

THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DAIHEN CORPORATION,
Petitioner,

v.

RENO TECHNOLOGIES, INC.,
Patent Owner.

Case IPR2019-00248
Patent 9,496,122

**PATENT OWNER PRELIMINARY RESPONSE PURSUANT TO 35 U.S.C.
§ 316 AND C.F.R. 37 § 42.107 TO PETITION FOR *INTER PARTES*
REVIEW OF U.S. PATENT NO. 9,496,122**

LIST OF PATENT-OWNER EXHIBITS

Exhibit No.	Description
2001	Mark Andrews, <i>Reno Sub-Systems Sets Pace in Plasma Process Control</i> , Silicon Semiconductor (Vol. 39 Issue 4 2017) (“Silicon Semiconductor”).
2002	Dylan McGrath, <i>Samsung, Intel Back Process Control Vendor</i> , EE Times (Sep. 28, 2017), https://www.eetimes.com/document.asp?doc_id=1332371 (“EE Times”).
2003	U.S. Patent No. 5,654,679 (“Mavretic”).
2004	U.S. Patent No. 6,887,339 (“Goodman”).
2005	U.S. Patent No. 7,030,717 (“Chung”) .
2006	Paramount Series (Data Sheet), Advanced Energy Industries, Inc. (2016), https://www.advancedenergy.com/globalassets/resources-root/data-sheets/paramount-series-data-sheet.pdf , (“AE Generator Data Sheet”).
2007	GHW12Z (Specification), MKS Instruments, Inc., https://www.johnmorrisgroup.com/Content/Attachments/124386/GHW12Z-specifications.pdf (“MKS Generator Specification”).
2008	GHW50A RF Generator (Specification), ENI (Division of Astec America, Inc.), https://www.johnmorrisgroup.com/Content/Attachments/124386/GHW50A-specifications.pdf (“ENI Generator Specification”).

TABLE OF CONTENTS

I.	Introduction	5
II.	The ‘122 Patent	8
A.	Background: Semiconductor fabrication and the role of the matching network and the variable capacitor	8
B.	Electronically variable capacitors and inventor Imran Bhutta	10
C.	Determining the variable impedance of the plasma chamber... 14	
D.	Timing Feature.....	15
E.	Capacitor tuning versus prior-art frequency tuning and other types of RF generator signal tuning.....	16
III.	Claim construction	18
IV.	The Petition’s grounds of supposed rejection identified in the Petition’s table are different from the grounds described in the body of the Petition and this response uses the nomenclature of the body rather than the table.	19
V.	Summary of Zhang and Chen.....	19
A.	Zhang (Ex. 1006)	20
1.	Substrate process system	20
2.	Error feedback-based tuning methods	22
3.	Fast frequency tuning	25
B.	Chen (Ex. 1008)	26
VI.	Relevant Law.....	29
A.	Standard of Review	29
B.	Anticipation and obviousness	30

- VII. The Board should reject all Zhang-based grounds – namely, grounds 1, 2 and 5 – because the Petition fails to establish a likelihood of success as to any of the challenged claims.....31
- A. The Board should deny institution as to all Zhang-based grounds because Patent Owner cited Zhang during original prosecution and the Petition nowhere provides explanation showing why original allowance was incorrect.....32
- B. Zhang does not disclose or suggest “determining” variable impedance of a plasma chamber but instead uses error feedback involving incrementally adjusting impedance until reflected power is reduced or eliminated.....33
- C. Zhang does not disclose or suggest the Timing Feature of the challenged claims because Zhang never determines the chamber impedance in the first place and, in any event, nowhere teaches or suggests using variable capacitors to meet the Timing Feature.40
- D. The Petition’s allegations that Zhang renders challenged claims obvious based on the knowledge of the ordinarily-skilled artisan or on Chen should be rejected because the Petition relies on Zhang for the “determining” limitations and the Timing Feature discussed above.42
- VIII. The Board should reject all Chen-based grounds – namely, grounds 3-6 – because the Petition fails to establish a likelihood of success as to any of the challenged claims.....43
- A. The Board should reject ground 5, Zhang combined with Chen, because the Petition relies on Zhang (and not Chen) as disclosing determining variable chamber impedance, and for the reasons provided above, Zhang does not disclose or suggest such determining.43
- B. The Board should reject grounds 3, 4, and 6 involving alleged obviousness combinations based on Chen because Chen does not teach or suggest the Timing Feature.44
- C. The Board should reject grounds 3, 4, and 6 involving alleged obviousness combinations based on Chen or

	Howald because neither discloses use of series-based electronically variable capacitors.....	48
IX.	Conclusion.....	49

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.