

**UNITED STATES INTERNATIONAL TRADE COMMISSION
Washington, D.C.**

**Before the Honorable MaryJoan McNamara
Administrative Law Judge**

In the Matter of

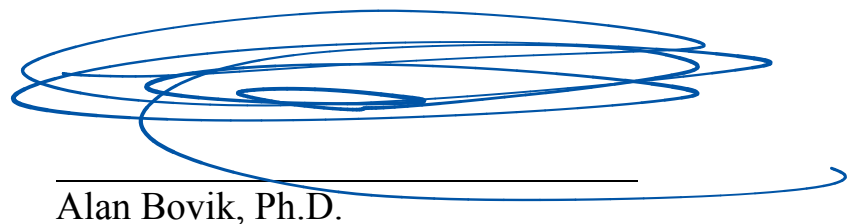
CERTAIN DIGITAL VIDEO
RECORDERS AND RELATED
HARDWARE AND SOFTWARE
COMPONENTS

Investigation No. 337-TA-1103

**REBUTTAL EXPERT REPORT OF ALAN BOVIK, PH.D.
REGARDING VALIDITY OF
U.S. PATENT NOS. 7,779,011 AND 7,937,394**

DATED:

25 July 2018



Alan Bovik, Ph.D.



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 provide rebuttal to the Expert Report of Dr. John P. Kelly Regarding Invalidity of United States Patent Nos. 7,779,011; 7,937,394; and 9,668,014. My rebuttal is only with respect to the ’011 and ’394 patents; another expert, Dr. Medisetti, shall provide separate rebuttal with respect to the ’014 patent in a separate rebuttal report.

2. 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.

3. 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.

4. This is the second report I have submitted in this investigation. My qualifications, background, and experience are described in my first report and attached Exhibits. I have been asked to review Dr. Kelly’s Report concerning the ’011 and ’394 patents. I have reviewed Dr. Kelly’s report and provide this report in rebuttal. Below I provide a summary of my opinions. Other opinions may be included as I address other aspects of Dr. Kelly’s Report. While Comcast has alleged that the certain asserted claims of the ’011 and ’394 patents are not drawn to patentable subject matter, I note that Dr. Kelly has not provided any opinions concerning 35 U.S.C. §101.

King's vocabulary module tree. They could not be combined, because King requires input of overloaded keys (both ambiguous and unambiguous), whereas after conversion to "potential" words in Verbeck, there are only alphabetic words, which are then searched against other alphabetic words in the database.

2. Verbeck in combination with King and Payne

229. Dr. Kelly provides his opinion at Paragraphs 211-216 and in Exhibit I at pages 1-28 that the combination of Verbeck in view of King and Payne render obvious claims 1-3, 9, and 11 of the '011 patent obvious under 35 U.S.C. § 103. I disagree.

230. Dr. Kelly's contentions with respect to the combination of Verbeck in view of King and Payne are identical to his contentions, discussed above, regarding Verbeck in view of King and Belfiore. The only difference is that Dr. Kelly relies on the Payne reference for the highlighting limitation rather than Belfiore. The substitution of Payne for Belfiore does not change my opinion, discussed above, that Dr. Kelly has not met his burden of proving by clear and convincing evidence that the combination of Verbeck with King and Payne renders the asserted claims obvious.

IX. DR. KELLY HAS NOT MET HIS BURDEN OF PROVING THAT THE ASSERTED CLAIMS OF THE '011 AND '394 PATENTS LACK WRITTEN DESCRIPTION SUPPORT

231. Dr. Kelly opines at Paras. 248-253 of his report that the asserted claims of the '011 and '394 patents are invalid for violating the written description requirement of 35 U.S.C. § 112 with respect to what he refers to as the "determining" limitations of the claims and the "highlighting" limitations, which refer to the "determining" limitations.

