



# ZERO OZONE EMISSIONS

*GPS® NPBI™ Products: Certified to UL's  
Stringent Zero Ozone Emissions Standard*

## *GPS®: Technology That Helps Clean Indoor Air Without Producing Ozone*

Nobody is more passionate about clean indoor air than GPS. Since 2008, through scientific research, we've pushed our patented NPBI™ (needlepoint bipolar ionization) technology forward. We're proud that our ionization systems help improve indoor air quality while qualifying for the stringent UL 2998 zero ozone emissions certification.

### WHAT IS OZONE?

Ozone (O<sub>3</sub>) is a natural gas that can be helpful or harmful depending on its location in the atmosphere. In the upper atmosphere, ozone is protective, reducing the amount of harmful UV radiation reaching the Earth's surface. Ozone in the lower atmosphere, however, is linked to respiratory damage that increases with frequency and duration of exposure. [ASHRAE's Environmental Health Committee](#) advises that "the introduction of ozone to indoor spaces should be reduced to as low as reasonably achievable."

### WHERE DOES OZONE COME FROM?

The ozone in the lower atmosphere results primarily from volatile organic compounds (VOCs) and nitrogen oxides (NOx). According to the [Environmental Protection Agency](#), although not emitted directly into the air, ground-level ozone is created when cars, chemical plants, refineries and other sources discharge pollutants containing VOCs or oxides that chemically react to sunlight. Ozone can be a harmful byproduct of other ionization products — but not of NPBI. Older systems and competing technologies may create corona discharge that is evidence of ozone. GPS offers NPBI products that are UL 2998 certified, the threshold for zero ozone emissions.

## GPS has earned UL's stringent Zero Emissions Certification across its entire product line.

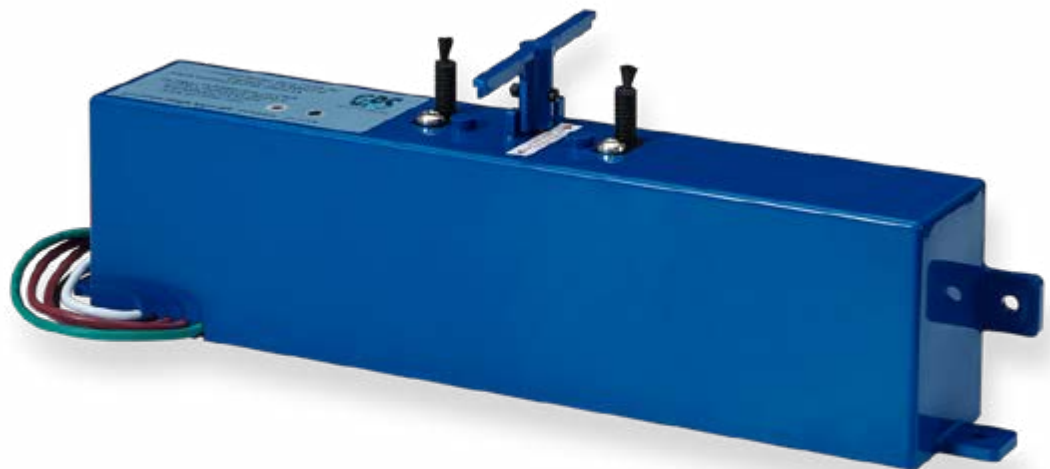
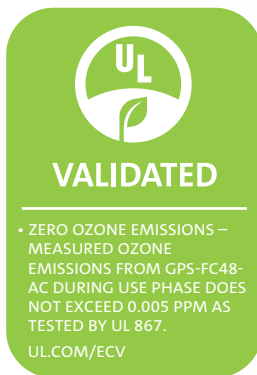
Underwriters Laboratories (UL) is the global safety science leader that provides testing, inspection and certification. All GPS NPBI technology meets the UL 867 standard as recognized by the California Air Resources Board to not produce harmful levels of ozone. GPS products also meet the more stringent UL 2998 certification for zero ozone emissions. A key difference between the two is simply their qualifying parts per billion ozone thresholds. Products that meet UL 867 ( $\leq 50$  ppb) are proven not to produce harmful levels of ozone, and those that meet the more stringent UL 2998 ( $\leq 5$  ppb) are considered to have zero ozone emissions.

*"I started GPS in 2008 after working in the sector making the old glass tube type systems. I wanted to create a technology that delivered the benefits of those systems, without the drawback of ozone production. With needlepoint bipolar ionization, we have achieved that."*

**- CHARLIE WADDELL**  
GPS Founder & CTO

*We're proud to share that all GPS products comply with UL 867 or are certified to UL 2998.*

Visit the [UL SPOT website](#) to view our certified products and see the UL certification documents provided in the following pages.



