UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE PATENT TRIAL AND APPEAL BOARD
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ERICSSON INC. AND TELEFONAKTIEBOLAGET
LM ERICSSON ("Ericsson"),
Petitioner

v.

INTELLECTUAL VENTURES II LLC ("IV"),
Patent Owner
_____

Patent 7,787,431

Title: METHODS AND APPARATUS FOR MULTI-CARRIER
COMMUNICATIONS WITH VARIABLE CHANNEL BANDWIDTH
_____

IPR Case No. IPR2015-01664

**SUPPLEMENTAL DECLARATION OF ZYGMUNT J. HAAS, PH.D.
UNDER 37 C.F.R. § 1.68 ON BEHALF OF PETITIONER**

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I.   Introduction

1.   My background and qualifications are detailed in ¶¶ 5-13 in my previous declaration submitted as exhibit ERIC-1012 in this IPR, i.e., IPR2015-01664. I have provided an updated CV as ERIC-1022.

2.   In the preparation for this declaration, I have studied:

(1) The '431 Patent, ERIC-1001;

(2) U.S. Publication No. 2002/0055356 ("Dulin"), ERIC-1002;

(3) U.S. Patent No. 7,782,750 ("Yamaura"), ERIC-1003;

(4) U.S. Patent No. 7,426,175 ("Zhuang"), ERIC-1004;

(5) I. Hwang *et al.*, IEEE C802.16d-04/19, "A New Frame Structure for Scalable OFDMA Systems," pp. 0-12, March 11, 2004 ("Hwang"), ERIC-1005;

(6) My previous declaration in this IPR, Declaration of Zygmunt J. Haas, ERIC-1012;

(7) Deposition Transcript of Kenneth Zeger, June 15, 2016, ("Zeger Depo."), ERIC-1018;

(8) U.S. Publication No. 2002/0141355 ("Struhsaker"), ERIC-1020; and

(9) Declaration of Kenneth Zeger ("Zeger Decl."), Ex. 2001.

3.   My understanding of the relevant legal standards remain the same as submitted in my previous declaration, ERIC-1012, ¶¶ 14-17.

II.   Claim Construction

4.   It is my understanding that in order to properly evaluate the '431 patent, the terms of the claims must be defined. It is my understanding that the claims are to be given their broadest reasonable interpretation in light of the specification. It is my further understanding that claim terms are given their ordinary and accustomed meaning as would be understood by one of ordinary skill in the art, unless the inventor, as a lexicographer, has set forth a special meaning for a term. The discussion of the claim terms below is my opinion regarding each of the referenced terms, as defined in accordance with the broadest reasonable construction standard, and based on the understanding of a person of ordinary skill in the art at the priority date of the '431 patent..

A. "variable band"

5.   I did not offer a construction of **"**variable band" in my previous declaration, ERIC-1012, implicitly taking the position that no construction was necessary. However, Dr. Zeger has proposed a construction for the term "variable band" as "a frequency band having variable operating channel bandwidth." I disagree with the construction, because Dr. Zeger adds the terms "operating channel" to "variable band," thereby unduly limiting the term "variable band." The term "variable band" does not need construction as the plain and ordinary meaning is sufficient. To the extent the Board is considering adopting a claim

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construction for the term "variable band", it is my opinion that "variable band" should be interpreted to mean "variable bandwidth."

6.   The term "variable band" is not used in the specification of the '431 patent.   However, the terms "variable bandwidth" and "variable channel bandwidth" are used in the specification, particularly in the section entitled "Variable Bandwidth OFDMA." See Ex.1001, 4:16-62.   Moreover, the terms "variable bandwidth" and "variable channel bandwidth" are used in the specification in a very general context to refer to the flexibility of an OFDMA system to vary signal bandwidth by simply varying the number of subchannels, as discussed further below.

7.   The '431 patent describes a degree of flexibility in the use of the operating channel bandwidth (or available bandwidth) in that the available bandwidth is divided into "subchannels" that "provides high flexibility." Ex. 1001, 3:11. This flexibility is described further as follows:

> "The data subcarriers can be arranged into groups called subchannels
> to support scalability and multiple-access. Each subchannel may be
> set at a different power level. The subcarriers forming one subchannel
> may or may not be adjacent to each other. ***Each user may use some
> or all of the subchannels***."

Ex. 1001, 3:34-40 (emphasis added). Thus, the '431 patent describes a flexible use of the spectral bandwidth in which a user may use "some or all" of the subchannels. Said

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