232. The "determining" limitation in claims 1 and 9 of the '011 patent is:

for at least one subset of items, determine[ing] which 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

233. The “determining” limitation in claim 1 of the ’394 patent is:

for at least one subset of items, determining which letters and numbers present in the information associated with and describing the indexed items of the subset caused the items to be associated with the strings of one or more unresolved keystrokes that directly mapped to the subset;

234. Dr. Kelly contends in Para. 250 that, what he refers to as the “one paragraph discussing indexing” in the ’011 patent, “does not suggest making a determination of which specific characters in the information describing an item caused the item to be associated with a specific ambiguous query string.” He further contends in Para. 251 that “[t]he purpose of the ‘determining’ step is ‘highlighting the letters and numbers present in the one or more words in said information describing the identified items that were determined to have caused the displayed items to be associated with the strings of unresolved keystrokes’ as recited later in claims 1 and 9.” He then concludes in Para. 251 that none of the portions of the specification of the ’011 patent that he quotes “mention highlighting the specific characters in the search results that caused the item to be associated with the ambiguous query string.”

235. Dr. Kelly further discusses the two provisional applications. As to the ’101 provisional application, Dr. Kelly states in Para. 252 that the ’101 application “discusses a trie data structure as an index to search using ambiguous query strings” and that “Fig. 4 of this provisional illustrates a many-to-many mapping of terms to the numeric equivalents, which is done during the indexing phase for all terms that can be used to discover a result. Fig. 6 of this provisional illustrates the trie data structure which associates the ambiguous query strings with the search results.” According to Dr. Kelly, however, “there is no indication of determining which characters in the information describing the items that caused the search results to be associated with an ambiguous query string.” Further, according to Dr. Kelly, “[s]ince the ’101

provisional does not discuss highlighting, the provisional provides no motivation for such a determination.”

236. At Para. 253, Dr. Kelly describes the ’866 provisional application as not discussing indexing items and therefore it “does not disclose a determination of the specific characters in the information describing the items that caused the search results to be associated with the ambiguous query string in the index.” Further, according to Dr. Kelly, although the ’866 provisional discusses highlighting, “it merely states that the system highlights the prefix strings in the search results that match the search query.”

237. Dr. Kelly states at Para. 248 that “[a]s also discussed in ¶ 83, the inventors did not identify any portions of the specification that allegedly support these amendments.” As I discussed above in Para. 45, Dr. Kelly is not correct—the patentees did in fact identify Fig. 6B and Paras. 35-38 of the specification as support for the “determining” and “highlighting” steps. Regardless, whether the patentees identified support for these steps in the specification during prosecution is not determinative of whether they met the written description requirement.

238. The patentees added the “determining” limitation during prosecution to overcome a rejection based on the combination of Verbeck with Belfiore as discussed in the March 26, 2010 Amendment and Remarks at 10-12.

239. In making this amendment, the patentees explained that the determination is of the letters in the information which caused the items to be grouped in a particular subset that is directly mapped to a particular string of unresolved keystrokes:

Claim 35 requires the determination of what letters and numbers in information describing particular items caused the items to be grouped in a particular subset that is directly mapped to a particular string of unresolved keystrokes. It is these letters and numbers that are later highlighted upon identification and display of the subset of items, not simply any letters and numbers that correspond to the unresolved keystrokes.

March 26, 2010 Amendment and Remarks, at 11.

240. The patentees then used an example from the specification to explain the meaning of the “determining” step. In the example from the specification, if the user entered the unresolved overloaded keystrokes “866,” the system could return the item “Twelve Monkeys (1995),” meaning that, in the index, the name “Twelve Monkeys” was directly mapped to the keys “866.” As the patentees explained, “[t]he item ‘Twelve Monkeys (1995)’ was included in the subset mapped to ‘866’ because the first word ‘Twelve’ begins with a ‘T’, which corresponds to the ‘8’ entered by the user, and the second word ‘Monkeys’ starts with ‘Mo’, which corresponds to the ‘66’ entered by the user. Thus, it is these specific letters that are highlighted in the item’s title in the subset of items.” (March 26, 2010 Amendment and Remarks, at 11).

