UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, DC

Before the Honorable MaryJoan McNamara
Administrative Law Judge

In the Matter of	
CERTAIN DIGITAL VIDEO RECEIVERS AND RELATED HARDWARE AND SOFTWARE COMPONENTS	Investigation No. 337-TA-1103

EXPERT REPORT OF ALAN BOVIK, PH.D. REGARDING INFRINGEMENT OF U.S. PATENT NOS. 7,779,011 and 7,937,394

DATED: 7/2/18

Alan Bovik, Ph.D.

[redacted]

I. INTRODUCTION

1. Rovi Guides, Inc., Rovi Technologies, Corp., and Veveo, Inc. ("Rovi") and its counsel have retained me as an expert in this case. In this report, I describe the subjects for which Rovi bears the burden of proof about which I would testify at trial if called to do so. In general, I would testify to my opinions respecting whether certain products infringe the patents that are the subject of this report, U.S. Patent Nos. 7,779,011 and 7,937,394 ("Asserted Patents"). The asserted claims of the Asserted Patents are listed below ("Asserted Claims"):

Asserted Patents	**Asserted Claims**
'011 Patent	1-3, 9, and 11
'394 Patent	1, 2, and 11

2. Counsel for Rovi has asked me to offer my opinion as to whether Comcast infringes the Asserted Claims of the '011 and '394 Patents by having imported, made, used, and sold and continuing to import, make, use, and sell set-top boxes and remote controls that implement Comcast's X1 Guide, including its [redacted], to return search results in response to user search queries that are input using the numeric keypad on the X1 set-top box remote control.

[redacted]

[redacted]

[redacted]

4. Counsel for Rovi has also asked me to offer my opinion as to whether Rovi is currently practicing the inventions claimed in the '011 and '394 Patents.

5. If called to testify at trial or a hearing in this case, I may use documents and/or other demonstrative materials to help me explain my opinions. I also may prepare and use graphics, photographs, video recordings, and other presentation aids to help me explain my opinions. I also may present in real time the performance of one or more exemplary Accused Instrumentalities. For such exemplary products, I may demo using Comcast's equipment and services to show certain search functionalities on Comcast's interactive program guides. I also may use graphics and other presentation aids prepared by other witnesses to help me explain my opinions. I also expect to offer rebuttal testimony to any evidence or argument Comcast or their experts may advance, to offer comment on any additional expert reports submitted by Comcast, and to supplement this report as appropriate.

6. I am being compensated at a rate of $500 per hour for my work on this matter. No part of my compensation is contingent on the outcome of this litigation. I have no financial interest in Rovi.

II. QUALIFICATIONS

7. I expect to testify regarding my background, qualifications, and experience relevant to the issues in this litigation. I hold a Ph.D. in in Electrical and Computer Engineering from the University of Illinois, Urbana-Champaign (awarded in 1984). I also hold a Master's

[redacted]

[redacted]	[redacted]
	[redacted]

c. Claim 1b

1b. *for at least one subset of items, which determining*[7] *letters and numbers present in the information associated with and describing the indexed items of said subset caused said items to be associated with the strings of one or more unresolved keystrokes that are directly mapped to said subset;*

[redacted]

187. This limitation further defines the index of claim 1a. It requires that, for at least one of the subsets of items in the index, the letters and numbers present in the title of the item that caused the item to be directly mapped to the unresolved keystrokes is determined.

[redacted]

[7] As printed, Claim 1b states "which determining." This error was corrected by a Certificate of Correction on August 17, 2010.

[redacted]

[redacted]	[redacted]	[redacted]
		[redacted]

192. In this example, for the subset of items associated with the number "3," [redacted] the letter present in the titles which caused these items to be associated with the unresolved keystroke that is directly mapped to the subset is either a d, e, f in the first position in a word of the title. Thus, for "Family Guy," there is an "f" in the first position of the first word. For "Formula One Racing," there is an "f" in the first position of the first word. For "Empire," there is an "e" in the first position. For "ESPN," there is an "e" in the first position. For "Disney's Descendants 2," there is a "d" in the first position of the first word.

193. This determination would not have been possible without the presence of [redacted] If this [redacted] were not present, the number "3" would have been determined to mean "3" and only "3," in which case, the letters present in the titles which caused the items to be associated with the unresolved keystroke "3" could not have been determined, because none of the titles in the example include the number "3."

194. Similarly, as shown above in the example index, the letter "d" is associated [redacted] which means that it was determined that the letter present in the titles

[redacted]

which caused the items to be associated with the letter "d" is the letter "d."

[redacted]

196. Comcast contends that "the determining limitations' use of the past tense 'caused' indicates that it must occur after the indexing (in which 'subsets of said items' are 'associat[ed]' with 'corresponding strings of unresolved keystrokes for various search query prefix substrings'); merely performing or creating the association is not the same as, and does not suffice to show, determining what 'caused' it." Comcast's Supplemental Resp. to Interrogatory No. 11 (June 12, 2018) at 22. This contention reads the entire limitation out of context. The claim language recites determining which letters and numbers [in the title] caused the items [title] to be associated with a string of unresolved keystrokes. What "caused" the association was the letters and numbers themselves—this limitation simply goes to determining which of those letters and numbers.

[redacted]

[redacted]

[redacted]

198. As I discussed above, the identification of a field in the index [redacted] is a determination of what caused the item to be associated with a number string in the index. For example, assume that the string in the index is "34." If the field associated with that string [redacted] indicates that the association is with the matching alphanumeric character of the string only, then, for each item associated with that string in the index, it was determined that the number "34" existed in the information associated with the item. On the other hand, if the field associated with that string [redacted] is associated with unresolved keystrokes for overloaded keys, then, for each item associated with that string in the index, it was determined that two consecutive characters having a "d," "e," "f," or "3" in the first position and a "g," "h," "i," or 4 in the second position existed in the information associated with the item.

d. Claim 1c

1c. *subsequent to said indexing, receiving from a user a search query for desired items composed of unresolved keystrokes, said search query comprising a prefix substring for at least one word in information associated with the desired item;*

[redacted]

[redacted]