

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

EDEN PARK ILLUMINATION, INC., LARSON ELECTRONICS LLC.
FAR UV TECHNOLOGIES, INC. and USHIO AMERICAN, INC.,
Petitioner,

v.

S. EDWARD NEISTER,
Patent Owner.

Case IPR2023-00695
Patent 11,246,951

**PETITIONERS' REPLY TO PATENT OWNER'S
PRELIMINARY RESPONSE**

UPDATED EXHIBIT LIST

Exhibit	Description
1001	U.S. Patent No. 11,246,951
1002	Prosecution History of U.S. Patent No. 11,246,951
1003	Declaration and Curriculum Vitae of Oliver R. Lawal
1004	U.S. Patent Publication No. 2003/0031586 to Eckhardt et al. (“Eckhardt”)
1005	Sosnin et al., <i>New bactericidal UV light sources: excilamps</i> , PROC. SPIE 5483, Atomic and Molecular Pulsed Lasers V, (3 May 2004)
1006	National Institute for Occupational Safety and Health, “A Recommended Standard for Occupational Exposure to Ultraviolet Radiation” (1992).
1007	Health and Environmental Effects of Ultraviolet Radiation: A Summary of Environmental Health Criteria 160 Ultraviolet Radiation (1995)
1008	U.S. Provisional App. No. 60/593,626
1009	PCT App. No. PCT/US2006/003393
1010	Declaration and Curriculum Vitae of June Ann Munford
1011	U.S. Patent Publication No. 2002/0146343 to Jenkins et al.
1012	HEALTH PHYSICS SOC’Y, <i>Ultraviolet Radiation and Public Health</i> , POSITION STATEMENT OF THE HEALTH PHYSICS SOC’Y (July 1998), https://web.archive.org/web/20000601171859/http://hps.org/documents/ultravioletradiation.pdf
1013	U.S. Patent Publication No. 2003/0153962 to Cumbie
1014	Int’l Publication No. WO87/02256 to Wilkinson
1015	U.S. Patent No. 6,283,986 to Johnson
1016	U.S. Patent No. 6,254,625 to Rosenthal et al.
1017	Thai et al., <i>Ultraviolet Light C in the Treatment of Chronic Wounds with MRSA: A Case Study</i> , 48 OSTOMY WOUND MGMT., no. 11, at 52–60 (Nov. 2002)
1018	U.S. Patent No. 5,364,645 to Lagunas-Solar et al.
1019	U.S. Patent Publication No. 2005/0079096 to Brown-Skrobot et al.
1020	Kogelschatz et al., <i>High-intensity sources of incoherent UV and VUV excimer radiation for low-temperature materials processing</i> , 168 APPLIED SURFACE SCI., May–June 2000, at 29
1021	HARVEY LODISH ET AL., MOLECULAR CELL BIOLOGY 651 (Sara Tenney et al. eds., 4th ed. 2001)

1022	James R. Bolton and Karl G. Linden, <i>Standardization of Methods for Fluence (UV Dose) Determination in Bench-Scale UV Experiments</i> , 129 J. OF ENV'T ENG'G 209 (March 2003)
1023	U.S. Patent No. 5,572,091 to Langer et al.
1024	U.S. Patent Publication No. 2005/0173652 to Ressler
1025	K982082, 510(K) SUMMARY: DERMA-WAND, NAT'L BIOLOGICAL CORP. (Oct. 28, 1998), https://www.accessdata.fda.gov/cdrh_docs/pdf/K982082.pdf
1026	Prosecution History of U.S. Patent No. 9,700,642
1027	Second Amended Complaint for Patent Infringement, <i>High Energy Ozone LLC et al. v. Larson Electronics LLC</i> , Case No. 3:21-cv-01166, Dkt. No. 67 (N.D. Tex. March 9, 2022)
1028	First Amended Complaint for Patent Infringement, <i>High Energy Ozone LLC et al. v. Eden Park Illumination, Inc.</i> , Case No. 3:22-cv-00425, Dkt. No. 50 (N.D. Tex. March 25, 2022)
1029	Second Amended Complaint for Patent Infringement, <i>High Energy Ozone LLC et al. v. Far UV Technologies</i> , Case No. 3:22-cv-00280, Dkt. No. 52 (N.D. Tex. March 25, 2022)
1030	"SPIE Conference Proceedings" website printout of https://spie.org/publications/conference-proceedings?SSO=1 (last accessed March 6, 2023)
1031	"About SPIE" website printout of https://spie.org/about-spie (last accessed March 6, 2023)
1032	Ian A. Ramsay et al., <i>The Synergistic Effect of Excimer and Low-Pressure Mercury Lamps on the Disinfection of Flowing Water</i> , 63 J. FOOD PROT. 1529 (2000)
1033	<i>Memorandum: Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation</i> (June 21, 2022) ("Director's Memo")
1034	Order Granting Joint Motion to Consolidate Related Actions for Pretrial, <i>High Energy Ozone LLC et al. v. Larson Electronics LLC</i> , Case No. 3:21-cv-01166, Dkt. No. 63 (N.D. Tex. March 8, 2022)
1035	Order Granting Joint Motion for Stay, <i>High Energy Ozone LLC et al. v. Larson Electronics LLC</i> , Case No. 3:21-cv-01166, Dkt. No. 77 (N.D. Tex. April 13, 2022)
1036	U.S. Patent No. 5,843,374 to Sizer et al.
1037	Sosnin et al., <i>The Effects of UV Irradiation and Gas Plasma Treatment on Living Mammalian Cells and Bacteria: A Comparative</i>