241. Therefore, as explained by the patentees, the fact that “Twelve Monkeys” is grouped with the subset of items associated with the string of unresolved overloaded keystrokes “866” because of the “T” in the word “Twelve” and the “Mo” in the word “Monkeys” is the determination that such letters caused “Twelve Monkeys” to be associated with the string of unresolved overloaded keys “866” and that determination is always present in the index. According to the patentees, this requirement, not disclosed in the prior art, “allows for great flexibility in what forms of input are accepted from a user (e.g., a single-word term, a multi-word term, an abbreviation, etc.) while maintaining the ability to illustrate to the user how the unresolved keystrokes entered match the information associated with the displayed items,” because “none of the cited references teach a determination of what letters and numbers in an item’s information correspond to the symbols associated with unresolved keystroke strings mapped to the subset, the combination set forth in the Office Action (Verbeck and Belfiore) would not achieve this result.”

242. The grouping of subsets of items in the index is described in the specification of the '011 and '394 patents in the context of the search. In the example of the specification, a user has initially input the unresolved overloaded key "8" which "matches all items in the search database containing any word which begins with any of the alphanumeric characters '8', 'T', 'U' or 'V'." ('011 patent, at 7:17-19). In other words, there are items in the index that are grouped together, because they contain any word which begins with any of the characters "8", "T", "U" or "V," i.e., the system determined that there is a group or subset of items that are grouped together because they have a word which begins with any of the characters "8", "T", "U" or "V".

243. The specification further describes the determination of another group of items that are grouped together because they contain "words that begin with the alphanumeric characters '8', 'T', 'U' or 'V' and whose second character is one of the alphanumeric characters '6', 'M', 'N' or 'O' or to items containing words that begin with the alphanumeric characters '8', 'T', 'U' or 'V' and that also contain subsequent words that begin with the alphanumeric characters '6', 'M', 'N' or 'O'." ('011 patent, 17:24-30).

244. The specification describes the determination of yet another group of items that are grouped together because they "contain the alphanumeric characters '6', 'M', 'N' or 'O' immediately following one of the matched characters for the first '6' previously entered ("86") or that contain subsequent words that begin with the alphanumeric characters '6', 'M', 'N' or 'O'." ('011 patent, 17:24-30).

245. The patentees further described the highlighting in the context of the input search terms "8", "86", and "866" such that the characters in the search result that match the overloaded search query (which matched the overloaded keys from the index which determined the cause for the items to be grouped) are highlighted:

This relationship between the overloaded characters entered by the user and the match results is complicated and not necessarily intuitive to the user. In various embodiments of the invention, the characters in the search result that match the overloaded single-word search prefix characters are highlighted, providing the user with a visual indication of the relationship between the key pressed and the incremental match results. This facilitates identification by the user of the item of interest from the group of items displayed.

(’011 patent, at 7:41-50).

246. The above-described description of the determination of the groups of items in the index was included in the original specification in Paras. 36-37, which the patentees identified during prosecution in the March 26, 2010 Amendment and Remarks, at 11.

247. Additional support for the “determining” step is found in the ’101 provisional application filed on September 12, 2005. Figure 6 shows a trie data structure. A trie structure is an ordered tree data structure that is used to store a dynamic set or associative array where the keys are usually strings. Sets of items are associated in nodes and the position of each node in the tree defines the key with which it is associated. All the descendants of a node have a common prefix of the string associated with that node.

248. The patentees described the trie structure as having nodes, where “each node having numerical values form [sic] 0-9 are used (601, 604, 605). Each node has the top M records 602 in ‘in-memory’ storage.” ’101 provisional application at 18. The numerical values in each node are unresolved overloaded keystrokes and each numerical values and its associated letter(s) caused each object to be placed in the trie structure at that location.

249. Accordingly, it is my opinion that the specification of the ’011 patent, including the ’101 provisional application provide adequate support for the “determining” and “highlighting” steps.