

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

INTEL CORPORATION,  
Petitioner

v.

QUALCOMM INCORPORATED,  
Patent Owner.

---

IPR2019-00048  
Patent 9,154,356 B2

---

Before MICHELLE N. WORMMEESTER, SCOTT B. HOWARD,  
and AARON W. MOORE, *Administrative Patent Judges*.

MOORE, *Administrative Patent Judge*.

JUDGMENT  
FINAL WRITTEN DECISION  
No Challenged Claims Unpatentable  
*35 U.S.C. § 318(a)*

TABLE OF CONTENTS

I.	INTRODUCTION .....	1
A.	Background .....	1
B.	Related Matters .....	1
C.	The '356 Patent .....	2
D.	The Claimed Subject Matter .....	6
E.	Evidence Relied Upon.....	7
1.	Jeon .....	7
2.	Xiong.....	8
3.	Youssef .....	9
4.	The Feasibility Study .....	10
F.	Grounds of Unpatentability.....	10
II.	ANALYSIS .....	10
A.	Level of Ordinary Skill in the Art.....	10
B.	Construction of “Carrier Aggregation” .....	11
1.	The Claim Language.....	12
2.	The Written Description .....	13
3.	The File History .....	16
a.	Hirose.....	16
b.	Kaukovuori .....	18
c.	Other References of Record .....	19
4.	Extrinsic Evidence .....	20
5.	The ITC Investigation.....	22
6.	Conclusion .....	23
C.	Patentability of Claims 1, 9, 10, 17, and 18 .....	24
1.	Obviousness in View of Jeon and Xiong (Grounds 1 and 2) .....	24

IPR2019-00048  
Patent 9,154,356 B2

2.	Obviousness in View of Jeon, Xiong, and The Feasibility Study (Grounds 3 and 4).....	25
III.	CONCLUSION .....	28
IV.	ORDER.....	29

## I. INTRODUCTION

### A. *Background*

Intel Corporation (“Petitioner”) filed a Petition for *inter partes* review of claims 1, 9, 10, 17, and 18 of U.S. Patent No. 9,154,356 B2 (Ex. 1101, “the ’356 patent”). Paper 3 (“Pet.”). Qualcomm Incorporated (“Patent Owner”) filed a Preliminary Response. Paper 7.

On July 10, 2019, we instituted an *inter partes* review of claims 1, 9, 10, 17, and 18. Paper 8 (“Inst. Dec.”), 20. Patent Owner then filed a Patent Owner Response (Paper 12, “PO Resp.”), Petitioner filed a Reply (Paper 19, “Pet. Reply”), and Patent Owner filed a Sur-Reply (Paper 23, “PO Sur-Reply”). An oral hearing was held on April 7, 2019, and a transcript of the hearing is included in the record. Paper 30 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6. This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons that follow, we determine that Petitioner has *not* shown by a preponderance of the evidence that claims 1, 9, 10, 17, and 18 of the ’356 patent were unpatentable.

### B. *Related Matters*

Petitioner filed two petitions, IPR2019-00128 and IPR2019-00129, seeking *inter partes* review of claims 1–8, 10, 11, 17, and 18 of the ’356 patent based on prior art different than that presented in this petition. On May 27, 2020 we issued Final Written Decisions in those cases, determining that Petitioner had not shown that any claims were unpatentable.

Petitioner filed another petition, IPR2019-00047, seeking *inter partes* review of claims 1, 7, 8, 10, 11, 17, and 18 of the ’356 patent based on prior

IPR2019-00048  
Patent 9,154,356 B2

art different than that presented in this petition and the '128 and '129 petitions, and concurrently filed another petition, IPR2019-00049, seeking *inter partes* review of claims 2–8 and 11 of the '356 patent based on the same prior art presented in this petition.

The Petition states that Patent Owner “has asserted the '356 patent against Apple in *Certain Mobile Electronic Devices and Radio Frequency and Processing Components Thereof*, Investigation No. 337-ITC-1093, currently pending before the International Trade Commission” and “also has asserted the '356 patent against Apple in another currently pending case, *Qualcomm Inc. v. Apple Inc.*, No. 3:17-cv-02398 (S.D. Cal.)” Pet. 1. In updated mandatory notices filed on October 7, 2019, Petitioner advised the Board that the District Court litigation has been dismissed and that the ITC investigation has been terminated. *See* Paper 13.

C. *The '356 Patent*

The '356 Patent is directed to “[l]ow noise amplifiers . . . supporting carrier aggregation.” Ex. 1101, code (57). In the embodiment described in the Abstract, an “input RF signal includes transmissions sent on multiple carriers at different frequencies,” a “first amplifier stage receives and amplifies [the input signal] and provides a first output RF signal to a first load circuit when the first amplifier stage is enabled,” and a “second amplifier stage receives and amplifies the input RF signal and provides a second output RF signal to a second load circuit when the second amplifier stage is enabled.” *Id.*

# 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.