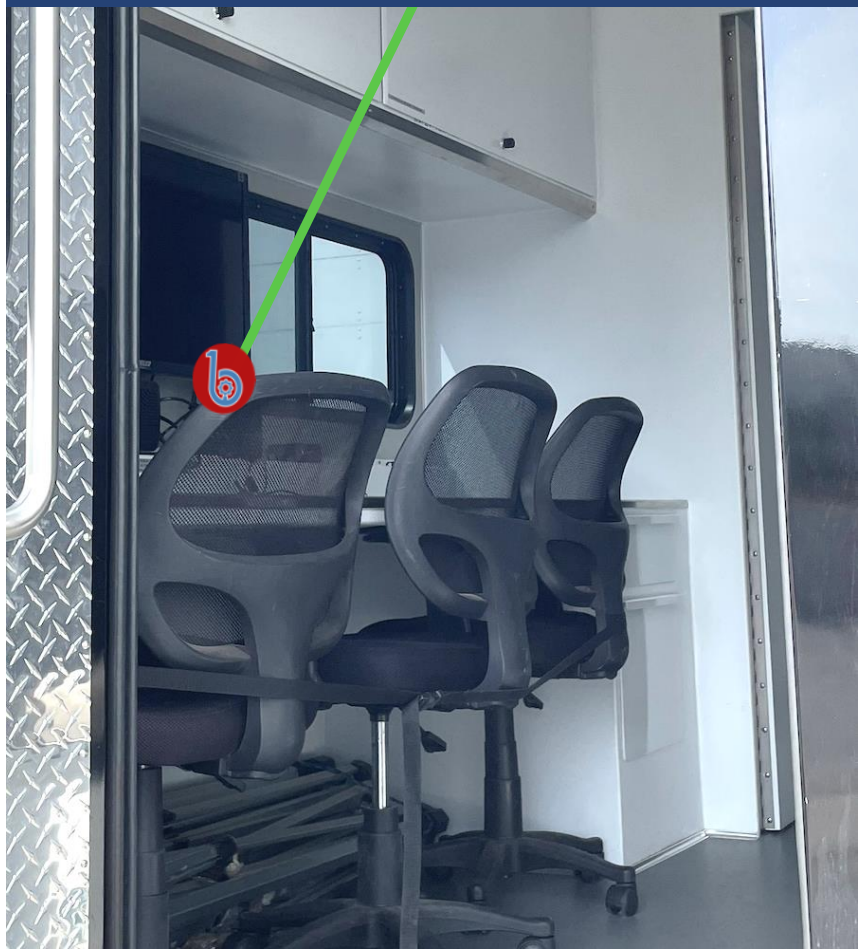
> 99.9 mg/L H_2O_2

99.9% Pathogen Elimination

5. Desk (rear)

> 99.9 mg/L H_2O_2

99.9% Pathogen Elimination



6. Bench (rear)

> 99.9 mg/L H_2O_2

99.9% Pathogen Elimination

7. Door Handle (middle)

> 99.9 mg/L H_2O_2

99.9% Pathogen Elimination

8. Control*

< 20 mg/L H_2O_2

H_2O_2 detection out of range

* A control test strip was used as a benchmark for the remaining test strips. It was placed outside of the vehicle and fogging area at the same time as the test strips in the vehicle being fogged. It is expected that the control strip should not show any presence of disinfectant.

Conclusions

The following is recommended to ensure 99.9% efficacy throughout Squad Cars and Mobile Command Posts of similar dimensions:

Squad Car (SUV/Charger)
Fog for 5 seconds from driver door towards passenger door. Fog for 5 seconds the backseat from one side towards the other. If needed, fog for 5 seconds into the trunk.

Squad Car (SUV K-9)
Fog for 5 seconds from driver door towards passenger door. Fog for 5 seconds from the trunk through to the K-9 holding area. Fog the K-9 area for additional time to help with odor control. Lastly fog the detainee area for 5 seconds.

Mobile Command Post
Place fogger in the middle of the command post and fog towards the front for 15 seconds and towards the back for 15 seconds.

Laboratory Testing Summary
EPA Registration No. 90748-1

Breezy BioCare™ RTU can be found on EPA List N and List Q of disinfectants and is Green Clean Certified.*

Tested method: AOAC Germicidal Spray conducted in a Good Laboratory Practice (GLP) facility.
Recommended method: Fogging

PATHOGEN	SOIL / LOAD CONTACT TIME	CONCLUSION
Staphylococcus aureus (Blood infections, sepsis)	5% Soil Load / 2 minutes	✓ Successful Disinfection
Pseudomonas aeruginosa (Blood and lung infections)	5% Soil Load / 2 minutes	✓ Successful Disinfection
Salmonella enterica (Salmonella)	5% Soil Load / 2 minutes	✓ Successful Disinfection
Trichophyton mentagrophytes (Fungi causing ringworm)	5% Soil Load / 2 minutes	✓ Successful Disinfection
Listeria monocytes (Infection to bloodstream, sepsis)	5% Soil Load / 2 minutes	✓ Successful Disinfection
Methicillin-resistant Staphylococcus aureus (MRSA)	5% Soil Load / 5 minutes	✓ Successful Disinfection
Respiratory Syncytial Virus (RSV)	5% Soil Load / 5 minutes	✓ Successful Disinfection
Escherichia coli (E. coli)	5% Soil Load / 5 minutes	✓ Successful Disinfection
H1N1 (Swine flu)	5% Soil Load / 5 minutes	✓ Successful Disinfection
Human Coronavirus (COVID-19)	5% Soil Load / 5 minutes	✓ Successful Disinfection
Rhinovirus (Common cold)	5% Soil Load / 10 minutes	✓ Successful Disinfection
Feline calicivirus/Human norovirus (Gastrointestinal bug)	5% Soil Load / 10 minutes	✓ Successful Disinfection

**Breezy BioCare™ RTU appears on these lists under its EPA registration number (#90748-1).*