UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD
TCL INDUSTRIES HOLDINGS Co., HISENSE Co., LTD., and ZYXEL COMMUNICATIONS CORP. Petitioners,
v.
ParkerVision, Inc. Patent Owner
Case No. 2021 IPR-00985

DECLARATION OF MATTHEW B. SHOEMAKE, PH.D. REGARDING U.S. PATENT NO. 7,292,835



I, Matthew B. Shoemake, Ph.D., do hereby declare and state, that all statements are made herein of my own knowledge are true and that all statements made on information and belief are believed to be true. I am over the age of 21 and am competent to make this declaration. These statements were made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: May 17, 2021

No beautiful

Matthew B. Shoemake, Ph.D.

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			(a)	Element [1 preamble]: "A cable modem for down-converting an electromagnetic signal having complex modulations, comprising"			
			(b)	Element [1A]: "an <i>oscillator</i> to generate an in-phase oscillating signal"	72		
			(c)	Element [1B]: "a <i>phase shifter</i> to receive said inphase oscillating signal and to create a quadrature-phase oscillating signal"	73		



(d)	Element [1C]: "a first frequency down-conversion module to receive the electromagnetic signal and said in-phase oscillating signal"
(e)	Element [1D]: "a second frequency down-conversion module to receive the electromagnetic signal and said quadrature-phase oscillating signal"
(f)	Element [1E]: "wherein said first frequency down-conversion module further comprises a <i>first</i> frequency translation module"
(g)	Element [1F]: "and a first storage module"80
(h)	Element [1G]: "wherein said first frequency down-conversion module samples the electromagnetic signal at a rate that is a function of said in-phase oscillating signal, thereby creating <i>a first sampled signal</i> "
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(j)	Element [1I]: "and a second storage module"83
(k)	Element [1J]: "wherein said second frequency down-conversion module samples the electromagnetic signal at a rate that is a function of said quadrature-phase oscillating signal, thereby creating <i>a second sampled signal</i> "
	sampiea signai
samp	n 12: "The cable modem of claim 1, wherein said led signal is a first information output signal, and econd sampled signal is a second information output l."
comp and o receiv	n 15: "The cable modem of claim 1, further rising a first filter receiving said first sampled signal utputting a first filtered signal, and a second filter ving said second sampled signal and outputting a
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3.

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