	<i>Approach</i> , 32 IEEE TRANSACTIONS ON PLASMA SCI. 1544 (Aug. 2004) (“Sosnin IEEE”)
1038	Clauß, M., Mannesmann, R. and Kolch, A., Photoreactivation of Escherichia coli and Yersinia enterocolitica after Irradiation with a 222 nm Excimer Lamp Compared to a 254 nm Low-pressure Mercury Lamp, 33 ACTA HYDROCHIMICA ET HYDROBIOLOGICA 579 (Dec. 2005)
1039	Von Sonntag, <i>Disinfection by free radicals and UV-radiation</i> , 4 WATER SUPPLY 11 (1986)
1040	Frederick L. Gates, <i>A study of the bactericidal action of ultra violet light. III. The absorption of ultra violet light by bacteria</i> , 14 J. GEN. PHYSIOLOGY 31 (1930)

The Board should not exercise its discretion to deny institution under 35 U.S.C. § 325(d) because the two-part framework set forth in *Advanced Bionics, LLC v. MED-El Elektromedizinische Geräte GmbH* is not satisfied, for the reasons explained in the Petition. *See* Petition, 50-60. Patent Owner’s arguments to the contrary are based on a flawed representation of the ’951 patent’s prosecution history.

Patent Owner makes four mischaracterizations Petitioners wish to bring to the Board’s attention.

First, Patent Owner tries to manifest evidence showing the Examiner thoroughly considered Sosnin IEEE¹ by improperly equating Sosnin IEEE with Ressler, a reference the Examiner examined at Patent Owner’s specific request. Patent Owner points out that after a (second) Notice of Allowance issued, “[o]ut of an abundance of caution,” Mr. Neister provided “detailed invalidity charts for Sosnin IEEE,” among others from a pending district court litigation, including “more than 100 pages of invalidity contentions plus 20 claim charts against the ‘642 Patent, relying upon more than 200 obviousness combinations” to the Examiner. POPR, 23. Patent Owner alleges that the fact that the Examiner “credited Ressler but not Sosnin IEEE indicates that the Examiner considered [the unrelated challenger’s]

¹ Sosnin IEEE relates to Petitioners’ Sosnin, but has different disclosures.

detailed analysis and rejected it.” POPR, 23 (citing EX1002, 103, 105, 188-191²).

What Patent Owner omits is that the Applicant expressly brought Ressler to the Examiner’s attention, both in an IDS and in a narrative description in response to a Non-Final Rejection over other prior art. EX1002, 245, 334. In a section titled “Comments on the Ressler Reference,” Applicant explained that Ressler had been cited in a “parent patent case” and Applicant had antedated it with a 37 C.F.R. 131 affidavit:

Applicant wishes to address the Ressler reference (US 2005/0173652), which was cited as prior art in a parent patent case. However, with respect to claims directed to the 222nm wavelength, Applicant has previously submitted an affidavit under 37 C.F.R. 1.31 successfully antedating this reference in parent case 11/831,667. To the extent the Examiner may seek to use Ressler as a prior art reference with respect to the amended claims, her attention is directed to the parent case 11/831,667. Specifically, Examiner is directed to the 4 April 2011 affidavit and evidence antedating Ressler with respect to 222nm technology, and the 6 May 2011 Advisory Action confirming the successful antedating affidavit and evidence with respect to 222 nm. In summary, Ressler is not prior art to independent claims 1 and 14 and the claims depending therefrom.