GPS-FC48-AC™

## UL OZONE SAFETY STANDARDS

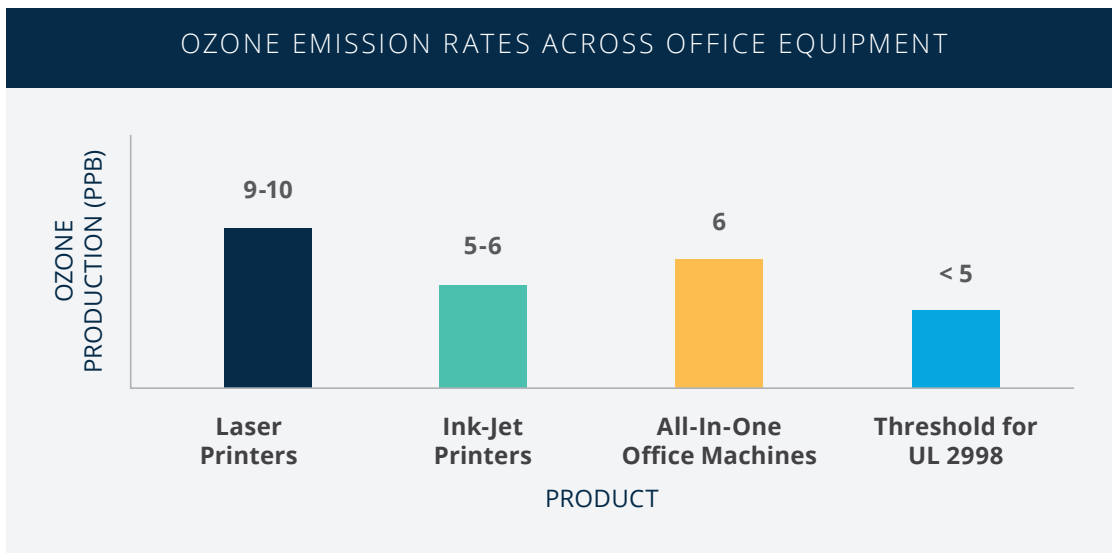
### UL 867

- Threshold of 50 ppb (parts per billion), proven not to produce harmful levels of ozone
- Recognized by the California Air Resources Board as a safety standard and referenced by the CDC for consumers that desire this type of technology

### UL 2998

- Threshold of 5 ppb (parts per billion), certified to have zero ozone emissions
- Recommended by ASHRAE, EPA and Dept. of Education, and preferred by the CDC for consumers that desire this type of technology

To put the UL 2998 certification threshold into context, below are the ozone emission rates of commonly found office equipment included in a [report](#) published by Elsevier.\*



*“By controlling the energy, we can adjust it to the right amount and avoid production of ozone or unwanted reactions while having a positive impact on the air.”*

– FARAMARZ FARAH, Ph.D., M.S.  
GPS Scientific Advisor: Physics

\*Destailats, Hugo, Randy L. Maddalena, Brett C. Singer, Alfred T. Hodgson, and Thomas E. McKone. “Indoor Pollutants Emitted by Office Equipment: A Review of Reported Data and Information Needs.” *Atmospheric Environment* 42, no. 7 (March 2008): 1,371–1,388. [doi.org/10.1016/j.atmosenv.2007.10.080](https://doi.org/10.1016/j.atmosenv.2007.10.080).



# ENVIRONMENTAL CLAIM VALIDATION SUMMARY

## Global Plasma Solutions LLC.

### GPS-iMOD

**Report Number:**

97790-4180

**Validation Period:**

06/27/2017 - 06/27/2022

---

**Claim:**

Zero Ozone Emissions - Measured Ozone Emissions from GPS iMOD during use phase does not exceed 0.005 ppm as tested by UL 867

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, First Edition - 2016

**Facility:**

Savannah, GA



# ENVIRONMENTAL CLAIM VALIDATION SUMMARY

## Global Plasma Solutions LLC.

### GPS-iRIB

**Report Number:**

187799-4180

**Validation Period:**

09/30/2020 - 09/30/2021

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-iRIB-18/36 during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Gaoqiao Town Haishu District, Ninbo CHina

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-iRIB-18/36 during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Charlotte NC



# ENVIRONMENTAL CLAIM VALIDATION SUMMARY

## Global Plasma Solutions LLC.

### GPS-DM48-AC

**Report Number:**

227776-4180

**Validation Period:**

09/30/2020 - 09/30/2021

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-DM48-AC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Charlotte NC

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-DM48-AC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Gaoqiao Town Haishu District, Ninbo CHina



# ENVIRONMENTAL CLAIM VALIDATION SUMMARY

## Global Plasma Solutions LLC.

GPS-FC-48-AC

**Report Number:**

227774-4180

**Validation Period:**

09/30/2020 - 09/30/2021

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-FC48-AC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Charlotte NC

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-FC48-AC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Gaoqiao Town Haishu District, Ninbo CHina





# ENVIRONMENTAL CLAIM VALIDATION SUMMARY

## Global Plasma Solutions LLC.

### GPS-FC24-AC

**Report Number:**

227775-4180

**Validation Period:**

09/30/2020 - 09/30/2021

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-FC24-AC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Charlotte NC

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-FC24-AC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Gaoqiao Town Haishu District, Ninbo CHina



# ENVIRONMENTAL CLAIM VALIDATION SUMMARY

## Global Plasma Solutions LLC.

### GPS-FC-3-BAS

**Report Number:**

187798-4180

**Validation Period:**

09/30/2020 - 09/30/2021

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-FC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Gaoqiao Town Haishu District, Ninbo CHina

---

**Claim:**

Zero Ozone Emissions – Measured Ozone Emissions from GPS-FC during use phase does not exceed 0.005 ppm as tested by UL 867.

**Method:**

ECVP 2998 Zero Ozone Emissions from Air Cleaners, Third Edition - 2020

**Facility:**

Charlotte NC



Global Plasma Solutions (GPS) uses multiple data points to formulate performance validation statements. GPS technology is used in a wide range of applications across diverse environmental conditions. Since locations will vary, clients should evaluate their individual application and environmental conditions when making an assessment regarding the technology's potential benefits.

The use of this technology is not intended to take the place of reasonable precautions to prevent the transmission of disease. It is important to comply with all applicable public health laws and guidelines issued by federal, state, and local governments and health authorities as well as official guidance published by the Centers for Disease Control and Prevention (CDC), including but not limited to social distancing, hand hygiene, cough etiquette, and the use of face masks.

All technical information and advice given here are based on GPS previous experiences and/or test results. GPS gives this information to the best of its knowledge but assumes no legal responsibility. Customers are asked to check the suitability and usability in the specific application, since the performance of the product can only be judged when all necessary operating data are available. The above information is subject to change.