UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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SAMSUNG ELECTRONICS CO., LTD.,

PETITIONER,

V.

BELL NORTHERN RESEARCH, LLC,

PATENT OWNER.

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Case No. IPR2020-00611, IPR2020-00613
U.S. Patent No. 8,416,862

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**DECLARATION OF DR. EDWIN HERNANDEZ-MONDRAGON IN
SUPPORT OF PATENT OWNER'S PRELIMINARY RESPONSE
UNDER 35 U.S.C. § 313 AND 37 C.F.R. § 42.107**

I, Edwin A. Hernandez-Mondragon, PhD, hereby declare as follows:

I.   INTRODUCTION

1.   I am over the age of eighteen (18) years and otherwise competent to make this declaration.

2.   I have been retained as an expert witness on behalf of Bell Northern Research, LLC for the above-captioned *inter partes* review ("IPR"). I understand that the petition for *inter partes* review involves U.S. Patent No. 8,416,862 ("the '862 patent"), which was filed on September 28, 2005. The '862 Patent names Carlos Aldana and Joonsuk Kim as co-inventors. The '862 Patent issued on May 2, 2006.

3.   I make this declaration based on my personal knowledge, educational background and training, consideration of the materials I discuss herein, and my expert opinions.

4.   I am being compensated at a rate of $600 per hour for my time in this matter. My compensation does not depend on the outcome of this proceeding and I have no financial interest in its outcome.

5.   In preparing this Declaration, I have reviewed and considered the '862 Patent, the '862 Patent prosecution history, and each of the documents cited herein, and I have considered them in light of general knowledge in the art in the time frame of April 21, 2005, the earliest priority date of the '862 Patent.

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In formulating my opinions, I have relied upon my experience, education and knowledge as they relate to the relevant art. I also have considered the viewpoint of a person of ordinary skill in the art in the time frame of the filing date of the '862 patent.

II.   BACKGROUND AND QUALIFICATIONS

6.   I am an owner and founder of EGLA CORP, an intellectual property, engineering consulting, and startup accelerator incubator in the fields of a) wireless communications, 4G and 5G, b) media streaming, and c) health technologies.

7.   I have a Ph.D. in Computer Engineering in Mobile Computing in 2002 and obtained a Masters in Science in Electrical and Computer Engineering in 1999, both from the University of Florida. Prior to that, I graduated with my B.S. in Electronics Engineering from Costa Rica Institute of Technology in 1995. a A copy of my *curriculum vitae*, which includes a more detailed summary of my background, experience, patents, and publications, is marked as Exhibit 2005.

8.   I have previously been retained as an independent expert consultant in the fields of cable television systems and broadcasting, multimedia streaming, mobile devices and systems, air-interface and Long-Term Evolution (LTE), cloud storage and data synchronization, wireless

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communications, block-chain technology, power management, personal area networking, and smart phones and wireless embedded software development.

9.   My experience in Wireless Communications, modulation, RF propagation models, and antenna engineering dates back to the 1990s, where I was an engineer working on AX.25 radio node in from 1996 – 1997, working with civil band radio, VHF bands (140 MHz), and FSK (Frequency-Shift Keying) modulation.

10.   I founded COMPUNET in 1997 and was its lead engineer from 1997 to 2009. While at COMPUNET, I was a lead developer for authentication services, security services, web services, and networking configuration services.

11.   I worked for Microsoft from 2001 to 2003 as a Technical Program Manager. In that position, I was responsible for driving architecture, design, test automation, and security analysis for Bluetooth Personal Area Networking (PAN). I also drove testing over networking protocols, such as IPv4 networks and IPv6 networks, including early versions of 802.11b and candidates in the 2.4GHz bands that used Frequency Hopping Spread spectrum.

12.   As part of my PhD, I became an expert in RF system simulation, including propagation models, and selection of appropriate modulation techniques based on SNR (Signal to Noise Ratios) and other parameters experimented with using 802.11b technologies and SISO Antennas.

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13.   I worked for Motorola, Inc. from 2003 to 2010 as a Principal Staff Software Engineer. In that position, I was responsible for application development for Google and Android platforms. I participated in kernel-level prototyping, data support, and digital rights management (DRM).

14.   While at Motorola, I received training on RF system testing, RF modulation techniques, specially trained on WIMAX technologies, and other air interfaces that were used by Motorola, namely iDEN, CDMA, and WIMAX.

15.   As a result of my experience, I am very familiar with RF modulation, system testing, and have been involved in this field since 2001.

16.   From 2009 to 2019, I have been working with Software-defined Radios and GNU Radio-based systems including Ettus Research boxes, and recently with Blade RF in the creation of a Soft\ware & hardware LTE emulator based on the US Patent 7,231,330.

17.   Blade RF 2.0 provides a 2x2 MIMO interface that I have used for testing and experimentation at my technology incubator in Boca Raton, FL.

18.   Starting in 2010, I founded EGLA CORP. There, I created MEVIA applications, such as Clout to Cable. MEVIA is a "software-as-a service" and a cloud-based platform that enables "MEVIA Music," which is currently in operation in several countries including Brazil, Honduras, and the United States.

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