Id., 245.

Applicant did not call attention to Sosnin IEEE. Thus, Sosnin IEEE and Ressler were not similarly situated before the Examiner, as Patent Owner contends. Ressler was already the subject of prosecution. The same is not true of any Sosnin reference. Therefore, the Examiner’s focus on Ressler is not evidence that the

² Petitioners believe this citation should be Exhibit 1002 at 88-91.

Examiner thoroughly considered and rejected either Sosnin IEEE or the underlying claim charts of Sosnin IEEE provided (among the other numerous litigation claim charts). No such evidence exists. The fact that Sosnin IEEE was “of record, but not applied in any rejection by the Examiner... provides little impetus... to exercise...discretion to deny institution under Section 325(d).” *Navistar, Inc. v. Fatigue Fracture Tech., LLC*, IPR2018-00853, Paper 13 at 17 (PTAB Sept. 12, 2018).

Second, Patent Owner misrepresents Eckhardt’s relevance to the issued independent claim. Patent Owner contends that “Petitioners ignore the fact that Mr. Neister overcame this combination [of Eckhardt and Coogan] by citing deficiencies as to the limitations of independent claim, not the dependent claims: ‘Eckhardt does not teach the claim limitations of claim 1 that are missing from Coogan.’ The Examiner apparently credited this argument because Eckhardt was thereafter removed as a ground for rejection.” POPR, 21 (citing EX1002, 261; *id.*, 188-196). What Patent Owner leaves out is that at the time Applicant made this statement, Applicant simultaneously amended claim 1 to remove the limitation “wherein the substance or surface to be disinfected is human or animal tissue”—one of the very limitations that the Examiner expressly found that Eckhardt disclosed. EX1002, 256, 295. Thus, Patent Owner’s implication that Eckhardt

somehow does not apply to *issued* claim 1—that now includes the limitation “wherein the substance or surface to be disinfected is human or animal tissue”—is unfounded.³ The Petition relies upon Eckhardt for its teaching of disinfecting tissue with UV wavelengths including those in claim 1. *See, e.g.*, Petition, 30-34.

Third, Patent Owner confuses the § 325(d) analysis by focusing on a comparison of petitions. On page 22, Patent Owner compares Petitioners’ arguments in IPR2022-00381 regarding Sosnin IEEE to Petitioners’ arguments here regarding Sosnin⁴, to argue for discretionary denial. But the Board *declined* to exercise its discretion to deny institution in IPR2022-00381, where Sosnin IEEE was squarely at issue, indicating it found Patent Owner’s arguments re Sosnin

³ For the same reason, Patent Owner’s contention that “Mr. Neister overcame Examiner’s objection in view of Coogan and Eckhardt by arguing that neither disclosed a 222 nm lamp,” (POPR, 21), is similarly misleading.

⁴ Patent Owner’s assertion that “Petitioners appear to have switched horses in an attempt to avoid” the arguments Patent Owner made in IPR2022-00381, (POPR, 22), ignores the differences in disclosures between Sosnin IEEE and Sosnin, including the express disclosure of a 222 nm lamp that the parties had previously disputed. *See, e.g.*, Petition, IPR2022-00381, Paper No. 5, 20-21 (Feb. 4, 2022); Patent Owner Response, IPR2022-00381, Paper No. 25, 24-28 (Nov. 7, 2022).

IEEE at least somewhat lacking. Here, where the claims are highly similar to the Ground 1 claims in the IPR2022-00381, and where Sosnin contains additional disclosures not found in Sosnin IEEE, it would be nonsensical to exercise discretion to deny institution on this basis.

Fourth, Patent Owner’s argument that “Petitioners do nothing to show that a POSITA would have been motivated to combine Sizer and Eckhardt,” (POPR, 27), ignores that Eckhardt, unlike Wilkinson and Cumbie, discloses “line spectra” sources to disinfect skin—expressly including a preferred range of monochromatic wavelengths—inviting a POSITA to combine excimer lamps like those in Sosnin with the disinfection method of Eckhardt. *See* Petition, 21 (citing EX1003, ¶¶ 90–93).

For at least these reasons, discretionary denial under § 325(d) is not warranted.

Respectfully submitted,

Date: July 24, 2023

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on July 24, 2023, a complete and entire copy of this Petitioners' Reply to Patent Owner's Response and its supporting exhibits, were provided via email, to the Patent Owner by serving the email correspondence addresses of record as follows:

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