

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Intel Corporation
Petitioner

v.

Qualcomm Incorporated
Patent Owner

Case IPR2018-01152
Patent 8,698,558

**PATENT OWNER RESPONSE TO PETITION FOR *INTER PARTES*
REVIEW PURSUANT TO 37 C.F.R. § 42.220**

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Pursuant to the Board’s Decision – Institution of *Inter Partes* Review (Paper 9) (“Institution Decision”), entered January 16, 2019 – Patent Owner Qualcomm, Inc. (“Qualcomm” or “Patent Owner”) submits this Response in opposition to the Petition for *Inter Partes* Review of U.S. Patent No. 8,698,558 (the “558 Patent”) filed by Intel Corporation (“Intel” or “Petitioner”).

I. INTRODUCTION

Petitioner raises four grounds against three claims. Ground I is directed to claims 12 and 14, and Ground II is directed to claim 14. Patent Owner does not contest these grounds and agrees to cancel claims 12 and 14.

Grounds III and IV, directed to claim 13, are a different story. Claim 13 recites an envelope amplifier that “operates based on the first supply voltage or the boosted supply voltage.” A person of ordinary skill in the art (“POSA”) would understand this limitation as requiring a “selective boost.” Because Petitioner concedes that Ground III does not disclose a selective boost, the Board should dismiss Ground III.

Moreover, Grounds III and IV rely upon the combination of Chu and Choi 2010, with Ground IV additionally relying on Myers. Both grounds are flawed because Petitioner has failed to meet its burden of establishing a motivation to combine Chu, a reference striving to increase the efficiency of a power amplifier, with Choi 2010, a reference striving to prevent the degradation of output power at

the cost of efficiency. The prior art is silent regarding *how* to combine Chu and Choi 2010 in a manner that achieves the objectives of both. A POSA therefore would not be motivated to combine these disparate teachings, and Petitioner has failed to meet its burden under both grounds.

Petitioner additionally fails to meet its burden of establishing a motivation to combine Chu/Choi 2010 with Myers. Choi 2010 is premised on building a circuit that requires a constant boosted voltage supply to its linear amplifier. Petitioner, recognizing that neither Chu nor Choi 2010 disclose anything relating to a selective boost, relies on Myers to disclose these features. Choi 2010, however, teaches away from using multiple voltage sources because the entire premise of Choi 2010 is to use a constant boosted supply voltage in order to achieve its objective of preventing the degradation of output power. And even if the Board were to find that Choi 2010 does not rise to the level of teaching away, a POSA would not be motivated to modify Choi 2010 with Myers because doing so would undercut the benefits Choi 2010 achieves. Furthermore, Myers does not disclose a linear envelope amplifier and relates only to an older power-tracking paradigm that differs significantly from Chu and Choi 2010. Accordingly, a POSA would not be motivated to combine Myers with Chu and Choi 2010.

For at least these reasons, the Board should confirm the validity of claim 13 of the '558 Patent.

II. THE '558 PATENT AND ITS PROSECUTION HISTORY

A. Overview of the '558 Patent

The '558 Patent describes and claims inventions directed to managing the power associated with transmitting radio frequency (“RF”) signals from a mobile device. Ex. 1001 at 1:5-31. The '558 Patent teaches improvements over known power management schemes by employing a novel form of “envelope tracking.” *Id.* at Title; 3:57-60. The '558 Patent’s power management scheme achieves substantial power savings in mobile device transmitters, thereby extending a device’s battery life. *Id.* at 3:46-48.

In wireless communication systems, mobile devices communicate by transmitting encoded data signals. Ex. 1001 at 1:11-17. Before transmitting through a communications channel, such encoded data signals are first conditioned to generate RF output signals. *Id.* Such conditioning typically includes an amplification step performed by a power amplifier (a “PA”) that provides a high transmit power. *Id.* at 1:21-26. A desirable characteristic of mobile device power amplifiers is an ability to provide high transmit power with high power-added efficiency (“PAE”) and good performance even when the device’s battery is low. *Id.*

Before the priority date of the '558 Patent, typical PAs in a mobile device were supplied with a constant power supply voltage, regardless of the PA’s output power. The '558 Patent illustrates this in Figure 2A, below with annotation:

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