UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,

Petitioner

v.

LBT IP I LLC,
Patent Owner

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*Inter Partes* Review Case No. IPR2020-01189
U.S. Patent No. 8,497,774

**SUPPLEMENTAL DECLARATION OF SCOTT ANDREWS**

## TABLE OF CONTENTS

**I. INTRODUCTION ..... 3**

**II. OPINIONS REGARDING *HUANG* ..... 3**

**III. OPINIONS REGARDING THE COMBINATION OF *SAKAMOTO* AND HUANG ..... 8**

**IV. CONCLUSION ..... 10**

I, Scott Andrews, hereby declare the following:

## I. INTRODUCTION

1. I have been asked to respond to certain issues raised by Patent Owner in Patent Owner's Response dated June 1, 2021 and Motion to Amend dated June 1, 2021. All of my opinions expressed in my original declaration (Ex. 1003) remain the same. I have reviewed the relevant portions of the Patent Owner's Response (Paper 17, "*Response"*) and the relevant portions of the Motion to Amend (Paper 16, "*MTA*") in connection with preparing this supplemental declaration.

2. As part of my work and in forming my opinions in connection with this proceeding, I have reviewed the following materials. For any prior art listed below, it is my opinion persons of ordinary skill in my field would reasonably rely upon such prior art in forming opinions regarding the subject matter of this proceeding:

- Materials relied on for my previous Declaration;
- U.S. Patent No. 7,826,968 to Huang ("*Huang*") (Ex. 2011);
- Any other materials I cite in support of this Declaration.

## II. OPINIONS REGARDING *HUANG*

3. Huang generally discloses a GPS receiver for with a dynamic updated interval/frequency. *Huang*, Abst. In particular, *Huang*, describes implementing the GPS refresh interval using a function mapping a particular system state variable to an update frequency. Huang, 1:66–2:20 (describing depictions of examples of

different functions). *Huang* teaches a variety of embodiments with different inputs to these mapping functions, including speed of the GPS device (FIGs. 2A–2B), number of GPS satellites from which positioning information is being received (FIG. 3), position along a particular navigation path (FIGs. 4B–4C), and remaining batter capacity (FIG. 5). In each case, *Huang's* function maps the input variable (which may be continuously valued such as a velocity of discretely valued such as the number of satellites) to a frequency for updating the position of the GPS receiver (or, equivalently, to an interval between updates). *Huang*, 2:44–48. For example, *Huang* describes how the update frequency may increase with increasing speed of movement and may be capped at a maximum update rate and/or a minimum update rate. *Huang,* 2:53–3:14 (describing FIGs. 2A and 2B).

4. Huang implements this dynamic update frequency by controlling the rate at which the GPS receiver listens for update packets from GPS satellites. For example, Huang describes this process as "activating and deactivating antenna 121":

> The control signal is provided by baseband unit 122 or other elements. **When the control signal is activated, antenna 121 receives the wireless signal group. When the control signal is de-activated, antenna 121 does not receive the wireless signal group.** Baseband unit 122 processes the wireless signal group to generate a position signal S. The position signal is updated every time interval.

*Huang*, 2:38-44. A POSITA, reviewing this, would have understand *Huang* to be teaching that the "control signal" controls whether the GPS is listening to the

wireless signals from GPS satellites, and that the GPS receiver thus "listens" for a GPS signal form the GPS satellite network once every time interval. Thus, *Huang* updates the GPS refresh rate by controlling the listen rate of the GPS receiver.

5. A POSITA would have understood that the reason for *Huang* to control the update interval in this fashion is to reduce power consumption. *Huang* 5:42–50 (increasing the interval reduces power consumption). A POSITA would further have understood that would have the effect of extending the battery life of Huang's GPS receiver, as it is well understood that battery lifetime decreases as power consumption increases.

6. I understand that Patent Owner contends *Huang* discloses only two "preset speed-of-movement thresholds for adjusting the frequency of positioning updates," at 50 km/h and 100km/h. *Response* at 14–15 (discussing *Huang's* FIG. 2A). This is incorrect. A POSITA, reviewing *Huang's* disclosure would have appreciated that, in the example of FIG. 2A, Huang's GPS receiver changes its update frequency at *every* speed below 100km/h, to the granularity of speed measurement. *Huang,* 3:5-8 ("In summary, the frequency of generating the position signal by baseband unit 122 is higher when the speed of movement of the GPS device 100 is faster."). Huang expressly gives the examples of an updating at a frequency of 5Hz when the speed of the GPS receiver is 50km/h and updating at a frequency of 10Hz when the speed is 100km/h, and these exemplary points are annotated in

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