

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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MEDIATEK INC.,

Petitioner,

v.

PARKERVISION, INC.,

Patent Owner.

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PTAB Case No. IPR2024-00796

Patent No. 7,483,686

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**DECLARATION OF POLLY ESTABROOK, PHD**

## EXHIBITS REFERENCED IN DECLARATION

| No.    | Description                                                                                                                                                                                                                                                 |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EX1005 | Estabrook, “The Direct Conversion Receiver: Analysis and Design of the Front-End Components,” Aug. 1989 (“Estabrook-Thesis”)                                                                                                                                |
| EX1016 | P. Estabrook and B. B. Lusignan, “A Mixer Computer-Aided Design Tool Based in the Time Domain,” IEEE Microwave Theory and Techniques Symposium, 1988, pg. 1107- 1110 (“Estabrook-1988”)                                                                     |
| EX1017 | P. Estabrook and B. B. Lusignan, “The Design of a Mobile Radio Receiver Using a Direct Conversion Architecture,” In Proc. of the IEEE Vehicular Technology Conference, pages 63-72, May 1989 (“Estabrook-1989”)                                             |
| EX1031 | IEEEXplore Citation search results for: P. Estabrook and B. B. Lusignan, “The Design of a Mobile Radio Receiver Using a Direct Conversion Architecture,” In Proc. of the IEEE Vehicular Technology Conference, pages 63-72, May 1989 (“Estabrook-1989”)     |
| EX1032 | Google Scholar Citation search results for: P. Estabrook and B. B. Lusignan, “The Design of a Mobile Radio Receiver Using a Direct Conversion Architecture,” In Proc. of the IEEE Vehicular Technology Conference, pages 63-72, May 1989 (“Estabrook-1989”) |

## **I. INTRODUCTION**

1. I, Polly Estabrook, PhD, am over the age of eighteen and otherwise competent to make this Declaration. I have personal knowledge of the facts set forth in this Declaration and make this Declaration based on my knowledge of library science practices and am competent to testify to the same.

2. I am currently retired from the Jet Propulsion Laboratory (JPL) at the National Aeronautics and Space Administration (NASA).

3. I have written this Declaration at the request of counsel for Petitioner MediaTek, Inc. to explain certain facts regarding the availability of certain publications which I authored or co-authored. I am giving this Declaration as a professional courtesy, and I am neither receiving, nor have I asked for, any compensation for this Declaration.

## **II. MY RESEARCH AT STANFORD AND ASSOCIATED PUBLICATIONS**

4. I performed graduate studies in electrical engineering at Stanford University and earned my PhD in 1990. My PhD research focused on communications systems, particularly on receivers for radio frequency (RF) communications.

5. My PhD research culminated in my dissertation, “The Direct Conversion Receiver: Analysis and Design of the Front-End Components” in late 1989.

6. I submitted my dissertation to my thesis committee in 1989. My recollection is that multiple copies of the thesis were made, at least one of which was to be stored in the electrical engineering library.

7. I have received the exhibit marked as EX1005 from Petitioner's counsel. From a preliminary review and to the best of my recollection, this exhibit appears to be a copy of my 1989 Dissertation which I submitted to Stanford University in support of my PhD candidacy.<sup>1</sup> I have also briefly reviewed my own personal copy of my dissertation in my records, and while I have not compared the entirety of the two documents (*i.e.*, page-for-page or word-for-word), they appear to be the same.

8. I also published several articles relating to my ongoing work at Stanford while I was a PhD student. In several cases, these publications were essentially chapters of my ongoing dissertation.

9. I recognize EX1016 as a true and correct copy of an article that I co-authored in 1988 with my PhD advisor: P. Estabrook and B. B. Lusignan, "A Mixer Computer-Aided Design Tool Based in the Time Domain," *IEEE Microwave Theory and Techniques Symposium*, 1988, pg. 1107- 1110.

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<sup>1</sup> EX1005 has a cover page and some markings that appear to have been added by the company which digitized the dissertation which are not present in my copy.

10. I recognize EX1017 as a true and correct copy of an article that I co-authored in 1989 with my PhD advisor: P. Estabrook and B. B. Lusignan, “The Design of a Mobile Radio Receiver Using a Direct Conversion Architecture,” *In Proc. of the IEEE Vehicular Technology Conference*, pages 63-72, May 1989.

11. EX1016 (my 1988 publication) corresponds to the subject matter of Chapters 3 and 4 of my dissertation (EX1005).

12. EX1017 (my 1989 publication) summarizes the main findings of my dissertation, gives the expected performance of each component in a direct conversion receiver, and ends with a comparison of the direct conversion receiver and the conventional heterodyne receiver. The results listed in this paper are found in Chapters 1, 2, 5, 6, 7, and 8 of the dissertation.

13. EX1017 notes at the bottom of the first page that “This work was performed as part of Ms. Estabrook’s doctoral research at Stanford University.” This note was required because of my U.S. government employment at JPL at the time of publication. However, it would also have indicated to a person interested in the subject matter discussed in EX1017 that additional information about my research would have been available in my dissertation.

14. I cited my 1988 paper (EX1016) both in my 1989 paper (EX1017) and my dissertation (EX1005). My 1989 paper (EX1017) has been cited several times by other researchers. Counsel has provided me with EX1031, a printout of IEEE

Xplore results showing citations to my 1989 paper (EX1017), including ten citations by others prior to 2000. EX1031 is obtained from

<https://ieeexplore.ieee.org/document/40051/citations?tabFilter=papers#citations>.

I also performed an IEEE citation search for my 1989 paper, and obtained results consistent with EX1031. Counsel has also provided me with EX1032, a printout of Google Scholar results showing instances in which my 1989 paper (EX1017) was cited prior to 2000:

[https://scholar.google.com/scholar?start=0&hl=en&as\\_sdt=2005&sciodt=0,5&asyhi=1999&cites=3652549245152214745&scipsc=](https://scholar.google.com/scholar?start=0&hl=en&as_sdt=2005&sciodt=0,5&asyhi=1999&cites=3652549245152214745&scipsc=). I also performed a Google

Scholar search for my 1989 paper, and obtained results consistent with EX1032.

One of these is my dissertation, but the remaining 15 results are citations to my paper in publications by others.

### **III. CONCLUSION**

I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: May 21, 2024

By: /Polly Estabrook/

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Polly Estabrook, PhD