EXHIBIT 4

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TEXARKANA DIVISION

MAXELL, LTD.,	
Plaintiff,	Case No. 5:19-cv-00036-RWS
v.	**LEAD CASE**
APPLE, INC.,	
	JURY TRIAL DEMANDED
Defendant.	

EXPERT REPORT OF DR. ROBERT MAHER IN SUPPORT OF PLAINTIFF
MAXELL'S LTD.'S PROPOSED CLAIM CONSTRUCTION REGARDING
U.S. PATENT NO. 6,928,306

TABLE OF CONTENTS

I.   INTRODUCTION

1.   My name is Robert Maher and I have prepared this report at the request of the plaintiff in this case, Maxell, Ltd. ("Maxell"). This report provides my opinions with respect to claim construction of United States Patent Nos. 6,928,306 ("the '306 Patent"). Specifically, I have provided herein my opinion concerning the claim term "ringing sound generator" found in claims 2, 12, and 13 of the '306 Patent. I understand that this is the only claim term in dispute with respect to the '306 Patent but reserve the right to provide an opinion with respect to any other terms in the event that I am later requested to do so.

A.   Qualifications

2.   Please allow me to summarize my qualifications and professional background in the field of audio signal processing.

3.   I am currently a fulltime Professor with the Electrical & Computer Engineering Department at Montana State University, Bozeman, MT. I have been affiliated with Montana State University since 2002. I am also the sole proprietor of a consulting firm specializing in audio digital signal processing and audio forensics. This report is provided under the auspices of my consulting practice, not as an official part of my responsibilities to Montana State University.

4.   I received my BS degree from Washington University (St. Louis) in 1984, the MS degree from the University of Wisconsin (Madison) in 1985, and the PhD from the University of Illinois (Urbana-Champaign) in 1989, all in the field of electrical engineering. My principal area of expertise is digital signal processing applications in audio engineering and acoustics. My career has included university faculty positions with the University of Nebraska-Lincoln and the University of Colorado-Boulder, as well as experience in the digital audio signal processing industry as an entrepreneur and engineering manager. My work at EuPhonics, Inc., from 1997 to 2001 dealt with various audio standards and audio signal processing products.

5.   I am a named inventor on four United States Patents, all four of which are in the field of digital audio signal processing.

6.   I am a licensed Professional Engineer in the State of Montana (License no. 18993), a Fellow of the Audio Engineering Society, and a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). I am also a member of the Acoustical Society of America, the American Society for Engineering Education, and a duly inducted member of the Eta Kappa Nu, Tau Beta Pi, Phi Kappa Phi, and Sigma Xi professional honorary societies.

7.   I have served as an Associate Technical Editor for the Journal of the Audio Engineering Society since 2007, and have been a Review Board Member of Audio Engineering Society since 1998.

8.   Since 1989 I have taught college courses at the undergraduate and graduate level in digital signal processing, audio engineering and acoustics, electronics, electronic instrumentation, engineering design, and engineering ethics. Specifically, I have taught at the undergraduate and graduate levels at the University of Nebraska (from 1989 to 1997), the University of Colorado (2000-2002), and at Montana State University (2002 to present).

9.   I have also been active as an expert in audio forensics analysis. I have consulted on more than twenty prior formal audio forensic investigations, and I have analyzed dozens of evidentiary recordings in the course of my more than 25 years working professionally in the audio signal processing field. I have been qualified as an expert witness in Montana, Missouri, and Ohio, and I have provided sworn depositions and trial testimony in a number of cases. A summary of this activity is provided in the attached Appendix.

10.   A selection of my publications, book chapters, and presentations relevant to the field of digital audio signal processing are listed in my CV.

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